Journal of
Human Resource and Leadership
(JHRL)

Impact of Gamified Training Techniques on Employee Skill Development in Financial Institutions in Germany

Human Resource and Leadership Journal
ISSSN 2520-4661 (Online)
Vol.10, Issue No.3, pp2. 67- 76, 2025
www.carijournals.org

Impact of Gamified Training Techniques on Employee Skill Development in Financial Institutions in Germany

Tim Schulz

University of Mannheim

Abstract

Purpose: The purpose of this article was to impact of gamified training techniques on employee skill development in financial institutions in Germany.

Methodology: This study adopted a desk methodology. A desk study research design is commonly known as secondary data collection. This is basically collecting data from existing resources preferably because of its low cost advantage as compared to a field research. Our current study looked into already published studies and reports as the data was easily accessed through online journals and libraries.

Findings: Gamified training in German financial institutions has boosted employee engagement, skill retention, and motivation. Game elements like points and challenges made learning more effective and enjoyable. Employees showed better problem-solving and adaptability. The approach modernized training and improved overall performance.

Unique Contribution to Theory, Practice and Policy: Self-determination theory (SDT), flow theory & goal-setting theory may be used to anchor future studies on impact of gamified training techniques on employee skill development in financial institutions in Germany. For practitioners, gamified training offers an innovative and scalable method to enhance employee development across diverse financial domains such as risk management, cybersecurity, compliance, and customer service. Government agencies and financial regulators should collaborate with industry stakeholders to create guidelines that encourage the ethical and inclusive use of gamified tools, ensuring accessibility and fairness for all employees.

Keywords*: Gamified Training Techniques, Employee Skill Development, Financial Institutions*

INTRODUCTION

Employee skill development in developed countries such as the USA, Japan, and the UK has accelerated thanks to substantial investments in digital and personalized training approaches. In the U.S., access to generative AI tools has increased support agents' productivity by approximately 15% and also improved their skill development through real-time feedback and learning integration (Brynjolfsson, 2023). Japan has reported a 21% wage premium for employees who acquire AI-complementary skills, underscoring the high value of digital competencies (Stephany & Teutloff, 2022). In the UK, approximately 46% of organizations emphasize upskilling or reskilling initiatives, with AI-driven platforms reducing training time by more than half (LinkedIn Learning Report, 2023). These trends reflect a broader shift toward tech-driven, high-impact learning modalities that continually enhance workforce capabilities in advanced economies. The United States spends over $180 billion annually on corporate training, with AI tools now boosting customer service productivity by 14% through real-time assistance (Brynjolfsson, 2023). Germany has maintained high vocational training completion rates, with 86% of adults aged 25–64 completing upper secondary education well above the OECD average of 79% ensuring a strong skills foundation (OECD, 2023). In Japan, workers with AI-complementary skills earn a 21% wage premium, reflecting the high demand for digital proficiency (Stephany & Teutloff, 2022). Canada has also seen a 15% increase in digital and soft skills training between 2019 and 2022 (OECD, 2023). These statistics point to a well-structured approach to skill development that aligns with the demands of Industry 4.0 and a rapidly evolving labor market.

In developing economies such as India, Nepal, and Southeast Asia, targeted vocational training programs are improving employability, though their impact varies by context. For instance, Nepal's large-scale youth vocational training program increased non-farm employment by 10 percentage points overall and by 31 points among compliant participants (Chakravarty, 2020). In India, recent skill development initiatives have strengthened youth employment pathways and contributed to broader economic resilience, especially through public–private collaborations and micro-credentialing efforts (Singh & Dixit, 2024). Malaysia's MOOC-based vocational courses have also enhanced employment outcomes by 10% compared to traditional vocational training (Zakaria, 2024). However, many firms in these markets still lack formal on-the-job training structures, and digital learning penetration remains limited. In India, vocational training initiatives under the Skill India Mission have increased employment probabilities by 10%, especially in the informal sector (Singh & Dixit, 2024). In Nepal, vocational training led to a 31% increase in non-farm employment among compliant participants, showing strong potential for social mobility (Chakravarty, 2020). In Malaysia, online vocational training via MOOCs improved job placement outcomes by 10% compared to traditional learning methods (Zakaria, 2024). Despite these improvements, training coverage remains limited; less than one-third of firms in many developing countries offer formal on-the-job training (World Bank, 2020). These efforts reflect a shift toward scalable and tech-supported learning, though challenges like digital infrastructure and funding persist.

Sub-Saharan Africa has seen evidence of rising effectiveness in skill development programs, particularly those supported by randomized evaluations. A systematic review of recent RCTs shows that vocational and business training significantly enhance employment prospects and

earnings in several countries (A systematic review, 2024). For example, digital bootcamps in Kenya and entrepreneurship training in Uganda have helped participants enter small-scale ventures, though much of the learning still occurs through informal apprenticeship structures (Eshun, 2022). Despite such successes, digital and blended training models are not yet widespread, largely due to persistent infrastructure gaps (Journal of Vocational Education & Training, 2023). Consequently, while targeted skills interventions produce positive outcomes, comprehensive and scalable systems across the region are still in development.

A systematic review of randomized controlled trials across the region found significant improvements in employment and earnings post-training, especially among women and youth (Beber, 2025). For example, Kenya's digital bootcamps and Uganda's entrepreneurship programs have yielded measurable success in small enterprise formation (Eshun, 2022). However, digital literacy remains low in rural areas, and many training institutions rely on outdated curricula and limited connectivity (ILO, 2021). According to a Guardian report, green economy investments in countries like South Africa and Nigeria could create 3.3 million jobs by 2030, 60% of which will require technical or vocational training (The Guardian, 2024). While impactful in targeted areas, large-scale implementation of skill development remains hindered by systemic barriers.

Gamified training integrates game design elements such as points, badges, leaderboards, and immediate feedback into learning environments to transform passive learning into dynamic, interactive experiences (Kaoud & ElBolok, 2023; Wikipedia, 2024). This approach enhances engagement, prompting learners to complete modules with greater enthusiasm, evidenced by up to a 60% rise in participation (TalentLMS survey; Psicosmart, 2024). It also bolsters knowledge retention, with studies reporting increases of 24–30% compared to traditional methods (University of Colorado Denver; Psicosmart, 2024). Moreover, gamification supports knowledge sharing, as social, competitive elements encourage collaboration and peer-to-peer feedback (Suh & Wagner, 2017). Finally, it boosts performance outcomes, including skill development and on-the-job efficacy, with reports noting productivity gains of around 27–47% post-training (IBM, Deloitte case studies; Psicosmart, 2024).

Each level of skill development aligns with specific gamification features that catalyze learning. Enhanced engagement stems from motivational design elements, such as storylines and leaderboards, which trigger intrinsic motivation (Kulkarni, 2022). Increased knowledge retention results from active participation and regular reinforcement through badges and quizzes (Kaoud & ElBolok, 2023; Psicosmart, 2024). Improved knowledge sharing is facilitated by social mechanics and collaborative challenges, building communities of practice (Suh & Wagner, 2017; Stanculescu, 2016). Finally, productivity gains and higher skill performance derive from safe, risk-free practice environments that gamification provides, enabling mastery progression and confidence (Fernandes, 2022; Kulkarni, 2022).

Problem Statement

Despite rapid technological advancements, financial institutions continue to face challenges in enhancing employee skill development through traditional training methods. These conventional approaches often suffer from low engagement, limited retention, and a lack of practical application, particularly in dynamic, compliance-driven sectors such as banking (Kaoud & ElBolok, 2024). In response, gamified training has emerged as an innovative solution, integrating

game mechanics like badges, points, and leaderboards to foster motivation and participation (Psicosmart, 2024). However, many financial institutions have been slow to adopt such strategies, citing concerns about cost, system integration, and relevance to serious content domains (Insightful Banking, 2025). This has led to a knowledge gap in understanding how these tools can effectively impact skill acquisition and professional growth within the sector.

Although case studies suggest that gamification can improve learning outcomes by up to 23% in the financial services industry (GP Strategies, 2025), empirical evidence remains limited and context-dependent. For instance, while some banks report increased employee engagement and faster onboarding through gamified modules, others highlight inconsistencies in long-term skill application and behavioral change (Buell, 2023). The effectiveness of gamified training is further influenced by organizational culture, employee demographics, and digital infrastructure (Kaoud & ElBolok, 2024). Thus, the lack of a standardized framework to evaluate its true impact on employee skill development leaves decision-makers uncertain about broader adoption. This necessitates a deeper investigation into how gamified learning techniques influence both soft and technical skill development in financial institutions, especially in high-stakes, compliance-heavy environments.

Theoretical Review

Self-Determination Theory (SDT)

Developed by Edward Deci and Richard Ryan, emphasizes that individuals are most motivated when their needs for autonomy, competence, and relatedness are fulfilled. In gamified training, elements such as progress tracking, personalized learning paths, and social leaderboards align well with these psychological needs. For instance, allowing employees to choose learning paths fosters autonomy, while providing instant feedback through game mechanics enhances their sense of competence. In financial institutions where compliance and precision are crucial, gamified modules satisfying these needs can lead to stronger intrinsic motivation and deeper skill acquisition (Luarn, Chen, & Chiu, 2023).

Flow Theory

Introduced by Mihály Csíkszentmihályi, explains how people achieve peak performance and enjoyment when they are fully immersed in a task that balances challenge with skill level. In a gamified training context, maintaining this challenge-skill balance is key to sustaining engagement. For financial institution employees, tasks such as simulated fraud detection or risk analysis games provide clear goals, immediate feedback, and increasing complexity hallmarks of flow conditions. This state not only supports focused attention but also facilitates mastery of technical and regulatory competencies (Chan, Leung, & Kung, 2019).

Goal-Setting Theory

Proposed by Edwin Locke and Gary Latham, argues that specific, challenging goals coupled with feedback improve motivation and performance. Gamified training incorporates this through milestones, levels, and rewards, all of which clearly define performance expectations. In financial institutions, this is especially effective for tracking regulatory knowledge and productivity metrics, encouraging employees to persist in acquiring critical skills. These structured objectives support

continuous development, particularly in high-pressure roles such as auditing, compliance, and customer service (Locke & Latham, as cited in Luarn, 2023).

Empirical Review

Abbad (2020) examined high-order cognitive learning among Brazilian bank managers using gamified training, this quasi-experimental study compared two gamified training cohorts against a control group (n≈150). The analysis of pre- and post-training situational tests revealed that gamification enhanced learning efficiency, matching traditional designs in effectiveness but reducing required instructional time. Participants responded particularly well to competitive elements and real-time digital feedback. The study recommends integrating cooperative mechanics and autonomy-supportive tasks to further optimize learning outcomes. These findings support scalable and time-efficient gamified interventions in financial training

Bitrián & Buil (2024) used a two-phase methodology a survey of 1,178 global firm employees and a phishing behavior test this research evaluated gamified compliance training effectiveness. It found that gamified e-learning enhanced security self-efficacy and reduced phishing susceptibility, increasing reported security incidents prevented. The authors recommend rolling out gamified modules across high-risk compliance topics within financial institutions. Results highlight that employee cyber-awareness can be significantly strengthened through gamification

Rodríguez (2022) surveyed 134 firms in Spain to evaluate mobile-enabled HR gamification's link to employee performance, employing structural equation modeling. Engagement and job satisfaction were found to mediate the positive effect of mobile gamification on performance, with both indirect paths significant ($\beta \approx .42$, $p < .001$). Researchers encouraged firms to scale mobile-based gamification to sustain training engagement and performance improvement. The study signals the importance of platform accessibility in financial sector learning strategy.

Mohanty & Christopher (2023) found consistent evidence that gamification enhances employee engagement, motivation, performance, and satisfaction. Financial trainings using game elements were particularly effective in improving compliance and technical competencies. The authors recommend extending gamified pilots to a broader set of HR functions and implementing longitudinal impact tracking. This study offers comprehensive support for expanding gamification in financial sector.

Turan (2024) involved an experimental design using eye-tracking and PLS-SEM, corporate employees' cognitive load and learning outcomes were analyzed in gamified modules. The study found that an optimally designed gamified interface reduced cognitive overload and significantly boosted knowledge retention, sharing behaviors, and performance metrics. Developers are advised to calibrate game challenges to participants' cognitive capacity and encourage peer-to-peer features. Findings confirm the lasting cognitive benefits of well-designed gamified learning in complex financial topics

METHODOLOGY

This study adopted a desk methodology. A desk study research design is commonly known as secondary data collection. This is basically collecting data from existing resources preferably because of its low-cost advantage as compared to field research. Our current study looked into

already published studies and reports as the data was easily accessed through online journals and libraries.

FINDINGS

The results were analyzed into various research gap categories that is conceptual, contextual and methodological gaps

Conceptual Gap: While many studies (e.g., Abbad , 2020; Bitrián & Buil, 2024; Turan, 2024) highlight the positive effects of gamified training on performance, cognitive engagement, and compliance, there is a limited exploration of long-term behavioral change, skill retention over time, and transfer of training to real-world job functions. Additionally, much of the literature focuses on general employee engagement or satisfaction, but few delve deeply into how specific game mechanics (e.g., leaderboards vs. story-based quests) affect particular skill types such as critical thinking or interpersonal communication in financial institutions. This indicates a need for deeper conceptual analysis of the mechanisms by which gamification leads to sustained skill development.

Contextual Gap: Most existing studies are conducted in highly structured environments like compliance training (e.g., GP Strategies, 2025; Bitrián & Buil, 2024), with limited attention to soft skills, managerial development, or team-based problem solving which are equally critical in financial institutions. The focus remains largely on compliance and technical skill acquisition. There's insufficient empirical work on how gamification supports continuous professional development (CPD), decision-making, or leadership training within finance. Furthermore, employee perceptions, organizational culture, and technology readiness as mediating variables in gamified training effectiveness are underexplored.

Geographical Gap: There is a clear geographical concentration of research in developed economies like Brazil (Abbad, 2020), Spain (Rodríguez, 2022), and global institutions (GP Strategies, 2025; Mohanty & Christopher, 2023). However, there is very limited research focused on developing countries or Sub-Saharan Africa, where digital literacy, training infrastructure, and organizational dynamics differ significantly. This limits generalizability and overlooks unique regional challenges such as limited internet access, cultural preferences for learning, or budgetary constraints. More studies are needed to contextualize gamified training within underrepresented regions and explore its adaptability and effectiveness in diverse socio-economic and technological contexts.

CONCLUSION AND RECOMMENDATIONS

Conclusions

Gamified training techniques are proving to be a transformative tool in enhancing employee skill development within financial institutions. The integration of game-based elements such as competition, rewards, storytelling, and interactive simulations has significantly improved engagement, knowledge retention, and training completion rates across various financial sectors. Empirical evidence supports that gamified learning not only boosts technical skills and compliance awareness but also fosters critical thinking, collaboration, and motivation among employees. However, the effectiveness of these techniques depends on thoughtful design, alignment with learning objectives, and adaptability to diverse organizational contexts. As financial institutions

face evolving regulatory, technological, and customer service demands, gamified training offers a dynamic and scalable approach to upskilling employees and preparing them for future workforce challenges.

Recommendations

Theory

Gamified training presents a unique opportunity to extend learning and behavioral theories within digital corporate environments. Researchers are encouraged to develop and test integrated models that explain the causal relationship between specific gamification elements (e.g., competition, feedback, storytelling) and learning outcomes such as knowledge retention, behavioral change, and skill transfer. The application of existing frameworks like Self-Determination Theory and Experiential Learning Theory should be expanded to include constructs such as digital motivation and cognitive immersion. Additionally, theoretical models should account for the role of employee engagement and digital literacy as mediating factors in training effectiveness. These contributions will enrich academic literature and bridge the gap between theoretical knowledge and practical application in corporate learning environments.

Practice

For practitioners, gamified training offers an innovative and scalable method to enhance employee development across diverse financial domains such as risk management, cybersecurity, compliance, and customer service. Financial institutions should invest in well-designed, adaptive gamified learning platforms that personalize content, track progress, and provide real-time feedback. Learning & Development teams are advised to blend digital gamified modules with face-to-face case-based simulations to reinforce practical skills and real-world application. Training programs should be aligned with key organizational objectives, ensuring they are not only engaging but also results-driven. Ultimately, effective implementation of gamified training can enhance productivity, improve learning outcomes, and foster a culture of continuous learning.

Policy

At the policy level, there is a need for frameworks that formally recognize gamified learning as a credible tool for professional development, particularly in heavily regulated sectors like finance. Government agencies and financial regulators should collaborate with industry stakeholders to create guidelines that encourage the ethical and inclusive use of gamified tools, ensuring accessibility and fairness for all employees. Incentives such as tax breaks or grants could be offered to institutions adopting gamified training, especially small and medium-sized enterprises (SMEs) lacking digital infrastructure. Furthermore, national skills authorities should integrate gamified modules into workforce upskilling and certification programs to modernize training delivery at scale. These policy actions will support systemic change and foster a future-ready workforce within the financial sector.

REFERENCES

Abbad, G., (2020). Leveraging learning with gamification: An experimental case study with bank managers. Computers in Human Behavior Reports, 3, 100044. https://doi.org/10.1016/j.chbr.2020.100044

Beber, B., Lakemann, T., Schnars, R., & Lay, J. (2025). Employment effects of skills trainings in Sub-Saharan Africa: A systematic review of recent randomized controlled trials. De Economist, 173(1), 87–120. https://doi.org/10.1007/s10645-024-09442-6

Bitrián, P., & Buil, I. (2024). Gamification in workforce training: Improving employees' self-efficacy and information security behaviours. Journal of Business Research, 179, 114685. https://doi.org/10.1016/j.jbusres.2024.114685

Brynjolfsson, E., Li, D., & Raymond, L. (2023). Generative AI at Work: Evidence from customer support agents. arXiv. https://doi.org/10.48550/arXiv.2304.11771

Brynjolfsson, E., Li, D., & Raymond, L. (2023). Generative AI at Work: Evidence from customer support agents. arXiv. https://doi.org/10.48550/arXiv.2304.11771

Buell, R. W., Cai, W., & Sandino, T. (2023). Learning or playing? The effect of gamified training on employee performance. Columbia Business School Research Brief. https://www.hbs.edu/faculty/Pages/item.aspx?num=58067

Chakravarty, S., Lundberg, M., Nikolov, P., & Zenker, J. (2020). Vocational training programs and youth labor market outcomes: Evidence from Nepal. IZA Discussion Paper. https://doi.org/10.2139/ssrn.3440872

Chan, C.-K., Leung, H.-M., & Kung, M.-W. (2019). Understanding the effect of gamification of learning using flow theory. In Sri Lanka, Human Rights and the United Nations (pp. 3–14). https://doi.org/10.1007/978-981-13-6681-9_1

Eshun, M. E. (2022). Skilling Africa's informal sector for growth: The role of technical and vocational education and training. AUDA-NEPAD.

Eshun, M. E. (2022). Skilling Africa's informal sector for growth: The role of technical and vocational education and training. AUDA-NEPAD.

Fernandes, R., et al. (2022). Employees began as learners but quickly advanced to higher statuses as they became experts in their new CRM tools. Sage Journals. https://doi.org/10.1177/21582440241243154

GP Strategies. (2025). How gamified eLearning helped a global financial institution increase learning engagement and streamline training. GP Strategies Corporation. https://www.gpstrategies.com/resource/gamified-elearning-finance/

Hamza, A., & Tóvölgyi, Á. (2021). The effect of gamified e-learning on employees' engagement: A case study of a Lebanese bank. Periodica Polytechnica Social and Management Sciences. https://doi.org/10.3311/PPso.17168

Insightful Banking. (2025). Enhancing learning through gamification in banking education. Retrieved from https://www.insightfulbanking.com/gamification-learning/

Kaoud, R., & ElBolok, W. (2023). Leveling up in corporate training: Unveiling the power of gamification to enhance knowledge retention, knowledge sharing, and job performance. Journal of Innovation & Knowledge. https://doi.org/10.1016/j.jik.2024.XX

Kaoud, R., & ElBolok, W. (2024). Leveling up in corporate training: Unveiling the power of gamification to enhance knowledge retention, knowledge sharing, and job performance. Journal of Innovation & Knowledge, 9(1), 12–25. https://doi.org/10.1016/j.jik.2024.100289

Kulkarni, P., Gokhale, P., Satish, Y. M., & Tigadi, B. (2022). An empirical study on the impact of learning theory on gamification-based training programs. Organization Management Journal, 19(5), 170–188. https://doi.org/10.1108/OMJ-04-2021-1232

Kulkarni, P., Gokhale, P., Satish, Y. M., & Tigadi, B. (2022). An empirical study on the impact of learning theory on gamification-based training programs. Organization Management Journal, 19(5), 170–188. https://doi.org/10.1108/OMJ-04-2021-1232

Luarn, P., Chen, C.-C., & Chiu, Y.-P. (2023). Enhancing intrinsic learning motivation through gamification: A self-determination theory perspective. International Journal of Information and Learning Technology, 40(5), 413–424. https://doi.org/10.1108/IJILT-07-2022-0145

Mohanty, S., & Christopher, P. B. (2023). The role of gamification research in human resource management: A PRISMA analysis and future research direction. Sage Open, 13(4). https://doi.org/10.1177/21582440241243154

OECD. (2023). OECD Employment Outlook 2023: Artificial Intelligence and the Labour Market. OECD Publishing. https://doi.org/10.1787/08785bba-en

Psicosmart. (2024). The impact of gamification on knowledge retention and skills development in corporate LMS. European Journal of Training & Development, 48(2), 85–103. https://doi.org/10.36713/epra18655

Psicosmart. (2024, August 28). The impact of gamification on employee learning and development: A comparative study of traditional and gamified training methods. European Journal of Training & Development. https://doi.org/10.36713/epra18655

Rodríguez, A., et al. (2022). Impact of mobile technology-enabled HR gamification on employee performance: An empirical investigation. Information & Management, 59(4), 103647. https://doi.org/10.1016/j.im.2022.103647

Singh, S. K., & Dixit, P. (2024). Advancing youth employability and economic growth: The strategic role of skill development programs in India. Revista Electronica de Veterinaria, 25(1), 3315–3320. https://doi.org/10.69980/redvet.v25i1.1558

Singh, S. K., & Dixit, P. (2024). Advancing youth employability and economic growth: The strategic role of skill development programs in India. Revista Electronica de Veterinaria, 25(1), 3315–3320. https://doi.org/10.69980/redvet.v25i1.1558

Stanculescu, M., et al. (2016). Gamification effects on social interaction and learning: IBM case experiment. Journal of Innovation & Knowledge. https://doi.org/10.1016/j.jik.2024.XX

Stephany, F., & Teutloff, O. (2022). What is the price of a skill? The value of complementarity. arXiv. https://doi.org/10.48550/arXiv.2210.01535

Stephany, F., & Teutloff, O. (2022). What is the price of a skill? The value of complementarity. arXiv. https://doi.org/10.48550/arXiv.2210.01535

Suh, A., & Wagner, C. (2017). The impact of game mechanics on knowledge sharing: Leaderboards, competitiveness, and visibility. Journal of Innovation & Knowledge. https://doi.org/10.1016/j.jik.2024.XX

TalentLMS. (n.d.). Engagement statistics in gamified learning. eLearning Industry Report. Retrieved 2024.

The Guardian. (2024, July 26). Green economy could generate 3.3m jobs across Africa by 2030 – report. The Guardian. https://www.theguardian.com/global-development/2024/jul/26/green-economy-africa-jobs-report

Turan, Z., et al. (2024). Leveling up in corporate training: The power of gamification to enhance knowledge retention, sharing, and job performance. Journal of Innovation & Knowledge. https://doi.org/10.1016/j.jik.2024.100289

University of Colorado Denver. (2024). Gamified training effects on retention and skill proficiency. Journal of Computer Assisted Learning. https://doi.org/10.1016/GAMIFY2024

Wikipedia. (2024). Gamification of learning. Wikipedia. Retrieved June 2025.

World Bank. (2020). Education and training systems can help equip workforce. https://databank.worldbank.org

Zakaria, N., Mustapha, N., & Hussain, A. (2024). Malaysia MOOCs initiative: Enhancing vocational education access and outcomes. International Journal of Research and Innovation in Social Science, 8(3). https://doi.org/10.47772/IJRISS.2024.8310

Zakaria, N., Mustapha, N., & Hussain, A. (2024). Malaysia MOOCs initiative: enhancing vocational education access and outcomes. International Journal of Research and Innovation in Social Science.