Communication Transparency and Creativity in Virtual Teams

Tianyu He*[1], Marco Minervini*[1], Jayanth Narayanan[2], Phanish Puranam[1],

Introduction

Distributed teams and remote collaboration have been a well-documented phenomenon (Mesmer-Magnus, DeChurch, Jimenez-Rodriguez, Wildman, & Shuffler, 2011; Ortiz de Guinea, Webster, & Staples, 2012), but the scale and rapidity with which they been adopted around the world since January 2020 in response to the COVID-19 pandemic has been unprecedented. The transition to working remotely forced by the pandemic has heightened the pressing need to understand how teams can maintain, even increase, their creative capabilities as individuals undergo an enormous transformation in organizing and collaborating as they transition to working remotely. However, even as remote collaboration and distributed teams become an ever-more important reality overall, the antecedents of creativity in virtual teams remains a largely unexplored domain for research (Gilson, Maynard, Jones Young, Vartiainen, & Hakonen, 2015). This gap is especially surprising given that the means through which team members communicate is the most pronounced characteristic that discerns face-to-face and virtual teams, and research on creativity in teams has shown that communication consistently occupies a prominent role in team processes that link diverse antecedents to creative outcomes.

While communication in remote teams is necessarily reliant on digital technologies, there can be important variations in the configuration of how communication takes place. Prior research has examined the impact of media richness on how and what information is shared (e.g. Mesmer-Magnus et al., 2011) and the implications for reaching agreements (e.g. Swaab, Galinsky, Medvec, & Diermeier, 2012). However, the extent to which communication in virtual teams is *transparent* – i.e. all members can communicate with all other members and observe such communications (Kocak & Warglien, in press; Leonardi, 2014) – is an important aspect of the configuration of communication that may vary independently of the media used.

Transparency of communication in virtual teams cannot be taken for granted. In the normal course of development and elaboration of traditional organizations, the flow of information in organizations comes to mirror the flow of authority. This is because controlling information not only prevents overload on subordinates, but it also allows managers to legitimize their authority. However, this also leads to silos, bottlenecks, and breakdowns. The forced move towards remote working has created a window of opportunity to break this isomorphism between authority and information flow. This is because remote collaboration tools like slack/yammer/MS teams create archived chats – transparent communication – that allow all team members to communicate with each other in a manner that is visible to all. To be clear, one can convert such tools into traditional one-to-one communication channels (e.g. as found in email or archived personal chat) by creating personal dyadic channels, and one can create complete transparency of communication by using reply-all continuous email threads (Leonardi, 2014). It is therefore not the technology or tools that matter, but the shift towards a new default mode of communication (featuring transparent communication) that they enable.

Not all organizations necessarily take up this opportunity to enhance communication transparency. While data is limited on how organizations are coping with the forced move to remote collaboration as a response to COVID-19, the media has reported many instances of attempts to simply transfer traditional ways of working to remote working. At least one survey found that organizational and managerial responses to remote working were rated significantly lower than technological readiness - suggesting that organizations are struggling with the

* Denotes equal authorship
1 INSEAD
2 National University of Singapore

opportunities and challenges that remote working provides in terms of how to use the technologies (Puranam & Minervini, 2020).

In this paper, we investigate the impact of communication transparency in virtual teams engaging in creative tasks using an online laboratory with participants from the workforce and colleges. These teams are characterized by a clear authority structure, and work completely through online text interaction. By varying only the communication pattern across teams, and keeping their authority structure constant, we study one of the most disruptive dimensions of a rapid move to remote collaboration – the need to change patterns of communication – and its impact on the process of generating creative team output.

This paper contributes to our limited understanding of creativity in virtual teams, and in particular the role of communication transparency in remote collaboration. By providing a causal examination of the impact of the configuration in which communication occurs, we also contribute to the study of team creativity in general, which has predominantly been relying on correlational evidence. In addition, we contribute to the social hierarchy literature by identifying the unique role of communication structure within authority hierarchy. Lastly, we also explore and provide new methods to measure creativity beyond self-report and using human coders. We use text analysis, which has the potential to measure human creative processes such as ideation and selection, and creative outcomes such as originality in a replicable manner. Taken together, we also provide practical recommendations for how organizations can adapt quickly in a time when collaborating remotely is likely to stay as an integral part of the work life.

Theory and Hypotheses

The creativity of teams is typically conceptualized in terms of the quality and originality of the solutions they come up with when faced with tasks that feature constraints and have no demonstrably correct answer (Amabile, 1983). Creative tasks require idea generation and idea selection. Idea generation involves the creation of a variety of alternatives that are possible solutions (or elements of solutions) to the problem the team is faced with. These alternatives draw on the possibly distinct information, opinions, and expertise of a team. Teams vary in their ability to produce a number and variety of such alternatives. From these alternatives, teams must also select or produce through combination a solution. Teams also vary in the process of how rapidly and smoothly they select a solution from among the alternatives and how the final solution is constructed from alternatives.

Communication - both internal to the team and with external parties - has been found to play an important role in enhancing team creativity (Coman et al., 2019). The evidence is largely from correlational studies, but makes the intuitive point that allowing for flow of information within the team may increase the quantity and diversity of information, which may lead to a sheer increase in alternatives considered by simple mechanical aggregation, or through recombination of individual contributions. When communication is transparent, team members, including both the leader and followers, are exposed to others' ideas more than when the exchange of information is private. This can aid the integration of diverse ideas among members. However, the general tendency of conforming to others in the team may also supress the willingness to express one's opinions, resulting in fewer ideas exchanged. When communication is not transparent (i.e. communication mirrors the flow of authority), members are under less conformity pressure, leading to the expression of more unique ideas. In this case, the work of integrating diverse ideas would fall on the leader, who is the sole receiver of all information exchanged. This will likely lead to insufficient integration of the ideas available compared to when communication is transparent. Thus, we hypothesize that:

Hypothesis 1 Communication transparency in virtual teams decreases the ***number of ideas*** surfaced in the team creative process.

Hypothesis 2 Communication transparency in virtual teams increases the ***integration of ideas*** in the team creative process.

Communication transparency can also change how team members experience the task completion process. When communication is transparent, the followers of the team may potentially form alliances against the leader, which can shift the balance in the perception of power between leaders and subordinates. The smooth communication afforded by transparency with the exposure to others, others' ideas, and the observability of the task completion process, can also aid a sense of engagement when completing the task. We thus propose that:

Hypothesis 3 Communication transparency in virtual teams (a) increases the sense of ***empowerment*** for the followers but (b) decreases it for the leader.

Hypothesis 4 Communication transparency in virtual teams increases the sense of ***engagement*** for all team members.

Study and Findings

Sample and Study Design

The data reported in this paper is collected between March and May, 2020. These studies manipulated communication structure across teams and authority roles within teams, after which participants engaged in an interactive design task through an online platform (Chen, Schonger, & Wickens, 2016). There are two different samples in this study. In Study 1 (S1), 112 participants (M_{age} = 48.0 ; 70.6% female) signed up voluntarily through executive programs conducted online due to Covid-19 as part of their group exercise at a business school in Southeast Asia. In Study 2 (S2), we recruited 176 participants (M_{age} = 21.7; 42.2 % female) through undergraduate business classes at a large public university in Southeast Asia. We report the aggregated results of both studies together below.

Procedure and Materials

In both studies, a lecturer or experimenter briefly introduced the task and provided a link for participants to log in to an online platform. Upon clicking the link, participants were randomly assigned to conditions of a 2 (team communication transparency: yes vs. no) × 2 (team role: moderator vs. member) between-subjects design. The final number of teams was 34 (S1) and 44 (S2) with four members in each team.

Based on existing team design tasks (Jang, 2017), in this task, teams were asked to plan an ice-breaking event together. They were told that two groups of employees who had never met before were going to work together closely after their respective companies completed a merger. Teams also received information about the age, tenure, gender, nationality, and hobbies of each group member. They were given 30 (S1) and 20 (S2) minutes to write up a document that an event organizer should be able to follow. Team members communicated using the chat function anonymously and completed the event proposal in the provided document area. After the teams submitted their event proposal, team members also completed a series of survey questions independently.

Authority structure. One person on each team was randomly assigned as the moderator. The platform allowed only the moderator to edit the content of the document area, whereas other members of the team could only preview the document. The teams were also informed that if disagreements arose, the moderator could make the final decision. Additionally, the moderator was the only person who could submit the document.

Communication transparency. To manipulate team communication transparency, we controlled who could chat with whom. In transparent communication teams, all team members and the moderator chatted in the same chat box. In none-transparent teams, team members could chat with the moderator individually but not with each other. The moderator in non-transparent teams thus saw three separate chat boxes, and other members saw one.

Number of ideas is measured by the total number of activities proposed in each event proposal submission as counted by human coders.

Integration of ideas is measured using Cosine distance between the content of chat histories of teams and final submission. Cosine distance computes the distance by treating the distribution of words used as vectors. A low distance indicates that ideas were not integrated, as the chat history was used directly in the final document. A high distance indicates that ideas were integrated, such that the document was written using words very different from what was recorded in the chat.

Empowerment and engagement were measured using established scale items (Amabile, 1982; Galinsky, Gruenfeld, & Magee, 2003; Maruping, Venkatesh, Thatcher, & Patel, 2014).

Results

As expected, transparent teams produced fewer ideas (b = -1.98, p = 0.001) but engaged in more integration of ideas (b = 0.121, p = 0.002) in the team creative process. Communication transparency also increased the sense of empowerment for the followers (b = 0.510, p = 0.010) but decreased it for the leader (b = -0.678 , p = 0.07). Members of transparent teams found the process of completing the creative task more engaging (b = 0.530, p = 0.006).

Conclusions

Remote collaboration offers the opportunity to increase communication transparency within hierarchical teams through tools (like Slack or Teams) – a possibility that is difficult to recreate in face to face settings (e.g. through frequent meetings). Transparent communication we find however is a mixed blessing- it produces fewer but more integrated ideas. This implies that idea generation in online contexts may benefit from non-transparent, possibly asynchronous communication structures if the objective is to maximize diversity of ideas, but may benefit form synchronous transparent communication if the purpose is to produce an integrated set of ideas. Our results also indicate that transparent communication may produce greater engagement and empowerment for team members, but at the expense of the team leaders. This suggests that managerial resistance to the adoption of transparent communication technologies can be expected.

Reference:

Amabile, T. M. 1982. Social Psychology of Creativity: A Consensual Assessment Technique. ***Journal of Personality and Social Psychology***, 43(5): 997–1013.

Amabile, T. M. 1983. The social psychology of creativity: A componential conceptualization. ***Journal of Personality and Social Psychology***, 45(2): 357–376.

Chen, D. L., Schonger, M., & Wickens, C. 2016. oTree—An open-source platform for laboratory, online, and field experiments. ***Journal of Behavioral and Experimental Finance***, 9: 88–97.

Coman, A. D., Cursșeu, P. L., Fodor, O. C., Oțoiu, C., Rațiu, L., et al. 2019. Communication and Group Cognitive Complexity. ***Small Group Research***, 50(4): 539–568.

Galinsky, A. D., Gruenfeld, D. H., & Magee, J. C. 2003. From Power to Action. ***Journal of Personality and Social Psychology***, 85(3): 453–466.

Gilson, L. L., Maynard, M. T., Jones Young, N. C., Vartiainen, M., & Hakonen, M. 2015. Virtual Teams Research: 10 Years, 10 Themes, and 10 Opportunities. ***Journal of Management***, 41(5): 1313–1337.

Jang, S. 2017. Cultural Brokerage and Creative Performance in Multicultural Teams. ***Organization Science***, 28(6): 993–1009.

Kocak, O., & Warglien, M. in press. When Three's a Crowd: How relational structure and social history shape organizational codes in triads. ***Journal of Organization Design***.

Leonardi, P. M. 2014. Social Media, Knowledge Sharing, and Innovation: Toward a Theory of Communication Visibility. ***Information Systems Research***, 25(4): 796–816.

Maruping, L. M., Venkatesh, V., Thatcher, S. M. B., & Patel, P. C. 2014. Folding Under Pressure or Rising to the Occasion? Perceived Time Pressure and the Moderating Role of Team Temporal Leadership. ***Academy of Management Journal***, 58(5): 1313–1333.

Mesmer-Magnus, J. R., DeChurch, L. A., Jimenez-Rodriguez, M., Wildman, J., & Shuffler, M. 2011. A meta-analytic investigation of virtuality and information sharing in teams. ***Organizational Behavior and Human Decision Processes***, 115(2): 214–225.

Ortiz de Guinea, A., Webster, J., & Staples, D. S. 2012. A meta-analysis of the consequences of virtualness on team functioning. ***Information & Management***, 49(6): 301–308.

Puranam, P., & Minervini, M. 2020. ***What Newly Remote Teams Need, Right Now***. https://knowledge.insead.edu/blog/insead-blog/what-newly-remote-teams-need-right-now-13706.

Swaab, R. I., Galinsky, A. D., Medvec, V., & Diermeier, D. A. 2012. The Communication Orientation Model: Explaining the Diverse Effects of Sight, Sound, and Synchronicity on Negotiation and Group Decision-Making Outcomes. ***Personality and Social Psychology Review***, 16(1): 25–53.