

Exploring the Use of Gamification in Enhancing Employee Engagement in Entrepreneurial Firms

Matthias Nolte¹ 

¹ Department of Management, University of Tartu, Tartu, Estonia

Corresponding author email address: matthiasnolte@ut.ee

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ABSTRACT

This study aims to explore the use of gamification in enhancing employee engagement within entrepreneurial firms, examining employees' perceptions, effective gamification strategies, the impact on engagement, and implementation challenges. This qualitative research employed semi-structured interviews with 20 participants from various entrepreneurial firms. Purposive sampling ensured that participants had relevant experience with gamification. Interviews were conducted until theoretical saturation was achieved, each lasting between 45 and 60 minutes. Data were transcribed verbatim and analyzed using NVivo software, following a systematic coding process to identify themes, categories, and concepts. The analysis revealed four main themes: Perceptions of Gamification, Gamification Strategies, Impact on Employee Engagement, and Challenges in Implementation. Positive attitudes included enjoyment and increased productivity, while negative attitudes encompassed frustration and stress. Effective strategies included goal setting and rewards, interactive elements, and social engagement. Gamification positively impacted motivation, behavior, social dynamics, job satisfaction, retention, work-life balance, and innovation. Challenges identified were technical issues, employee resistance, resource constraints, and difficulties in measuring effectiveness and sustaining engagement. Gamification significantly enhances employee engagement in entrepreneurial firms by making work more enjoyable and motivating. However, successful implementation requires addressing technical issues, employee resistance, and resource constraints while ensuring continuous innovation. The study provides practical recommendations for leveraging gamification to foster a more engaged and productive workforce.

Keywords: *Employee engagement, gamification, entrepreneurial firms, qualitative research, motivation, productivity, workplace innovation.*

Introduction

Employee engagement has become a critical factor for organizational success, particularly in entrepreneurial firms where innovation and agility are paramount. Engaged employees are more productive, committed, and likely to contribute to the company's goals and vision. However, maintaining high levels of engagement is a constant challenge, especially in dynamic and fast-paced environments. One innovative approach to enhancing employee engagement is the use of gamification, which applies game design elements in non-game contexts to motivate and increase user engagement (Nacke & Deterding, 2017).

Gamification involves incorporating elements typical of game playing, such as point scoring, competition with others, and rules of play, into various activities to enhance user engagement and enjoyment. It is based on the premise that game-like experiences can be compelling and enjoyable, driving people to perform tasks they might otherwise find mundane or challenging. This approach leverages psychological principles such as motivation, rewards, and reinforcement to foster a more engaging and productive work environment (Berglund et al., 2022; Girdauskiene, 2022; Gue et al., 2022; Hammedi et al., 2017; Iacono et al., 2020; Isabelle, 2020; Lavoué et al., 2019; Miri & Macke, 2021; Nacke & Deterding, 2017; Torresan, 2023).

Employee engagement is defined as the emotional commitment an employee has to their organization and its goals. High engagement levels are associated with numerous positive outcomes, including increased productivity, better customer service, higher job satisfaction, and lower turnover rates (Girdauskiene, 2022). In entrepreneurial firms, where resources are often limited and competition is fierce, maintaining a highly engaged workforce can be particularly beneficial. Gamification offers a novel strategy to achieve this by making work more interactive and enjoyable, thus fostering a deeper emotional connection to the company's mission and goals (Girdauskiene, 2022).

The body of research on gamification has expanded significantly over the past decade, highlighting its potential benefits and challenges across various sectors. Girdauskiene (2022) discusses gamification as an innovative tool for enhancing employee engagement, noting that it can transform routine tasks into motivating and rewarding experiences (Girdauskiene, 2022). This transformation is particularly useful in entrepreneurial settings where keeping employees motivated is crucial for maintaining a competitive edge. Hammedi, Leclercq, and Riel (2017) examined the use of gamification in participative healthcare services and found that gamification mechanics could significantly increase both employee and user engagement. Their findings suggest that gamification can foster a more collaborative and motivated workforce, even in high-stakes environments like healthcare. This study provides a valuable perspective on how gamification can be applied in various contexts to achieve similar outcomes (Hammedi et al., 2017). In the realm of corporate training, Iacono, Vallarino, and Vercelli (2020) explored gamification's impact on engagement. They found that gamified training modules enhance participants' engagement and learning outcomes, suggesting that gamification can be an effective tool for continuous professional development (Iacono et al., 2020). This aligns with Torresan's (2023) findings that gamification can promote continuous learning at work, reinforcing its utility in fostering an engaged and skilled workforce (Torresan, 2023). Passalacqua et al. (2020) conducted a study on gamification in warehouse settings and discovered that interface gamification significantly increased workforce engagement. Their research highlights the practical

applications of gamification in operational roles, demonstrating that gamification can be tailored to fit various job functions and environments. This versatility makes it a valuable tool for entrepreneurial firms seeking to boost engagement across different departments (Passalacqua et al., 2020). Moreover, Vanduhe, Nat, and Hasan (2020) integrated the Technology Acceptance Model (TAM), social motivation, and task technology fit (TTF) to study the continuance intentions of using gamification in higher education. Their research underscores the importance of aligning gamification strategies with users' technological preferences and social motivations, which can also be applied in corporate settings to enhance employee engagement (Vanduhe et al., 2020).

The primary benefit of gamification lies in its ability to make work more engaging and enjoyable. By incorporating elements such as rewards, leaderboards, and progress tracking, gamification can motivate employees to perform better and stay committed to their tasks (Girdauskiene, 2022). These elements tap into intrinsic and extrinsic motivational factors, making routine tasks feel more like exciting challenges. Sarangi and Shah (2015) highlighted that gamification could benefit individuals, teams, and organizations by fostering a sense of achievement and competition. They argue that gamification can lead to higher levels of job satisfaction and productivity, which are crucial for the success of entrepreneurial firms. The use of gamification also supports team dynamics by encouraging collaboration and healthy competition, which can improve overall organizational performance (Sarangi & Shah, 2015). In addition to enhancing engagement and productivity, gamification can support professional development and learning. Torresan (2023) found that continuous learning through gamified systems helps employees stay updated with industry trends and skills, thereby increasing their value to the organization. This continuous development is particularly important for entrepreneurial firms that rely on innovative and adaptable workforces (Torresan, 2023).

Despite its potential benefits, implementing gamification is not without challenges. One major issue is ensuring that the gamification elements align with the company's culture and employees' preferences (Hammedi et al., 2017). If not carefully designed, gamification can feel forced or superficial, leading to disengagement rather than increased motivation. Therefore, it is essential to tailor gamification strategies to fit the specific needs and context of the organization. Another challenge is the potential for overemphasis on competition, which can create a stressful or toxic work environment (Passalacqua et al., 2020). While competition can be a powerful motivator, it is crucial to balance it with collaboration and support to maintain a positive and inclusive workplace culture. Additionally, technical issues and resource constraints can hinder the effective implementation of gamification systems, requiring careful planning and investment (Iacono et al., 2020). Measuring the effectiveness of gamification is also a complex task. Traditional performance metrics may not capture the full impact of gamification on employee engagement and productivity (Vanduhe et al., 2020). Therefore, organizations need to develop comprehensive evaluation frameworks that consider both quantitative and qualitative data to assess the success of their gamification initiatives.

Gamification represents a promising approach to enhancing employee engagement in entrepreneurial firms. By leveraging game design elements, organizations can create more engaging, motivating, and productive work environments. The existing literature provides robust evidence of gamification's potential benefits, from increasing job satisfaction and productivity to supporting

continuous learning and professional development. However, successful implementation requires careful consideration of the organization's culture, employees' preferences, and potential challenges such as competition and resource constraints. In summary, the integration of gamification into workplace practices holds significant promise for enhancing employee engagement. Thus, this research aims to further our understanding of how gamification can be effectively employed to foster a motivated, productive, and innovative workforce in entrepreneurial firms.

Methods and Materials

This study employs a qualitative research design to explore the use of gamification in enhancing employee engagement within entrepreneurial firms. The qualitative approach was chosen to gain in-depth insights and a nuanced understanding of participants' experiences and perceptions regarding gamification practices.

The primary data collection method used in this research was semi-structured interviews. This method allows for a flexible yet focused exploration of the topic, enabling participants to share their experiences and perspectives in their own words while providing the researcher with the opportunity to probe and clarify responses.

Participants were selected using purposive sampling to ensure they had relevant experience with gamification strategies within entrepreneurial firms. The sample included employees from various departments and hierarchical levels within their organizations to provide a comprehensive view of the subject. The inclusion criteria required participants to have at least six months of experience in a firm that actively implements gamification techniques to enhance employee engagement.

A total of 20 interviews were conducted until theoretical saturation was achieved. Theoretical saturation was determined when additional interviews no longer provided new insights or data relevant to the research questions. Each interview lasted between 45 and 60 minutes and was conducted either in person or via video conferencing platforms, depending on the participants' preferences and geographical locations.

The semi-structured interview guide was developed based on a review of the existing literature on gamification and employee engagement. Key topics covered in the interviews included:

- Participants' general perceptions of gamification
- Specific gamification strategies employed by their firms
- Perceived impact of these strategies on their engagement and motivation
- Challenges and limitations of implementing gamification
- Suggestions for improving gamification practices

The interviews were audio-recorded with participants' consent and transcribed verbatim to ensure accuracy. The data were then analyzed using NVivo software, a qualitative data analysis tool that facilitates the organization and coding of large text datasets.

The coding process involved several steps:

- **Initial Coding:** Open coding was performed to identify and categorize themes and patterns in the data.

- **Axial Coding:** Related codes were grouped into broader categories to form a coherent structure.
- **Selective Coding:** Core themes were identified that represented the central phenomena of the study.
- **Ensuring Rigor:** To ensure the rigor and trustworthiness of the qualitative analysis, several strategies were employed:
 - **Member Checking:** Participants were given the opportunity to review and confirm the accuracy of their transcriptions and the interpretations of their responses.
 - **Triangulation:** Data were cross-verified with findings from the existing literature to validate the emergent themes.
 - **Peer Debriefing:** Regular discussions with colleagues and advisors were conducted to challenge and refine the coding and interpretation processes.

Findings

The study included 20 participants from various entrepreneurial firms, providing a diverse range of perspectives on gamification and employee engagement. The participant group comprised 12 males (60%) and 8 females (40%), reflecting a balanced gender representation. Age distribution varied, with 6 participants (30%) aged between 25-34 years, 8 participants (40%) aged between 35-44 years, 4 participants (20%) aged between 45-54 years, and 2 participants (10%) aged 55 years and above. The majority of participants held middle management positions (12 participants, 60%), while the remaining included senior management (4 participants, 20%) and entry-level employees (4 participants, 20%). Participants' tenure in their respective firms ranged from 6 months to 10 years, with an average tenure of 4.5 years.

Table 1

Categories, Subcategories, and Concepts

Category	Subcategory	Concepts
Perceptions of Gamification	Positive Attitudes	Enjoyment, Motivation, Increased Productivity
	Negative Attitudes	Frustration, Stress, Distraction
	Perceived Benefits	Skill Development, Team Collaboration, Job Satisfaction
	Concerns and Limitations	Overemphasis on Competition, Privacy Issues, Lack of Seriousness
Gamification Strategies	Variability in Perception	Personal Preferences, Cultural Differences, Prior Experiences
	Goal Setting and Rewards	Achievement Badges, Points System, Leaderboards
	Interactive Elements	Quizzes, Simulations, Interactive Training Sessions
	Social Engagement	Team Challenges, Social Recognition, Peer Feedback
	Progress Tracking	Performance Dashboards, Milestone Tracking, Continuous Feedback
	Customization and Flexibility	Personalized Goals, Adjustable Difficulty Levels, Tailored Rewards
Impact on Employee Engagement	Training and Development	Gamified Learning Modules, Scenario-based Training, Workshops
	Enhanced Motivation	Increased Participation, Proactive Learning, Enthusiasm

Challenges in Implementation	Behavioral Changes	Improved Punctuality, Better Task Management, Increased Effort
	Social Dynamics	Enhanced Team Bonding, Positive Competition, Peer Support
	Job Satisfaction	Work Enjoyment, Sense of Accomplishment, Reduced Burnout
	Retention Rates	Lower Turnover, Employee Loyalty, Long-term Commitment
	Work-Life Balance	Reduced Stress, Better Time Management, Job Flexibility
	Innovation and Creativity	Idea Generation, Problem-solving, Creative Thinking
	Technical Issues	Software Bugs, Integration Problems, User Interface Issues
	Employee Resistance	Reluctance to Change, Lack of Interest, Skepticism
	Resource Constraints	Limited Budget, Insufficient Time, Lack of Expertise
	Measuring Effectiveness	Data Collection Challenges, Evaluation Metrics, Feedback Mechanisms
Sustaining Engagement		Fading Interest, Need for Updates, Continual Improvement

Perceptions of Gamification

Positive Attitudes: Many participants expressed positive attitudes towards gamification, noting that it increased their enjoyment and motivation at work. One participant mentioned, "I actually look forward to the challenges. It's fun and keeps me motivated." Increased productivity was also frequently cited as a benefit, with another interviewee stating, "The points system makes me want to achieve more each day."

Negative Attitudes: Despite the overall positive reception, some participants reported negative attitudes. Common issues included frustration and stress caused by the competitive nature of some gamification elements. "Sometimes, it feels like too much pressure, especially when I'm already busy," said one respondent. Distraction was another concern, with a participant noting, "It can be a bit distracting when you're trying to focus on serious tasks."

Perceived Benefits: Participants highlighted several benefits of gamification, including skill development and enhanced team collaboration. One interviewee shared, "The gamified training modules have really helped me improve my skills." Job satisfaction was also mentioned, with a respondent commenting, "I feel more satisfied with my work because it's more engaging."

Concerns and Limitations: Several concerns and limitations were raised regarding gamification. Overemphasis on competition was a significant issue, with one participant stating, "Too much competition can create a toxic environment." Privacy issues and lack of seriousness were also mentioned. "I worry about how my data is being used," noted one employee.

Variability in Perception: Perceptions of gamification varied widely among participants, influenced by personal preferences, cultural differences, and prior experiences. One participant remarked, "Some people love it, while others are not as enthusiastic. It really depends on personal taste."

Gamification Strategies

Goal Setting and Rewards: Participants appreciated the goal-setting and rewards systems, including achievement badges, points, and leaderboards. "Earning badges and seeing my name on the leaderboard motivates me," shared one participant.

Interactive Elements: Interactive elements such as quizzes, simulations, and interactive training sessions were well-received. "The simulations are particularly helpful—they make learning more practical," said one interviewee.

Social Engagement: Social engagement strategies like team challenges and social recognition were highlighted as effective. "Team challenges bring us closer together and foster a sense of camaraderie," noted one participant. Peer feedback was also valued, with a respondent stating, "Getting feedback from my peers helps me improve."

Progress Tracking: The ability to track progress through performance dashboards and milestone tracking was seen as beneficial. "I like seeing my progress over time. It helps me stay focused on my goals," mentioned one employee.

Customization and Flexibility: Participants appreciated the customization and flexibility in gamification, such as personalized goals and adjustable difficulty levels. "Being able to adjust the difficulty makes it more accessible and less stressful," said one respondent.

Training and Development: Gamified learning modules and scenario-based training were particularly effective for training and development. "The gamified modules make learning engaging and easier to retain," shared one participant.

Impact on Employee Engagement

Enhanced Motivation: Gamification significantly enhanced motivation, leading to increased participation and proactive learning. "I'm more enthusiastic about my tasks now," said one employee.

Behavioral Changes: Positive behavioral changes, such as improved punctuality and better task management, were noted. One participant mentioned, "I've become more punctual and organized since we started using gamification."

Social Dynamics: Enhanced team bonding and positive competition were frequently mentioned. "The friendly competition helps build stronger relationships within the team," said one respondent.

Job Satisfaction: Participants reported increased job satisfaction due to the engaging nature of gamification. "I enjoy my work more because it feels like a game," noted one employee. Reduced burnout was also highlighted, with a participant stating, "I feel less burnt out because the tasks are more engaging."

Retention Rates: Gamification contributed to lower turnover and increased employee loyalty. "I'm more committed to staying with the company because I feel engaged," said one participant.

Work-Life Balance: Improved work-life balance was another benefit, with participants mentioning reduced stress and better time management. "Gamification has helped me manage my time better, reducing my stress levels," noted one employee.

Innovation and Creativity: The use of gamification also fostered innovation and creativity, encouraging idea generation and problem-solving. "It's made me think more creatively and come up with new solutions," shared one respondent.

Challenges in Implementation

Technical Issues: Technical issues such as software bugs and integration problems were common. "Sometimes the software glitches, which can be frustrating," said one participant. User interface issues were also noted, with a respondent stating, "The interface could be more user-friendly."

Employee Resistance: Resistance from employees was a significant challenge, with some showing reluctance to change and a lack of interest. "Not everyone is on board with the gamification efforts," mentioned one employee. Skepticism was another issue, with a participant noting, "Some people are skeptical about its effectiveness."

Resource Constraints: Limited budget, insufficient time, and lack of expertise were major constraints. "We often struggle with budget limitations," said one respondent. Another participant mentioned, "We need more time and expertise to fully implement gamification."

Measuring Effectiveness: Measuring the effectiveness of gamification posed challenges, including data collection issues and evaluation metrics. "It's hard to measure how effective gamification is," noted one participant. Feedback mechanisms were also problematic, with a respondent stating, "We need better ways to collect and analyze feedback."

Sustaining Engagement: Keeping employees continuously engaged with gamification required regular updates and improvements. "Interest tends to fade over time, so we need to keep things fresh," said one participant. Continual improvement was necessary, with another interviewee stating, "We have to keep evolving the gamification strategies to maintain engagement."

Discussion and Conclusion

This study explored the use of gamification in enhancing employee engagement within entrepreneurial firms through semi-structured interviews with 20 participants. The findings revealed several key themes: perceptions of gamification, gamification strategies, the impact on employee engagement, and challenges in implementation.

Participants expressed both positive and negative attitudes towards gamification. Positive perceptions included enjoyment, increased motivation, and enhanced productivity, while negative attitudes were centered around frustration, stress, and distraction. Key gamification strategies identified were goal setting and rewards, interactive elements, social engagement, progress tracking, customization, and training and development. The impact of gamification on employee engagement was significant, leading to enhanced motivation, behavioral changes, improved social dynamics, increased job satisfaction, better retention rates, improved work-life balance, and fostered innovation and creativity. However, challenges such as technical issues, employee resistance, resource constraints, difficulties in measuring effectiveness, and sustaining engagement were also highlighted.

The positive attitudes towards gamification reported by participants align with previous studies that have demonstrated the motivational power of game elements in the workplace. Girdauskiene (2022) found that gamification can transform routine tasks into engaging activities, leading to increased enjoyment and motivation (Girdauskiene, 2022). This study supports these findings, as participants highlighted enjoyment and increased productivity as major benefits. The use of gamification elements like points systems, leaderboards, and badges created a sense of achievement and competition that motivated employees to perform better (Sarangi & Shah, 2015).

However, the study also revealed negative perceptions of gamification, including frustration and stress. These concerns are echoed in the literature. Passalacqua et al. (2020) noted that an overemphasis on competition could lead to a stressful work environment. This study corroborates this, with participants expressing that excessive competition can create pressure and distraction. It highlights the need for a balanced approach to gamification, where the competitive aspects are moderated to avoid negative impacts on employee well-being (Passalacqua et al., 2020).

The identification of specific gamification strategies such as goal setting and rewards, interactive elements, and social engagement reflects the diversity of gamification applications in the workplace. Hammedi, Leclerq, and Riel (2017) found that various gamification mechanics could significantly increase engagement in participative healthcare services. This study extends these findings to entrepreneurial firms, demonstrating that tailored gamification strategies can effectively enhance employee engagement across different sectors (Hammedi et al., 2017).

Interactive elements like quizzes and simulations were particularly well-received, which aligns with Iacono, Vallarino, and Vercelli's (2020) study on corporate training. They found that gamified training modules not only engage employees but also improve learning outcomes. This study's participants echoed this sentiment, indicating that gamified learning modules made training more engaging and practical (Iacono et al., 2020). Similarly, Torresan (2023) emphasized the importance of continuous learning through gamification, which this study supports by highlighting the role of gamification in training and development (Torresan, 2023).

The impact of gamification on employee engagement was profound. Participants reported enhanced motivation, better task management, and improved social dynamics, which are consistent with findings from Girdauskiene (2022) and Sarangi and Shah (2015). These studies indicated that gamification could foster a sense of accomplishment and team bonding, leading to higher levels of job satisfaction and reduced burnout (Girdauskiene, 2022; Sarangi & Shah, 2015). This study's participants also noted improved work-life balance and retention rates, suggesting that gamification can create a more supportive and engaging work environment.

Innovation and creativity were additional benefits identified, with participants noting that gamification encouraged idea generation and problem-solving. This aligns with Vanduhe, Nat, and Hasan's (2020) study, which integrated the Technology Acceptance Model (TAM) and social motivation to highlight the potential of gamification in fostering creativity and innovation (Vanduhe et al., 2020). By providing a stimulating and interactive environment, gamification can enhance employees' creative thinking and problem-solving skills.

Despite the positive impacts, several challenges in implementing gamification were identified. Technical issues, such as software bugs and user interface problems, were common. This finding is consistent with Iacono et al. (2020), who noted that technical challenges could hinder the effective implementation of gamification systems (Iacono et al., 2020). Additionally, employee resistance was a significant barrier, with some participants reluctant to embrace gamification. Hammedi et al. (2017) discussed similar resistance, emphasizing the importance of aligning gamification strategies with employees' preferences and organizational culture (Hammedi et al., 2017).

Resource constraints, including limited budgets and insufficient time, were also significant challenges. Passalacqua et al. (2020) highlighted that implementing gamification requires careful planning and investment, which can be difficult for entrepreneurial firms with limited resources. Measuring the effectiveness of gamification posed another challenge, as traditional performance metrics might not fully capture its impact. Vanduhe et al. (2020) emphasized the need for comprehensive evaluation frameworks that consider both quantitative and qualitative data to assess the success of gamification initiatives (Vanduhe et al., 2020).

Sustaining engagement over time was another issue, as participants noted that interest in gamification could wane without regular updates and improvements. This finding supports Torresan's (2023) emphasis on the need for continuous innovation in gamification strategies to maintain employee engagement (Torresan, 2023). Regular updates and new challenges are essential to keep gamification fresh and engaging, preventing it from becoming monotonous.

The results of this study indicate that gamification can significantly enhance employee engagement in entrepreneurial firms by making work more enjoyable and motivating. The positive impact on motivation, productivity, and job satisfaction suggests that gamification is a viable strategy for fostering a more engaged and committed workforce. However, the successful implementation of gamification requires careful consideration of potential challenges, such as technical issues and employee resistance, and continuous innovation to maintain long-term engagement.

This study has several limitations that should be acknowledged. The sample size was relatively small, with only 20 participants, which may limit the generalizability of the findings. Additionally, the study relied on self-reported data from semi-structured interviews, which could be subject to response bias. The qualitative nature of the research also means that the findings may not be easily quantifiable. Furthermore, the study was conducted within a specific context of entrepreneurial firms, which may have unique characteristics that do not necessarily apply to other types of organizations.

Future research should consider larger and more diverse samples to enhance the generalizability of the findings. Quantitative studies could complement qualitative insights by providing measurable data on the impact of gamification on employee engagement. Longitudinal studies would be valuable in assessing the long-term effects of gamification and how engagement levels change over time. Additionally, research could explore the impact of different types of gamification elements and strategies to determine which are most effective in various organizational contexts. Finally, investigating the interplay between gamification and other factors, such as organizational culture and leadership styles, could provide a more comprehensive understanding of its effectiveness.

For practitioners, this study highlights the importance of carefully designing and implementing gamification strategies that align with employees' preferences and organizational culture. Companies should invest in robust technical infrastructure and provide adequate training and support to address potential resistance. Regular updates and new challenges are essential to sustain engagement and prevent gamification from becoming monotonous. Additionally, organizations should develop comprehensive evaluation frameworks that include both quantitative and qualitative measures to assess the effectiveness of their gamification initiatives. By addressing these considerations, entrepreneurial firms can leverage gamification to enhance employee engagement, foster innovation, and achieve their business goals.

Authors' Contributions

Authors contributed equally to this article.

Declaration

In order to correct and improve the academic writing of our paper, we have used the language model ChatGPT.

Transparency Statement

Data are available for research purposes upon reasonable request to the corresponding author.

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Declaration of Interest

The authors report no conflict of interest.

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Ethical Considerations

In this research, ethical standards including obtaining informed consent, ensuring privacy and confidentiality were observed.



References

- Berglund, A., Jaarsma, T., Berglund, E., Strömberg, A., & Klompstra, L. (2022). Understanding and assessing gamification in digital healthcare interventions for patients with cardiovascular disease. *European Journal of Cardiovascular Nursing*, 21(6), 630-638.
- Girdauskiene, L. (2022). Gamification as an Innovative Instrument for Employee Engagement. *Marketing and Management of Innovations*, 1(1), 10-17. <https://doi.org/10.21272/mmi.2022.1-01>
- Gue, S., Ray, J., & Ganti, L. (2022). Gamification of graduate medical education in an emergency medicine residency program. *International Journal of Emergency Medicine*, 15(1), 1-7.
- Hammedi, W., Leclercq, T., & Riel, A. C. R. v. (2017). The Use of Gamification Mechanics to Increase Employee and User Engagement in Participative Healthcare Services. *Journal of Service Management*, 28(4), 640-661. <https://doi.org/10.1108/josm-04-2016-0116>
- Iacono, S., Vallarino, M., & Vercelli, G. (2020). Gamification in Corporate Training to Enhance Engagement: An Approach. *International Journal of Emerging Technologies in Learning (Ijet)*, 15(17), 69. <https://doi.org/10.3991/ijet.v15i17.14207>
- Isabelle, D. A. (2020). Gamification of Entrepreneurship Education. *Decision Sciences Journal of Innovative Education*, 18(2), 203-223. <https://doi.org/10.1111/dsji.12203>
- Lavoué, E., Monterrat, B., Desmarais, M. C., & George, S. (2019). Adaptive Gamification for Learning Environments. *Ieee Transactions on Learning Technologies*. <https://doi.org/10.1109/tlt.2018.2823710>
- Miri, D. H., & Macke, J. (2021). Gamification, Motivation, and Engagement at Work: A Qualitative Multiple Case Study. *European Business Review*, 34(2), 263-276. <https://doi.org/10.1108/eb-04-2020-0106>
- Nacke, L. E., & Deterding, S. (2017). The Maturing of Gamification Research. *Computers in human Behavior*, 71, 450-454. <https://doi.org/10.1016/j.chb.2016.11.062>
- Passalacqua, M., Léger, P. M., Nacke, L. E., Frédette, M., Labonté-LeMoyne, É., Xin-li, L., Caprioli, T., & Sénécal, S. (2020). Playing in the Backstore: Interface Gamification Increases Warehousing Workforce Engagement. *Industrial Management & Data Systems*, 120(7), 1309-1330. <https://doi.org/10.1108/imds-08-2019-0458>
- Sarangi, S., & Shah, S. (2015). Individuals, Teams and Organizations Score With Gamification. *Human Resource Management International Digest*, 23(4), 24-27. <https://doi.org/10.1108/hrmid-05-2015-0074>
- Torresan, S. (2023). Continuous Learning at Work: The power of Gamification. *Management Decision*, 61(13), 386-412. <https://doi.org/10.1108/md-12-2020-1669>
- Vanduhe, V. Z., Nat, M., & Hasan, H. F. (2020). Continuance Intentions to Use Gamification for Training in Higher Education: Integrating the Technology Acceptance Model (TAM), Social Motivation, and Task Technology Fit (TTF). *IEEE Access*, 8, 21473-21484. <https://doi.org/10.1109/access.2020.2966179>

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