# Information Sharing in Virtual Teams: How Group Information Processing Norms Affect Online Team Discussions

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## Introduction

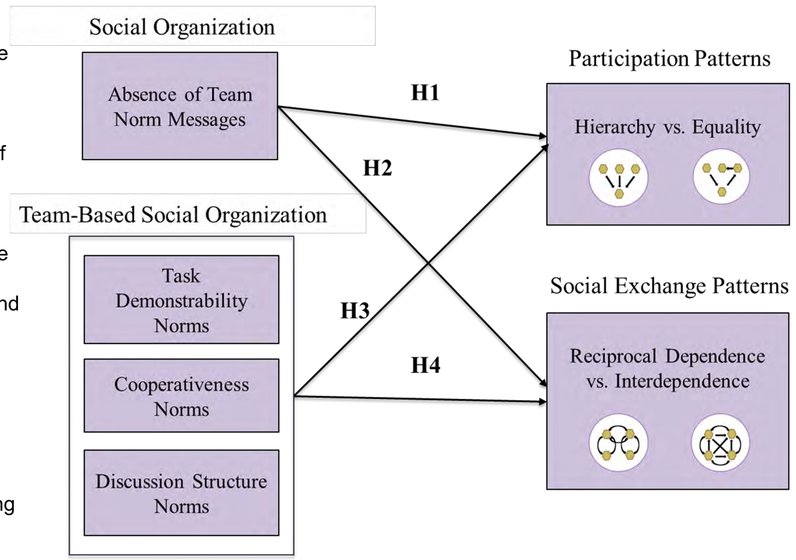
***Research Questions.*** We address two questions about team information sharing:

(1) To what extent do normative interventions (i.e., demonstrability, cooperativeness, and structure) alter the nature of group discussion?

(2) To what extent do normative interventions improve the evenness of participation and interdependence of social exchange in virtual teams?

We propose even participation and interdependent social exchange as theoretical mechanisms that explain how norms affect information sharing (see Figure 1).

***Figure 1.*** **Impact of Normative Messages on Team Self-Organization.**




## Method

***Sample & Design.***

185 students in 38 teams, participating in 8 weekly online discussions using Nebula (see Figure 2). Each team presented with 3 normative and 1 control condition.

***Statistical Analysis.***

ERGM (see Figure 3 for main network parameters).

***Figure 2.*** **Discussion Board Interface, Nebula.**

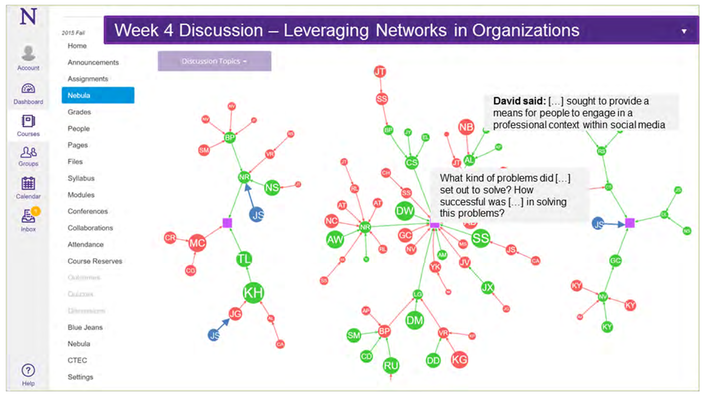
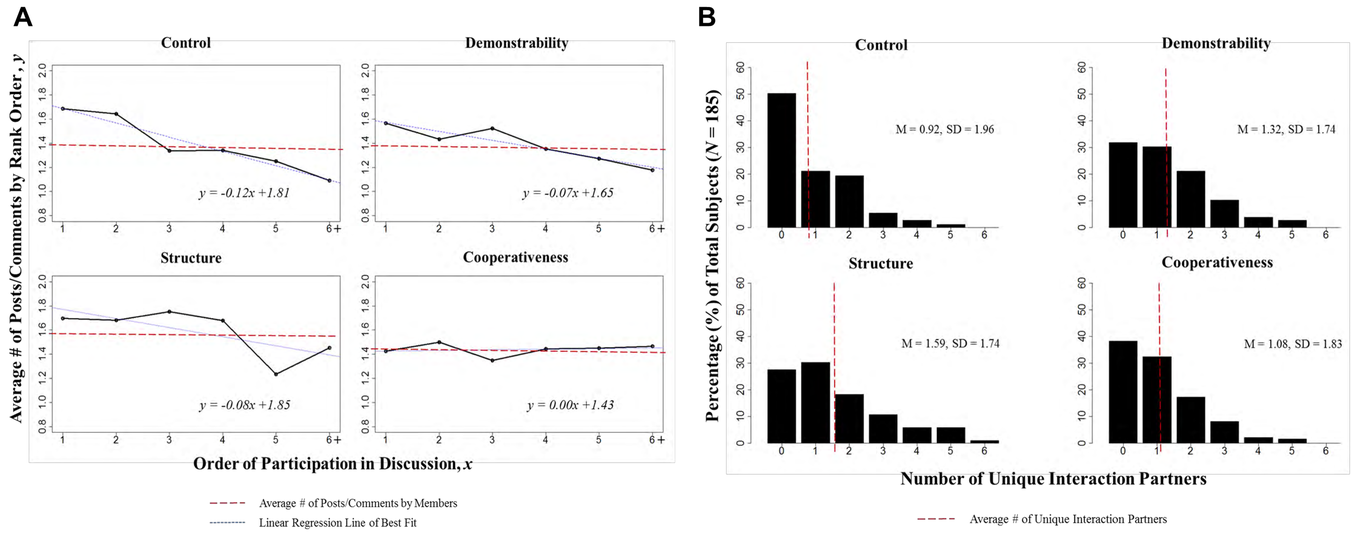



***Figure 3.*** **Main Network Parameters.**

| Social Process | Parameter | Visual Motif |
|---|---|---|
| Directed Information Exchange | Edge | |
| Hierarchy vs. Even Participation | Preferential Attachment | |
| Reciprocal Dependence | Reciprocity | |
| Interdependence | Transitivity | |

## Results

***Figure 4.*** **Impact of Normative Messages on Participation (A) and Social Exchange Patterns (B).**




**A** While early participants contribute more than the later participants in the control condition, participation is more even in the normative message conditions. These results replicate the findings of Bales & colleagues (1951).

**B** Information exchange is more interdependent in the normative message conditions, with subjects having more interaction partners on average.

***Table 1.*** **ERGMS for Information Exchange Networks (*N* = 38 Teams; 185 Individuals).**

| | | Model 1 | | Model 2 | | Model 3 | | Model 4 | |
|---|---|---|---|---|---|---|---|---|---|
| | Network | Control | | Demon. | | Cooperative | | Structure | |
| | | $\beta$ | $e^{\beta}$ | $\beta$ | $e^{\beta}$ | $\beta$ | $e^{\beta}$ | $\beta$ | $e^{\beta}$ |
| H1; H3 | (Negative) Hierarchy | **-1.15*** | 0.32 | -0.37 | 0.69 | 0.06 | 1.06 | -0.02 | 0.98 |
| H2 | Reciprocal Dependence | **1.14*** | 3.14 | 0.34 | 1.41 | 0.09 | 1.10 | 0.50 | 1.66 |
| H4 | Inter-dependence | 0.28 | 1.33 | **1.02**** | 2.77 | **0.65*** | 1.91 | **0.50*** | 1.65 |

** p < 0.05, ** p < 0.01*

## Discussion

- Extend group information processing theory by examining how group information processing norms alters the nature of online team discussions
- Findings cast demonstrable, cooperative & structured discussions as being equally productive to the effectiveness of information sharing: previous literature (e.g., GDSS) has emphasized importance of discussion structure (e.g., DeSanctis & Gallupe, 1987).
- Team members are motivated communicators: members decide *what*, *how, & to whom* information is mentioned (Wittenbaum, Hollingshead & Botero, 2004).
- Formal interventions using normative messages is a productive way to improve information processing & information sharing.

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