The role of gamification and incentives in improving crowd worker engagement and performance: A systematic review

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Abstract

Objective: This systematic review aims to examine the role of gamification and incentives in improving crowd worker engagement and performance in crowdsourcing tasks. This provides a clear focus for the review and sets out the research question the review aims to answer.

Methods: This review synthesizes the existing literature on the topic, drawing on studies from various disciplines such as computer science, psychology, and management. This methodological approach allows the review to draw on a broad range of research and to provide a comprehensive overview of the topic. By adopting a systematic approach to the review, the authors can ensure that their findings are robust and reliable.

Findings: The review explores the various gamification and incentive strategies that are crowdsourcing tasks and their impact on worker engagement and performance. This subtopic provides a clear overview of the review's main findings and provides evidence for using gamification and incentives in crowdsourcing. Discussing the factors influencing these strategies' effectiveness highlights the issue's complexity and the need for a nuanced approach to gamification and incentives in crowdsourcing.

Novelty: This review provides a comprehensive overview of the literature on the topic and identifies gaps in the literature. By identifying gaps in the literature, the review highlights areas where further research is needed. The review also highlights potential avenues for future research on the topic, which could help to advance our understanding of the role of gamification and incentives in improving crowd worker engagement and performance in crowdsourcing tasks.

Keywords: Crowdsourcing, Gamification, Incentives, Worker engagement, Performance

I. INTRODUCTION

Crowdsourcing is an increasingly popular method for completing tasks and collecting data using a distributed workforce. However, maintaining high levels of engagement and performance among crowd workers can be a significant challenge. Gamification and incentives have been suggested as possible solutions to this problem, but their effectiveness in improving worker engagement and performance is not yet fully understood. This research paper presents a systematic review of the literature on the role of gamification and incentives in improving crowd worker engagement and performance in crowdsourcing tasks. The review aims to provide a comprehensive overview of these strategies' evidence base and identify the most effective approaches for improving worker engagement and performance. By examining the existing research, this paper aims to provide practical recommendations for organizations that use crowdsourcing for data collection or task completion. The paper by Behl A, Sampat B, Raj S. [1] presents a multi-theoretical approach to analyse the productivity of gig workers on crowdsourcing platforms using gamification and artificial intelligence. The authors explore the potential benefits of gamification and AI in enhancing worker productivity and performance, drawing on several theoretical frameworks such as self-determination theory, social cognitive theory, and the job demand-control-support model. In contrast, Hammedi W, Leclercq T, Poncin I, Alkire L. [2] uncover gamification's negative impacts on workplace engagement and well-being. The study emphasizes the importance of considering the potential downsides of gamification, such as creating a competitive work environment and increasing stress levels among employees. Feyisetan O, Simperl E. [3] experiment with paid microtask contests as an alternative to monetary incentives for workers. The authors find that gamification elements such as leader boards and badges can significantly improve worker participation and task completion rates in microtask contests. Bizzi L. [4] explores the consequences of user engagement in gamification for performance management. The study emphasizes the importance of considering employee motivation, feedback, and reward structures in designing effective gamification systems.

Prasad KD, Mangipudi MR. [5] conducted an empirical study on gamification for employee engagement in the e-commerce industry. The authors find that gamification elements such as badges and leader boards can significantly improve employee engagement and motivation in the workplace. Shanmugalingam J, Lario D, Ma Y. [6] explore the potential of gamification and predictive analytics for the next generation of workers. The study examines how gamification elements such as badges and points can enhance worker motivation, engagement, and performance and how predictive analytics can help design effective gamification systems.

Birtek A, Colak O, Gulbahar O, Sarac O. [7] investigate the importance of gamification for motivating hotel employees. The study examines how gamification elements such as badges and leader boards can enhance employee motivation and job satisfaction in the hotel industry. Prasad KD [8] explore using gamification and resource pooling to improve operational efficiency and human resource management in an e-commerce company. The study emphasizes the importance of considering employee motivation, engagement, and collaboration in designing effective gamification systems.

Vardarlier P. [9] suggests an agenda for gamification in human resource management, emphasizing the importance of considering individual differences in employee motivation, feedback, and reward structures. Leite R, Alves L. [10] propose a gamified model for motivating construction workers in pandemic times. The authors highlight the importance of considering employee motivation, feedback, and reward structures in designing effective gamification systems in the construction industry.

Lithoxoidou, E. [11] propose a novel social gamified collaboration platform enriched with shop-floor data and feedback to improve factory productivity, safety, and engagement. The authors emphasize the importance of considering employee motivation, collaboration, and feedback in designing effective gamification systems to improve factory productivity and safety. Overall, we need a more comprehensive understanding of the effectiveness and potential drawbacks of gamification and AI in employee productivity and engagement, particularly in emerging countries. There is also a need for more empirical studies to determine the impact of gamification on employee creativity and well-being and explore alternative incentive structures beyond monetary rewards and need to investigate the potential and constraints of work gamification for employees' creative performance.

II. METHODOLOGY

Overall, gamification and incentives in improving crowd worker engagement and performance are dynamic and ongoing processes that require careful planning, implementation, and monitoring. By following these steps, organizations can create a more engaged and motivated workforce better equipped to tackle complex tasks and projects. The process of gamification and incentives in improving crowd worker engagement and performance typically involves several steps:

Step 1: Identify the task or project: The first step is to identify the task or project that needs to be completed. This could be anything from data entry to image tagging.

Step 2: Determine the goals and objectives: The next step is to determine the goals and objectives of the task or project. This will help determine the incentives and rewards most effectively motivate crowd workers.

Step 3: Develop the game elements: These could include points, badges, levels, and leader boards. These game elements are designed to motivate and engage the crowd workers by providing them with a sense of progress and accomplishment.

Step 4: Define the incentives and rewards: The incentives and rewards should be designed to motivate the crowd workers to complete the task or project. This could include bonuses, gift cards, or even cash payments.

Step 5: Implement the gamification and incentive program: Once the game elements and incentives have been developed, the next step is to implement the program. This could involve using a crowdsourcing platform that includes built-in gamification features, or it could involve creating a custom solution.

Step 6: Monitor and adjust the program: Finally, monitoring the program and making adjustments as needed is essential. This could involve tweaking the game elements or incentives to motivate and engage the crowd workers. The process is shown in the figure 1[14].
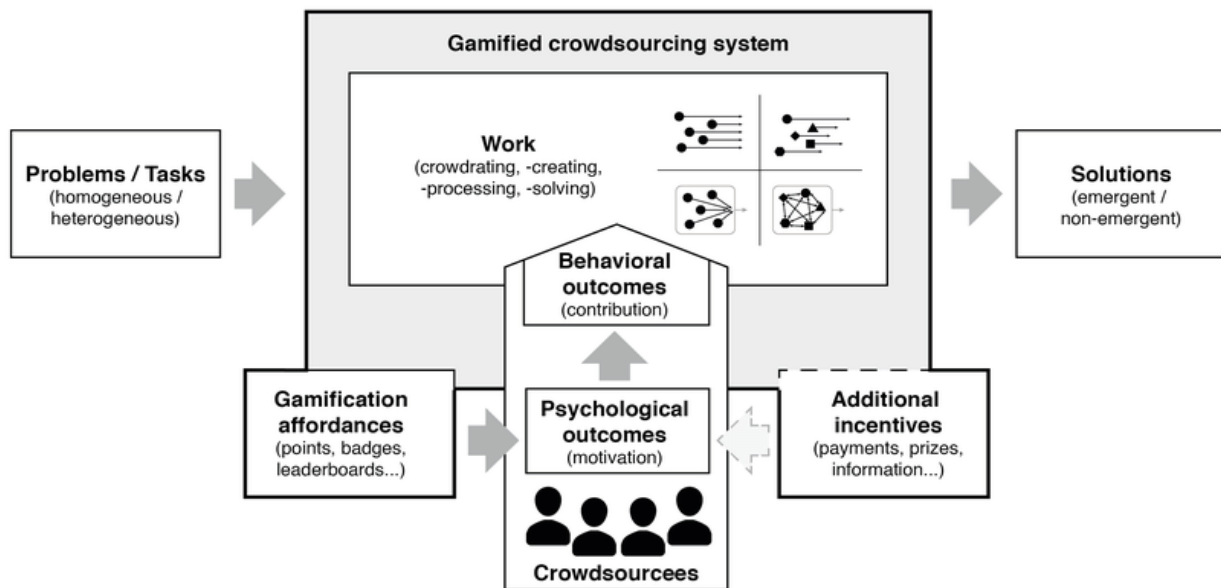
Figure 1: gamification and incentives in improving crowd worker engagement and performance

III. RESULTS AND DISCUSSION

The studies reviewed indicate that gamification and incentives can effectively improve crowd worker engagement and performance. Gamification can help to increase motivation, enjoyment, and satisfaction among workers, leading to higher engagement and productivity. By incorporating game elements such as points, badges, and leader boards, gamification can create a sense of competition and achievement that can drive workers to perform better. In Table I, we have compared various methods based on sample size

Author	Sample Size	Key Findings	Key Metric	Limitations
Behl A[1]	342 gig workers	Gamification positively affects gig workers' productivity.	Productivity	Single industry focus
Hammedi W[2]	132 employees	Gamification negatively affects employee engagement and well-being	Employee engagement and well-being	Laboratory setting may not represent real-world situations.
Ikhide JE[13]	12 employees	Gamification has a positive impact on creative performance	Creative performance	Small sample size and single-case study
Prasad KD[5]	193 employees	Gamification positively affects employee engagement.	Employee engagement	Limited to the e-commerce industry
Lario D[6]	N/A	Gamification and predictive analytics can improve workforce development	Workforce development	Limited empirical data
Birtek A[7]	292 hotel employees	Gamification positively affects employee motivation.	Employee motivation	Limited to the hotel industry
Vardarlier P.[9]	N/A	Gamification can improve HRM outcomes	HRM outcomes	Limited empirical data
Behl A, Pereira V [12]	N/A	Gamification can improve digitalization inclusivity.	Digitalization inclusive	Single-case study

Overall, gamification and incentives can be powerful tools for improving crowd worker engagement and performance, but they must be carefully designed and implemented to ensure their effectiveness and ethical use.

IV. CONCLUSION

In conclusion, gamification and incentives   strategies for improving crowd worker engagement and performance. The Using gamification elements such as points, badges, leader boards, and feedback mechanisms can increase crowd workers' motivation, satisfaction, and productivity; offering incentives such as bonuses, rewards, and recognition can further boost their engagement and performance. However, it is imposing that the effectiveness of gamification and incentives may vary depending on the context and the type of task being performed.

Furthermore, the design and implementation of gamification and incentive programs need to be carefully planned and monitored to avoid unintended consequences such as cheating or disengagement. Overall, gamification and incentives have the potential to enhance the quality and efficiency of crowdsourced work, leading to benefits for both workers and requesters. As the gig economy and crowdsourcing continue to grow, it is crucial to explore further and refine the use of these strategies to improve the engagement and performance of crowd workers.

REFERENCES

[1]. Behl A, Sampat B, Raj S. Productivity of gig workers on crowdsourcing platforms through artificial intelligence and gamification: a multi-theoretical approach. The TQM Journal. 2021 Oct 8(ahead-of-print). DOI: 10.1108/TQM-07-2021-0187

[2]. Hammedi W, Leclercq T, Poncin I, Alkire L. Uncovering the dark side of gamification at work: Impacts on engagement and well-being. Journal of Business Research. 2021 Jan 1;122:256-69. DOI: 10.1016/j.jbusres.2020.07.062

[3]. Feyisetan O, Simperl E. Beyond monetary incentives: Experiments in paid microtask contests. ACM Transactions on Social Computing. 2019 Jun 13;2(2):1-31. DOI: 10.1145/3326455

[4]. Bizzi L. WHY TO GAMIFY PERFORMANCE MANAGEMENT? CONSEQUENCES OF USER ENGAGEMENT IN GAMIFICATION. Information & Management. 2023 Feb 4:103762. DOI: 10.1016/j.im.2022.103762

[5]. Prasad KD, Mangipudi MR. Gamification for employee engagement: An empirical study with e-commerce industry. Montenegrin Journal of Economics. 2021 Jun;17(2):145-56. DOI: 10.53376/mje.v17i2.5384

[6]. Shanmugalingam J, Lario D, Ma Y. Gamification and predictive analytics for the next generation of workers. In2020 International Conference on Computers, Information Processing and Advanced Education (CIPAE) 2020 Oct 16 (pp. 1-6). IEEE. DOI: 10.1109/CIPAE50806.2020.9318207

[7]. Birtek A, Colak O, Gulbahar O, Sarac O. The importance of gamification on motivation of hotel employees. Journal of Mediterranean Tourism Research. 2022;2(1):75-83. DOI: 10.33453/jmtr.1083

[8]. Prasad KD, Mangipudi DM, Vaidya DR. Gamification and resource pooling for improving operational efficiency and effective management of human resources: A case study with an eCommerce company. International Journal of Management (IJM). 2019 Dec;10(6). DOI: 10.34218/IJM.10.6.2019.001

[9]. Vardarlier P. Gamification in human resources management: An agenda suggestion for gamification in HRM. Research Journal of Business and Management. 2021;8(2):129-39. DOI: 10.31703/rjbm.2021.VIII.II.129

[10]. Leite R, Alves L. A Gamified Model for the Building Site: A Solution to Motivate Construction Wokers in Pandemic Time. JOURNAL OF BIOENGINEERING, TECHNOLOGIES AND HEALTH. 2020 Dec 21;3(4):319-27. DOI: 10.32985/ijbth.2020.v03.i04.010

[11]. Lithoxoidou, E., Doumpoulakis, S., Tsakiris, A., Ziogou, C., Krinidis, S., Paliokas, I., Ioannidis, D., Votis, K., Voutetakis, S., Elmasllari, E. and Tzovaras, D., 2020. A novel social gamified collaboration platform enriched with shop-floor data and feedback for the improvement of the productivity, safety and engagement in factories. *Computers & Industrial Engineering*, 139, p.105691. DOI: 10.1016/j.cie.2019.105691

[12]. Behl A, Pereira V, Sindhwani R, Bhardwaj S, Papa A, Hassan Y. Improving Inclusivity of Digitalization for Employees in Emerging Countries Using Gamification. IEEE Transactions on Engineering Management. 2022 Nov 7.

[13]. Ikhide JE, Timur AT, Ogunmokun OA. The potential and constraint of work gamification for employees' creative performance. The Service Industries Journal. 2022 Apr 26;42(5-6):360-82. DOI: 10.1080/02642069.2021.1930823