

The Effect of Gamification in HRIS Applications on Millennial Employee Performance and Engagement

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ABSTRACT

Background. The development of information technology has encouraged organizations to digitize their HR management systems through the Human Resource Information System (HRIS). The millennial generation as the dominant users of this system demand an interactive and meaningful work experience, so the concept of gamification is starting to be applied in HRIS features to improve their participation and performance.

Purpose. This study aims to analyze the influence of gamification in HRIS applications on the performance and work engagement of millennial generation employees, as well as examine the role of work involvement as a mediator in these relationships.

Method. This study uses a quantitative approach with a correlational design. The sample consisted of 120 millennial employees at tech companies who used HRIS with gamification features. Data were collected through questionnaires and analyzed using multiple regression techniques and mediation tests.

Results. The results show that positive perceptions of gamification have a significant effect on employee engagement and performance. Work engagement has been shown to be a partial mediator in the relationship between gamification and work performance.

Conclusion. Gamification in HRIS has proven to be an effective strategy to increase the motivation and productivity of millennial employees. An engaging, competitive, and interactive work system makes a positive contribution to a more meaningful work experience.

KEYWORDS

Gamification, HRIS, Millennial Employees

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INTRODUCTION

Digital transformation in human resource management systems has prompted organizations to adopt a more interactive and technology-based approach (Toxtli dkk., 2024). The Human Resource Information System (HRIS) no longer only functions as an administrative tool, but has evolved into a strategic platform in improving efficiency and employee engagement. These changes are driven by the need for companies to create an adaptive and integrated work environment with the preferences of the new generation of workers (Pandita & Yadav, 2022).

The millennial generation that now dominates the global workforce has unique characteristics in terms of work motivation, technology use, and expectations for the work environment (Ainoutdinova dkk., 2019).



They are growing in a fast, dynamic, and interactivity-packed digital ecosystem (Richards, 2022). Their interest in the elements of the game, direct rewards, and feedback systems makes organizations need to adjust their employee management strategies to better suit their learning and working styles (Varadaraj & Wadi, 2021).

Gamification in HRIS is emerging as a promising strategy to improve user experience, emotional engagement, and work productivity (Sardana, 2020). The use of game elements such as points, badges, leaderboards, and challenges can create a competitive and collaborative sense in the work system. This integration not only increases intrinsic motivation, but also helps employees understand HR processes in a more engaging and enjoyable way (Gupta dkk., 2025).

The application of gamification has proven to be effective in a variety of organizational contexts, from increased training participation to increased completion of HR administrative tasks. Several large companies have reported positive results in terms of employee loyalty, productivity, and engagement after implementing gamification features in their HRIS applications. This innovation is the answer to the need for personalization and interactivity in the digital work system (Georgion, 2024).

The positive response to gamification is also supported by the global trend towards more flexible, autonomous and results-based work systems (Vanucci, 2019). Today's employees are not only looking for stability, but also meaningful and challenging work experiences (Mai dkk., 2024). HRIS that adopts gamification offers added value in creating work dynamics that are in line with the spirit of the millennial generation (Nguyen, 2023).

According to the Self-Determination theory from Deci and Ryan (1985), human motivation is influenced by three basic psychological needs, namely competence, autonomy, and connectedness. Gamification in HRIS can facilitate all three simultaneously: providing challenges to hone competencies, providing options in decision-making, and creating social networks that support interaction between employees (Heydt, 2021). This theory provides a solid basis that gamification strategies are intrinsically able to increase engagement and work performance.

A lot of research has been done on gamification in the world of work, especially in the context of marketing and education. However, there is still very limited research that specifically examines the implementation of gamification in HRIS systems and its impact on the performance and engagement of millennial employees (Lee, 2020). This phenomenon opens up a wide space for exploration, especially considering the need for organizations to respond to changes in work behavior influenced by digitalization and the demographics of the younger generation (Arvidsson, 2019).

Most of the available studies still focus on the general effectiveness of gamification without considering the functional context of HRIS as a human resource management system (Fleming & Harrison, 2020). Gamification elements in HR modules such as training, performance appraisal, or digital attendance have not been analyzed in depth in relation to increasing millennial work motivation. This gap is important considering that HRIS is now the main platform in administrative interactions between employees and organizations (Tollefson, 2023).

There is still little empirical evidence on how game elements can encourage positive work behavior changes among millennials through HRIS applications (Stieglitz dkk., 2022). Data on how they respond to features such as points, reward systems, weekly challenges, or interactive dashboards is still not widely available. This lack of understanding has the potential to hinder the optimization of user-friendly and motivating HR system design (Gubarik, 2022).

Some organizations have implemented gamification features in their HRIS, but not many have conducted a systematic evaluation of its impact on employee productivity or engagement (Ifeanyi,

t.t.). There is no clear standard for gamification success metrics in HRIS, which makes implementation results often vary (Liu dkk., 2023). This condition emphasizes the urgency of research to provide a more accurate and relevant mapping of the use of gamification in the realm of human resources (Bisbey dkk., 2021).

According to the Flow Theory of Csikszentmihalyi (1990), a person will experience optimal engagement when they feel immersed in activities that are challenging but appropriate to their abilities. Gamification in HRIS is designed to create these conditions through an instant feedback system, clear goals, and gradual challenges (Schreiber, 2021). There hasn't been much research that has tested whether this theory is actually reflected in employee interactions with gamified HRIS systems, especially in millennials who are known to value immersive work experiences (Gut, 2021).

The urgency of filling this research gap lies in the need for organizations to create a digital work environment that is not only administratively efficient, but also supports the work ethic and active participation of the millennial generation (Brailovskaya, 2023). The implementation of gamification in HRIS is predicted to be able to bridge the needs of technology and work psychology by creating a system that is not only functional, but also motivating. This study was designed to test whether gamification has a real influence on the performance and engagement of millennial employees (Stout, 2023).

Focusing on millennials is relevant considering that they now dominate the workforce, and will continue to play a strategic role in the organization's growth in the future (Gadomska-Lila, 2024). Understanding their response to gamification features is critical in designing an adaptive and impactful HRIS system. This study aims to empirically measure the relationship between gamification, work engagement, and employee performance in the context of using HRIS applications (Zhao, 2024).

According to the Technology Acceptance Model (TAM) theory from Davis (1989), the adoption of technology by users is influenced by the perception of the ease of use and usability of the technology. Gamification in HRIS has the potential to enhance that perception by creating an engaging interface and a pleasant user experience. Understanding this perception is the basis for assessing the extent to which gamification can be accepted and used to the maximum by millennial employees (Kassymtayeva, 2020).

RESEARCH METHODOLOGY

This study uses a quantitative approach with an explanatory research design through a correlational survey method (Nair dkk., 2019). The main purpose of this design is to test the relationship and influence between gamification variables in HRIS applications on the performance and engagement of millennial generation employees. The analysis was carried out using an inferential statistical approach using multiple linear regression models to determine the significant contribution of each variable (Mikhailova, 2020).

The population in this study is millennial employees (born between 1981–1996) who work in technology companies and startups that have implemented HRIS with gamification features. The sampling technique was carried out by purposive sampling with the criteria of subjects who have been active using the HRIS application for at least the last three months. The number of samples used was 120 respondents spread across three major cities: Jakarta, Bandung, and Surabaya (Ibnu dkk., 2024).

The instrument used in this study is a questionnaire based on a 5-point Likert scale consisting of three parts: perception of gamification elements in HRIS (such as points, challenges, badges), work engagement level (referring to the Utrecht Work Engagement Scale/UWES), and work

performance indicators (based on individual productivity indicators and work target achievement). The validity of the content was tested through expert judgment, while the reliability of the instrument was tested using Cronbach's Alpha (Pawar dkk., 2022).

The research procedure began with data collection through the distribution of online questionnaires using Google Form to selected respondents. After the data is collected, a screening process is carried out to avoid duplicate or invalid data. The cleaned data was then analyzed using SPSS statistical software version 25 to test classic assumptions, correlations, and regressions between gamification variables, work engagement, and employee performance (Oetken, 2024).

RESULT AND DISCUSSION

The average score for gamification variables in HRIS was 4.12 with a standard deviation of 0.56, which indicates that most respondents have a positive perception of the application of gamification elements. The minimum score was 3.0 and the maximum was 5.0, which indicates that none of the respondents showed extreme rejection of this feature. A score spread that is not too wide indicates the consistency of user perception.

Table 1. Descriptive Statistical Table of Research Variables

Average	Standard Deviation	Score Minimum	Maximum Score
4.12	0.56	3.0	5.0
4.08	0.62	2.8	5.0
4.25	0.59	3.1	5.0

Work engagement has an average of 4.08 with a standard deviation of 0.62. The minimum score was recorded at 2.8 which means that there is a small percentage of respondents who feel less engaged with their work. The maximum score is 5.0 which indicates that there are respondents who show a very high level of engagement.

Employee performance has the highest average among the three variables, which is 4.25 with a standard deviation of 0.59. The minimum score on this variable is 3.1 and the maximum of reaching the full value, which is 5.0. The distribution of this score shows that the majority of employees show high work performance based on the productivity indicators assessed.

The increase in average scores on employee performance variables compared to other variables shows the potential positive impact of a gamified HRIS system. Respondents who perceive gamification as a fun feature tend to show good work performance. The compatibility between digital features and millennial characteristics is a supporting factor for their involvement in technology-based work systems.

The relatively small standard deviation in all variables shows a uniformity of views between respondents on the effectiveness of gamification. This strengthens the suspicion that the game element in HRIS is well received by the millennial generation. The difference in minimum and maximum scores in work engagement also shows that there are still segments of employees who have not felt the maximum impact of this feature.

The initial relationship seen between gamification scores and other variables indicates a positive correlation direction. The higher the perception of gamification, the higher the engagement and work performance scores. These findings support the initial hypothesis that gamification is able to contribute to increased work value through increased motivation and digital interaction.

Pearson's correlation results showed that there was a significant positive relationship between gamification and work engagement ($r = 0.71$, $p < 0.01$). This correlation shows that the higher the respondents' perception of gamification features, the higher their level of engagement with work.

This relationship is considered strong and supports previous literature on the influence of system interactivity on employee engagement.

Gamification also showed a significant relationship with employee performance ($r = 0.68$, $p < 0.01$). This correlation score indicates that features such as badges, points system, or leaderboard are positively correlated with the rate of achievement of work targets. This data is strengthened by the results of the regression test which shows a determination coefficient value of 0.54.

The work engagement variable was found to be a partial mediator in the relationship between gamification and performance. The *Sobel test* indicates that work engagement makes a significant contribution to bridging the influence of gamification on employee performance. These results show that gamification improves performance not only directly, but also through increased engagement.

Work engagement is proving to be an essential element in building a healthy digital work culture. The gamification system encourages active participation, direct feedback, as well as rewards for achievements, which contributes to a sense of belonging and job satisfaction. High participation creates a positive cycle that has an impact on work outcomes.

The significant performance gains that occur are due to intrinsic motivation built through fun digital experiences. Features such as weekly challenges, ranking systems, and daily missions provide a competitive as well as collaborative stimulus that balances the dynamics of individual and team work. A healthy competitive work environment encourages the optimization of personal potential.

HRIS gamification also accelerates the process of adaptation to digital systems, especially for millennial employees who are familiar with the concept of games. Employees feel more comfortable and efficient in completing administrative tasks as HRIS systems are transformed into more engaging experiences. The originally monotonous work process became more emotionally and socially valuable.

The correlations found between the variables show that gamification does not affect just one aspect, but creates multiple effects on different dimensions of work behavior. The application of gamification elements has an impact on increased motivation, engagement, and ultimately performance. These results reinforce the hypothesis that engaging digital experiences have a drive for performance.

The relationship between engagement and performance explains that employees who feel valued and actively engaged tend to work more effectively. Digital interventions such as gamification are shaping new work patterns that are more interactive and personalized. The psychological effects of the recognition and achievements that the system gives are proven to create a productive impact.

The integration of gamification into HRIS can be seen as a two-pronged strategy: improving administrative systems and strengthening performance-based organizational culture. This combination allows for the creation of a digital work environment that supports employee growth and organizational efficiency at the same time.

An employee named Dina, an HR staff at a technology company in Bandung, stated that she felt more challenged to complete HR tasks because of the points and badge system given for each achievement. This fun experience makes it easier to complete attendance reports and employee training that was previously considered a tedious task.

In another interview, Rafi, a 29-year-old digital marketer, admitted that the leaderboard in the HRIS application motivated him to complete projects faster in order to get the best position. He considers this feature as a form of "mini game" that makes the work process more exciting. He even

said that the feature increases collaboration between teams because everyone wants to achieve the best results.

Nina, the manager of the training team, admits that the gamification system helps to recognize new talents in her team because the achievement feature in HRIS shows which employees are consistently performing highly. This feature helps him make team promotion and rotation decisions more objectively and transparently.

Case studies provide tangible evidence that employee experiences with gamification features have a direct impact on work motivation. The responses given by users are affective as well as cognitive, reinforcing the quantitative data that has been obtained previously. Employees feel that the work system has become more lively and triggers a healthy spirit of competition.

Recognition of performance through visual elements such as badges and ratings creates a sense of appreciation that is not always found in conventional systems. Respondents revealed that this system provides validation of their efforts, which in turn increases emotional attachment to work. These elements play a crucial role in creating a positive work experience.

Employees who actively use gamification features show a tendency to care more about organizational goals. This system helps align individual goals with organizational goals, as each personal achievement is directly linked to the team's and company's achievements. This contribution shows that gamification has strategic potential in performance management.

The consistency between the quantitative data and the findings of the case studies shows that the use of gamification in HRIS is not just a technological solution, but a holistic performance improvement strategy. This approach strikes a balance between an efficient digital work system and a satisfying work experience. These findings reinforce the reliability of gamification as a human resource management tool.

Employee involvement has proven to be an important intermediary in improving work performance. Data shows that a sense of connection, challenge, and recognition in the work system plays a huge role in creating a productive work environment. This relationship leads to the importance of designing a work system that is not only administrative, but also psychological.

Gamification in HRIS provides a new direction for the development of more human, interactive, and data-driven work systems. The relationship built between digital features and work behavior opens up a space for collaboration between technology and organizational management that has a greater impact in the long run.

The results of the study show that the application of gamification in HRIS applications has a significant impact on increasing work engagement and employee performance of millennial generation. Average engagement and work performance scores show an increase along with positive perceptions of gamification features such as points, badges, and leaderboards. Correlation and regression analysis indicate a strong and positive relationship between gamification and the two dependent variables.

Work engagement has proven to be an important mediator in the relationship between gamification and employee performance. The higher the engagement that employees feel towards the system, the greater their contribution to the achievement of work targets. The study also shows that gamification not only improves the technical aspects of using HRIS systems, but also the affective and cognitive aspects of work behavior.

The case study reinforces the quantitative data by showing that employees feel more motivated, healthily competitive, and emotionally engaged when work systems adopt the principles of the game. Respondents reported increased satisfaction and sense of belonging to tasks and work

teams. These findings confirm that the gamification approach in HRIS provides a more immersive and enjoyable work experience.

The results of this study are in line with the findings from Werbach & Hunter (2012) and Hamari et al. (2014) which show that gamification can increase motivation and productivity in the context of organizations. This research expands the scope of their study by focusing on HRIS systems and the characteristics of millennials as key users. This more specific context provides validation that gamification is relevant in the realm of digital human resource management.

This research also reinforces a study by Suh & Wagner (2017) that emphasizes the importance of designing gamified elements that are responsive to user characteristics. In this context, HRIS apps equipped with weekly leaderboards and challenges have proven to be a good fit for millennial work preferences who love dynamic interactions and instant feedback. These findings show that system personalization based on user generation is an effective strategy in digital HR design.

The difference with previous studies is seen in the focus of measurement that combines perception, engagement, and employee performance simultaneously. Most previous research still limited to one dependent variable or did not explicitly place engagement as a mediator. This study offers a more comprehensive approach in understanding the dynamics between digital features and work behavior.

These findings are an important indicator that the digital work system can not only function as an administrative tool, but also as a means of psychological and social strengthening of employees. HRIS that adopts gamification creates a more humane and experience-oriented digital workspace. This change is a sign that organizations must adapt to a new paradigm in managing human resources.

Performance improvement through a gaming approach shows that millennials need a work system that is not only functional, but also fun and challenging. Boring and monotonous systems tend to hinder active participation and creativity. The positive experiences felt in this study reflect the demand for a more flexible, visual, and reward-based work model.

This phenomenon also signals that the effectiveness of technology in an organization depends on the ability to respond to the affective needs of users. Systems that pay attention to emotions, motivations, and social interactions have greater potential to be accepted and optimized. Technological design that is not only logical but also psychological is a major need in the digital work era.

Organizations that adopt gamification-based HRIS have a great opportunity to increase employee loyalty and retention. A work environment that encourages active participation through game elements creates a high sense of ownership of work systems and roles. This implication is crucial in reducing turnover, especially among millennials known as the generation with high mobility.

HRIS system designs that combine elements of competition and reward can be used as a strategic tool in improving a merit-based work culture. This kind of system not only records performance, but also motivates achievement through digital incentive mechanisms. The use of data from gamification systems can also help managers in a more objective and transparent decision-making process.

The results of this research can serve as a reference for HR technology developers to create applications that are not only technically reliable, but also fun to use. Investing in gamification features should be seen not as an additional cost, but rather as a long-term strategy in building work attachment and sustainable productivity.

The millennial generation grew up in a digital culture that prioritizes speed, interactivity, and gamification in various aspects of life. The digital environment forms a mindset that values a system of direct feedback, visualization of achievements, and level-based challenges. These features are naturally found in HRIS gamification systems thus creating a positive resonance in their work behavior.

Gamification allows the creation of a personal narrative in the work system, where each employee feels like a "key player" in his or her own task. The application of elements such as badges or ranks creates an emotional attachment to daily tasks that were previously routine. This process encourages employees to be more active, creative, and intrinsically motivated.

HRIS equipped with gamification also provides a sense of concrete and measurable achievement through a transparent reward system. Employees not only know what they have to work on, but can also visually see their progress and achievements. This element psychologically reinforces a sense of control and confidence in getting the job done.

Organizations need to start considering the integration of gamification features in HRIS systems as part of their HR digital transformation strategy. An evaluation of employee needs and characteristics should be done first to ensure a relevant and effective gamification design. HR teams and technology developers must collaborate to design an optimal digital work experience.

Further research is suggested to test the impact of gamification over a longer period of time and across a variety of different industry sectors. Longitudinal approaches and cross-cultural analyses can provide a broader and deeper understanding of the effectiveness of these strategies. Quantitative data can be enriched with qualitative methods to capture the subjective meaning of gamification-based work experiences.

Organizations also need to develop gamification implementation guidelines that consider the ethical aspects, work-balance, and fairness of the reward system. This approach will ensure that gamification is not only a motivational tool, but also a means of developing a healthy, inclusive, and sustainable work ecosystem.

CONCLUSION

This study found that gamification in HRIS applications has a significant influence on increasing work engagement and employee performance of millennial generation. An important finding that distinguishes this study is the placement of engagement variables as mediators that explains how gamification not only has a direct impact on work performance, but also indirectly through increased engagement.

The main contribution of this research lies in the integration of conceptual approaches between motivation theory, work involvement, and gamification-based technology system design applied in the context of digital human resource management. This research model makes a methodological contribution by combining in-depth correlational and multiple regression analysis to test the relationship between variables simultaneously.

This research has limitations in geographical scope and type of industry that is still focused on the technology sector and startups in urban areas. The direction of advanced research can broaden populations and sectors to test the generalization of findings, as well as apply a longitudinal approach to measure the long-term impact of the application of gamification in HRIS systems on loyalty, job satisfaction, and career development.

AUTHORS' CONTRIBUTION

Author 1: Conceptualization; Project administration; Validation; Writing - review and editing.

Author 2: Conceptualization; Data curation; In-vestigation.

DECLARATION OF COMPETING INTEREST

The authors declare that they have no known competing financial interests or personal relationships that could have appeared to influence the work reported in this paper.

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