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# Enhancing Risk Management Education: The Impact of Classroom Simulations and Case-Based Teaching on Student Engagement and Learning Outcomes

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**ABSTRACT**

Risk management education often struggles to bridge the gap between theory and practice, with traditional teaching methods falling short in fostering student engagement and practical understanding. This study evaluates the effectiveness of classroom simulations and case-based learning in enhancing student engagement and learning outcomes in risk management education. A mixed-methods approach was used, combining a quasi-experimental one-group pretest-posttest design with qualitative analysis. The sample included 138 purposively selected 4th and 6th-semester students from the Economics Study Program at PGRI Wiranegara University. Quantitative data were analyzed using paired t-tests, while qualitative feedback from surveys and interviews was examined through Likert scale scoring and thematic analysis. Findings revealed a 35% improvement in average test scores, with pass rates increasing from 48% to 86%. Skills in applying risk management frameworks improved by 38%, indicating stronger practical competency. Additionally, 78% of students reported increased engagement, motivation, and participation, while over 70% expressed satisfaction with the learning methods. The integration of simulations and case-based learning significantly enhanced both cognitive and affective student outcomes. These results support the principles of experiential learning theory, underscoring the importance of interactive, real-world applications in education. Experiential learning methods improve student readiness for complex business environments and should be incorporated into higher education curricula. Future research should examine long-term impacts on professional skills and explore advanced technologies like Virtual Reality (VR) and Artificial Intelligence (AI) to further enrich simulation-based learning.



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## 1. INTRODUCTION

Risk management is one of the disciplines that is becoming increasingly vital in the context of higher education, particularly in fields related to finance, business, insurance, and industry (Versluis et al., 2023). Understanding and managing risk is an important aspect of the professional world and essential for developing competencies among students involved in various industrial sectors. In a world full of uncertainties, the ability to identify, evaluate, and respond to risks can be a key determinant of an organization's or individual's success in facing challenges (Maunula et al., 2023). Therefore, education in risk management should prioritize providing strong knowledge and practical skills that can be applied in the real world.

However, despite the widely recognized importance of risk management, teaching in this field still faces many challenges. One of them is the difficulty in connecting the theory taught in the classroom with real-world applications in the professional world (Baumann-Birkbeck et al., 2021; Llausàs, 2023; Mateo-Canedo et al., 2023). Many students study risk management through traditional approaches emphasizing theory without providing relevant practical experience. This is one factor that hinders students from truly understanding how to manage risks effectively in complex and dynamic situations (Faisal et al., 2022; Shaukat et al., 2023). Moreover, in higher education, student engagement in the learning process is very important, but conventional teaching methods are often not enough to motivate and attract their attention. In this context, more interactive and experiential approaches, such as classroom simulations and case-based teaching, are increasingly being considered by academics and practitioners (Brown et al., 2023; Chen et al., 2022).

Risk management teaching in many higher education institutions generally relies on more theoretical approaches and does not provide direct experience to students. This often results in low student engagement in the learning process, impacting the low learning outcomes achieved (Samra et al., 2023). Although important theories and concepts are taught in the classroom, students tend to struggle to understand and apply them in real-world situations. The lack of student engagement with abstract or theoretical material is one of the major problems in risk management education. As a result, although students gain basic knowledge about risk management, they are less prepared to face the real challenges they will encounter in their future jobs (Kobner et al., 2021; Preuss et al., 2023).

Conventional risk management education also tends to overlook an important factor in the learning process: the development of practical skills that students can use in the professional world (Choudhury & Wu, 2023; Lobos et al., 2023). When students focus only on theory, they are less trained to hone the analytical and decision-making skills that are important in managing risks. This is one of the main challenges that must be addressed to ensure that education in risk management not only provides theoretical knowledge but also practical skills that can be applied in real-world contexts (Høgdal et al., 2021).

This research is important due to the limited studies on experiential learning in risk management education at PGRI Wiranegara University, where pedagogical strategies are still underexplored. PGRI Wiranegara University faces challenges implementing experiential learning, including technological constraints and faculty readiness for advanced teaching methods (Korucu-Kış, 2021; Nicholson et al., 2023). Identifying these barriers helps institutions develop specific solutions that enhance student engagement, critical thinking, and analytical skills in risk management education. Given the challenges faced in risk management education, there is a great urgency to explore more effective teaching approaches relevant to the needs of the professional world. In this regard, experiential teaching, such as classroom simulations and case studies, offers great potential to increase student engagement while improving learning outcomes. Simulations allow students to experience and manage real situations filled with uncertainty and risky decisions. This can help them understand the theory and develop the skills they need in the professional world.

Moreover, case-based teaching allows students to delve into real-world problems, analyze situations that have occurred in practice, and understand how risk management theories are applied in more complex contexts. Using relevant case studies, students can see the impact of their decisions

and learn from the mistakes and successes experienced by organizations in managing risks. Therefore, this research has great urgency as it offers solutions to the challenges faced in risk management education while contributing to the renewal of more effective teaching methods.

This research aims to evaluate the impact of using classroom simulations and case-based teaching on student engagement and learning outcomes in risk management education. This study seeks to identify how these two methods can enhance students' understanding of risk management concepts and how effectively they improve students' practical skills in real-world situations. This research also explores how simulations and case studies can increase student interaction in the classroom and strengthen their learning experience. Specifically, this research aims to measure the influence of classroom simulations and case-based teaching on the level of student engagement in risk management learning, analyze the impact of these two teaching methods on improving student learning outcomes, both in terms of theoretical understanding and practical skill application, and provide recommendations for the development of a more experiential risk management education curriculum that can meet the demands of the professional world.

Most previous research has focused on the impact of simulations and case-based teaching in other fields, such as management, business, or economics. Several studies have shown that using simulations in education can enhance students' analytical and decision-making skills, as they are allowed to test theories in more realistic conditions. Research by (Novak et al., 2018) indicates that using simulations in education increases student engagement and strengthens learning outcomes, especially regarding practical skills that are highly needed in the workforce. Similarly, research by (Liew et al., 2017) shows that case-based teaching can improve students' understanding of the material while developing critical and analytical thinking skills. This study found that students involved in case-based teaching are better prepared to face real-world problems because they can identify issues, analyze data, and make decisions based on limited information. However, despite the many studies examining the use of simulations and case-based teaching in other fields, there is still little focus on risk management education, particularly in measuring the direct impact on student engagement and learning outcomes. This indicates a gap in the existing literature that needs to be addressed by this research.

Reviewing previous research shows a significant gap in the literature on risk management education, particularly in examining the relationship between experiential teaching methods (such as simulations and case studies) and measurable learning outcomes. Although several studies discuss the use of simulations in other fields, such as management and economics, there is a lack of research focusing on the specific impact of these two methods in the context of risk management. This research aims to fill that gap by conducting a more in-depth empirical analysis of how classroom simulations and case-based teaching can enhance student engagement and improve their learning outcomes in risk management.

The novelty of this research lies in its approach, which combines classroom simulations and case studies in risk management education. Although these two methods have been applied in various disciplines, this study is one of the first to measure their impact in the context of risk management specifically. This research significantly contributes to the literature on risk management education by emphasizing the importance of direct experience in enhancing student engagement and learning outcomes. Additionally, this research can provide practical guidance for educators in designing more relevant and applicable curricula and provide a basis for future educational policies that can produce graduates who are better prepared to face the challenges of the professional world.

This research is expected to provide deeper insights into how classroom simulations and case-based teaching can address the main challenges in risk management education, particularly those related to the gap between theory and practice. Moreover, this approach is not only beneficial in the context of classroom teaching but also has the potential to be applied in developing a more holistic and applicable higher education curriculum. In an increasingly connected and dynamic world, where change and uncertainty are inevitable parts of every industrial sector, the ability to manage risk has become more important than ever. Therefore, this research is relevant to risk management education

and various sectors facing significant challenges in managing uncertainty, whether in the public or private sector.

At the institutional level, the findings from this research can also motivate the development of more dynamic and experiential learning methods. A more flexible curriculum that solves real-world problems through simulations and case studies can stimulate students' creativity and critical thinking skills. This is important because the increasing complexity of the industrial world and the emerging risks within it require workers not only to master theory but also to have practical skills in managing and mitigating risks effectively. Therefore, integrating experiential approaches like this into the curriculum can help enhance graduates' readiness to enter a workforce increasingly full of challenges and uncertainties. Overall, this research not only has the potential to enrich the theory of risk management education but also can have a real impact on the development of more effective and relevant teaching methodologies to meet the needs of the professional world.

## 2. METHODS

This research employs a mixed-methods approach with an explanatory sequential design consisting of two main stages: a quantitative approach and a qualitative one. The quantitative approach measures changes in student learning outcomes through pre-test and post-test assessments, while the qualitative approach explores students' and lecturers' perceptions of the effectiveness of simulation-based and case-based teaching methods. Specifically, this research uses a quasi-experimental design with a one-group pretest-posttest design to analyze the impact of the teaching intervention on student learning outcomes. In this design, students are given a pre-test before the intervention and a post-test after the intervention to measure the differences in their learning outcomes. Additionally, survey methods and in-depth interviews are applied to collect qualitative data to understand the experiences of students and lecturers in adopting these teaching methods.

The population in this study comprises students enrolled in the Economics Study Program at PGRI Wiranegara University who are currently taking the Risk Management course in the 4th and 6th semesters. The sample includes students from classes A, B, C, and D, selected purposively to represent a diverse range of academic abilities and backgrounds. Additionally, six lecturers from the same program, each with experience teaching risk management and implementing active learning strategies, were included to enrich the study's instructional perspective. The selection of this population is based on three key academic and methodological considerations. First, the alignment between the study program and the research topic: risk management is a core area within economics and business, particularly relevant to strategic decision-making, investment analysis, and managing uncertainty in economic environments. Therefore, economics students serve as an appropriate population for assessing the effectiveness of simulation- and case-based learning methods. Second, the academic readiness of the participants: students in the 4th and 6th semesters have completed foundational coursework in economics and management, equipping them with the necessary background to engage with more advanced and applied risk management concepts. The 4th semester typically marks the transition into deeper theoretical exploration, while the 6th semester reflects greater analytical maturity in interpreting risk-related data and making informed decisions. Third, practical considerations regarding accessibility and sustainability: PGRI Wiranegara University was chosen due to logistical convenience, including ease of research coordination, access to relevant student and faculty participants, and administrative support for research activities.

Additionally, this research is expected to be an initial study that can be further developed in educational research based on teaching innovation at this institution. Therefore, selecting the population from the Economics Study Program at PGRI Wiranegara University is a decision based on academic relevance, student readiness, class diversity, involvement of experienced lecturers, and the potential impact of the research on curriculum development. With this population, the research can

produce more applicable findings in the context of risk management learning and provide broader contributions to developing teaching methods in higher education.

**Table 1.** Demographic Overview of Participants

| Gender | Students | Lecturer | Total |
|---|---|---|---|
| Male | 13 | 3 | 16 |
| Female | 125 | 3 | 131 |
| Semester | | | |
| 4th | 60 | | 60 |
| 6th | 78 | | 78 |
| Age of Group | | | |
| 18-22 years | 110 | | 110 |
| 22-25 years | 28 | | 28 |
| 30-55 years | | 6 | 6 |

Data collection was conducted among students enrolled in the Risk Management Course at the Economic Study Program, Universitas PGRI Wiranegara. The process involved pre-test and post-test assessments, and surveys to analyze changes in learning outcomes, engagement, and decision-making skills. Pre-Test and Post-Test Assessments: A standardized risk management competency test was administered before and after the instructional period. The test included multiple-choice questions and case analysis exercises, evaluating students' ability to identify, assess, and respond to risks. The student feedback survey used a 5-point Likert scale to measure student engagement and their perception of the learning methods implemented.

**Table 2.** Student survey statement instrument

| No | Statement |
|---|---|
| 1 | The classroom simulation method made me understand the concept of risk management better. |
| 2 | Case-based teaching helps me connect theory with real practice. |
| 3 | I feel more active in class discussions after implementing this method. |
| 4 | Learning with this method is more interesting than conventional lectures. |
| 5 | I feel more confident in applying risk management concepts after taking this class. |

Quantitative data is analyzed using paired t-tests to test the significance of differences between students' pre-test and post-test results. These results will determine the effectiveness of classroom simulation and case-based teaching methods in improving students' understanding. Meanwhile, feedback survey data is analyzed using descriptive statistical techniques with a Likert scale, where the average scores and distribution of students' responses will be used to measure their level of engagement and perception of the applied teaching methods. To support the quantitative results, qualitative analysis is conducted on open-ended survey responses and lecturer interviews to identify patterns, themes, and insights that can provide a deeper understanding of the factors influencing the effectiveness of these teaching methods. The mixed-methods approach in this research aims to provide a more comprehensive understanding of the effectiveness of simulation-based and case-based teaching methods in enhancing student engagement and learning outcomes in risk management. The results of this study are expected to significantly contribute to developing more interactive and applicable pedagogical strategies in higher education.

## 3. FINDINGS AND DISCUSSION

### *3.1 Presentation of Pre-Test and Post-Test Results*

This section presents the pre-test and post-test results of 138 participants from the Economic Study Program, Universitas PGRI Wiranegara, enrolled in the 4th and 6th semesters. The participants consisted of 13 male students (9,4%) and 125 female students (90,6%). The analysis includes descriptive statistic,

visual representations, and statistical comparisons to assess the impact of classroom simulations and case-based teaching on students' learning outcomes.

Table 3. Summary of Pre-Test and Post-Test Results

| Metric | Pre-Test | Post-Test | Percentage Change (%) |
|---|---|---|---|
| Total participants | 138 | 138 | |
| Male (n=13) | 59.8 | 81.2 | +35.8% |
| Female (n-125) | 61.5 | 82.8 | +34.6% |
| 4th Semester (n=72) | 60.2 | 81.1 | +34.7% |
| 6th Semester (n=66) | 62.1 | 84.0 | +35.3% |
| Mean Score (out of 100) | 61.2 | 82.6 | +35.0% |
| Standard Deviation | 12.8 | 9.4 | - |
| Highest Score | 88 | 97 | - |
| Lowest Score | 40 | 55 | - |
| Pass Rate (≥ 70%) | 48% | 86% | +38.0% |

Both male and female students showed significant improvement, with male students increasing their scores by 35.8% and female students by 34.6%. 6th-semester students performed slightly better than 4th-semester students, suggesting that prior coursework may influence learning outcomes. The overall pass rate increased from 48% to 86%, confirming the effectiveness of the experiential learning approach. A paired t-test was performed to determine whether the score improvements were statistically significant.

**Table 4.** Paired T-Test Results for Pre-Test and Post-Test (n=138)

| Metric | Value |
|---|---|
| Mean difference | 21.4 |
| T-Statistic | 8.92 |
| p-Value | 0.0001 |

The p-value (0.0001) is below 0.05, confirming that the score improvements are statistically significant. The mean difference of 21.4 points demonstrates a substantial increase in students' knowledge and competency. To identify which areas showed the most improvement, the table below presents pre-test and post-test scores by question type.

Table 5. Performance Improvement by Question Type

| Question Type | Pre-Test Mean Score (%) | Post-Test Mean Score (%) | Improvement (%) |
|---|---|---|---|
| Basic Concepts Questions | 63% | 88% | +25% |
| Risk Analysis & Decision-Making | 57% | 82% | +25% |
| Case Analysis Questions | 50% | 79% | +29% |
| Risk Framework Application | 45% | 83% | +38% |

The greatest improvement (+38%) was observed in risk framework application, indicating that students became better at applying theoretical knowledge to real-world situations. Case analysis skills improved by 29%, suggesting that students developed stronger analytical thinking through case-based learning.

**Table 6**. Student Engagement

| No | Questions | SD (%) | D (%) | N (%) | A (%) | SA (%) |
|---|---|---|---|---|---|---|
| 1 | The classroom simulations made the learning experience more interactive and engaging. | 2.9 | 5.8 | 9.4 | 32.6 | 49.3 |
| 2 | The case-based teaching method encouraged active participation and discussion | 2.6 | 5.1 | 14.1 | 47.1 | 31.2 |
| 3 | I felt motivated to attend and participate in class due to the practical learning activities. | 2.8 | 10.8 | 16.7 | 44.3 | 25.4 |
| 4 | The learning activities kept my attention and interest throughout the course. | 6.5 | 7.9 | 21.1 | 36.2 | 28.3 |
| 5 | I was encouraged to collaborative and exchange ideas with my classmates. | 5.8 | 8.6 | 7.2 | 55.9 | 22.5 |

Based on table 6, student responses confirm a high level of engagement in classroom simulation and case-based teaching. The majority of students (over 78%) agreed or strongly agreed that these methods enhanced their engagement, participation, and motivation. Only 10.6% disagreed, and 5.6% strongly disagreed, indicating minimal negative perception. 19% of students remained neutral, suggesting that some required additional instructional support.

Interview Excepts (students and lecturers):

*Participant 23 (student): "I like the simulation experience; make the learning more life and interesting"*

*Participant 48 (student): "The discussion session for case-based teaching, lecturer encouraged me to participate and motivated during the session"*

*Participant 97 (student): "During the risk management class, the lecturer provided opportunity to me/us to share our ideas"*

*Participant 1 (lecturer): "It takes time to design simulation and integrate case-based learning into risk management education. I needed several meetings to convince other lecturer to join this research".*

**Table 7.** Learning Effectiveness

| No | Questions | SD (%) | D (%) | N (%) | A (%) | SA (%) |
|---|---|---|---|---|---|---|
| 1 | Classroom simulations improved my ability to apply risk management concepts in real-world situations. | 5.1 | 7.1 | 11.2 | 44.2 | 32.4 |
| 2 | Case-based learning enhanced my critical thinking and problem-solving skills. | 4.3 | 3.6 | 21.1 | 40.6 | 30.4 |
| 3 | The combination of simulations and case studies helped me understand complex risk management topics better. | 5.1 | 8.6 | 8.6 | 55.1 | 22.6 |
| 4 | The teaching methods provided a clear connection between theory and practice. | 3.6 | 7.3 | 11.6 | 48.6 | 28.9 |
| 5 | I feel more confident in analyzing and making risk-related decisions after participating in these activities. | 2.9 | 8.7 | 13.8 | 39.9 | 34.7 |

Overall, learning effectiveness analysis revealed over 74% of students agreed or strongly agreed that experiential learning significantly improved their understanding, critical thinking, and decision-making in risk management.

Interview Excepts:

*Participant 76 (student): "I enjoy the combination of simulation and case study teaching. It helps me understand the material better"*

*Participant 111(student): "I like learning risk management through classroom simulations; they bring real-world situation into the classroom"*

*Participant 137(student): "Maybe the lecturer's teaching method me understand the risk management course"*

*Participant 3 (lecturer): "I am glad to join the classroom and observe students' enthusiasm for learning risk management. It also inspires me to read more references and explore new teaching strategies for other courses".*

**Table 8.** Student Satisfaction

| No | Questions | SD (%) | D (%) | N (%) | A (%) | SA (%) |
|---|---|---|---|---|---|---|
| 1 | The teaching methods used in this course met my learning expectations. | 9.4 | 10.1 | 13.8 | 35.6 | 31.1 |
| 2 | The course content and activities were relevant to my academic and professional interests. | 2.2 | 4.3 | 11.6 | 50 | 31.9 |
| 3 | I would recommend using classroom simulations and case-based learning in other courses. | 2.9 | 5.1 | 7.2 | 47.9 | 36.9 |
| 4 | The course structure allowed sufficient time to engage with both theoretical and practical aspects | 5.1 | 6.5 | 10.8 | 50.8 | 26.8 |
| 5 | Overall, I am satisfied with my learning experience in this course. | 6.5 | 7.9 | 12.3 | 47.1 | 26.2 |

Table 8 presents student responses regarding satisfaction with teaching methods, course content, and overall learning experience in risk management education. The result assess whether classroom simulations and case-based learning met students' expectations, aligned with their academic interests, and provided a balanced approach to theoretical and practical learning.

The overall analysis shows that, 63.8% of students agreed, and 43.2% strongly agreed that they were satisfied with the teaching methods and course structure. Only 9.4% disagreed, and 7.2% strongly disagreed, indicating minimal dissatisfaction. 14.4% of students remained neutral, suggesting that some students may need additional support or course enhancements for a fully satisfactory experience. These results indicate that a majority of students were highly satisfied with the use of classroom simulations and case-based learning in risk management education. The high levels of agreement (over 70%) confirm that these methods were effective in meeting learning expectations, engaging students actively, and enhancing professional relevance.

Interview Excepts:

*Participant 35 (student): "Honestly, the teaching methods exceeded my expectations. Thanks to Mr. Sugeng, I gained many valuable experiences during class meeting"*
*Participant 123 (student): "Hopefully, other lecturers will use creative strategies to involve us more in the risk management course"*
*Participant 136 (student): "I enjoyed the sessions, and gained many advantages from the risk management course".*
*Participant 125 (student): "My suggestion is that the lecturer should always provide guidance during sessions, especially for simulations, case based learning or other strategies"*
*Participant 4 (lecturer): "Finally, integrating two strategies in one session is something I have been considering as an alternative to traditional lecturing".*

### *Discussion*

The results of this study empirically show that classroom simulation and case-based learning have a significant impact on student engagement and learning outcomes in risk management. Quantitative data analysis using paired t-tests indicates a substantial increase in post-test scores compared to pre-test scores. This increase reflects that the innovative teaching methods used in this study enhance students' conceptual understanding and deepen their critical thinking skills in real-world risk management. From the perspective of student engagement, surveys using the Likert scale show that most students experience increased active participation, better understanding, and stronger connections between theory and practice after following these teaching methods. This is consistent with

(Partanen, 2020) findings, which reveal that experiential learning methods increase students' intrinsic motivation and strengthen their understanding of complex material.

Compared to traditional methods such as conventional lectures, the results of this study affirm that students involved in simulation scenarios and case study analysis can better connect theoretical concepts with real-world applications. The survey by (Uraiby et al., 2021) supports these findings by stating that simulations allow students to directly experience decision-making dynamics, significantly enhancing their understanding of business processes and risk management. This approach also aligns with Experiential Learning Theory (Jorm et al., 2016), which emphasizes that learning that occurs through cycles of direct experience, reflection, conceptualization, and application can strengthen students' problem-solving skills. Students involved in simulation-based learning understand risk theoretically and experience how the decisions they make can result in different consequences in a dynamic business environment. Furthermore, the effectiveness of case-based teaching in this study confirms the findings of (Melson et al., 2020), which show that this approach accelerates students' understanding by placing them in real situations that require critical analysis and data-based solutions. These findings further strengthen the argument that experiential approaches can be more effective pedagogical tools than passive methods in higher education.

The results of this study have important theoretical contributions to the development of experiential learning in the context of risk management. These findings support constructivist learning theory (Li et al., 2022), which asserts that students learn more effectively when actively constructing knowledge based on direct experience. These findings also expand the understanding of Social Cognitive Theory (Gartmeier et al., 2019) in business education, where social interaction and direct experience play crucial roles in shaping students' skills and understanding. By adopting classroom simulation and case study methods, students understand risk concepts and practice how risks are managed in real business environments. From the perspective of Active Learning Theory (Ajab et al., 2022), these research findings provide empirical evidence that experiential approaches effectively increase engagement, motivation, and learning outcomes. In other words, this study enriches the literature linking experiential learning with academic effectiveness in economics and business.

In academic practice, these findings provide several important recommendations for curriculum development in higher education: a) Integration of simulation-based learning in the risk management curriculum so that students can gain direct experience in business decision-making. b) Case-based modules relevant to current industry challenges should be developed so that students are better prepared to face the complexities of the workforce. c) Enhancement of lecturers' capacity to implement innovative teaching methods, including training in the use of digital technology for simulations and case study analysis. The results of this study also have significant implications for the industry. With the increasing complexity of global risk management, a workforce with direct experience in risk-based decision-making will be more valued in the labor market. Therefore, higher education institutions must enhance students' readiness by providing learning experiences that are closer to industry practices.

Although this study yields strong findings, several limitations need to be considered in interpreting the results: a) Quasi-experimental design without a control group: The absence of a control group in this study limits the ability to infer causality directly. External variables that are not controlled in this research design may influence the results obtained. b) Homogeneity of the population: This study was conducted only on students of PGRI Wiranegara University, so the results may not be fully generalizable to the student population at other institutions. c) Limited duration of the study: Simulations and case studies were applied only for four weeks, so the long-term impact of these teaching methods has not been fully evaluated.

Based on the identified limitations, several suggestions for future research include: a) Using an experimental design with a control group to increase the internal validity of the research, b) Developing longitudinal studies to measure the long-term impact of simulation-based learning methods on students' readiness for the workforce, c) Exploring the application of digital technology in learning simulations, such as the use of Virtual Reality (VR) or Artificial Intelligence (AI) in risk management

teaching, d) Replicating the study in various institutions with different academic backgrounds to test the consistency of these findings in a broader academic environment.

Applying simulation-based and case-based learning methods also has social and ethical implications, especially in technology-based higher education: a) Digital Learning Access Gap: Not all students have equal access to the digital technology used in classroom simulations. Therefore, educational institutions must ensure that learning innovations remain accessible to all students, regardless of socio-economic conditions. b) Ethics in the Use of Digital Simulations: Technology-based simulations must be designed objectively and neutrally to avoid creating biases affecting students' interpretation of the business scenarios they face. c) Impact on Workforce Readiness: The increased use of experiential methods in higher education can accelerate students' adaptation to an increasingly digital and data-driven workforce.

## 4. CONCLUSION

This study has evaluated the impact of classroom simulations and case-based teaching on student engagement and learning outcomes in risk management education. Quantitative and qualitative analysis found that these experiential learning methods significantly enhance students' conceptual understanding, analytical skills, and ability to identify and manage risks more effectively. In the context of educational practice, these findings affirm that integrating classroom simulations and case studies into the risk management curriculum can be an innovative approach to better prepare students for the increasingly complex challenges of the business world. Therefore, policy recommendations to increase the adoption of experiential learning methods in higher education become increasingly relevant to produce more competitive graduates in the workforce. However, this study has several limitations, including a quasi-experimental design without a control group, population limitations, and a relatively short study duration. Therefore, further studies with more rigorous experimental designs and broader population coverage are needed to strengthen these findings and ensure the generalization of results to a wider academic context. Implementing these methods requires support from educational institutions, lecturers, and adequate technological infrastructure to be optimally applied. Therefore, more adaptive academic policies are needed to accommodate technology-based pedagogical innovations to improve the quality of higher education in the digital era. With the ongoing challenges in the business and financial world, academic institutions need to continue exploring experiential learning methods to ensure that graduates have relevant competencies and are ready to face the complexities of risk management at a global level.

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**Conflicts of Interest:** Declare conflicts of interest or state “The authors declare no conflict of interest.” Authors must identify and declare any personal circumstances or interests that may be perceived as inappropriately influencing the representation or interpretation of reported research results.

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