DISSERTATION PROPOSAL

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"The Chemistry between Us: Investigating the Role of Individual Differences in Determining Communication Effectiveness and Collaboration in Teams"

Wednesday, April 29, 2020
10:00 am
Via Zoom: https://cmu.zoom.us/j/820134264

Teams are organized to achieve common goals—goals that individuals cannot accomplish on their own. To achieve those common goals, teams need to process information together via communication. The extent to which team members interact with dissimilar others (assortativity) and build upon each other's reasoning (transactivity) will determine the effectiveness of team communication, whereby team members would be better able to learn from each other and come up with creative solutions.

In this dissertation, via three studies I explore the question "how do individual differences influence communication effectiveness in teams?" Team composition is one of the enabling conditions embedded in team design that explains most of the variance in team effectiveness. To date, however, research on the compositional antecedents to team discussion and dialogue has been sparse. Going back to the "roots", I explore the roles of surface- and deep-level individual differences, across different levels of analysis (individual, dyadic, and team), in predicting team communication (assortativity and transactivity) and performance. Considering the trend of increasing virtual and technology-mediated collaboration in organizations, I focused on studying text-based communication, including email and online discussion boards, throughout the studies.

In three chapters, I underscore the importance of person-to-person fit in Chapter 1 and 2 and group norms in Chapter 3 in order to better understand the dynamics of team member interactions. In Chapter 1, based on archival panel data from financial services teams, I examine how dynamic team membership impacts team performance over time, focusing on the effects of changes in identity- and information-based team faultlines on email communication-based network structure and performance. In particular, taking into account ebb and flow of members, latent change score modeling revealed that identity-based faultlines have a negative effect on increases in performance over time but an immediate positive effect on performance. On the other hand, while the effects of information-based faultlines are mixed over time, the near-term effect was negative. Importantly, I propose that team faultlines weaken team cohesion (network density), where team members cluster around similar others in exchanging emails (assortativity). I am in the process of testing this mechanism. While I do not have access to the content of those emails, I theorize that the nature of the exchanges that take place are also different and vary in the level of communication effectiveness.

In Chapter 2, I delve into the micro-processes of team communication, building on work on the construct of transactivity from the education literature and investigating the antecedents to the emergence of transactive exchanges between two partners. Based on an initial round of pilot data collected from discussion boards from about 200 MBA students, I identified dimensions of transactivity and created a manual for coding transactivity. With that framework as a basis, we use a decomposable attention model

for natural language inference and train a machine to learn and accurately predict transactivity. Then, using the coded level of transactivity, I examined the relationship between personality and transactivity, looking into the questions of who in general are more likely to be transactive and specifically with whom. I am in the process of further examining how transactivity relates to the student teams' performance in three different MBA courses. In the next wave of data collection, we plan to use both the personality and transactivity scores of dyads to compose more effective learning teams of students, and examine the implications for student learning and classroom performance.

Last, in Chapter 3, I plan to build on the findings of the previous chapters to design an experiment to examine how transactivity can be more reliably developed in teams and the mechanisms for the effects of transactivity on performance. While the design will be finalized based on the findings of the MBA student study, I propose to explore the effects of personality, information-based faultlines or status differential between subgroups, and situationally activated goals for discussions or group norms on the development of transactivity in teams.