

Dissertation Defense

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“The Influence of Communication Networks and Turnover on Transactive Memory Systems and Team Performance”

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In this dissertation, I investigate predictors and consequences of transactive memory system (TMS) development. A transactive memory system is a shared system for encoding, storing, and recalling who knows what within a group. Groups with well-developed transactive memory systems typically perform better than groups lacking such memory systems. I study how communication enhances the development of TMS and how turnover disrupts both TMS and its relationship to group performance. More specifically, I examine how communication networks affect the amount of communication, how the structure of the communication network affects the extent to which the group members share a strong identity as a group, and how both of these factors affect a group's TMS. I also analyze how turnover disrupts the relationship between transactive memory systems and group performance. In addition, I examine how the communication network and turnover interact to affect group performance. I analyze these effects in three laboratory studies. The controlled setting of the experimental laboratory permits me to make causal inferences about the relationship of turnover and the communication network to group outcomes. Results promise to advance theory about transactive memory systems and communication networks.

In the study that will be presented, I theorize that the structure of a group's network can affect performance when it inhibits positive group processes that are driven by low perceived differences between group members if the structure increases those perceived differences. Two

unique but difficult to empirically separate measures of network structure are centralization and density. Centralization is the variance in an individual's structural relationships; density is the number of ties available to group members. I propose that both centralization and density have an interactive effect on the extent to which there are differences in how group members perceive their group. Shared social identity, the extent to which all group members see themselves as members of a group, will be reduced if differences between group members are evident. Shared social identity, in turn, increases the likelihood the group will develop a shared understanding of who knows what—also known as a transactive memory system (TMS)—which positively influences group performance. In a laboratory experiment, I manipulated the centralization and density of each groups' communication network separately, allowing their main and interactive effects to be isolated, and assessed TMS using both indirect and direct measures. As hypothesized, centralization and density interacted such that increasing density lowered the shared social identity of centralized but not decentralized groups. Shared social identity then increased group's level of TMS and both mediated the effect of centralization on performance. This work serves as a bridge between studying the structural effects of networks on group psychological phenomena and suggests that structural effects alone are not sufficient to understand group outcomes.