# Impact of Information Sharing Gamification on Organizational Performance

Tahmina Sultana
*The University of North Carolina at Greensboro*, t_sultan@uncg.edu

Md Nabid Alam
*Emporia State University*, malam2@emporia.edu

Follow this and additional works at: https://aisel.aisnet.org/amcis2022

# Impact of Information Sharing Gamification on Organizational Performance

*Emergent Research Forum (ERF)*

**Tahmina Sultana**
UNC Greensboro
t_sultan@uncg.edu

**Nabid Alam**
Emporia State University
malam2@emporia.edu

## Abstract

Organizations are facing challenge to manage information sharing in a transformed environment such as virtual office. Gamification has become a technique for some organizations to keep their employees engaged and encourage participation in work. Information sharing literature and gamification literature provide an in-depth understanding of how these can be beneficial for organizational performance. From our literature review, we find there is a lack of understanding about how gamified information sharing can attract benefit in the changing organizational landscape. The objective of this research is to investigate the impact of gamified information sharing intervention on multi-level organizational and team performance through the mediation of collective impact and goal contagion. This study will employ a randomized 2-by-2 simulated experimental method to test the proposed hypotheses.

## Keywords

Information sharing gamification, collective impact, goal contagion, organizational performance.

## Introduction

Information sharing is one of the core aspects of working collaboratively inside an organization. Recent industry reports suggest that with the advent of technology and transformation of the external environment due to emerging health crises such as COVID-19, it is even more important for an organization to promote information sharing to cope up with these challenges (Kim 2020). Study reports that, socially distant workers are less likely to share knowledge with each other and if they need to share, they usually share with the immediate teammates (Panopto 2021). Thus, we can see, the industry is looking for innovative solution to foster information sharing. Our search identifies gamified work environment can be an emerging tool to promote information sharing.

Reports on gamification show how it is related to organizational success and what tools can be used in an organization to introduce and continued the use of these tools. As the pandemic has changed everything within a matter of days, not many organizations are prepared to shift to online. According to Harville (2020), 87% of employees feel more socially connected while using a gaming-inspired system. Another gamification statistics report that around 95% of employees enjoy using gamified systems in their workplace (Lynkova 2021). These statistics suggest that game-based systems are becoming popular in organizations to improve employee engagement and productivity. Gamification can also improve teamwork and collaboration among the employees in places where achieving team collaboration is more challenging such as remote work.

Information sharing literature and gamification literature provide an in-depth understanding of how these can be beneficial for organizational performance. As we identify the need for innovative information-sharing tools such as gamification from the industry reports, we proceed to study these phenomena in detail. From our literature review, we find some areas where the investigations are limited or silent. First, earlier studies report that information sharing, and gamification systems individually have a positive impact on performance. Some research even finds gamification systems impact information sharing behavior positively. However, the interaction between gamified systems and information sharing has not been investigated thoroughly. Second, organizational performance has been studied from one level only. Although there are multiple calls from the management and the information systems literature

for a multi-level study on organizational performance, researchers have paid less attention to that. Third, the theories of goal contagion and collective impact has been studied to measure performance at the individual, group, and/or organizational levels only but not from a multi-level perspective. Therefore, we would like to investigate the interaction between gamification and information sharing on organization performance from a multi-level perspective. Moreover, we would also be interested to see the mechanism of these relationships and whether there are any mediation effects of collective impact and goal contagion. Thus, the objective of this research is to investigate the impact of gamified information sharing intervention on multi-level organizational and team performance through the mediation of collective impact and goal contagion. The research questions under investigation are— 1) how employee's exposure to gamified information sharing intervention impacts both organizational and team performance and 2) how collective impact and goal contagion mediates the relationship between gamified information sharing intervention and multi-level organizational performance.

## Literature Review

Information sharing is the exchange of useful information within and between organizations. There are different streams of research that investigate information sharing in different contexts using various tools. According to Beynon-Davies and Wang (2019), information sharing necessarily improves organizational performance. In support of this statement, we find there are studies that show how sharing information can improve supply chain performance in an organization (Huang et al. 2003; Kembro et al. 2014; Sahin and Robinson 2002). It is also believed that information sharing practice in a team improves collaboration among the team members (Windeler et al. 2015).

Gamification refers to the game-like features in a non-game context (Amo et al. 2020; Deterding 2011). It is believed that people love games and adding gaming elements to an existing system or application can encourage more attention and engagement. The gamification techniques to improve performance and engagement can be applied in different contexts and settings. The literature suggests that the most common contexts are— learning and/or training environments, organizational contexts, teamwork, and social media or online community contexts (Amo et al. 2020). Cavusoglu et al. (2021) suggest applying gaming design to encourage voluntary knowledge sharing in an online community. Another study by Holzer et al. (2020) claims that gamification design can improve information sharing performance in a humanitarian organizational context.

Moreover, proper sharing of information among the stakeholders in an organization improves collaboration and performance. Collective impact is seen as another format of collaboration (Prange et al. 2016). Collective impact refers to a conscious way of working together and sharing knowledge to solve any complex problem (Carter 2016; Kania and Kramer 2011). The theory of collective impact suggests that a collaborative approach is more likely to solve a problem compared to a single approach (Kania and Kramer 2011). Another social theory of goal contagion refers to the automatic adoption of goals after perceiving another person's goal-directed behavior (Aarts et al. 2004; Loersch et al. 2008). Studies on goal contagion mostly focus on unconscious adoption of goals in different social settings (Lee et al. 2016). However, some other studies report that goal adoption can be both conscious and subconscious (Aarts et al. 2004; Budden 2008; Shantz and Latham 2009). Organizational performance is one of the most studied concepts in management research. The measurement of organizational performance is seen as a complex concept by many researchers. Performance can be measured from an individual level, team level, and organization level (Burton-Jones and Gallivan 2007). Also, Burton-Jones and Gallivan (2007) argue that multi-level investigation provides a better understanding about a studied phenomenon than that of a single-level study and call for more information systems investigation using multi-level approach.

## Theoretical Model and Hypotheses

### *Information Sharing, Gamification, and Collective Impact:*

Nowadays, organizations around the world are valuing collective impact as an effective means for change (Kania and Kramer 2011). Shared information among the stakeholders can strengthen the collaboration. According to Kania and Kramer (2011), collaboration and information sharing increase transparency among all the levels and stakeholders in work. Cooper and Shumate (2015) find that information sharing

leverage collective impact by enabling the stakeholders to learn from each other's mistakes, to identify best practices, and to improve outcomes. Gamification is one of the ways to influence information sharing and increase engagement among the stakeholding parties. From the extant literature, it is evident that gamification conditions increase engagement. These gamification techniques can be applied to both team level and organizational level. According to Dissanayake et al. (2019) gamified conditions in the form of competition can improve team members' engagement and effort toward the goal. Thus, we hypothesize—

*H1a: The organization with both team level and organizational level information sharing game has the highest collective impact.*
*H1b: The organization with no team level and organizational level information sharing game has the lowest collective impact.*

### Information Sharing, Gamification, and Goal Contagion:

Information sharing can influence the people with whom the information has been shared. We discussed earlier that sharing information can leverage the pursuit of a common goal among the employees in a team and also in an organization. The pursuit of this common goal can influence shaping other peoples' goals in the same team and also in the same organization. This behavior is called goal contagion (Aarts et al. 2004; Loersch et al. 2008; Ramanathan and McGill 2008). According to Aarts et al. (2004), goal contagion is the automatic adoption of another person's goal-directed behavior. Engaged employees are motivated to perform and are more likely to deliver the desired outcome compared to non-engaged employees (Harter et al. 2002; Silic and Back 2017). We argue that information sharing with gaming design result in more goal contagion behavior among the stakeholders. Therefore, we want to investigate the impact of information-sharing games at both the team level and organizational level on goal contagion behavior. Thus, we hypothesize—

*H2a: The organization with both team level and organizational level information sharing game has the highest goal contagion.*
*H2b: The organization with no team level and organizational level information sharing game has the lowest goal contagion.*

### Collective Impact, Goal Contagion, and Performance:

Collective impact emerged as a means for performance improvement. Organizations around the world are nowadays emphasizing the concept of collective impact. Earlier studies report that team collaboration and inter-and/or inter-organizational collaboration improve performance (Kania and Kramer 2011). Collective impact is the concept of working together and sharing information to solve a complex problem (Carter 2016; Kania and Kramer 2011). Organizational teams are an effective means of collaborating and solving complex problems. As stated by Brehmer and Hagafors (1986), organizations can simplify a complex problem by distributing the problem in different teams who divide larger problems according to their expertise. Teams in an organization, when they collectively utilize their available resources, are more likely to improve performance (Mesmer-Magnus and DeChurch 2009). Therefore, we hypothesize—

*H3: A higher collective impact is positively associated with a higher a) team and b) organizational performance.*

The theory of goal contagion refers to the automatic adoption of goals after observing others' goal desired behavior (Aarts et al. 2004; Chen and Latham 2014; Loersch et al. 2008; Mendoza and King 2020). King and Mendoza (2020) report that goal contagion will amplify when the goal is shared within a team or group. This entails that goal is more contagious within a group of people. Loersch et al. (2008) suggest that when the goal adoption behavior is activated among the group or team members in an organization, everyone will be trying to outperform their fellow team members. Therefore, we hypothesize—

*H4: A higher goal contagion is positively associated with a higher a) team and b) organizational performance.*

By combining these hypotheses, we develop the following research model in Figure 1.
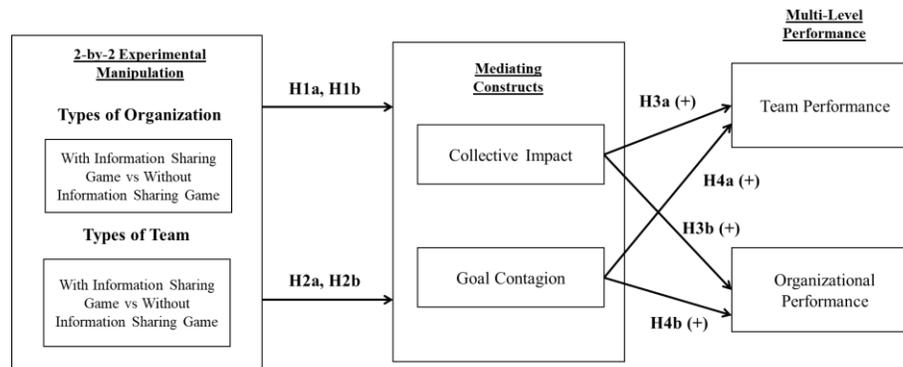


Figure 1 Proposed Research Model

## Proposed Research Method

This study will employ a randomized 2-by-2 simulated experimental method to test the hypotheses. The participants will be student subjects. Earlier studies found that the student population can represent real-life actors in a situation (Druckman and Kam 2011). Moreover, students and the non-student population are in most cases indistinguishable in terms of results (Druckman and Kam 2011). We will recruit 200 undergraduate students who will be divided into 40 teams with 5 members. Each team will be responsible for developing two products. The timeline will be 4 months. The 2-by-2 experimental design will include two interventions— 1) whether there will be an organizational level game and 2) whether there will be a team level game. The information-sharing gamification environment will include both organizational level games and team level games for sharing information. All the teams will submit their developed product after 4 months. We will then survey their product demand using Amazon Mechanical Turk (MTurk) participants' pool. We will upload their product description and product functionalities and will ask the MTurk Participants whether they are interested in purchasing any of the products. From this, we can measure the product development performance of each organization and each team. It is important to note that this performance measurement will not impact the students' course credit. We will do the product development performance measurement to test our hypotheses. We want to test whether the sharing of information can impact their product development performance positively.

## References

Aarts, H., Gollwitzer, P. M., and Hassin, R. R. 2004. "Goal Contagion: Perceiving Is for Pursuing," *Journal of Personality and Social Psychology* (87:1), pp. 23.

Amo, L., Liao, R., Kishore, R., and Rao, H. R. 2020. "Effects of Structural and Trait Competitiveness Stimulated by Points and Leaderboards on User Engagement and Performance Growth: A Natural Experiment with Gamification in an Informal Learning Environment," *European Journal of Information Systems* (29:6), pp. 704-730.

Beynon-Davies, P., and Wang, Y. 2019. "Deconstructing Information Sharing," *Journal of the Association for Information Systems* (20:4).

Brehmer, B., and Hagafors, R. 1986. "Use of Experts in Complex Decision Making: A Paradigm for the Study of Staff Work," *Organizational Behavior and Human Decision Processes* (38:2), pp. 181-195.

Budden, J. S. 2008. "Achievement motivation: The effects of conscious, chronic, and nonconscious goals on task performance," *Dissertation Abstracts International. B, The Sciences and Engineering* (68:7), pp. 4884–4884.

Burton-Jones, A., and Gallivan, M. J. 2007. "Toward a Deeper Understanding of System Usage in Organizations: A Multilevel Perspective," *MIS Quarterly* (31:4), pp. 657-679.

Carter, D. R. 2016. "The Motivational Drivers of Leadership Emergence in Multiteam Systems." *Georgia Institute of Technology Thesis and Dissertation*, from http://hdl.handle.net/1853/58569.

Cavusoglu, H., Li, Z., and Kim, S. H. 2021. "How Do Virtual Badges Incentivize Voluntary Contributions to Online Communities?," *Information & Management* (54:5), p. 103483.

Chen, X., and Latham, G. P. 2014. "The Effect of Priming Learning Vs. Performance Goals on a Complex Task," *Organizational Behavior and Human Decision Processes* (125:2), pp. 88-97.

Cooper, K. R., and Shumate, M. 2015. "Sharing Data in Collective Impact Efforts," *Stanford Social Innovation Review*, from https://doi.org/10.48558/NWXG-9449.

Deterding, S. 2011. "Situated Motivational Affordances of Game Elements: A Conceptual Model," *Gamification: Using Game Design Elements in Non-gaming Contexts*, a Workshop at CHI.

Dissanayake, I., Mehta, N., Palvia, P., Taras, V., and Amoako-Gyampah, K. 2019. "Competition Matters! Self-Efficacy, Effort, and Performance in Crowdsourcing Teams," *Information & Management* (56:8), pp. 103-158.

Druckman, J. N., and Kam, C. D. 2011. "Students as Experimental Participants," *Cambridge Handbook of Experimental Political Science* (1), pp. 41-57.

Harter, J. K., Schmidt, F. L., and Hayes, T. L. 2002. "Business-Unit-Level Relationship between Employee Satisfaction, Employee Engagement, and Business Outcomes: A Meta-Analysis," *Journal of Applied Psychology* (87:2), pp. 268.

Harville, B. 2020. "How You Win Big with Gamification in Marketing," published in *Optionmonster Retyp LLC,* from https://optinmonster.com/gamification-in-marketing/

Holzer, A., Kocher, B., Bendahan, S., Vonèche Cardia, I., Mazuze, J., and Gillet, D. 2020. "Gamifying Knowledge Sharing in Humanitarian Organisations: A Design Science Journey," *European Journal of Information Systems* (29:2), pp. 153-171.

Huang, G. Q., Lau, J. S., and Mak, K. 2003. "The Impacts of Sharing Production Information on Supply Chain Dynamics: A Review of the Literature," *International Journal of Production Research* (41:7), pp. 1483-1517.

Kania, J., and Kramer, M. 2011. "Collective Impact," *Stanford Social Innovation Review* (9:1), pp. 36–41, from https://doi.org/10.48558/5900-KN19.

Kembro, J., Selviaridis, K. and Näslund, D. 2014. "Theoretical perspectives on information sharing in supply chains: a systematic literature review and conceptual framework," *Supply Chain Management* (19:5/6), pp. 609-625.

Kim, L. 2020. "Information Sharing: What Is It? How to Do It? Why Does It Matter?", published by *Healthcare Information and Management Systems Society, Inc*, from https://shorturl.at/rACS9.

Lee, N., Li, S., Shin, B., and Kwon, O. 2016. "Social Comparison, Goal Contagion, and Adoption of Innovative Information Technology," *Journal of Computer Information Systems* (56:2), pp. 127-136.

Loersch, C., Aarts, H., Payne, B. K., and Jefferis, V. E. 2008. "The Influence of Social Groups on Goal Contagion," *Journal of Experimental Social Psychology* (44:6), pp. 1555-1558.

Lynkova, D. 2021. "Top Gamification Statistics of 2020: Next Level Gaming," published in *Review 42*, from https:// shorturl.at/ryMP6.

Mendoza, N. B., and King, R. B. 2020. "The Social Contagion of Student Engagement in School," *School Psychology International* (41:5), pp. 454-474.

Mesmer-Magnus, J. R., and DeChurch, L. A. 2009. "Information Sharing and Team Performance: A Meta-Analysis," *Journal of Applied Psychology* (94:2), pp. 535.

Panopto. 2021. "How to Help Remote Teams Share Knowledge Effectively," published in Panopto Inc, from https:// shorturl.at/dzEK3.

Prange, K., Allen, J. A., and Reiter-Palmon, R. 2016. "Collective Impact Versus Collaboration: Sides of the Same Coin or Different Phenomenon?," *Metropolitan Universities* (27:1), pp. 86-96.

Ramanathan, S. and McGill, A. 2008."Emergent Affiliation Through Non-Verbal Goal Contagion Effects in Shared Experiences," *Advances in Consumer Research* (35), pp. 226-228.

Sahin, F., and Robinson, E. P. 2002. "Flow Coordination and Information Sharing in Supply Chains: Review, Implications, and Directions for Future Research," *Decision Sciences* (33:4), pp. 505-536.

Shantz, A., and Latham, G. P. 2009. "An Exploratory Field Experiment of the Effect of Subconscious and Conscious Goals on Employee Performance," *Organizational Behavior and Human Decision Processes* (109:1), pp. 9-17.

Silic, M., and Back, A. 2017. "Impact of Gamification on User's Knowledge-Sharing Practices: Relationships between Work Motivation, Performance Expectancy and Work Engagement," *In Proceedings of the 50th Hawaii International Conference on System Sciences*.

Windeler, J., Maruping, L. M., Robert, L. P., and Riemenschneider, C. K. 2015. "E-Profiles, Conflict, and Shared Understanding in Distributed Teams," *Journal of the Association for Information Systems* (16:7), p. 1.