

AI-Enabled Gamification in the Workplace: A Behavioral Economics Approach to Employee Engagement in the IT Workforce

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Abstract

Organizations are increasingly embedding game design elements into everyday work systems to sustain employee motivation and engagement. Examples include points, badges, leaderboards, progress bars, and algorithmically personalized feedback systems. The increase in research in the area of gamification applies not only to education and customer-facing contexts but also to organizations, especially in knowledge-intensive sectors such as the IT landscape. This study presents and verifies an integrated model connecting Gamified Work Systems (GWS) with Employee Engagement (EE) through two mediating processes: the motivational response generated by personalized, algorithmically administered feedback and Decision-Framing Effects (DFE) shaped by the presentation of goals and progress. These two processes feed into Cognitive Immersion (CI). The proposed model was evaluated using structural equation modeling, using survey data collected from IT professionals based on self-determination theory, prospect theory, and flow theory. The research outcomes suggest that direct framing and indirect personalized feedback affect employees decisions regarding gamified systems. Furthermore, the impact of the first-mentioned framing has a stronger downstream relationship with immersion than the feedback with AI driven effect of motivation. This study is significant because it extends behavioral economics thinking on choice architecture to the workplace gamification area, providing guidance on how to design engagement systems.

Keywords: Gamification, Employee engagement, Decision framing, Cognitive immersion, Behavioral economics, IT workforce

1. Introduction

Organizations have increasingly turned to Gamified Work Systems (GWS) to sustain employee motivation, productivity, and engagement through a period of rapid digital change. These systems embed familiar game-design elements such as points, badges, leaderboards, challenges, and rewards directly into the flow of everyday work. Layered on top of this structure is a motivational mechanism that personalizes the experience: feedback and incentives that adjust to an individual's performance and behaviour rather than following a fixed, one-size-fits-all schedule. This personalization shapes what this study calls Decision-Framing Effects (DFE) the way tasks, goals, and rewards are presented so as to influence how employees perceive and act on them. A customized, responsive experience of this kind tends to deepen Cognitive Immersion (CI), the state of sustained, absorbed involvement in work-related activity. Greater immersion, in turn, is a precondition for higher Employee Engagement (EE), commonly characterized by vigor, dedication, and absorption at work. Together, these constructs form a framework for understanding how gamified work systems, mediated by personalized feedback and framing, produce an engaging and motivating workplace experience.

1.1 Research Gap

Despite growing interest in gamification as a management tool, its integrated application inside organizational settings remains underexplored. Existing studies concentrate heavily on education and customer engagement, leaving Gamified Work Systems and the personalized, algorithmically mediated motivational mechanisms that accompany them comparatively understudied in organizational contexts. The mediating roles of Decision-Framing Effects and Cognitive Immersion in translating gamification into engagement have likewise received limited empirical attention, and few studies offer a single framework connecting all of these constructs particularly within knowledge-intensive industries such as IT. This study addresses that gap by proposing an integrated model explaining how gamified work systems foster employee engagement through behavioural and cognitive mechanisms.

2. Review of literature

Six structural relationships anchor this study, and this section builds the theoretical case for each one. Read together, they position game mechanics as behavioural nudges operating through a sequential cognitive-motivational chain that ultimately shapes engagement among IT professionals. The review

follows the order in which these relationships were specified and later tested: gamified systems predicting both a personalized motivational response and decision-framing effects; those two mechanisms jointly predicting cognitive immersion; and both the systems themselves and immersion predicting engagement. Each subsection opens with the mechanism at stake, then works through supporting evidence from gamification research, behavioural economics, and organizational behaviour. The section closes by drawing the six paths into a single argument and restating the gap this study addresses. Five theoretical frameworks do the explanatory work throughout self-determination theory, flow theory, prospect theory, the job demands-resources model, and conservation of resources theory each introduced where it is most useful rather than gathered into one undifferentiated block.

2.1 Gamified Work Systems and Motivational Response

Gamified work systems take shape when familiar design elements points, badges, leaderboards, progress bars, challenges, narrative arcs are folded into everyday organizational tools. The motivational construct of interest here is the employee's reaction to personalized feedback delivered within those systems: adaptive difficulty, automated performance prompts, and pacing cues that arrive without a manager's direct, moment-to-moment involvement.

Self-determination theory offers a useful account of why these matters. Motivational quality, not just quantity, depends on whether a system satisfies three underlying needs autonomy, competence, and relatedness [4]. Gamified systems address competence through continuous feedback loops and autonomy through the latitude employees retain in choosing how to pursue points or clear challenges. When that feedback is personalized rather than generic, the literature on need-satisfying feedback suggests the motivational effect should intensify provided employees experience it as informational rather than controlling. This distinction matters especially in IT organizations, where gamified elements are already embedded in dashboards, sprint trackers, and certification platforms; a personalized feedback layer sitting on top of these tools is more likely to be read by employees as supportive coaching than as surveillance, so long as the framing stays informational rather than evaluative.

2.2 Gamified Work Systems and Decision-Framing Effects

How information is presented can matter as much as what it says. Decision-Framing Effects capture exactly this: the degree to which the way goals or progress are conveyed through a gamified interface shapes employees' choices and appetite for risk.

Prospect theory is the natural reference point [3], since it demonstrated that people weigh losses more heavily than equivalent gains, and that reframing an identical decision from gain to loss or the reverse is

enough to flip a preference without changing the underlying stakes at all. Gamification platforms are, in effect, framing devices by design. A points display frames task completion as a gain; a streak counter or countdown timer frames inaction as a loss; a leaderboard casts performance in relative rather than absolute terms. Each device recasts the same underlying outcome through a different lens, and because gamified systems are the structural source of these devices to begin with, richer exposure to gamification should correspond to greater sensitivity to framing effects.

This reasoning held up empirically: the path from gamified work systems to decision-framing effects was confirmed (unstandardized estimate = 0.422, 95% CI [0.294, 0.549], $p < .01$), reinforcing the behavioural-economics premise that interface presentation not merely task content shapes how employees decide.

2.3 Motivational Response and Cognitive Immersion

The link between personalized motivation and cognitive immersion follows a similar interface-level logic. Feedback that adapts to an employee's pace and skill level does more than sustain effort; it narrows attention onto the task at hand in a way that mirrors the conditions flow theory identifies as prerequisites for deep absorption a clear goal, immediate feedback, and a challenge calibrated to skill. When feedback is delivered continuously and tuned to individual performance rather than issued at fixed intervals, employees are less likely to disengage between feedback cycles, sustaining the kind of moment-to-moment attentional lock that immersion research treats as its defining feature.

2.4 Decision-Framing Effects and Cognitive Immersion

One of the more original connections in this model links decision-framing and cognitive immersion two literatures that have, for the most part, developed independently of each other. The conceptual bridge runs through attention: a loss frame, or a progress bar signalling a near-miss, concentrates attention in much the same way that the attentional processes central to flow theory operate. Prospect theory explains why a given frame inflates the perceived value of an outcome; flow theory explains what happens to attention once that outcome feels within reach. Studies examining challenge and time pressure on attentional absorption generally find that well-calibrated urgency increases absorption rather than anxiety, provided the challenge stays within the employee's perceived capability.

That pattern held in this study as well: the path from decision-framing effects to cognitive immersion was confirmed (unstandardized estimate = 0.474, 95% CI [0.387, 0.573], $p < .01$), with a coefficient larger than that observed for the motivational path suggesting that, at least in this sample, how a task is framed shapes immersion more strongly than how feedback is delivered.

3. Conclusion

This study set out to explain how gamified work systems translate into employee engagement, and it does so by tracing a path through two intervening mechanisms rather than treating the relationship as direct. Gamified design elements shape engagement partly by triggering a personalized motivational response and partly by framing goals and progress in ways that alter how employees weigh their choices. Both routes converge on cognitive immersion, which functions as the psychological bridge between exposure to a gamified system and the sustained vigor, dedication, and absorption that define engagement.

Two findings stand out. First, the path from gamified systems to decision-framing effects was substantial and well-supported, confirming that the way a system presents goals as gains to be won or losses to be avoided is not incidental to its design but central to how employees respond. Second, decision-framing effects carried a stronger relationship with cognitive immersion than the motivational-response path did, suggesting that in this sample, how information is framed may matter more for sustained engagement than the presence of personalized feedback on its own. Taken together, these results extend behavioural-economics thinking on choice architecture into a domain workplace gamification where it has so far received comparatively little empirical attention, and they reinforce the broader argument that engagement in knowledge-intensive settings like IT is shaped as much by how work is presented as by what the work itself involves.

For practice, the implication is that organizations designing gamified systems should treat framing as a deliberate design choice rather than a cosmetic one. Progress indicators, leaderboards, and streak mechanics are not neutral ways of displaying information; they actively shape whether employees interpret a task as an opportunity to gain or a risk of loss, and that interpretation carries through to how immersed and engaged they become. Pairing thoughtful framing with feedback that feels personalized and informational, rather than evaluative or controlling, appears to offer the more complete route to engagement than either mechanism alone.

This study is not without limitations. The model was tested within a single sector and a cross-sectional design, which limits claims about how these relationships might unfold over time or generalize to other

knowledge-intensive industries. Future research could examine whether the relative strength of framing versus feedback-driven motivation holds across sectors, whether it shifts with tenure or role seniority, and whether sustained exposure to gamified systems changes how strongly employees respond to framing over the longer term. Longitudinal designs, in particular, would help clarify whether the immersion and engagement observed here persist or fade as novelty wears off — a question this cross-sectional data cannot answer on its own.

References

1. B. Bakker and E. Demerouti, "Job demands-resources theory: Taking stock and looking forward," *Journal of Occupational Health Psychology*, vol. 22, no. 3, pp. 273–285, 2017, <https://doi.org/10.1037/ocp0000056>
2. S. E. Hobfoll, "Conservation of resources: A new attempt at conceptualizing stress," *American Psychologist*, vol. 44, no. 3, pp. 513–524, 1989, <https://doi.org/10.1037/0003-066X.44.3.513>
3. D. Kahneman and A. Tversky, "Prospect theory: An analysis of decision under risk," *Econometrica*, vol. 47, no. 2, pp. 263–291, 1979, <https://doi.org/10.2307/1914185>
4. R. M. Ryan and E. L. Deci, "Self-determination theory and the facilitation of intrinsic motivation, social development, and well-being," *American Psychologist*, vol. 55, no. 1, pp. 68–78, 2000, <https://doi.org/10.1037/0003-066X.55.1.68>
5. K. R. Gowda, J. V. Kureethara, and S. V. Jaiwant, "AI-enhanced strategies for workforce involvement," *Advances in Human Resources Management and Organizational Development Book Series*, 2024, <https://doi.org/10.4018/979-8-3693-6412-3.ch003>
6. E. Siswanto, S. Wahyuning, N. Qosidah, H. Ihsanil Huda, and P. Asti, "Enhancing employee engagement through gamified digital platforms: A case study approach in the technology sector," *Journal of Management and Informatics*, vol. 3, no. 3, 2024, <https://doi.org/10.51903/jmi.v3i3.59>
7. Obaid and M. S. Farooq, "TechMark: A framework for the development, engagement, and motivation of software teams in IT organizations based on gamification," *PeerJ Computer Science*, 2024, <https://doi.org/10.7717/peerj-cs.2285>
8. M. R. Silva and J. C. Pinto, "Game on! Antecedents and consequents of gamification in the workplace," *Journal of Workplace Learning*, 2024, <https://doi.org/10.1108/jwl-09-2024-0193>
9. L. Bizzi, "Why to gamify performance management? Consequences of user engagement in gamification," *Information & Management*, 2023, <https://doi.org/10.1016/j.im.2023.103762>

10. P. Getman, O. M. Yaroshenko, O. Demenko, O. Lutsenko, and R. Prokopiev, "Gamification for staff motivation: Impact on work efficiency and corporate culture at the international level," *Journal of Economics & Management*, 2024, <https://doi.org/10.22367/jem.2024.46.11>
11. H. Livengood and P. Lan, "Gamification as a catalyst for business engagement: Insights from case studies and technological innovations," *The Journal of Innovations*, 2023, <https://doi.org/10.62470/3f243829>
12. S. Torresan and A. Hinterhuber, "Continuous learning at work: The power of gamification," *Management Decision*, 2023, <https://doi.org/10.1108/md-12-2020-1669>