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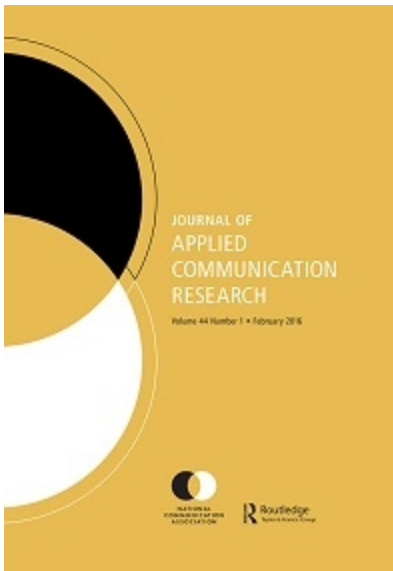
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## Exploring the Discursive Construction of Subgroups in Global Virtual Teams

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## Exploring the Discursive Construction of Subgroups in Global Virtual Teams

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**Jennifer L. Gibbs** is a Professor of Communication at the University of California, Santa Barbara as well as Editor of *Communication Research*. Her research focuses on collaboration in global teams and other distributed work arrangements as well as the affordances of digital technologies for strategic communication practices. Her work has been published in leading journals from a variety of disciplines including *Administrative Science Quarterly*, *American Behavioral Scientist*, *Communication Research*, *Computers in Human Behavior*, *Human Relations*, *The Information Society*, *Journal of Computer-Mediated Communication*, *Journal of Social & Personal Relationships*, *Management Communication Quarterly*, and *Organization Science*.

**Maggie Boyraz** is an Assistant Professor in the Management Department at California State University, San Bernardino. Her research interests include the impact of diversity and culture on processes and outcomes of global teams, organizations' expectations in terms of teamwork and other soft skills, as well as socialization into multinational organizations. Her work has been published in journals from several disciplines, including *Management Communication Quarterly*, *Human Resource Management Review*, and *Atlantic Journal of Communication*.

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**Emma Nordbäck** is an Assistant Professor in the Department of Management and Organisation at Hanken School of Economics. Her research focuses on virtual work arrangements ranging from globally distributed teams to workplace flexibility, with an emphasis on leadership, communication and technology. Her work has been published in journals from various disciplines, including *Journal of Management Information Systems*, *Journal of Organization Design*, *Journal of Computer-Mediated Communication*, *Journal of Applied Communication Research*, and *Journal of Virtual Worlds Research*.

**Abstract**

The global teams literature has increasingly documented challenges due to faultlines that form along demographic lines. While this literature tends to assume that faultlines are fixed and predict that subgroups will have negative outcomes for teams, organizational communication scholars have long regarded team processes as dynamic and fluid. Drawing on a CCO perspective, we offer a re-conceptualization of subgroups as dynamic and discursively constructed. This study draws on an in-depth, longitudinal analysis of two global virtual teams to examine the discursive construction of subgroups and whether they play a positive or negative role in team dynamics. Through a multi-method analysis of a corpus of 839 emails and 16 interviews with members of two global project teams over their lifecycle, we find that the ways in which subgroups are discursively constructed evolve over time and play an important role in explaining how they are experienced by team members. These findings have important theoretical and practical implications for overcoming subgroup challenges in global teams.

Keywords:

CCO, discourse, diversity, global virtual teams, subgroups

## Introduction

Organizations are increasingly adopting distributed work arrangements such as virtual teams to capitalize on expertise regardless of physical location. Teams are often globally distributed and assembled to bring far-flung experts from different nations to collaborate on projects. In fact, traditional, intact, and stable teams rarely exist anymore in global organizations in which fluid, diverse, and distributed teams are becoming the norm (Connaughton & Shuffler, 2007). Global virtual teams (GVTs) – defined as teams whose members are geographically distributed across multiple countries and cultures, interact primarily using communication technologies, and collaborate on an interdependent task (Gibbs, 2009) – are often assembled to enhance innovation by bringing together members with varied expertise and perspectives (Gibson & Gibbs, 2006). Many GVTs are cross-functional, inter-organizational, and multicultural and thus highly diverse. A key challenge lies in the formation of subgroups along geographical, cultural, and other faultlines that fragment the team (Cramton & Hinds, 2005).

Scholarship on subgroups and faultlines in teams has tended to focus on demographic differences in team composition such as ethnicity or gender as the basis for subgroup differences (Lau & Murnighan, 1998). Most research has found that faultlines and subgroups have negative effects on team performance (e.g., Jehn & Bezrukova, 2010). Although some scholars draw a distinction between dormant and activated faultlines as potential versus actual sources of difference (e.g. Shemla et al., 2014), little is known about what triggers faultlines to become divisive subgroups. We propose that in addition to being composed of demographic characteristics, subgroups are discursively constructed through the language and communication practices of team members. Taking a discursive view is important as it helps to reconcile mixed findings on the positive or negative effects of faultlines in GVTs, and it helps to solve the puzzle

of how subgroup challenges can be overcome by showing that they are discursively malleable.

We offer a more dynamic reconceptualization of subgroups that is based in the grounded-in-action orientation of the communicative constitution of organizations (CCO) perspective (Boivin et al., 2017; Putnam & Nicotera, 2009). This theoretical lens enables us to examine the electronic discursive practices of two project-based GVTs over the duration of their lifespan, and the ways in which they shape how subgroups are experienced. Our discursive approach makes the following contributions: it offers a re-conceptualization of subgroups as dynamic and discursively constructed through an interplay of structural and agentic characteristics, and it helps to explain when subgroups play a positive or negative role in GVTs.

### **Faultlines and Subgroups in GVTs**

GVTs are often fragmented by subgroups that form along demographic and geographical faultlines. Faultlines are defined as “hypothetical dividing lines that may split a group into subgroups” (Lau & Murnighan, 1998, p. 328). Subgroups are defined as subsets of team members that are uniquely interdependent (Carton & Cummings, 2012). The strength of faultlines is based on diversity characteristics as well as the extent to which they align. For example, while a GVT consisting of two equally sized subgroups is likely to split along geographic locations, this is more likely to occur when the two subgroups are homogenous in nationality (Polzer et al., 2006). Therefore, faultlines are considered to be determined based on pre-existing characteristics, while subgroups may or may not arise (Jehn & Bezrukova, 2010).

The treatment of faultlines and subgroups as pre-existing based on a group’s demographic composition creates an assumption that the likelihood of groups to split into subgroups is based on the overlap or convergence of diversity attributes. Scholarship explaining the faultline activation process has shown that features of group composition and configuration

## DISCURSIVE CONSTRUCTION OF SUBGROUPS 6

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3 may activate dormant faultlines, as social categorization processes lead to divisive in-group/out-  
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5 group dynamics (Carton & Cummings, 2012). While understanding social categorization  
6  
7 processes is useful, the faultlines literature tends to treat subgroups as based on fixed  
8  
9 demographic or structural differences among members (e.g., Lau & Murnighan, 1998) and to  
10  
11 regard subgroup conflict as inevitable. As such, the dynamic role of communication in shaping  
12  
13 subgroup construction remains understudied.  
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16  
17         Communication scholarship has long regarded teams – especially virtual teams – as  
18  
19 dynamically and discursively constructed. For instance, virtual teams have been depicted as fluid  
20  
21 environments characterized by continuous change in work group formation (Shockley-Zalabak,  
22  
23 2002) and dynamic structure is conceptualized as a key component of virtuality (Gibson &  
24  
25 Gibbs, 2006). Rather than being detrimental for relationship formation, temporary teams have  
26  
27 been found to be characterized by swift trust, a form of trust that is role-based rather than  
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29 personalized (Meyerson et al., 1996) and which can be quickly built – and eroded – in global  
30  
31 teams depending on the team’s communicative practices (Jarvenpaa & Leidner, 1999). Team  
32  
33 technology use has been theorized as a process of adaptive structuration in which technological  
34  
35 and social structures both shape and are shaped by agentic processes of interaction (DeSanctis &  
36  
37 Poole, 1994). Field studies have supported this view, demonstrating that virtual teams go through  
38  
39 adaptation processes in which they attempt to align technology use with pre-existing group  
40  
41 structures and the organizational environment, resulting in changes to both technology and group  
42  
43 structures (Majchrzak et al., 2000), that team learning occurs over time in a nonlinear way  
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45 through both email and face-to-face meetings (Erhardt et al., 2016), and that teaming is an on-  
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47 going process of making and unmaking the team, such that teams that are anatomically similar  
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49 may have radically different teaming processes (Einola & Alvesson, 2019). In line with the  
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broader CCO perspective, we propose a more dynamic notion of GVT subgroups as communicatively constituted (Gibbs et al., 2008). In this view, subgroup formation and consequences are shaped by discursive practices, and the degree of subgroup divisiveness depends upon the type of interaction among GVT members, in particular, the language that is used to construct messages.

### **Subgroups as Discursively Constructed**

In broad terms, the CCO perspective regards organizations as social phenomena that are constituted through communicative interactions (Putnam & Nicotera, 2009). It situates communication as “not only something occurring inside organizations but also as the process that constituted their very existence” (Kuhn, 2005, p. 619) and helps to explain how micro interactions produce organizational structures and patterns that endure across time and space. Taking a constitutive approach provides a valuable way of understanding how GVT subgroups develop over time and how communicative behaviors constitute team processes (Gibbs et al., 2008), as it draws on Weick’s (1979) notion of organization as a dynamic process and of communication as constitutive of organizing. It emphasizes the transformative nature of language and the ways identities are recognized and affirmed in interaction (Cooren, 2015).

While several distinct branches of CCO have been identified, we take a CCO approach using the grounded-in-action orientation (Boivin et al., 2017; Putnam & Fairhurst, 2015). The grounded-in-action orientation is a structurational view that treats action and structure as mutually constitutive (Fairhurst & Putnam, 2004). Organizational forms – in this case subgroups – do not start as or even become fixed or identifiable entities because they are anchored in evolving discursive forms. As such, structural features such as demographic or linguistic structures may form the basis for faultlines, but they are discursively produced such that their

## DISCURSIVE CONSTRUCTION OF SUBGROUPS 8

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2  
3 outcomes are not predictable or given. This branch of CCO includes the 4 Flows Model  
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5 (Nordbäck et al., 2017; McPhee & Iverson, 2009), another structural view that posits that  
6  
7 organizations are constituted by on-going flows of communication: activity coordination  
8  
9 (managing collaborative tasks), membership negotiation (negotiating roles and status), reflexive  
10  
11 self-structuring (including both formal structure and informal interactions that produce and  
12  
13 reproduce norms and relationships), and institutional positioning (managing relations with  
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15 external stakeholders).  
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19           The grounded-in-action discourse approach relies on the notion of lamination (Boden,  
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21 1994), in which organizational members draw from past circumstances to select rules or  
22  
23 structural features that are immediately relevant to their local situation. These choices then  
24  
25 laminate upon one another as conversations take place. In this sense, subgroups are likely to arise  
26  
27 through a combination of structural features (e.g., demographic or linguistic differences) and  
28  
29 communicative actions that serve to reify, reject, or transform these rules in the moment.  
30  
31 Organizational members rely on rules and identity structures from prior interactions in the  
32  
33 ongoing flow of team interaction (Scott et al., 1998) and this may serve to either construct  
34  
35 subgroup differences or minimize them to construct a team identity.  
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40           Taking a grounded-in-action view provides an understanding of how subgroups are  
41  
42 dynamically formed through everyday discursive actions and structures. It allows us to go  
43  
44 beyond the language of dormant versus activated faultlines, which positions structure as pre-  
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46 existing in the form of demographic characteristics and as simply activated (like flipping a  
47  
48 switch) or not, without allowing for the ways in which action reproduces or transforms structure.  
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50 This helps to explain how subgroups can play a positive or negative role even though a team's  
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52 demographic characteristics are similar. In particular, a team's discursive practices work to  
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3 invoke subgroups and imbue them with positive or negative meanings, such that they pose  
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5 benefits or challenges to the team. It is thus possible that teams with similar configurations may  
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7 differ in their degree of subgroup divisiveness, as it depends on the discursive practices  
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9 developed as a team and whether they unfold over time in a way that fosters team unity or  
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11 subgroup divisiveness. This leads to our research questions:  
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14 RQ1: How are subgroups discursively constructed in the electronic communication of  
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16 GVTs?  
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18

19 RQ2: How does the discursive construction of subgroups shape how these subgroups are  
20  
21 experienced?  
22  
23

## 24 Method

### 25 Research Context

26 This study is an inductive qualitative analysis of two globally distributed project teams.  
27  
28 The multi-method analysis incorporates data from in-depth interviews with team members with  
29  
30 archival data from intra-team electronic messages. Both sets of data were collected from a  
31  
32 graduate level global product development course, organized by a medium-sized U.S. West  
33  
34 Coast university. Several universities from Europe and the U.S. participated in the course.  
35  
36 Altogether six global, interdisciplinary teams were formed consisting of graduate students from  
37  
38 various educational backgrounds, such as mechanical engineering, marketing, industrial design  
39  
40 and information studies. We focused on two teams of students from three Finnish and two U.S.  
41  
42 universities. We selected these teams because they were the most comparable on demographic  
43  
44 attributes and they mirrored language and cultural expertise of our research team. The Finnish  
45  
46 and U.S. universities were each co-located in the same geographical area in Finland and in the  
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48 U.S. and the team members in each country had regular meetings face-to-face. Both teams had  
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## DISCURSIVE CONSTRUCTION OF SUBGROUPS 10

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3 the same task: design and implement complete prototypes of a product or service for two  
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5 different global corporations: an electronics manufacturer (Team PenTech) and a car  
6  
7 manufacturer (Team AutoCorp).  
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9

10 Both teams collaborated closely with one liaison (per team) from the collaborating  
11  
12 company and one coach (per team) from industry. Both the liaisons and coaches were located in  
13  
14 the U.S. Student teams were supervised by a 5-member teaching team consisting mostly of  
15  
16 personnel from the coordinating U.S. university. The coordinating university received funding  
17  
18 from each company that participated in the course, part of which was allocated to each team as  
19  
20 an allowance to cover travel expenses and material costs. Furthermore, students received course  
21  
22 credit from their home universities.  
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26 After completing IRB procedures at the U.S. university, we followed two GVTs with 7  
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28 members each over the 9-month duration of their project. While zero-history student teams may  
29  
30 not approximate many organizational global teams, they provided the advantages of being  
31  
32 longitudinal and field-based, conducting a realistic task with corporate funding and a deadline,  
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34 and allowing us to observe the teams over their entire lifecycle. Further, we studied two teams  
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36 that were similar in composition, task, communication modalities, and project design. This  
37  
38 allowed us to control such structural factors – which would be more difficult to control in  
39  
40 naturally occurring organizational teams – in order to observe the ways in which discursive  
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42 practices contributed to subgroup formation over time. See Table 1 for team level characteristics.  
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47 [INSERT TABLE 1 ABOUT HERE]  
48

### 49 Procedure

50  
51 The course consisted of several phases that included face-to-face visits and virtual  
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53 collaboration among the global student team members. In October, at the beginning of the  
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3 course, all of the students met on-site at the U.S. university to conduct preliminary design tasks.  
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5 At the end of the face-to-face meeting, the students were divided into teams that worked together  
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7 virtually when back at their universities. They had an email listserv and a wiki for daily  
8  
9 communication and document sharing. The GVTs also held regular video calls. In the U.S., the  
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11 teaching team of the coordinating university organized weekly coaching sessions for local U.S.  
12  
13 members. Team members from Finland could not always participate in these sessions due to time  
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15 differences, but their results were often discussed with the team through video or teleconference.  
16  
17 Similarly, team members could contact their liaisons and coaches to arrange meetings with them  
18  
19 either face-to-face or virtually. In early January, after three months of virtual collaboration, the  
20  
21 student teams again met face-to-face for a week, this time in Finland. After this meeting, the  
22  
23 teams worked virtually for the next few months and then gathered once more in the U.S. in May  
24  
25 to finalize their prototypes, prepare for presentations and write their final reports.  
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### 30 **Data Collection**

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33 **Team email corpus.** The primary means of team communication in both teams was a  
34  
35 specific project email list. We gathered all emails from the two teams, including information on  
36  
37 the sender, subject, time, and date of the message. There were 450 unique emails in the email  
38  
39 archive of PenTech and 389 emails in the archive of AutoCorp, consisting of a total of 512 single  
40  
41 spaced pages (254 in PenTech and 258 in AutoCorp). In addition to intra-team emails, emails to  
42  
43 and from the teaching team (coordinators representing the U.S. and Finnish universities) and  
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45 company liaisons were included as they served an important purpose in reporting on task  
46  
47 progress, coordinating activities, and defining membership.  
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52 **In-depth interviews.** Two researchers (fluent in both Finnish and English) conducted 16  
53  
54 semi-structured interviews with all team members and their coaches at the end of the course.  
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## DISCURSIVE CONSTRUCTION OF SUBGROUPS 11

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3 Interviews were conducted in either Finnish or English, depending on the participant's  
4 preference. Each interview lasted 55 minutes, on average. Interviews were audio recorded and  
5  
6 transcribed verbatim, producing a total of 150 single spaced pages of transcripts. Interview  
7  
8 questions included reflections on the team process, questions related to subgroups, and team  
9  
10 members' retrospective analysis of certain email messages and critical incidents in the team  
11  
12 during the time when those messages were sent. The protocol is available from the authors.  
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**Data Analysis**

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19 We conducted qualitative discourse analysis (Putnam & Fairhurst, 2015) of the email and  
20  
21 interview data to explore how the teams discursively constructed subgroups. Discourse analysis  
22  
23 requires careful attention to the unique properties of language as patterns that constitute  
24  
25 organization, and that arise in the ongoing flow of social interaction (Putnam & Fairhurst). It  
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27 involves a focus on everyday talk, and the recognition that it involves more than simple  
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29 information exchange but also the accomplishment of other activities, including identity work  
30  
31 (Tracy, 2002). In line with the grounded-in-action approach, talk serves to construct or  
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33 accomplish identities, and preexisting identities in turn shape how people talk. As such, we  
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35 focused our analysis around the building blocks of talk, including words used to reference the  
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37 team as a whole and subgroups within it, to identify discursive actions of these subgroups.  
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41  
42 We focused our analysis primarily on emails that used subgroup language as well as key  
43  
44 episodes that revealed the ways in which each team discursively constructed subgroups. For  
45  
46 instance, we found that the use of "we" sometimes referred to the GVT as a whole, while other  
47  
48 times it referred to a subgroup within the team – with the major subgroup being the Finnish  
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50 versus the U.S. subgroup. Table 2 summarizes the key terms that were used to refer to the team  
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52 versus subgroups. Analyzing this language enabled us to understand the ways subgroups were  
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## DISCURSIVE CONSTRUCTION OF SUBGROUPS 1

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2  
3 discursively constructed in order to address RQ1. While the email data allowed us to observe the  
4  
5 discursive construction of subgroups in team communication, the interview data helped us  
6  
7 address RQ2 by understanding team members' perceptions and evaluations of team dynamics.  
8  
9

10 [INSERT TABLE 2 ABOUT HERE]  
11

12 Our coding process proceeded as follows. We used Atlas.ti software to facilitate data  
13 management and analysis. Email messages were organized and analyzed by team in conjunction  
14 with analysis of that team's interview data. We conducted several rounds of *focused coding*  
15 (Charmaz, 2006) to examine emails containing language reflecting team and subgroup identities  
16 and attempted to identify the particular discursive actions of these subgroups as constructed  
17 through language. We did this by focusing on how team members discursively framed their  
18 relationships with team members, their location-based subgroups and their actions in emails,  
19 whether the verbs and statements they used in their messages were opening up or closing off  
20 dialogue (for instance, questions such as "What do you think?" opened up dialogue while  
21 imperatives such as "stick to what has been agreed on" served to close it off), as well as what  
22 expressions they used to refer to team processes and outcomes both in email and in interview  
23 data. We also identified key events within each team including salient subgroup conflicts. We  
24 compared the email and interview data in an iterative process, using interview data to provide  
25 context for team communication. Next, we engaged in *axial coding* (Strauss & Corbin, 1998),  
26 where we related categories to one another and formed second order categories. This coding took  
27 place at a more abstract level and represents themes derived from our theoretically-based  
28 interpretations of participants' language. This step enabled us to link pronoun "we" use and  
29 location-based subgroup labels with discursive actions of subgroups. Finally, we searched for  
30 relationships amongst these second order categories and arrived at our final aggregate  
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## DISCURSIVE CONSTRUCTION OF SUBGROUPS 1.

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3 dimensions (in terms of the discursive flows of reflexive self-structuring, activity coordination,  
4 and membership negotiation) through *selective coding* (Strauss & Corbin, 1998). We analyzed  
5 these dimensions and their linkages to create an in-depth understanding of how subgroups were  
6 constructed in the teams, paying attention to the identity targets used and how they related to  
7 particular discursive actions of subgroups.  
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## Findings

### Discursive Construction of Subgroups

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19 In response to RQ1, our analysis revealed that throughout both teams' life cycle,  
20 subgroups were manifested through electronic discourse and the language of both teams served  
21 to draw and demarcate subgroup boundaries between the two geographical locations, in  
22 particular. These subgroup identities arose based on demographic differences in geographical  
23 location (U.S. versus Finland), but they were anchored in discursive constructions that varied  
24 across the two teams and produced different outcomes for team dynamics. We found that three of  
25 the communication flows from the 4 Flows Model (McPhee & Iverson, 2009) provided  
26 sensitizing concepts that helped to make sense of the ways in which subgroups were discursively  
27 constructed. While the same subgroup labels were used and each team performed the same  
28 discursive actions around *reflexive self-structuring* and *activity coordination*, the teams  
29 discursively engaged in *membership negotiation* differently such that the subgroups took on  
30 status differences in one team, while they were constructed of equal status in the other.  
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47 **Drawing of subgroup boundaries.** We found similarities in the *reflexive self-structuring*  
48 flow (McPhee & Iverson, 2009) in terms of the language used to draw and demarcate subgroup  
49 boundaries, which in both teams were based primarily on geographical differences (see Table 2).  
50 Interestingly, the most common terms used were the primary U.S. university name (which was a  
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## DISCURSIVE CONSTRUCTION OF SUBGROUPS 1.

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3 prestigious university as well as where the project was hosted) and either “Helsinki” or “the  
4  
5 Finns” – both geographical terms. Some members would even sign their emails with their  
6  
7 subgroup affiliation, e.g., “Finnish Team / Tim”. The following email from AutoCorp illustrates  
8  
9 how “we” was used deftly and interchangeably to refer to the team as a whole as well as  
10  
11 subgroups (all original language has been preserved including misspellings and incorrect  
12  
13 grammar, all names and university names have been replaced with pseudonyms, and bolded text  
14  
15 has been emphasized by the authors):  
16  
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18

19 Hey All, **we** need to plan some dark horse discussions...please **let us** know what is  
20 possible asap when you wake up so **we** can do some Skypes. Overall it seems **we should**  
21 **all** have Skype on as much as possible and talk whoever is on every morning and night  
22 and everyone keep open to keep track of global conversations. Please let **us** know your  
23 plan so **we** have an idea of what is going on. Cool beans, Cathy (AutoCorp, U.S., January  
24 10)  
25  
26

27 In this quote, Cathy uses “we” and “us” to refer to both the entire team and to the U.S. subgroup  
28 interchangeably. The first (“we need to plan”) and third (“we should all have Skype on”)  
29 statements refer to the team as a whole, while the second (“let us know”) and fourth (“let us  
30 know your plan”) statements refer to geographical subgroups. While “we” was used  
31 ambiguously to both construct members as part of a single team as well as to separate members  
32 into two distinct subgroups, this language seemed to work seamlessly and we have no evidence  
33 of particular “we” usages being confusing or misinterpreted in context.  
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43 The self-structuring processes of both teams were similar in terms of formal structuring  
44 properties (geographical locations and time zones), and informally they drew on those properties  
45 to create identities as separate subgroups. Subgroups in both teams seemed to form along  
46 geographical lines due to the physical separation of team members in space and across time  
47 zones (for instance, the email above refers to Skyping when it is morning for some and night for  
48 other team members). Given that many of the emails were about scheduling real-time audio or  
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## DISCURSIVE CONSTRUCTION OF SUBGROUPS 1

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3 video conferencing meetings, the time zone differences among members often led to them being  
4 distinguished as separate subgroups. This structural feature seemed to be stronger in determining  
5 these identity labels than other demographic characteristics such as nationality, university, or  
6 gender. We thus regard these subgroup labels as being prominent due to the geographical  
7 distribution of members rather than due to perceived or experienced cultural differences between  
8 team members.  
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17 **Construction of status differences.** While these messages were seemingly task-related,  
18 our analysis revealed an additional status-related subtext that served to negotiate influence and  
19 voice, constructing status in the context of discussion about tasks and contribution. In this sense,  
20 many of the messages were related to *activity coordination* (coordinating tasks, sharing  
21 information, and managing disputes) but were also about *membership negotiation* (negotiating  
22 team roles and status). The most common discursive action was coordinating tasks, which were  
23 often split between geographical locations to avoid the difficulties of working across time zones.  
24 Messages of this type included dividing up tasks, coordinating schedules, and making  
25 arrangements for one of the subgroups to travel to the other location. A second discursive action  
26 of subgroups was sharing information, which involved a subtext of negotiating feedback and  
27 recognition through sharing feedback and status updates. A third discursive action was managing  
28 disputes, which involved negotiating accountability and managing conflict. While these  
29 discursive actions were common across the two teams in terms of activity coordination, they  
30 differed in terms of membership negotiation as they served to construct status dynamics in  
31 different ways. This status-related subtext played out differently in PenTech and AutoCorp.  
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51 **PenTech.** In PenTech, beyond simply demarcating boundaries, subgroups based on  
52 functional differences (which aligned with geographical differences) were used to discursively  
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## DISCURSIVE CONSTRUCTION OF SUBGROUPS 1

1  
2  
3 construct status differences. The team's discourse constructed the U.S. subgroup as experts and  
4 the Finns as non-experts. A status imbalance was created in which the U.S. team members were  
5 considered more technically proficient than the Finns due to their technical backgrounds as  
6 mechanical engineers compared to the Finnish members, who were business and arts students.  
7  
8 This was evident early on in a self-deprecating email message from one of the Finnish members:  
9  
10 "As most of you know I'm not technical genius (cheers Joel) so I'll let the more capable ones do  
11 the handy work :)" (Sara, PenTech, Finland, November 15). An early response from one of the  
12 U.S. members acknowledges the differences in expertise between the two sites in a friendly and  
13 positive way: "the questions from benchmarking page are from Tuesday's class, Please also help  
14 to provide some ideas from Finland team, With different background, Finland team can generate  
15 very different ideas that would be very helpful :)" (Seol, PenTech, U.S., November 7).  
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29 These status differences were exacerbated through the team's discourse and over time  
30 had the negative impact of infusing status differences into the subgroup boundaries. Through  
31 discursive processes of membership negotiation, the impression was created that the Finnish  
32 members had less to contribute due to their lack of technical competence. Some of the  
33 correspondence from the Finnish members hinted at feeling excluded from meetings with the  
34 teaching team (and sponsor company), which were held at the U.S. headquarter site, due to its  
35 lack of physical proximity to them. This led them to make discursive efforts to ensure that their  
36 contributions were recognized.  
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47 Around this time (which was shortly after the U.S. team members visited Finland in early  
48 January), the tone of the emails started to change. The Finnish subgroup started to express  
49 frustration with the lack of feedback and responsiveness from the U.S. members and escalated  
50 the emotional tone of its language in emails. One particularly vocal member complained: "C'mon  
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## DISCURSIVE CONSTRUCTION OF SUBGROUPS 1

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3 people! Get a grip and do something! :) No, seriously... The [U.S. University] guys really do  
4  
5 need to get all this stuff in time, so please try to send me the time estimates!” (Matti, PenTech,  
6  
7 Finland, January 10). Shortly after this, Matti began sending daily to weekly status update  
8  
9 newsletters until the end of the project, detailing the progress of the Finnish subgroup. Many of  
10  
11 the task division and coordination emails had negative undertones that hinted at dissatisfaction  
12  
13 with how work was distributed, team process, and a perceived lack of value of the Finnish  
14  
15 contributions, in particular. The high frequency and detailed nature of these messages created the  
16  
17 impression that the Finns were trying hard to make their contributions visible to the U.S. team  
18  
19 members and teaching team so that they would not go overlooked. We did not observe similar  
20  
21 status update emails being sent by the U.S. members.  
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26 In addition, the Finnish team members began to bypass the U.S. subgroup and reach out  
27  
28 directly to the client liaison to seek direction and feedback. The following is one of several  
29  
30 emails sent to the team liaison:  
31  
32

33 Hi Amanda!

34 The Finnish side of the [PenTech] team feels a bit lost at the moment and we'd like to get  
35  
36 your view on a few things: What do you consider to be the direction of the project at the  
37  
38 moment? How do you feel about the progress of the team thus far? ... Could we have bi-  
39  
40 weekly Skype meetings with you and the Finnish part of the team?

41 Thanks for the answers,

42 PenTech-Finland: Tim, Sara, Meri and Matti (January 23)

43 In the email above (sent by Tim), the Finnish subgroup of PenTech wrote collectively, on behalf  
44  
45 of all of the Finnish members, acknowledging that they felt “lost” and asking for feedback and  
46  
47 guidance. They also asked for regular meetings with the liaison, separate from the U.S.  
48  
49 subgroup, presumably to counterbalance the in-person meetings the liaison was already having  
50  
51 with the U.S. team members. This discursive strategy involved copying the U.S. team members  
52  
53 on the email, in an attempt to make them aware that the Finns were feeling excluded. This way,  
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3 team members anchored their discourse in the structure of physical proximity to construct  
4 subgroups and assign status differences according to their functional expertise and proximity  
5 with the team liaison. Despite these efforts, however, face-to-face meetings were held  
6 exclusively at the U.S. headquarters, working as reflexive self-structuring processes that  
7 maintained workgroup norms to exclude the Finns.  
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15 These discursive efforts (sending separate messages to external parties rather than  
16 presenting a unified front) worked to exacerbate status differences and entrench subgroup  
17 differences by putting each “side” against one another, segregating the team over time. Near the  
18 team midpoint, conflict in PenTech (which was largely invisible in their previous emails) came  
19 to a head. After months of building frustrations over feeling devalued and excluded, Matti sent  
20 an email on behalf of the Finnish subgroup to the U.S. subgroup titled “Letter from the Finns”.  
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26  
27 Here is an excerpt:  
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30  
31 Teamwork means, that we should know what we all are doing and why. Some people  
32 seem to be never online in Skype - there is hardly any conversation besides the polycom  
33 meetings with the group - What happened to the Forum and the Log? 1. Keep your  
34 promises and stick to what has been agreed (this means doing the task and deadlines you  
35 have been assigned to) 2. Don't fall in love with your own idea too much (we are also  
36 working hard on this here in Finland!) 3. Commitment (showing up on meetings on time,  
37 answering to emails swiftly and giving genuine input to the project) 4. Uphold open  
38 communication (ask when you're not sure or don't understand something, tell when  
39 something irritates you or you e.g. feel that your opinion is not listened to) ... Matti  
40 (PenTech, Finland, January 28)  
41  
42

43  
44 Several of the Finnish team members told us in interviews that they wrote the “Letter from the  
45 Finns” collectively as a subgroup. It took on a negative and accusatory tone that chastised the  
46 U.S. based subgroup for not following team processes, revealing and reinforcing an adversarial  
47 relationship between the two subgroups. The message was constructed in terms of a series of  
48 imperatives (e.g., “keep your promises”). This discursive framing served to assign blame and  
49 shut down the conversation – ironically, since it implored members to communicate openly –  
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## DISCURSIVE CONSTRUCTION OF SUBGROUPS 2

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3 rather than opening up dialogue and discussion. After a brief response from Joel, the email went  
4  
5 unanswered for a full ten days without a response from the American subgroup, although  
6  
7 members continued to send task-related emails. During the long delay between the Letter from  
8  
9 the Finns and the responses to it from Joel and Huang Jiao, Matti suggested that the team should  
10  
11 start working as two separate teams. This resulted in splitting the team into two distinct  
12  
13  
14  
15 subgroups late in the team lifecycle.

16  
17 By the end of the project, the team became even more divided and started to work on two  
18  
19 separate prototypes. Information sharing across locations was so poor that Matti ended up  
20  
21 coming to the U.S. early for the second visit to work with the U.S. members in person and act as  
22  
23 a communication liaison with the Finnish subgroup, which the team coach said he viewed as  
24  
25 “breaking the rules” of the project, which was designed to be performed through distributed  
26  
27 collaboration. Further, the situation was so dire that the team ended up paying an external  
28  
29 consultant (from their allowance) to fix the prototype design at the last minute, enabling PenTech  
30  
31 to complete the project just in time. In sum, structural differences in geographical location as  
32  
33 well as functional expertise formed the basis for subgroup distinctions in PenTech, which were  
34  
35 produced and reproduced in the team’s discursive flows over time (i.e. through membership  
36  
37 negotiation), assigning negative meanings to subgroup relations that served to divide the team.  
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42 *AutoCorp.* The AutoCorp team had similar demographic composition as PenTech, and  
43  
44 further, the same location-based subgroup labels (Finland vs. U.S. university) were mentioned  
45  
46 with equal frequency in both teams. In addition, the same types of discursive actions  
47  
48 (coordinating tasks, sharing information, and managing disputes) were evident as in PenTech.  
49  
50 However, subgroups were discursively constructed in a more egalitarian and positive manner in  
51  
52 AutoCorp, rather than reflecting status differences. In particular, while similar functional  
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## DISCURSIVE CONSTRUCTION OF SUBGROUPS 2

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2  
3 differences existed in both teams, AutoCorp constructed these differences more equally,  
4  
5 expressing respect for the different skills among members. This is reflected in an early exchange  
6  
7 in November, in which Anni acknowledges that she may have messed up the wiki due to her lack  
8  
9 of technical skills:  
10

11  
12 "Hi all, especially Cathy! I messed up with the idealog, when I added notes from our  
13  
14 yesterdays meeting. I don't know what I did, but I had some problem figuring the system  
15  
16 out, and now Cathys notes from your meeting on Wednesday 14th are replaced with my  
17  
18 notes from yesterday! I'm so so sorry, and even more sorry. Is there any way to undo  
19  
20 this? If not you are free to hate me :(" (Anni, AutoCorp, Finland, November 20)

21  
22 "Hey Anni! (and all) No worries! The extra nice thing about wikis is that it saves every  
23  
24 single saved change in its history, so the old page is still in there! I'm just happy you put  
25  
26 something up :) However, this does bring up a good point that we should all be careful  
27  
28 about, especially with my new templates. ... Thanks for updating it! And even if it were  
29  
30 erased forever i wouldn't hate you! Things happen!" (Cathy, AutoCorp, U.S., November  
31  
32 20)

33  
34 In this example, Anni is apologetic and Cathy responds compassionately and reframes Anni's  
35  
36 mistake as one that could be made by anyone. She uses it as a learning experience for the whole  
37  
38 team. This collaborative tone continued throughout the team's life cycle. Later in April, Cathy  
39  
40 sent another, appreciative email referring to functional differences among the subgroups:  
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43  
44 "While I perhaps don't have as much background in industrial design as Anni, and I know  
45  
46 from seeing her portfolio that she is incredibly talented, my heart is in fact in that field,  
47  
48 but I became a mechanical engineer so I could help making products which are both  
49  
50 aesthetically AND mechanically beautiful. I believe we are lucky to have an industrial  
51  
52 designer on the team, and that whatever function we believe is best will be able to be  
53  
54 transformed into something optimized in style." (Cathy, AutoCorp, U.S., April 26)

55  
56 As the informal and emergent leader of AutoCorp, Cathy sent the majority of emails and set the  
57  
58 tone for the team's communication style. In the email above, she showed appreciation for the  
59  
60 team members' functional differences in mechanical engineering versus industrial design and  
61  
62 affirmed that both were adding value to the team's product. Over time, these repeated  
63  
64 communications worked to discursively construct and reconstruct the two subgroups as equal in  
65  
66

## DISCURSIVE CONSTRUCTION OF SUBGROUPS 2

1  
2  
3 status in AutoCorp. In this team, discursive practices worked to create the perception that both  
4  
5 subgroups had an equal voice, independent of their geographical or functional differences.  
6

7  
8 AutoCorp also did a better job of sharing information internally across subgroups to  
9  
10 provide mutual awareness. One example is an email from Anni in Finland, sent on Sunday  
11  
12 morning on January 13, saying “Hi [U.S University]! Did you guys meet Camille? How about  
13  
14 grade, how did we do? Can you give us a short update on the comments and stuff like that? have  
15  
16 a nice Sunday there :)” This was followed just over an hour later by an email from one of the  
17  
18 U.S. team members that provided an extensive report of feedback from the U.S. teaching team.  
19  
20 In addition, AutoCorp was able to use its time zone differences effectively to distribute work  
21  
22 across the two geographical subgroups such that there were two shifts, as illustrated by an email  
23  
24 in December: “Anni said you guys had also talked about taking advantage of the time difference  
25  
26 while working (in other words doing stuff in two shifts). This is a good idea since we are in a bit  
27  
28 of hurry I guess” (Ismo, AutoCorp, Finland, December 4).  
29  
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33 While AutoCorp’s team interaction was positive overall, the team also struggled with  
34  
35 conflict. Both AutoCorp and PenTech went through a critical conflict around the project  
36  
37 midpoint, but the way they handled it discursively differed. In terms of the status-related goal of  
38  
39 negotiating accountability, AutoCorp was more successful in framing accountability collectively  
40  
41 rather than assigning blame, which helped prevent its subgroups from becoming divisive. This is  
42  
43 evident in the following message from Cathy in response to cumulating team conflict which was  
44  
45 due not to status differences but to excessive mutual influence that complicated decision-making.  
46  
47 The message, titled “Frustrations”, was sent during the midpoint and openly expressed some  
48  
49 pent-up emotions. Here is an excerpt from the 4-page, single-spaced letter (emphasis added):  
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53  
54 Hi team. As I'm sure all of you were as well, I left our meeting today a bit frustrated.  
55 Because of this I felt it necessary to just put down my thoughts in words rather than in  
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## DISCURSIVE CONSTRUCTION OF SUBGROUPS 2

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3 another never ending argument/discussion...This is not a personal attack on anyone...we  
4 are just spending wayyy too much time arguing...I think we have strong personalities on  
5 the **team** (myself included), and everyone gets a little frustrated and wants to get their  
6 point across about everything...The time has come to jump in!...all of **our** strengths can  
7 really produce a great product...You are **all** great, and I hope this is only helpful in  
8 clarifying things and understanding how frustrated **we all** feel about how the meeting  
9 wasn't quite as productive as **we** wanted. Cathy (AutoCorp, U.S., January 30)

10  
11  
12 This message shows that Cathy discursively framed conflict in a collective way so as not to  
13 blame one side or the other, and she involved the entire team in resolving the issues. She was  
14 open and assertive in addressing challenges but took care to treat team members with respect.  
15 Above all, she emphasized the common task and stayed positive and supportive, keeping the  
16 “we” inclusive, and focused at the team level rather than pointing fingers and allowing the team  
17 to splinter into subgroups. Her teammates responded positively to the email. For instance, Pete  
18 replied right away with a message starting “Great email Cathy, you have a lot of really good  
19 analysis there” and elaborating on the issues in need of improvement.

20  
21  
22 A few weeks later, a Finnish member voiced some frustrations with other members  
23 failing to provide their weekly updates:

24  
25  
26 Hi all, I'm feeling really frustrated about some things. I'm going to be really brief.  
27 The weekly updates part in the wiki was made to keep both halves of the team as  
28 aware as possible of what's happening on the other side of the ocean. I think that  
29 the updates are good for that and support our skype and polycom meetings AND  
30 they are going to be very valuable when we get closer to the end of the quarter  
31 and writing the report. But, they won't be any use if people who are responsible  
32 each week won't write the updates. A BIG thanks to those who have and not to  
33 those who haven't. The dullest thing is that Cathy has reminded people about this  
34 several times. If someone doesn't agree with me and thinks that I'm complaining  
35 for no reason please speak up. (Anni, AutoCorp, Finland, February 11)

## DISCURSIVE CONSTRUCTION OF SUBGROUPS 2

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3 Anni's email acknowledged the two geographically based subgroups by referring to "both halves  
4 of the team...on the other side of the ocean". But she avoided assigning blame and framed the  
5 issue as a team issue rather than a conflict between subgroups. She even took U.S. team member  
6 (and informal leader) Cathy's side and backed her up, saying "the dumbest thing is that Cathy has  
7 reminded people about this several times". In response, a fellow Finnish team member  
8 acknowledged that he had forgotten to do his task and offered to make up for it by taking on  
9 additional work. This active engagement and sharing between team members contributed to  
10 constructing equal status between the two subgroups. Rather than overcoming or eliminating  
11 subgroups, AutoCorp used them effectively and they were discursively constructed in a positive  
12 way that united the team and facilitated team learning.  
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**Positive or Negative Experience of Subgroups**

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28 In response to RQ2, our interview analysis revealed that although subgroups were salient  
29 in both teams, they were experienced quite differently: in PenTech, subgroups played a negative  
30 role, while in AutoCorp, they played a positive role and even enabled collaboration across  
31 geographical and disciplinary boundaries. While emails did not display a high level of emotion,  
32 participants were quite open about their perceptions and feelings in the interviews.  
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40 **PenTech.** Subgroups played a negative role in PenTech, as team discourse worked to  
41 construct status inequalities among team members that resulted in low trust and exclusion of  
42 Finnish members. Seol, one of the Asian members at the U.S. site, commented on the lack of  
43 technical expertise among the Finnish subgroup specifically: "the reason that I feel very difficult  
44 to communicate and work with non-engineering based students is that...they don't know about  
45 the sensors." This quote reveals a lack of trust in the competence of the Finnish members, which  
46 led to the U.S. members trying to do the work themselves. In turn, the Finnish members felt  
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## DISCURSIVE CONSTRUCTION OF SUBGROUPS 2

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3 frustrated that their contributions were not valued and their ideas were not heard. This is evident  
4  
5 in the following interview quotes from Meri and Sara:  
6

7  
8 When we presented our ideas, they were like, nice, but can you show it to us... like have  
9 you really done anything?... The approach here [in the U.S. university course] is  
10 technology-oriented, and we are not very technology-oriented. (Meri, PenTech, Finland)  
11

12 This is just a ridiculous course! First of all, what the hell are we doing with my economic  
13 skills in the project?... And I'm being stuffed into this (project); the main thing in this  
14 project is to code something. And I'm like, well, I hardly can use my computer. And I  
15 don't know anything about technical stuff...it is really frustrating...it's really difficult  
16 because I don't know how to code or integrate wires or anything like that. (Sara,  
17 PenTech, Finland)  
18  
19

20 These interview quotes reveal a strong sense of frustration among the Finnish team members, in  
21 particular, due to the perception that their skills were undervalued or inappropriate for the  
22 project. They also expressed frustration about the lack of feedback on their ideas:  
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27 At some point we thought that we were working on the same thing, but then we suddenly  
28 realized that the interpretation of our debrief differed for us and them... so we decided to  
29 do two separate prototypes. And we did not get any feedback from the [U.S. University]  
30 teaching team about our ideas; we were just told that it is up to the local team to forward  
31 this info, but our team is not working in this ideal way and they are quite indirect, like  
32 when asking them about what feedback we got, the comments were very superficial.  
33 (Matti, PenTech, Finland)  
34  
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36  
37 Matti's comment reveals a sense of frustration about the lack of feedback from the U.S. teaching  
38 team to the Finnish subgroup. While this feedback was supposed to be shared with the Finns by  
39 their U.S. teammates, the Finnish members felt that they only received superficial comments that  
40 were insufficient. This contributed to their perception that they were disenfranchised as part of  
41 the remote location and worked to segregate the team. As Meri described in an interview:  
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48 We got this feeling that 'are we one team or not?' ... They did not say that the Finns did  
49 this but they presented our things... We thought that if the going is like this, let's put then  
50 a Finnish stamp on each slide we send them. (Meri, PenTech, Finland)  
51

52 This gives more insight into the subtext of the conflict that arose in PenTech. Although it was  
53 presumably about process issues and activity coordination, it was really a struggle over  
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## DISCURSIVE CONSTRUCTION OF SUBGROUPS 2

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3 membership negotiation in which the lower status subgroup felt excluded and was striving to  
4 have its voice heard and its contributions valued. As the teaching coach put it, referring to the  
5 Letter from the Finns, “the Finns had sort of major issues in email that came out, and in the email  
6 system you see that there are reverberations of that message that go on for weeks.”  
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12 Interestingly, the big PenTech conflict occurred in late January, a few weeks after the  
13 U.S. team members went to Finland for a face-to-face visit:  
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17 Then they [U.S. team members] came to Finland and our bonding did not go so well...  
18 And AutoCorp team was there at the same time; we went to a summer cottage and  
19 AutoCorp team members and we are like, let’s drink and go to sauna, but then again, Joel  
20 ... and ... Seol or Huang Jiao, they are not like partygoers. So that wasn’t very good...  
21 we [Finnish team members] partied with the AutoCorp team and they [U.S. team  
22 members] went to bed. (Tim, PenTech, Finland)  
23  
24

25 It [the face-to-face meeting in January] didn’t feel like a big relief so that we would have  
26 had a lot better connection after it or anything. ... It didn’t feel like, yes, we are having a  
27 fun time together. (Meri, PenTech, Finland)  
28

29  
30 As the quotes by Tim and Meri demonstrate, the Finnish members did not feel closer to their  
31 U.S. counterparts after their face-to-face meeting in January. Tim’s quote indicates that the U.S.  
32 members were not interested in partying and socializing with the Finns, who ended up spending  
33 more time with the other team (AutoCorp) than with the U.S. members of their own team. Meri  
34 echoed Tim’s comments about the in-person visit not being a “fun time” and acknowledged that  
35 it did not provide a better connection among the two subgroups. In sum, the subgroups in  
36 PenTech played a negative role that segregated the team over time due to the status differences  
37 that were constructed around functional expertise and physical proximity.  
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48 **AutoCorp.** On the other hand, subgroups arose along the same lines in AutoCorp as in  
49 PenTech, but in AutoCorp they played a positive role as the two subgroups were discursively  
50 constructed as equals (despite having similar functional diversity among sites). At the end of the  
51 project, one team coach commented on the equality of both subgroups:  
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## DISCURSIVE CONSTRUCTION OF SUBGROUPS 2

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3 Since the beginning, I always felt, like the (AutoCorp), like, the two teams, the [U.S.  
4 University] team and the Helsinki team, they always felt equal to each other, and when  
5 they came together as a team, I think that still survived, in the sense that, one team didn't  
6 dominate over the other. (AutoCorp coach, U.S.)  
7

8  
9 The coach in this quote constructs subgroup differences among locations yet also acknowledges  
10 that there was equality among all team members. Several team members talked about how the  
11 team became "bonded together" after the mid-point face-to-face week:  
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15  
16 We were pretty separate [subgroups]. Until they came to Finland, it was always like we  
17 were two, like in every document we returned, in every Skype discussion, it was like "we  
18 want this" and "[U.S. University] team" and "Finland team". And then when we were  
19 one week [together] we were saying like "we are one team" and after that we got the  
20 same response from them. We were bonded together to become one team. (Anni,  
21 AutoCorp, Finland)  
22  
23

24 During fall we were like, okay these are your co-workers, you work with these people but  
25 it was still two dispersed teams. And when they were visiting we were able to bond  
26 together. And the other thing was that we ideated together, brainstormed together. What  
27 resulted was that everyone got a sort of an ownership of the ideas. (Ismo, AutoCorp,  
28 Finland)  
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30  
31 These quotes reveal that physical collocation helped to foster team integration in AutoCorp, as  
32 the midpoint site visit to Finland helped the two geographical subgroups to cohere as a unified  
33 team and increased their responsiveness over email. Interestingly, PenTech did not experience a  
34 similar type of team bonding during its face-to-face visits. This suggests that it was not simply  
35 the experience of coming together in person that unified the team, but rather properties of the  
36 team members' communication practices that had an integrating versus segregating impact.  
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### 44 Discussion

45  
46 In this study, we have taken a grounded-in-action CCO approach (Boivin et al., 2017) to  
47 explore how subgroups are discursively constructed in GVTs over time and the ways in which  
48 discursive actions contribute to team dynamics. Our analysis revealed that subgroups arose on  
49 the basis of the same structural characteristics (primarily geographical location) in each team, but  
50 that the way they were discursively constructed over time differed – due largely to the different  
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## DISCURSIVE CONSTRUCTION OF SUBGROUPS 2

ways in which functional differences were constructed in terms of status. Taking a grounded-in-action orientation to CCO helps to understand this interplay of structure and action by showing that subgroups may be grounded in pre-existing properties, but that members have agency in actively constructing subgroups and their discursive meanings over time. Table 3 presents our emergent theoretical framework. The differences among our studied teams can be understood through the lenses of the 4 Flows Model (McPhee & Iverson, 2009) and in particular three discursive flows: *reflexive self-structuring*, *activity coordination*, and *membership negotiation*. Reflexive self-structuring refers to drawing on structural influences, including both functional and locational structures, to establish task interdependencies, regulate information and feedback transparency, and evaluate members. Activity coordination refers to the discursive actions of the team's everyday activities in coordinating tasks, sharing information, and managing disputes. Membership negotiation refers to status-related goals of negotiating influence, inclusion, and accountability.

While both teams performed similar types of discursive actions in terms of reflexive self-structuring and activity coordination, the ways in which they were discursively constructed differed around membership negotiation in that they were either status enhancing or status diminishing. This resulted in subgroups producing different impacts on team dynamics, serving to either segregate or integrate the team. In other words, the way subgroups are constructed makes a difference in how well teams work together. In team AutoCorp, subgroup discourse played a primarily positive role by constructing the two prominent subgroups as equal and integrating the team, while in PenTech, it played a primarily negative role by constructing status differences that privileged one subgroup while marginalizing the other and segregating the team. Interestingly, both teams reported earning an A grade on their team project by the US teaching

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3 team. This highlights the importance of taking a discursive view of subgroups, as it helps to  
4  
5 reveal differences in teaming processes that may not be apparent through measures of team  
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7 performance. In fact, one of the US professors in the teaching team later used PenTech as an  
8  
9 example of how “a dysfunctional team” can end up getting good results. Our analysis has  
10  
11 important implications for CCO as well as the discursive construction of subgroups in GVTs.  
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14  
15 [INSERT TABLE 3 ABOUT HERE]  
16

### 17 **Theoretical Implications**

18  
19 Our study makes several important contributions to the literature on GVT subgroups as  
20  
21 well as CCO. First, taking a grounded-in action CCO approach highlights the dynamic and  
22  
23 constitutive nature of subgroups, and the ways in which they are in flux, permeable, and  
24  
25 produced by the team’s discursive practices. Second, it demonstrates that whether subgroups  
26  
27 function as positive or negative for GVTs depends on how they are discursively constructed.  
28  
29 Both of these contributions also help extend and add insight into the grounded-in-action  
30  
31 approach to CCO (Fairhurst & Putnam, 2004; McPhee & Iverson, 2009).  
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35 **GVT subgroups as dynamic and in flux.** Our findings help to extend the faultlines  
36  
37 literature by contributing a more dynamic view of subgroups as communicatively constructed.  
38  
39 Specifically, we show that subgroup development does not simply emerge from faultlines; rather,  
40  
41 subgroups emerge through dynamic team processes of coordinating tasks, sharing information,  
42  
43 and managing disputes that take place through on-going discursive flows. While these processes  
44  
45 seem to be mundane and task-related, language played an important role of simultaneously  
46  
47 enacting structural boundaries (reflexive self-structuring), accomplishing tasks (activity  
48  
49 coordination), and constructing status dynamics (membership negotiation) within the team. This  
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51 deviates from dominant conceptualizations of faultlines that regard them as stemming from  
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## DISCURSIVE CONSTRUCTION OF SUBGROUPS 31

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3 fixed, a priori demographic differences (e.g. Lau & Murnighan, 1998). We therefore contribute a  
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5 conceptualization of subgroup formation as a dynamic, discursive process that is shaped by  
6  
7 linguistic choices of team members, which contrasts with earlier views that regard subgroup  
8  
9 conflict as inevitable (Earley & Mosakowski, 2000; Lau & Murnighan, 1998). In this sense,  
10  
11 faultlines are not destiny.  
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14  
15 As the broader CCO perspective suggests, linguistic micro interactions are the key  
16  
17 ingredients producing larger organizational structures and patterns (Putnam & Nicotera, 2009) –  
18  
19 in this case, team integration or segregation. We extend conceptual work that regards virtual  
20  
21 team processes as communicatively constituted (Gibbs et al., 2008) and contribute to the  
22  
23 grounded-in-action CCO approach (Boivin et al., 2017) by accounting for the role of both  
24  
25 discursive actions and structures in constructing GVT subgroups. This helps to integrate the  
26  
27 structural approaches taken by most subgroup studies (e.g., Lau & Murnighan, 1998; Polzer et  
28  
29 al., 2006) with the teaming literature that tends to emphasize agency over structure (e.g., Einola  
30  
31 & Alvesson, 2019; Shockley-Zalabak, 2002). Our analysis shows empirically how GVT  
32  
33 subgroups both arise through and transform existing structures, as discursive practices produce  
34  
35 different consequences for team processes. Discursive constructions of subgroups, thus, carry  
36  
37 traces of past organizing logics and routines that are laminated upon each conversation. Thus  
38  
39 geographical faultlines in GVTs may provide initial structures to draw upon in discursive  
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41 actions, which in turn recursively reproduce these structures or create new structures – in this  
42  
43 case subgroups – influencing subsequent discursive actions. Applying this view to the faultlines  
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45 literature offers a way to escape a deterministic view of faultlines and overcome subgroup  
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47 divisiveness in teams.  
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3       **Explaining when subgroups are positive or negative.** Our analysis further contributes  
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5 an understanding of the discursive conditions that construct subgroups as positive or negative,  
6  
7 with direct implications for the effects of language on team outcomes. While Panteli and  
8  
9 Davison (2005) found that subgroups tended to impede collaboration in GVTs with more task-  
10  
11 oriented communication, our findings suggest that subgroups can also be collaborative and that  
12  
13 task-oriented communication can lead to positive subgroup impacts. Our findings problematize  
14  
15 the task versus social distinction that has been drawn in prior studies (Jarvenpaa & Leidner,  
16  
17 1999; Panteli & Davison) as we found that many task-related messages had either a positive or  
18  
19 negative status-related goal (e.g., negotiating accountability or negotiating influence and voice),  
20  
21 making it difficult to separate task from social communication. While most of the subgroup  
22  
23 literature has focused on negative effects of subgroups (e.g., Jehn & Bezrukova, 2010; Shemla et  
24  
25 al., 2014), our findings provide a counterpoint that both illustrates the positive role of subgroups  
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27 and helps to explain the discursive conditions underlying this role.  
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33       More specifically, our findings reveal that three of the four communication flows  
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35 (McPhee & Iverson, 2009) were particularly important in constructing subgroups: reflexive self-  
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37 structuring, activity coordination, and membership negotiation. Similar to Nordbäck et al.  
38  
39 (2017), we found little evidence of institutional positioning (which involves managing relations  
40  
41 with external stakeholders) – perhaps due to the nature of the student teams, which were not  
42  
43 embedded in larger organizational structures. We observed that discursive flows around reflexive  
44  
45 self-structuring and activity coordination were the same across the two teams – which were  
46  
47 structurally similar – but that membership negotiation was the key discursive flow through which  
48  
49 subgroups were constructed as positive or negative due to emergent status dynamics. Namely,  
50  
51 subgroup membership was discursively constructed in terms of unequal status in one team,  
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## DISCURSIVE CONSTRUCTION OF SUBGROUPS 3

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3 which resulted in segregating the team, while in the other team subgroups were constructed as  
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5 equal in status, which – along with the team’s self-structuring and activity coordination processes  
6  
7 – had an integrating effect. Our findings provide theoretical implications for CCO, given that the  
8  
9 four flows have been considered analytically distinct yet intertwined (Nordbäck et al., 2017).  
10  
11 While Nordbäck and colleagues (2017) showed how different self-structuring processes at the  
12  
13 outset caused different activity coordination and membership negotiation processes, we showed  
14  
15 that membership negotiation processes may be enacted differently despite similar self-structuring  
16  
17 and activity coordination processes. That is, despite both teams having equivalent structural  
18  
19 properties at the outset (with similar potential for dormant faultlines to be activated into  
20  
21 subgroups) and similar activity coordination processes, communication played a powerful role in  
22  
23 activating dormant faultlines over time by constructing subgroups as either equal or unequal.  
24  
25 These findings suggest that membership negotiation plays a key role in explaining differences in  
26  
27 how subgroups are discursively constructed and whether they have positive or negative impacts  
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29 on team processes.  
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**Practical Implications**

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37 The findings also suggest important implications for GVT practitioners. The CCO  
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39 perspective highlights the powerful role of language in constructing meaningful patterns of  
40  
41 organizing that may be both productive and destructive. Specifically, discursive practices  
42  
43 enabled one team to work across geographical and disciplinary boundaries, while they hindered  
44  
45 collaboration in the other team. This insight is important given that GVTs are often formed to  
46  
47 enable multidisciplinary collaboration. It suggests that managers and team members are not  
48  
49 merely subject to divisive subgroups arising based on team composition, but that they play an  
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51 active role in constituting the meanings and outcomes of subgroups through their discursive  
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3 practices. More specifically, our findings suggest that both team members and leaders can  
4  
5 actively construct, manage and take advantage of subgroups through inclusive and supportive  
6  
7 language use. Our findings suggest that both assigned and emergent leaders set the tone for team  
8  
9 discourse by constructing subgroups as equal in status. This is particularly important in  
10  
11 discussing sensitive issues and handling conflict so as not to point fingers but to acknowledge  
12  
13 that the team bears collective responsibility for problems. In this way, emphasizing team unity  
14  
15 casts an inclusive boundary around the whole team and demonstrates that members are  
16  
17 collectively accountable for team outcomes. This calls attention to the strategic discursive  
18  
19 choices made by team members and shows that even simple pronouns like “we” can significantly  
20  
21 impact team processes. Team members should undergo training on inclusive communication and  
22  
23 team building across geographical locations and time zones.  
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28  
29 In addition, our findings suggest that global teams exercise caution when labeling  
30  
31 subgroups based on location especially when status differences exist. Such labeling might be  
32  
33 counterproductive and may result in lower-status subgroups feeling left out. Rather, team  
34  
35 members should be encouraged to find other ways to discursively build subgroupings, for  
36  
37 example based on sub-tasks, in order to reduce negative attitudes and promote positive inter-  
38  
39 subgroup interactions. For instance, assigning cross-location pairs to work together in order to  
40  
41 break down subgroups and encourage cross-location bonding could be an effective strategy if  
42  
43 implemented well. Ideally, GVTs should be designed such that expertise is distributed across  
44  
45 locations, so that status differences are not superimposed onto geographical differences.  
46  
47 Moreover, our findings suggest that while subgroups are likely to arise in distributed teams, they  
48  
49 are not necessarily problematic. There are benefits to having coherent subgroups, such as team  
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51 learning across sites, but they need to be managed well by skillful leaders building shared team  
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## DISCURSIVE CONSTRUCTION OF SUBGROUPS 3

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3 identity discursively. More specifically, by applying inclusive language in the team to coordinate  
4  
5 its tasks (e.g., by assigning equal voice to all subgroups), share information (e.g., by maintaining  
6  
7 transparency throughout the team), and manage disputes (e.g., by highlighting shared  
8  
9 accountability), subgroups can be constructed as equal and play a more positive role.  
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**12 Limitations and Future Research**

13  
14  
15 This study comes with limitations. First, although we gathered the entire corpus of emails  
16  
17 over the duration of the project, we did not analyze the content of virtual meetings, individual  
18  
19 emails, or face-to-face communication. Thus, we do not know how these communications among  
20  
21 and between team members at each location may have aided in subgroup formation. It is also  
22  
23 possible that the slightly higher amount of diversity in PenTech as well as the nature of software  
24  
25 (rather than hardware) development may have introduced additional challenges. Future research  
26  
27 should better account for the role of different communication media in subgroup construction as  
28  
29 well as face-to-face site visits and background conversations. A great deal of subgroup conflict  
30  
31 and emotional responses came out in the interviews that were not evident in the team email data.  
32  
33 Thus, our interviews provided an important source of context for the email interactions and  
34  
35 revealed both members' and coaches' perceptions and evaluations of their interactions. This is a  
36  
37 benefit of our multi-method approach and speaks to the importance of combining behavioral  
38  
39 with self-report data. Additional data, such as team member diaries, meeting transcripts, or  
40  
41 interviews at multiple time points could also help understand subgroup formation in GVTs.  
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47 Further, the small sample of two student teams makes it difficult to generalize our  
48  
49 findings to GVTs more broadly; future research should examine organizational GVTs in field  
50  
51 settings as well. Finally, discourse cannot explain everything. Studies should examine the role of  
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53 opinion leaders who may have shaped the team's discourse, as well as better incorporate material  
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3 features of the teams' technological infrastructure and physical environment. Nevertheless, this  
4  
5 study makes an important contribution by highlighting the ways subgroups are discursively  
6  
7 constructed and the interplay of structure and action in this process. Given that teams in  
8  
9 contemporary global organizations tend to be dynamic and fluid rather than having long-term,  
10  
11 stable membership (Shockley-Zalabak, 2002), the teams in our study depict a rather realistic  
12  
13 scenario for virtual project teams consisting of members with no common work history who  
14  
15 must solve complex and ambiguous tasks in a short amount of time.  
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18

### 19 **Conclusion**

20  
21 This study underscores the constitutive role of language for the functioning of subgroups  
22  
23 in GVTs and demonstrates the important role of electronic discursive practices in subgroup  
24  
25 formation. Given the rise in multicultural, distributed settings, where context cues are lacking, it  
26  
27 is increasingly important to pay attention to the mediated linguistic choices of the team members  
28  
29 that work to constitute such teams. While we have identified three discursive flows of GVTs  
30  
31 through which subgroups emerge, namely reflexive self-structuring, activity coordination, and  
32  
33 membership negotiation, our goal has not been to offer a finite set of discursive actions through  
34  
35 which subgroups are shaped. Clearly, there may be additional aspects central in the discursive  
36  
37 practices of GVTs contributing to positive or negative subgroup dynamics. By learning more  
38  
39 about how subgroups are discursively constructed, the divisive effects of subgroups can be  
40  
41 reduced to help teams become more innovative and productive.  
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## DISCURSIVE CONSTRUCTION OF SUBGROUPS 4

Table 1. Team Characteristics

| Team                   | PenTech   | AutoCorp  |
|------------------------|---|---|
| Gender                 | Mixed (3 female, 4 male)  | Mixed (2 female, 5 male)  |
| Nationality            | Mixed (1 American, 4 Finnish, 1 Korean, 1 Taiwanese)                        | Mixed (3 American, 4 Finnish)   |
| English proficiency    | High (1 native speaker, 6 proficient)                                       | High (3 native speakers, 4 proficient)                                      |
| Functional backgrounds | Mixed: technical expertise in U.S., non-technical expertise in Finland      | Mixed: technical expertise in U.S., non-technical expertise in Finland      |
| Universities           | Multiple (2 in the U.S., 3 in Finland)                                      | Multiple (1 in the U.S., 3 in Finland)                                      |
| Country location       | 2 (U.S. and Finland)  | 2 (U.S. and Finland)  |
| Team temporality       | Temporary (9-month-long course)   | Temporary (9-month-long course)   |
| Task type              | Designing a software prototype  | Designing a hardware prototype  |
| Technologies used      | Email, Skype conference calls, videoconferences (Polycom), email list, wiki | Email, Skype conference calls, videoconferences (Polycom), email list, wiki |

Table 2. Language Used to Refer to the Team versus Subgroups

| Team                 | Subgroup                                      |
|----------------------|---|
| group                | Helsinki (team, part)                         |
| team                 | you   |
| all                  | you guys                                      |
| y'all                | Finns   |
| everyone             | Finnish                                       |
| Hi X and others      | The [U.S. university name] side,<br>team      |
| Hi X and Co          | we....you guys                                |
| (Hi) guys & girls!   | Helsinki kids, [U.S. university<br>name] kids |
| entire team together | [U.S. university name]ians and<br>Helsinkians |
|                      | both halves of the team                       |
|                      | AutoCorp [U.S. university name]<br>Division   |

Table 3. Discursive Flows and Subgroup Construction

| Discursive Flows   |                       |                                     |  |
|--|-----------------------|-------------------------------------|--|
| Reflexive Self-Structuring   | Activity Coordination | Membership Negotiation              | Impact on Team Dynamics  |
| Drawing on functional and locational structure to establish task interdependencies               | Coordinating Tasks    | Negotiate influence and voice       | <p>PenTech: discourse constructed U.S. subgroup as experts while Finnish subgroup pushed to have its voice heard (segregating)</p> <p>AutoCorp: discourse constructed mutual influence (integrating)</p>   |
| Drawing on functional and locational structure to regulate information and feedback transparency | Sharing Information   | Negotiate inclusion and recognition | <p>PenTech: lack of feedback from U.S. subgroup led to Finnish subgroup pushing for awareness and recognition of its contributions (segregating)</p> <p>AutoCorp: discourse provided feedback on teaching team meetings and recognition for the work of both subgroups (integrating)</p> |
| Drawing on functional and locational structure for member evaluation                             | Managing Disputes     | Negotiate accountability            | <p>PenTech: discourse of assigning blame served to segregate team (segregating)</p> <p>AutoCorp: discourse of shared accountability served to integrate team (integrating)</p>   |