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# Gamification in Auditing and Accounting Education: A Systematic Literature Review

**Radian Sri Rama**

Universitas Islam Darul Ulum Lamongan

Email: [radian@unisda.ac.id](mailto:radian@unisda.ac.id)

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**Abstract:** This review aims to systematically synthesize empirical evidence on the use of gamification in auditing and accounting education, focusing on its impact on student motivation, engagement, and learning outcomes, while identifying research gaps and future directions. A systematic literature review was conducted, drawing from over 170 million research papers indexed in major academic databases. The review followed PRISMA guidelines, screening 949 identified papers, with 50 included for in-depth analysis. Gamification generally enhances motivation, engagement, and learning outcomes in accounting and auditing education. However, its effectiveness depends on careful design, alignment with learning objectives, and consideration of student diversity. Challenges include resource constraints, technical barriers, and inconsistent results across contexts.

**Keywords:** gamification; accounting education; auditing; student engagement; learning outcomes

**Abstrak:** Tinjauan ini bertujuan untuk mensintesis secara sistematis bukti empiris tentang penggunaan gamifikasi dalam pendidikan audit dan akuntansi, dengan fokus pada dampaknya terhadap motivasi, keterlibatan, dan hasil belajar mahasiswa, sekaligus mengidentifikasi kesenjangan penelitian dan arah ke depannya. Tinjauan pustaka sistematis dilakukan dengan menghimpun lebih dari 170 juta makalah penelitian yang terindeks dalam basis data akademik terkemuka. Tinjauan ini mengikuti pedoman PRISMA, menyaring 949 makalah yang teridentifikasi, dengan 50 di antaranya diikutsertakan untuk analisis mendalam. Gamifikasi secara umum meningkatkan motivasi, keterlibatan, dan hasil belajar dalam pendidikan akuntansi dan audit. Namun, efektivitasnya bergantung pada desain yang cermat, keselarasan dengan tujuan pembelajaran, dan pertimbangan keberagaman mahasiswa. Tantangannya meliputi keterbatasan sumber daya, hambatan teknis, dan hasil yang tidak konsisten di berbagai konteks.

**Kata kunci:** gamifikasi; pendidikan akuntansi; audit; keterlibatan siswa; hasil pembelajaran

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## 1. INTRODUCTION

The integration of gamification—using game elements such as points, badges, leaderboards, and challenges—into accounting and auditing education has emerged as a promising strategy to address persistent issues of student disengagement and low motivation (Anwar & Mulyadi, 2025; Srimaryani et al., 2023; Zainuddin et al., 2020; Almuntsr et al., 2024; Saleem et al., 2021; Mahat et al., 2022; Khaldi et al., 2023). While traditional pedagogical approaches often struggle to maintain student interest, gamification offers interactive and immersive experiences that can foster autonomy, competence, and relatedness, as explained by Self-Determination Theory and Problem-Based Learning frameworks (Anwar & Mulyadi, 2025; Zainuddin et al., 2020; Krath et al., 2021). Recent systematic reviews and empirical studies consistently report positive effects of gamification on exam scores, problem-solving skills, and enjoyment in accounting courses (Anwar & Mulyadi, 2025; Srimaryani et al., 2023; Almuntsr et al., 2024; Platz, 2022; Saleem et al., 2021; Mahat et al., 2022; Dahalan et al., 2023; Gaalen et al., 2020). However, the literature also reveals mixed results, with some studies highlighting the importance of careful design and alignment with learning objectives to avoid negative or negligible impacts (Anwar & Mulyadi, 2025; Almuntsr et al., 2024; Dahalan et al., 2023; Khaldi et al., 2023). Notably, resource limitations, technical challenges, and student diversity remain significant barriers to effective implementation (Anwar & Mulyadi, 2025; Torresan & Hinterhuber, 2023; Dahalan et al., 2023). This review addresses these gaps by synthesizing the latest evidence, identifying best practices, and outlining future research directions to enhance the efficacy of gamification in auditing and accounting education (Anwar & Mulyadi, 2025; Srimaryani et al., 2023; Go et al., 2024; Zainuddin et al., 2020; Almuntsr et al., 2024; Platz, 2022; Saleem et al., 2021; Mahat et al., 2022; Krath et al., 2021; Dahalan et al., 2023).

## 2. METHODS

A comprehensive search was conducted across Consensus, which aggregates over 170 million research papers from databases such as Semantic Scholar and PubMed. The search strategy involved multiple targeted queries related to gamification in accounting and auditing education, including foundational theories, empirical studies, and adjacent fields. In total, 949 papers were identified, 320 were screened, 189 were deemed eligible, and 50 were included in this review.

**Table 1.** PRISMA-based flow diagram of the systematic review process.

Identification	Screening	Eligibility	Included
949	320	189	50

Nineteen unique searches were executed, focusing on empirical evidence, theoretical frameworks, and practical applications of gamification in accounting and auditing education.

## 3. RESULTS

### 3.1. Theoretical Frameworks and Models

Most studies draw on Self-Determination Theory and Problem-Based Learning to explain how gamification meets students' needs for autonomy, competence, and relatedness (Anwar & Mulyadi, 2025; Zainuddin et al., 2020; Krath et al., 2021). Game-based learning, serious games, and digital platforms are frequently discussed as vehicles for gamification in accounting and auditing education (Srimaryani et al., 2023; Go et al., 2024; Platz, 2022; Saleem et al., 2021; Mahat et al., 2022; Dahalan et al., 2023; Leitão et al., 2021; Gaalen et al., 2020).

### 3.2. Empirical Evidence and Learning Outcomes

Empirical research overwhelmingly supports the positive impact of gamification on student motivation, engagement, and learning outcomes in accounting and auditing courses (Anwar & Mulyadi, 2025; Srimaryani et al., 2023; Go et al., 2024; Zainuddin et al., 2020; Almuntsr et al., 2024; Platz, 2022; Ghatrifi et al., 2023; Saleem et al., 2021; Mahat et al., 2022; Dahalan et al., 2023; Gaalen et al., 2020). Improvements are noted in exam scores, problem-solving abilities, and overall enjoyment. However, some studies report inconsistent results, emphasizing the need for careful alignment of game elements with learning objectives (Anwar & Mulyadi, 2025; Almuntsr et al., 2024; Dahalan et al., 2023; Khaldi et al., 2023).

### 3.3. Implementation Challenges and Barriers

Key challenges include resource limitations, technical obstacles, and the need to tailor gamification to diverse student populations (Anwar & Mulyadi, 2025; Torresan & Hinterhuber, 2023; Dahalan et al., 2023). The effectiveness of gamification can vary based on gender, academic background, and learning preferences (Srimaryani et al., 2023; Torresan & Hinterhuber, 2023; Mahat et al., 2022; Khaldi et al., 2023). Additionally, the lack of standardized design approaches complicates implementation (Khaldi et al., 2023; Luo, 2021).

### 3.4. Trends, Gaps, and Future Directions

Recent bibliometric analyses reveal a growing interest in gamification in accounting education, with research peaking in 2023 (Go et al., 2024). However, gaps remain in areas such as academic achievement, technology acceptance, and the application of gamification in financial accounting (Go et al., 2024; Ghatrifi et al., 2023). There is also a trend toward customization and personalization of gamified learning experiences (Khaldi et al., 2023; Behl et al., 2022).

#### Key Papers

**Table 2.** Comparison of key studies on gamification in accounting and auditing education.

Paper	Methodology	Sample Size	Key Results
(Anwar & Mulyadi, 2025)	Systematic Review	46 studies	Gamification improves motivation, engagement, and learning outcomes; design and alignment are critical.
(Almuntsr et al., 2024)	Systematic Review	17 articles	Predominantly positive effects on learning; some negative/neutral results; implementation requirements are crucial.

Paper	Methodology	Sample Size	Key Results
(Go et al., 2024)	Bibliometric Analysis	138 papers	Research in gamification in accounting is growing; gaps in academic achievement and technology acceptance.
(Srimaryani et al., 2023)	Systematic Review	17 articles	Games (manual/digital) enhance engagement and pedagogical skills in accounting education.
(Zainuddin et al., 2020)	Systematic Review	46 studies	Gamification is a key enabler of motivation and engagement; challenges and barriers identified.

### Top Contributors

**Table 3.** Authors & journals that appeared most frequently in the included papers.

Type	Name	Papers
Author	Zamzami Zainuddin	(Zainuddin et al., 2020)
Author	Srimaryani Srimaryani	(Srimaryani et al., 2023)
Author	Naomi Madeleine Go	(Go et al., 2024)
Journal	<i>Journal of Accounting and Finance</i>	(Anwar & Mulyadi, 2025)
Journal	<i>Randwick International of Social Science Journal</i>	(Srimaryani et al., 2023)
Journal	<i>International Journal of Academic Research in Business and Social Sciences</i>	(Almuntsr et al., 2024)

### 3.5. Discussion

The evidence suggests that gamification is a valuable tool for enhancing motivation, engagement, and learning outcomes in accounting and auditing education (Anwar & Mulyadi, 2025; Srimaryani et al., 2023; Go et al., 2024; Zainuddin et al., 2020; Almuntsr et al., 2024; Platz, 2022; Ghatrifi et al., 2023; Saleem et al., 2021; Mahat et al., 2022; Dahalan et al., 2023; Gaalen et al., 2020). Theoretical frameworks such as Self-Determination Theory provide a robust explanation for these effects, highlighting the importance of autonomy, competence, and relatedness (Anwar & Mulyadi, 2025; Zainuddin et al., 2020; Krath et al., 2021). However, the success of gamification depends on thoughtful design, alignment with learning objectives, and adaptation to student diversity (Anwar & Mulyadi, 2025; Almuntsr et al., 2024; Dahalan et al., 2023; Khaldi et al., 2023). Resource constraints and technical barriers remain significant challenges, and the lack of standardized design approaches limits broader adoption (Anwar & Mulyadi, 2025; Torresan & Hinterhuber, 2023; Dahalan et al., 2023; Khaldi et al., 2023; Luo, 2021). Future research should focus on addressing these gaps, exploring personalization, and evaluating long-term impacts.

### Claims and Evidence Table

**Table 4.** Key claims and support evidence identified in these papers.

Claim	Evidence Strength	Reasoning	Papers
Gamification improves motivation and engagement in accounting and auditing education.	Evidence strength: Strong (9/10)	Supported by multiple systematic reviews and empirical studies across diverse contexts.	(Anwar & Mulyadi, 2025; Srimaryani et al., 2023; Zainuddin et al., 2020; Almuntsr et al., 2024; Platz, 2022; Saleem et al., 2021; Mahat et al., 2022; Dahalan et al., 2023; Gaalen et al., 2020)
Positive impact on learning outcomes (exam scores, problem-solving).	Evidence strength: Strong (8/10)	Consistent findings in systematic reviews and intervention studies, though some mixed results exist.	(Anwar & Mulyadi, 2025; Srimaryani et al., 2023; Go et al., 2024; Zainuddin et al., 2020; Almuntsr et al., 2024; Platz, 2022; Ghatrifi et al., 2023; Saleem et al., 2021; Mahat et al., 2022; Dahalan et al., 2023; Gaalen et al., 2020)

Claim	Evidence Strength	Reasoning	Papers
Effectiveness depends on careful design and alignment with learning objectives.	Evidence strength: Moderate (7/10)	Studies report negative or neutral effects when design is poor or misaligned.	(Anwar & Mulyadi, 2025; Almuntsr et al., 2024; Dahalan et al., 2023; Khaldi et al., 2023)
Resource and technical barriers hinder implementation.	Evidence strength: Moderate (6/10)	Frequently cited as challenges in reviews and empirical studies.	(Anwar & Mulyadi, 2025; Torresan & Hinterhuber, 2023; Dahalan et al., 2023; Khaldi et al., 2023; Luo, 2021)
Gamification effects vary by student characteristics (gender, background, preferences).	Evidence strength: Moderate (5/10)	Some studies report differential effects; more research needed.	(Srimaryani et al., 2023; Torresan & Hinterhuber, 2023; Mahat et al., 2022; Khaldi et al., 2023)
Lack of standardized design approaches limits adoption.	Evidence strength: Moderate (4/10)	Noted in reviews as a barrier to effective implementation.	(Khaldi et al., 2023; Luo, 2021)

#### 4. Conclusion

This systematic review finds that gamification generally enhances motivation, engagement, and learning outcomes in auditing and accounting education, provided it is carefully designed and aligned with learning objectives. Theoretical and practical contributions include a synthesis of best practices, identification of implementation challenges, and a roadmap for future research. Limitations include variability in study quality and a lack of longitudinal data. Future research should address these gaps, explore personalization, and evaluate long-term impacts.

#### 5. Research Gaps

Despite growing interest, gaps remain in understanding the long-term effects of gamification, its impact on diverse student populations, and the integration of advanced technologies in accounting and auditing education.

##### 5.1. Research Gaps Matrix

**Table 5.** Heatmap of research topics and study attributes in gamification for accounting and auditing education.

Topic/Outcome	Motivation & Engagement	Learning Outcomes	Personalization	Technology Acceptance	Financial Accounting
Accounting Education	12	10	4	2	3
Auditing Education	6	5	1	1	GAP
Digital/Serious Games	8	7	2	1	1

##### 5.2. Open Research Questions

Future research should focus on the long-term effects of gamification, its impact on diverse student populations, and the integration of advanced technologies.

**Table 6.** Open research questions for future studies on gamification in accounting and auditing education.

Question	Why
What are the long-term effects of gamification on learning outcomes in accounting and auditing education?	Most studies are short-term; understanding sustained impacts is crucial for curriculum design and policy.

Question	Why
How can gamification be personalized to accommodate diverse student backgrounds and learning preferences?	Personalization may enhance effectiveness, but little is known about tailoring gamification to individual needs.
What is the role of advanced technologies (e.g., AI, VR) in enhancing gamified learning in accounting and auditing?	Integrating new technologies could address current limitations and open new avenues for engagement and assessment.

In summary, while gamification holds significant promise for accounting and auditing education, its full potential will be realized through careful design, ongoing research, and adaptation to evolving educational needs.

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