GAMIFICATION AND ITS IMPACT ON IMPROVING TRAINING AND BUSINESS INNOVATION PROCESSES

Nelson Jesús CAMPOS ROSENDO ![ORCID]✉, Soratna Verónica NAVAS GOTOPO ![ORCID]

Faculty of Management and Communication Sciences, Universidad Autónoma del Perú, Lima, Perú

Abstract. The aim of this study was to analyze the impact of gamification on employee motivation and engagement in business innovation processes. A systematic literature review (SLR) was conducted, including 55 articles retrieved from the Scopus database, following the PRISMA statement guidelines. Inclusion and exclusion criteria were applied to ensure the relevance and quality of the reviewed studies. Regarding materials and methods, a specific search equation was used to identify articles addressing the relationship between gamification and productivity in the workplace. Key data were extracted from the selected articles, including information on the study population, the gamification techniques implemented, and the observed benefits. The findings were categorized to identify recurring patterns and themes. Results showed that gamification enhances employee motivation and engagement, thereby improving business innovation processes. Various gamification techniques were identified as effective, along with contextual factors that influenced outcomes. The review also highlighted the need to tailor gamification strategies to maximize their benefits. It is concluded that this work provides a critical overview of the current state of knowledge in the field of gamification and its application in business innovation. Areas requiring further research were identified, suggesting that gamification can be a valuable tool for improving productivity and creativity within organizations.

1. Introduction

Nowadays, gamification has emerged as an innovative strategy that is being widely adopted across various contexts, including education, healthcare, and marketing, yet its impact on business innovation remains an evolving field. It is conceived as the incorporation of game-design elements and techniques into non-game environments to foster participation, engagement, and motivation (Huotari & Hamari, 2012). This approach has revealed promising results for optimizing productivity, creativity, and collaboration within organizations and professional training.

Recent studies show that gamification fosters creativity, collaboration, and the adoption of new ideas within organizations. For example, Deterding et al. (2011b) argue that gamification can increase employees' intrinsic motivation, which is crucial for innovation. Likewise, Werbach and Hunter (2012) suggests that game elements can create a more dynamic environment conducive to innovative thinking.

Although gamification has been widely studied, little research has explored its role as a strategic driver of innovation and talent management in business environments. This gap is particularly evident in the fields of international business and human resource management, where the integration of playful dynamics can provide a distinctive value by enhancing team motivation and fostering innovative organizational cultures. Accordingly, this study contributes originality and relevance by positioning gamification at the core of the debate on corporate training and innovation in a globalized context.

There is a breadth of research investigating the link between gamification and innovation. Among these, Hamari et al. (2019) have demonstrated that gamification can enhance employee participation in idea-generation processes – an essential component of innovation. Furthermore, they highlight how typical game challenges and rewards can translate into improved problem-solving and creativity in the business sphere (McGonigal, 2011). Meanwhile, Sailer et al. (2017) found that game elements can foster a culture of experimentation and continuous learning.

Gamification has gained significant ground in corporate and professional training environments. Companies

across diverse sectors, including education, are implementing gamification techniques to incentivize employees, nurture an innovation culture, and streamline internal processes. For instance, Hamari et al. (2019) emphasize that gamification can positively impact employees' intrinsic motivation, leading to greater creativity and innovation in the workplace (McGonigal, 2011). Similarly, Baglama et al. (2022) underscore that this strategy facilitates the adoption of new technologies and processes by making them more accessible and engaging for users.

Several studies have specifically examined the relationship between gamification and business innovation. Among them, Maharani and Wang (2022) demonstrated that implementing game elements in business processes can create a more dynamic and collaborative environment, which is crucial for innovation. Likewise, Seaborn and Fels (2015) argue that gamification can act as a catalyst for organizational change, greatly benefiting teamwork by fostering loyalty and cohesion – key elements for generating disruptive and innovative ideas.

Moreover, Aparicio et al. (2019) examined how gamification in massive open online courses (MOOCs) can influence the success of these educational programs. Although their focus is educational, their findings regarding improved participant engagement and motivation are highly relevant to the business context, since active participation and commitment are fundamental pillars of innovation: motivated and engaged employees are more willing to contribute new ideas and collaborate on disruptive, creative projects.

In turn, Looyestyn et al. (2017) conducted a study on how gamification can increase engagement in online programs. Their conclusions reveal a significant improvement in user participation due to gamification – findings that are transferable to human-talent management and innovation within organizations. Business-innovation programs that employ game-based strategies can leverage this experience to optimize employee participation and collaboration.

This study is relevant because, although the literature suggests potential benefits of gamification for innovation, significant gaps remain in understanding how and under what conditions these effects manifest in a corporate context. A systematic literature review will consolidate existing knowledge and provide a solid foundation for future research and practical applications.

Despite extensive research, important gaps remain that require deeper exploration. For this reason, this systematic literature review aims to determine how different gamification approaches and elements can influence the improvement of the various stages of the business-innovation process across different industries. To that end, the existing literature will be analyzed to identify the challenges and limitations of gamification in corporate settings, so that this review serves as a support for an optimal approach to gamification and contributes to the development of effective, sustainable game-based strategies.

Therefore, this research is structured as follows: first, it presents an exhaustive review of the existing literature on gamification and its impact on business innovation. Next, empirical studies that have investigated these variables in various organizational contexts are analyzed. Finally, the practical implications of these findings are discussed, and future research directions are suggested. The applicability of the findings from this review provides key guidelines for business management processes. Gamification is a technique that can be replicated in corporate training programs to increase employee motivation and knowledge retention, thereby strengthening commitment, collaboration, and the development of essential competencies. With regard to business innovation processes, it fosters creativity and the generation of new ideas. In this way, the study offers added value by demonstrating the feasibility of integrating playful strategies into companies' internal dynamics to promote performance, innovation, and sustainability in highly competitive environments. The present review aims to analyze how gamification influences the improvement of corporate training and business innovation processes.

The uniqueness of this study lies in the integration of three core elements gamification, innovation, and entrepreneurial training into a systematic analysis. This framework provides an original perspective that has received limited attention in the literature, thereby constituting a valuable contribution that offers a distinctive advantage within the field of business management.

This study differs from previous research by employing a systematic literature review (SLR) guided by the PIOC framework and conducted in accordance with the PRISMA methodology, which ensures methodological rigor and reliability of the findings. Furthermore, the analysis focused on publications indexed in Scopus between 2020 and 2025, thereby guaranteeing the timeliness and relevance of the results.

2. Methodology

This systematic literature review applied the PIOC framework to structure and focus the research efficiently. The PIOC question is detailed as follows (Table 1):

What gamification techniques enhance employee motivation and engagement in corporate training and innovation, what are their main benefits, and how do business and educational organizations adapt them?

- Population (P): How does gamification enhance employee motivation and engagement in corporate training and innovation processes?
- Intervention (I): In what ways does the implementation of gamification techniques influence training and innovation processes within organizations?
- Outcomes (O): What are the primary benefits or impacts of gamification on corporate training and innovation efforts?
- Context (C): Are there specific environmental or industry factors that modify the relationship between gamification, training, and corporate innovation?

Table 1. PIOC model

Population/ Problem	Employee motivation and enga- gement	Participation, Motivation, Productivity, Creativity, Business innovation, labor, business	"Stake" "Motivation" "Labor productivity" "Business creativity" "Business Innovation"
Inter- vention	Gamifi- cation techniques	Gamification – Game-based – Ludification – Game elements – Game mechanics – Gamified strategies – Game-like – Playful	Gamification "Game based" Ludification "Game elements" "Game mechanics" "Gamified strategies" "Game like" Playful
Outcomes	Benefit or impact of gamifi- cation	Productivity, Experience, Influence, Benefit	Productivity Experience Influence Benefit
Context	Business organiza- tions	Organization, business, work, management, companies	"Organization" "Business" "Job" "Management"

Based on the selected keywords, the following Scopus search equation was generated:

P "Stake" OR "Motivation" OR "Labor productivity" OR "Business creativity" OR "Business Innovation"

I "Gamification" OR "Game based" OR "Ludification" OR "Game elements" OR "Game mechanics" OR "Gamified strategies" OR "Game like" OR "Playful"

O "Productivity" OR "experience" OR "Influence" OR "benefit"

C "Organization" OR "business" OR "Job" OR "MAN-AGEMENT" OR "society"

Regarding the terms used for the relevant literature search, the following equation was applied:

TITLE-ABS-KEY("Stake" OR "Motivation" OR "Labor pro-ductivity" OR "Business creativity" OR "Business Innova-tion")

AND TITLE-ABS-KEY("Gamification" OR "Game based" OR "Ludification" OR "Game elements" OR "Game mechan-ics" OR "Gamified strategies" OR "Game like" OR "Playful")

AND TITLE-ABS-KEY("Productivity" OR "experience" OR "Influence" OR "benefit")

AND TITLE-ABS-KEY("Organization" OR "business" OR "Job" OR "MANAGEMENT" OR "society")

Inclusion and Exclusion Criteria

To ensure that the selected studies are both relevant and of high quality, the following inclusion and exclusion criteria were established:

1. Population (P):
- Inclusion: Articles that address how gamification enhances people's motivation and engagement in training and innovation processes within business contexts.

- Exclusion: Articles that do not study the relationship between gamification and employee motivation/en-gagement in corporate training and innovation.
2. Intervention (I):
- Inclusion: Articles that analyze how the implementa-tion of gamification techniques influences training and innovation processes within business organiza-tions.
- Exclusion: Articles that do not focus on the impact of gamification techniques on corporate training and innovation processes.
3. Outcomes (O):
- Inclusion: Articles reporting the main benefits or im-pacts of gamification on corporate training and in-novation efforts.
- Exclusion: Articles in languages other than English or Spanish.
- Exclusion: Articles published before 2019.

To ensure transparency and rigor in the selection of studies for this systematic literature review, the PRISMA methodology was followed (Figure 1). This diagram al-lowed a detailed documentation of the identification, screening, eligibility, and inclusion stages of the reviewed articles. Below, the different stages of the study-selection process are illustrated:
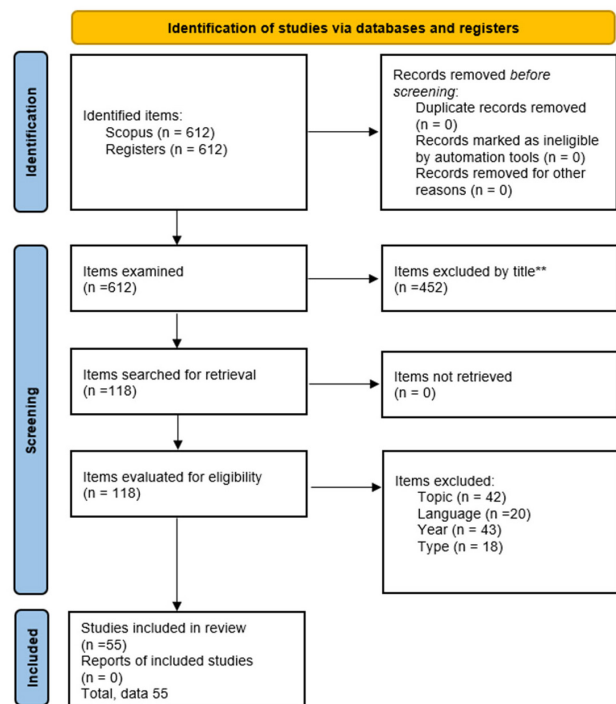
Figure 1. PRISMA flowchart

The information review was conducted in the Scopus database using the previously mentioned search equation. An initial filtering was carried out, consisting of a first se-lection of sources based on the titles and abstracts of the retrieved articles to discard those that clearly did not meet the inclusion criteria. Subsequently, the studies that passed the initial filter were reviewed in full to confirm their

relevance and suitability for the review's objectives. Afterward, key data were extracted from the selected articles, including information on the study population, the gamification techniques implemented, the benefits observed, and the contextual factors that influenced the results.

This information was analyzed in depth and served as the basis for identifying patterns, recurrent themes, and key findings related to the impact of gamification on improving business innovation processes. The findings were synthesized and organized to provide a reflective and critical overview of the current state of knowledge in this field and to pinpoint areas that require further investigative attention.

3. Results

In this section, the results of the review of recent studies guided by the PIOC questions are presented. The selection process was carried out following the guidelines of the PRISMA statement. As a result, 55 articles from the Scopus database were chosen, which contributed to improving the study's effectiveness and feasibility through an exhaustive review and the application of inclusion and exclusion criteria.

The systematic review included 36 articles, 2 books, and 17 book chapters, allowing for a comprehensive understanding of the impact of gamification on corporate training and innovation processes (Figure 2). The 36 selected articles provide empirical studies and theoretical analyses that demonstrate how various gamification techniques have been implemented in organizational

contexts, offering a solid foundation of data and practical experiences. The 2 books offer a broader and deeper perspective on gamification, including conceptual frameworks and strategies that can be applied in business and training environments. Meanwhile, the 17 book chapters were especially relevant, as they specifically address gamification in corporate and training contexts, providing up-to-date perspectives and case studies that enriched the analysis and validated the applicability of these techniques for enhancing innovation. This diverse selection of sources allowed for an exhaustive and contextualized exploration of the topic, ensuring that the findings are both relevant and applicable.

When analyzing the distribution of publications, 2020 stands out due to a notable increase in the number of studies published. This surge may be related to factors such as heightened attention to the topic, the availability of research funding, or even the impact of global events that drove the need for studies in this field.

In Figure 3, the number of publications per year is illustrated, showing that, besides 2020, the years 2019, 2021, 2022, and 2023 also saw a significant number of studies, albeit to a lesser extent. This pattern suggests a growing interest in the subject, which bodes well for the development of future research in this area. The variability in reflection counts across these years reflects changes in research priorities, the evolution of methodologies used, or the impact of the pandemic on academic output.

Publication volume reflects both research interest and the rigor of the studies conducted. Below, the number of publications per year is highlighted:
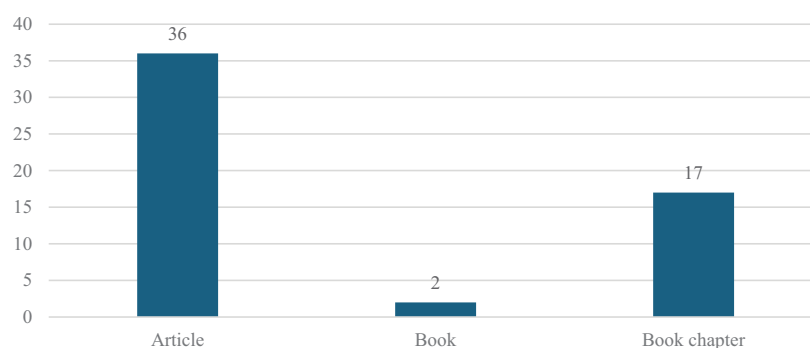
Figure 2. Type of publication
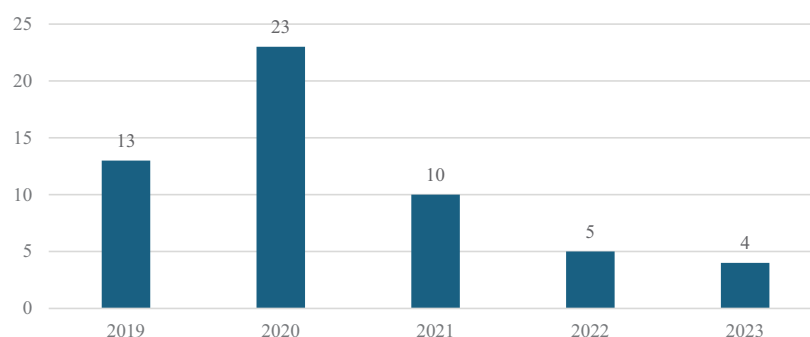
Figure 3. Number of publications per year

In relation to the PIOC question, sub-questions were developed to facilitate the collection of information from the research articles (Table 2). It should be noted that these sub-questions allowed for the precise and efficient refinement and construction of the study's items. The following table presents the information-extraction sub-questions.

The considerable volume of publications on this subject over the analyzed period reveals an increasing interest in applying gamification to business contexts. This not only validates its relevance for training purposes but also shows how organizations are actively seeking innovative and feasible strategies to improve employee performance. The data, therefore, sheds light on the way gamification has evolved and become consolidated as a research trend in these environments.

In the context of this systematic literature review, the questions arising from the PIOC framework were addressed. In the following lines, the answers are detailed, presenting an exhaustive analysis of each relevant aspect through tables that list the categories and their respective descriptions (Table 3).

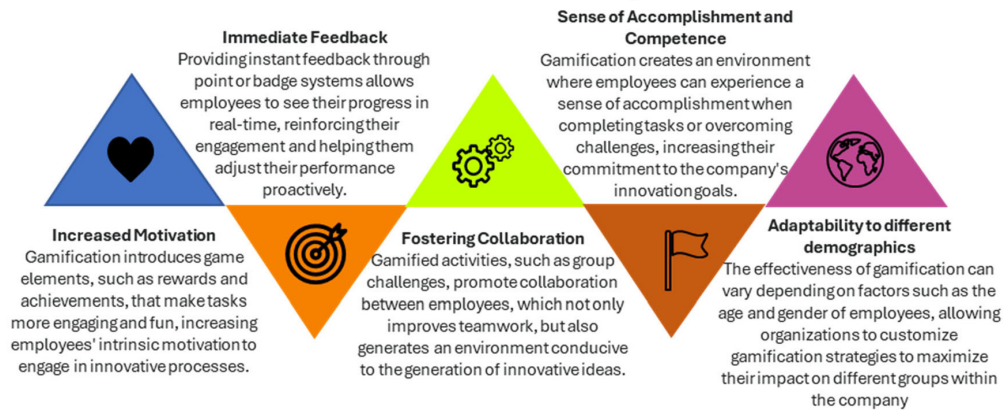**Table 2.** Sub-questions for information extraction forms

Sub-questions	Extraction Items
RQ1: How does gamification enhance employee motivation and engagement in business innovation processes?	▪ How do employees perceive gamification in their work environment? ▪ Which gamification elements do they consider most motivating? ▪ In what way does gamification influence their engagement with innovation processes?
RQ2: How does the implementation of gamification techniques influence innovation processes within organizations?	▪ What gamification techniques have been implemented in the organization? ▪ How have these techniques been rolled out? ▪ What changes have been observed in innovation processes following the intervention?
RQ3: Are there specific environmental or industry factors that modify the relationship between gamification and business innovation?	▪ What are the most significant benefits of gamification in business innovation? ▪ Which metrics have been used to evaluate gamification's impact? ▪ How has collaboration among employees improved due to gamification?
RQ4: In which business sectors has gamification been investigated?	▪ What specific environmental factors influence gamification's effectiveness? ▪ How does the gamification–innovation relationship vary across different industries? ▪ Are there cultural barriers affecting gamification implementation in the organization?

Table 3. How does gamification enhance employee motivation and engagement in business innovation processes?

Sub-question	Emerging Category	Category Description
How do employees perceive gamification in their work environment?	Improvement of motivation (Martínez-Azúa, 2022; Oppong-Tawiah et al., 2020; Suppan et al., 2020)	Increases engagement and enthusiasm.
	Performance optimization (Ranganathan & Benson, 2020; Woźniak, 2020)	Enhances performance through clear goals.
	Interaction and participation (Duggal & Gupta, 2020; Lithoxoidou et al., 2020)	Promotes interaction among employees and with customers.
	Recognition and achievements (Dieva, 2020; Liu & Wang, 2019)	Values digital achievements as a form of recognition.
	Dynamic learning (Martínez-Azúa, 2022; Marín, 2022)	Facilitates engaging and effective learning.
Which gamification elements do they consider most motivating?	Rewards and achievements (Groening & Binnewies, 2019; Polo-Peña et al., 2021; Woźniak, 2020)	Digital rewards and achievements are highly motivating.
	Competition and collaboration (Arumugam & Tyagi, 2023; Porto et al., 2021; Tuomi et al., 2022)	Competition and collaboration drive challenge.
	Immediate feedback (De Luise & Borgia, 2023; Díaz-Garrido et al., 2022; Faust, 2021)	Real-time feedback provides a sense of control and accomplishment.
	Progression and levels (Afacan, 2023; Martella et al., 2019; Szendrői et al., 2020)	Level systems allow users to visualize their progress.
	Social interaction and recognition (Cronshaw & Drummond, 2024; Kotsopoulos & Bardaki, 2022)	Social interaction fosters motivation and a sense of belonging.
In what way does gamification influence their engagement with innovation processes?	Interactivity and active participation	Increases engagement by making processes more interactive.
	Encouragement of creativity (Arumugam & Tyagi, 2023; Kačerauskas et al., 2023; Marín, 2022; Oppong-Tawiah et al., 2020; Porto et al., 2021; Tuomi et al., 2022)	Drives creativity by experimenting with new ideas.
	Motivation for continuos improvement (Arumugam & Tyagi, 2023; Kačerauskas et al., 2023; Porto et al., 2021)	Reinforces commitment to ongoing enhancements.
	Personal and professional development (Marín, 2022; Tuomi et al., 2022)	Encourages personal growth linked to innovation.
	Collaboration and innovation culture (Kačerauskas et al., 2023; Marín, 2022)	Fosters collaboration and a culture of improvement.

Gamification favors employee motivation and commitment in business innovation processes

Immediate Feedback
Providing instant feedback through point or badge systems allows employees to see their progress in real-time, reinforcing their engagement and helping them adjust their performance proactively.

Sense of Accomplishment and Competence
Gamification creates an environment where employees can experience a sense of accomplishment when completing tasks or overcoming challenges, increasing their commitment to the company's innovation goals.

Increased Motivation
Gamification introduces game elements, such as rewards and achievements, that make tasks more engaging and fun, increasing employees' intrinsic motivation to engage in innovative processes.

Fostering Collaboration
Gamified activities, such as group challenges, promote collaboration between employees, which not only improves teamwork, but also generates an environment conducive to the generation of innovative ideas.

Adaptability to different demographics
The effectiveness of gamification can vary depending on factors such as the age and gender of employees, allowing organizations to customize gamification strategies to maximize their impact on different groups within the company

Figure 4. Benefits of gamification at the enterprise level

In today's business environment, gamification is a powerful tool for enhancing employee motivation and engagement in innovation processes (Martínez-Azúa, 2022; Máca et al., 2020; Oppong-Tawiah et al., 2020) by generating a positive perception, implementing motivating elements, and fostering commitment to innovation (Kačerauskas et al., 2023; Marín, 2022). Through gamification, employees can be involved actively, dynamically, and effectively (Duggal & Gupta, 2020; Lithoxoidou et al., 2020; Ranganathan & Benson, 2020; Woźniak, 2020) in the exploration and development of new ideas (Grünewald et al., 2019; Looyestyn et al., 2017). However, its successful implementation requires a strategic approach and a deep understanding of employees' needs and preferences in order to design and deploy a system that truly drives motivation and engagement in innovation processes (Arumugam & Tyagi, 2023; De Luise & Borgia, 2023; Díaz-Garrido et al., 2022; Faust, 2021; Groening & Binnewies, 2019; Máca et al., 2020; Polo-Peña et al., 2021; Porto et al., 2021; Rahiman et al., 2023; Tuomi et al., 2022) (Figure 4).

The implementation of gamification techniques has been shown to increase employee motivation and engagement, which in turn drives business innovation (Table 4). Rewards and immediate feedback are the most valued elements, creating a more collaborative and dynamic work environment (Díaz-Garrido et al., 2022; Groening & Binnewies, 2019; Grünewald et al., 2019; Máca et al., 2020; Martella et al., 2019; Prasad et al., 2019; Tuomi et al., 2022).

The implementation of gamification techniques significantly transforms innovation processes (Figure 5). This tool

Table 4. How does the implementation of gamification techniques influence innovation processes within organizations?

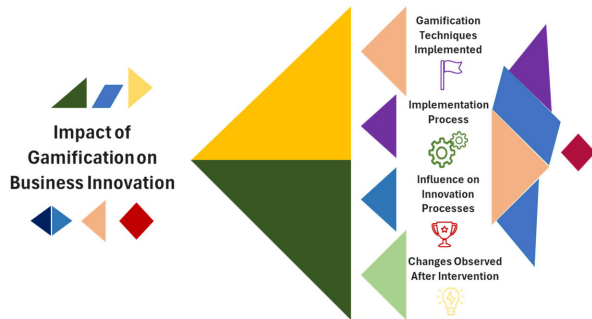| Sub-question	Emerging Category	Category Description
What gamification techniques have been implemented in the organization?	Points systems, badges, and leaderboards (Arifin, 2020; Martínez-Azúa, 2022; Dieva, 2020; Máca et al., 2020; Ranganathan & Benson, 2020; Suppan et al., 2020; Szendrői et al., 2020; Woźniak, 2020)	Used to recognize and reward achievements.
	Challenges and competitions (Martínez-Azúa, 2022; Dieva, 2020; Lithoxoidou et al., 2020; Szendrői et al., 2020; Woźniak, 2020)	Designed as team-based contests to foster engagement.
	Games and simulations (Dieva, 2020; Lithoxoidou et al., 2020; Woźniak, 2020)	Role-playing and simulations employed to enhance learning.
	Gamified platforms and applications (Lithoxoidou et al., 2020; Oppong-Tawiah et al., 2020)	Interactive apps developed incorporating gamification elements.
	Rewards and recognitions (Woźniak, 2020)	Monetary and non-monetary rewards implemented to motivate.
How has the implementation of these techniques been carried out?	Training and workshops (Dieva, 2020; Marín, 2022; Oppong-Tawiah et al., 2020)	Employees instructed in digital tools and dynamics.
	Technology integration (Lithoxoidou et al., 2020; Ranganathan & Benson, 2020)	Technology integrated for interactive learning.
	Educational curriculum (Martínez-Azúa, 2022; Duggal & Gupta, 2020; Marín, 2022)	Curriculum adapted with interactive content.
	Virtual environments and simulations (Lithoxoidou et al., 2020; Szendrői et al., 2020)	Immersive experiences created to practice skills.
	Monitoring and feedback (Liu & Wang, 2019; Oppong-Tawiah et al., 2020)	Real-time feedback systems implemented.

Sub-question	Emerging Category	Category Description
What changes have been observed in the innovation processes after the intervention?	Idea generation (Chimenti et al., 2021; Martínez-Azúa, 2022; Lithoxoidou et al., 2020)	Increase in both quantity and quality of creative proposals.
	Collaboration and participation (Martínez-Azúa, 2022; Lithoxoidou et al., 2020)	Greater collaboration on innovative projects.
	Motivation and performance (Arifin, 2020; Liu & Wang, 2019; Ranganathan & Benson, 2020; Szendrői et al., 2020)	Rise in employee motivation and performance.
	Operational efficiency (Dieva, 2020; Lithoxoidou et al., 2020; Oppong-Tawiah et al., 2020)	Improvements in efficiency and reduction of lead times.
	Customer satisfaction (Ellison et al., 2020; Woźniak, 2020)	Enhanced customer satisfaction and retention.

increases employees' participation, motivation, and commitment to innovation, according to (Arifin, 2020; Liu & Wang, 2019; Ranganathan & Benson, 2020; Szendrői et al., 2020). Moreover, it offers a wide range of mechanisms that can be tailored to each organization's needs (Dieva, 2020; Gatti et al., 2019; Gerdenitsch et al., 2020; Lithoxoidou et al., 2020;

Figure 5. Impact of gamification in the context of business intervention

Oppong-Tawiah et al., 2020). The observed changes – such as the increase in idea generation and the strengthening of collaboration – translate into a greater capacity for innovation and competitiveness for organizations that adopt this approach (Ellison et al., 2020; Thongmak, 2021; Woźniak, 2020).

The implementation of gamification techniques not only enhances employees' motivation and engagement but also drives innovation by fostering active participation and collaboration in creative processes (Chimenti et al., 2021; Martínez-Azúa, 2022; Gatti et al., 2019; Gerdenitsch et al., 2020; Lithoxoidou et al., 2020; Thongmak, 2021). In addition, it has a positive effect on improving relationships and collaboration within the workplace, thereby contributing to the development and growth of both the company and its personnel (Deterding et al., 2011a; Dieva, 2020; Ellison et al., 2020; Huotari & Hamari, 2012; Lithoxoidou et al., 2020; Oppong-Tawiah et al., 2020; Werbach & Hunter, 2012; Woźniak, 2020) (Table 5).

Table 5. Are there specific environmental or industry factors that modify the relationship between gamification and business innovation?

Sub-questions	Emerging Category	Category Description
What are the most notable benefits of gamification in business innovation?	Increase in Motivation (Dieva, 2020; Woźniak, 2020)	Boosts employee engagement and enthusiasm.
	Improvement in Communication (Ellison et al., 2020)	Facilitates idea exchange among teams.
	Increase in Productivity (Ranganathan & Benson, 2020; Szendrői et al., 2020)	Enhances productivity by making work more enjoyable.
	Promotion of Creativity (Martínez-Azúa, 2022)	Stimulates creativity and problem-solving.
	Improvement in Customer Satisfaction (Arifin, 2020, Eru, 2020)	Raises customer satisfaction and loyalty.
What metrics have been used to evaluate the impact of gamification?	Participation and Engagement Rates (Suppan et al., 2020)	Measures user activity and level of involvement.
	Performance and Outcome Indicators (Liu & Wang, 2019; Prasad et al., 2019)	Assesses performance, productivity, and goal achievement.
	Satisfaction and Experience Surveys (Ellison et al., 2020)	Gauges user satisfaction and perceptions.
	Idea Generation and Innovation Analysis (Kellinger, 2020)	Evaluates the quantity and quality of ideas generated.
	Learning and Development Metrics (Marín, 2022)	Measures knowledge retention and practical application.
How has collaboration among employees improved due to gamification?	Promotion of Teamwork and Group Challenges (Lithoxoidou et al., 2020)	Encourages activities requiring collaboration.
	Improvement in Communication and Interpersonal Relations (Duggal & Gupta, 2020)	Fosters interaction and trust among employees.
	Cross-Departmental and Functional Collaboration (Dieva, 2020)	Facilitates coordination between different teams.
	Collaboration on Projects and Learning Activities (Martínez-Azúa, 2022)	Promotes collaborative learning in projects.
	Collaborative Competition and Peer Recognition (Woźniak, 2020)	Encourages healthy competition and mutual recognition among peers.

Various environmental and industry factors influence the relationship between gamification and business innovation (Table 6). Aspects such as organizational culture, level of digital maturity, and leadership are key in the process of implementing gamified solutions (Behl et al., 2024; Ellison et al., 2020; Ranganathan & Benson, 2020). Establishing appropriate evaluation metrics and focusing on improving collaboration maximizes the benefits of gamification (Marín, 2022; Suppan et al., 2020) and enables organizations to adapt to the challenges of a changing environment (Diefenbach & Müssig, 2019; Liu & Wang, 2019; Máca et al., 2020; Prasad et al., 2019). Authors such as Woźniak (2020) and Dieva (2020) highlight how gamification in sales incentives and business processes increases employee motivation, fostering healthy competitiveness and goal achievement through clear rewards and targets. Likewise, it also promotes recognition and respect among colleagues (Dieva, 2020; Woźniak, 2020), incentivizing mutual support through shared goals and peer recognition (Arifin, 2020; Martínez-Azúa, 2022; Duggal & Gupta, 2020; Lithoxoidou et al., 2020).

It is worth noting that gamification has been researched and applied across a wide range of business sectors, each with its own characteristics, challenges, and opportunities (Deterding et al., 2011a; Huotari & Hamari, 2012). Factors such as the level of digitalization, industry-specific particularities, the profile of clients/users, and the availability of technological solutions influence how organizations adopt and implement gamified strategies (Deterding et al., 2011b; Huotari & Hamari, 2012; Kačerauskas et al., 2023; McGonigal, 2011).

Variations in objectives, design, integration, and implementation highlight the need to adapt gamification to each sector's specific requirements (Hamari et al., 2019; Sailer et al., 2017; Werbach & Hunter, 2012). Moreover, cultural barriers – such as resistance to change, lack of understanding, and ethical concerns – pose significant challenges that organizations must address effectively to achieve successful gamification adoption and maximize its benefits for fostering business innovation (Deterding et al., 2011a, 2011b; Huotari & Hamari, 2012; Marín, 2022; Porto et al., 2021).

Finally, the review of 55 articles on gamification in the business context reveals its potential to enhance employee motivation and engagement in innovation processes. The implementation of gamification techniques not only creates a more attractive and stimulating environment but also adapts to each organization's specific needs, resulting in a significant increase in idea generation and collaboration. However, it is crucial to consider factors such as organizational culture and digital maturity, as these can

Table 6. In which business sectors has this been investigated?

Sub-questions	Emerging Category	Category Description
What specific environmental factors influence the effectiveness of gamification?	Organizational Culture (Sailer et al., 2017; Werbach & Hunter, 2012)	An open and collaborative culture fosters the acceptance of gamification.
	Leadership Support (Deterding et al., 2011b; Maharani & Wang, 2022)	Committed leadership aligns gamification objectives with the business strategy.
	Technology Availability (Hamari et al., 2019; Sailer et al., 2017)	Adequate technology enables effective implementation of gamified tools.
	Attitude Toward Change (Deterding et al., 2011a; Huotari & Hamari, 2012)	Willingness to change influences how gamification is received.
	Training and Education (Huotari & Hamari, 2012; McGonigal, 2011)	Training in digital skills is essential to maximize gamification effectiveness.
How does the relationship between gamification and innovation vary across different industries?	Creative Industries (Deterding et al., 2011b; Porto et al., 2021)	Gamification is more effective due to their open and flexible nature.
	Technology Sectors (Hamari et al., 2019; Martínez-Azúa, 2022)	High acceptance of gamification because of their predisposition to new technologies.
	Sales and Marketing (Werbach & Hunter, 2012)	Encourages competition and improves sales outcomes.
	Education and Entertainment (Kačerauskas et al., 2023; McGonigal, 2011)	Enhances knowledge retention and makes learning more engaging.
	Traditional Industries (Deterding et al., 2011b)	Less effective due to resistance to change and rigid cultures.
Are there cultural barriers affecting the implementation of gamification in the organization?	Resistance to Change (Huotari & Hamari, 2012)	Employee resistance to adopting new practices is a significant barrier.
	Lack of Understanding (Deterding et al., 2011b; Martínez-Azúa, 2022)	A lack of understanding of the benefits hinders acceptance.
	Negative Perception of Games (Sailer et al., 2017)	Some view games as not serious, which generates resistance.
	Generational Differences (Werbach & Hunter, 2019)	Younger employees are more receptive to gamification than older ones.
	Rigid Organizational Culture (Deterding et al., 2011a; Huotari & Hamari, 2012; Porto et al., 2021; Werbach & Hunter, 2012)	Hierarchical and inflexible cultures face greater challenges in implementation.

influence the effectiveness of gamification strategies. The diversity of sectors studied also underscores the need to customize gamified solutions to maximize their benefits and address any cultural barriers that may arise during implementation.

4. Discussion

The literature analysis highlights the role of gamification as a key mechanism for significantly promoting employees' intrinsic motivation. This is evident in the adoption of reward techniques and immediate feedback – elements that contribute to greater employee engagement in innovation processes (Huotari & Hamari, 2012; Werbach & Hunter, 2012). The studies reviewed confirm that motivation is crucial for increasing creativity and productivity, which in turn are essential factors in business innovation. For example, constant feedback helps employees feel more valued and aware of their progress, thereby enhancing their sense of belonging and commitment to the company.

Several scholars have cautioned about potential adverse outcomes; nevertheless, the majority of the studies reviewed indicate that gamification generates predominantly positive effects on motivation, engagement, and innovation. Diefenbach and Müssig (2019), for instance, emphasize that gamification may result in frustration or disengagement under certain circumstances if the game mechanics are not appropriately designed. This divergence underscores that the impact of gamification is not universal but is instead contingent upon contextual factors such as organizational culture and the design of the strategic framework in which it is applied.

These differences in outcomes can be explained by contextual factors such as organizational culture, industry type, and leadership. In organizations with open and collaborative cultures, gamification tends to be more successful because employees perceive playful elements as valid incentives. Conversely, in traditional industries with rigid hierarchical structures, the adoption of such strategies often faces resistance. Likewise, leadership plays a decisive role: strong support from top management facilitates the integration of playful dynamics, whereas its absence constrains the scope of the results.

This approach aligns with research (Huotari & Hamari, 2012; McGonigal, 2011) showing that game dynamics create appealing work environments that foster the development of personal skills and collaboration among colleagues. These findings support the use of points systems, badges, and leaderboards as fundamental strategies in companies aiming to consolidate an innovation culture, since these elements enable recognition and the setting of clear goals to reinforce both individual and group commitment.

From another perspective, gamification techniques have been implemented across various organizational areas with the aim of improving innovation processes. Among the most notable techniques are team challenges, competitions, digital gamified platforms, and interactive applications. These results correspond with those reported by Deterding et al. (2011b), who observed that such techniques stimulate learning and facilitate collaboration among employees, translating into a more dynamic work environment conducive to generating innovative ideas, as well as improving employee and customer satisfaction and efficiency (Ellison et al., 2020; Woźniak, 2020).

Moreover, the critical role of gamification elements in creating an organizational culture oriented toward experimentation and continuous learning is evident (Sailer et al., 2017). From this standpoint, companies that have adopted these methods exhibit improved internal communication and greater employee willingness to share ideas. Furthermore, both monetary and non-monetary rewards have proven to be useful tools for talent retention, as they incentivize effort and foster healthy competition within work teams (Groening & Binnewies, 2019; Polo-Peña et al., 2021; Woźniak, 2020).

However, the success of applying gamification in business environments depends largely on contextual factors such as organizational culture, leadership, and the company's level of digital maturity. Studies on this topic (Diefenbach & Müssig, 2019) emphasize how an open and collaborative culture is essential for the adoption of these strategies. Therefore, elements such as resistance to change – particularly in traditional industries – become significant barriers to gamification implementation. There are also generational barriers, with younger employees typically adapting more readily than older ones (Werbach & Hunter, 2012).

To address these limitations, gamification programs must be personalized and tailored to the specific characteristics of each industry. In sectors such as sales and marketing, for example, gamified programs have proven especially effective by incentivizing competition and improving commercial outcomes (Arifin, 2020). In more traditional sectors, such as finance or manufacturing, the adoption of these techniques faces cultural challenges that require a gradual rollout and an educational approach (Deterding et al., 2011a).

Consistent with the above, the substantial role of gamification as a strategy for training and business innovation is evident, demonstrating its multifaceted impact on organizational dynamics and innovation outcomes in today's business environment. Its impact goes beyond significant effects on intrinsic motivation and employee engagement (Martínez-Azúa, 2022; Oppong-Tawiah et al., 2020; Suppan et al., 2020), driving active participation in idea-generation processes and the adoption of innovative practices. These elements thus become ideal vectors for facilitating a continuous learning and collaborative environment – both essential for organizational innovation (Kačerauskas et al., 2023; Marín, 2022).

Achieving these results hinges on building an organizational culture capable of decisively influencing the selection and facilitation of new technologies and methodologies in innovation-oriented companies. This is all the more critical given that the reviewed literature emphasizes the

use of gamification strategies to foster an achievement- and experimentation-oriented mindset – two fundamental aspects of organizational change (Deterding et al., 2011a; Huotari & Hamari, 2012; Porto et al., 2021; Werbach & Hunter, 2012).

However, such change must involve not only employee attitudes but also the way internal processes are redesigned to integrate gamification structurally. For instance, by implementing gamified platforms for professional development, organizations not only enhance employees' technical skills but also promote a culture of continuous improvement, as demonstrated in sectors such as technology and education (Arumugam & Tyagi, 2023; Kačerauskas et al., 2023; Lithoxoidou et al., 2020; Marín, 2022).

Linked to the above is the importance of contextual factors – such as industry type and digital maturity level – in mediating gamification's effectiveness. In technology and creative industries, where change is inherent, gamification finds fertile ground for implementation. These sectors tend to adopt game elements like simulations, competitions, and gamified applications more rapidly, all of which foster a collaborative and creative environment. Conversely, in traditional or rigidly hierarchical sectors, introducing gamified techniques often encounters resistance due to negative perceptions of games as distractions from "serious" work tasks (Deterding et al., 2011b; Marín, 2022; Porto et al., 2021).

A decisive factor in enabling or inhibiting the success of such practices is organizational leadership. Aligning strategic objectives with gamification initiatives, along with visible support from top management, reinforces employees' confidence in the benefits of gamification (Seaborn & Fels, 2015). In this regard, managerial communication and backing are crucial to overcoming cultural barriers, particularly in companies that have not yet internalized gamification's importance in their innovation strategies (Deterding et al., 2011b; Maharani & Wang, 2022).

A final relevant point is how gamification enables the collection of valuable metrics to evaluate performance and impact on innovation processes (Marín, 2022; Suppan et al., 2020). By introducing scoring systems, rankings, and real-time feedback, companies can quantify participation, idea generation, and project development progress. These data are useful not only for measuring gamification's effectiveness but also for identifying opportunities for continuous improvement and adjusting strategies to meet the environment's changing needs (Máca et al., 2020; Prasad et al., 2019; Ranganathan & Benson, 2020). In this context, the gamified approach facilitates more direct feedback and continuous monitoring, enabling leaders to make informed decisions about designing development and innovation programs (Martínez-Azúa, 2022; Duggal & Gupta, 2020; Lithoxoidou et al., 2020).

5. Conclusions

Gamification acts as a catalyst for business innovation. The application of gamification strategies has proven effective in fostering innovation in corporate settings. The foregoing results confirm how the incorporation of game elements increases employees' intrinsic motivation and engagement – key factors for generating innovative ideas and developing disruptive projects. Moreover, gamification promotes a collaborative work environment in which continuous learning and experimentation are valued, resulting in greater efficiency and enhanced customer satisfaction.

However, this entails the customized design of gamified strategies to achieve the desired impact. Therefore, the effectiveness of gamification depends largely on an implementation framework that takes into account and values the specific characteristics of each company and sector. In this regard, personalizing gamified elements will maximize their benefits and ensure they align with organizational objectives and values. This means that every gamification strategy must be crafted according to the industry's requirements and the organizational culture present within the company.

Implementing gamification strategies involves several challenges and barriers. Although gamification's distinct and significant benefits are recognized, its successful deployment faces obstacles that must be addressed strategically to minimize or eliminate potential resistance. Factors such as resistance to change, lack of understanding of its benefits, and generational differences can hinder the adoption of gamification strategies. Accordingly, organizations should develop training and awareness programs aimed at promoting a culture of change and acceptance of new practices, thereby facilitating the integration of gamification into everyday work.

Ultimately, gamification represents a powerful tool for enhancing motivation and engagement in the context of training and business innovation. It can drive innovation across diverse corporate environments by tailoring gamification strategies to each company's cultural and technological landscape. Under this approach, it is possible to maximize its benefits and foster an organizational culture oriented toward innovation.

Based on the findings and conclusions presented, the following recommendations are proposed to strengthen the application of gamification strategies and their impact on training and business innovation processes. First, it is essential to internalize the design of gamified strategies, aligning them with the specific objectives and organizational culture of each company. This includes selecting game elements that genuinely resonate with employees' intrinsic motivations and providing ongoing training on how to use these tools effectively. Doing so will not only help mitigate resistance to change but also ensure that all employees understand and actively participate in these new processes.

Second, it is important to conduct continuous evaluation accompanied by clear metrics to assess the impact of gamified initiatives, enabling the organization to make necessary adjustments to its strategies. Likewise, ongoing employee feedback is crucial for refining these initiatives. However, developing gamification strategies also requires, above all, an organizational culture that is open to change

and experimentation, so as to facilitate the successful adoption of gamified techniques. This includes recognizing and celebrating failures as learning opportunities.

The results demonstrate the feasibility and effectiveness of incorporating gamification into human talent management as a strategy to strengthen employee engagement and motivation. This is achieved through corporate training programs that, beyond fostering job-specific competencies, also cultivate creativity, collaboration, and the capacity to generate innovative ideas.

This research was limited to articles published in English and Spanish between 2020 and 2025, using Scopus as the only database. These considerations suggest that future studies expanding the range of sources and covering a broader time span will be necessary to generalize the findings more comprehensively.

Finally, the systematic review undertaken reveals the need for further studies exploring the relationship between gamification and innovation in specific business contexts – such as healthcare, marketing, traditional industries, and the technology sector. Additionally, research is needed on how game elements can be integrated with advanced technological tools, such as artificial intelligence and augmented reality, to personalize gamified experiences and adapt them to each individual employee's needs.

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