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Exploring the Discursive Construction of Subgroups in Global Virtual Teams

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 for them lies in the formation of subgroups along geographical, cultural, and other faultlines that fragment the team (Cramton & Hinds, 2005; Yilmaz & Peña, 2014).

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, Meyer, Greer, & Jehn, 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, Brummans, & Barker, 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, Krisp, Jarvenpaa, & Kim, 2006). Therefore, faultlines are considered to be determined based on pre-existing characteristics, while subgroups may or may not arise (i.e. Chrobot-Mason, Ruderman, Weber, & Ernst, 2009; 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 (Rink & Jehn, 2010) has shown that features of group composition and configuration (O'Leary & Cummings, 2007) may activate dormant faultlines, as social categorization processes lead to divisive in-group/out-group dynamics (Carton & Cummings, 2012). While understanding social categorization processes is useful, the faultlines literature tends to treat subgroups as based on fixed demographic or structural differences among members (e.g., Lau & Murnighan, 1998) and to regard subgroup conflict as inevitable. As such, the dynamic role of communication in shaping subgroup construction remains understudied.

Communication scholarship has long regarded teams – especially virtual teams – as dynamically and discursively constructed. For instance, virtual teams have been depicted as fluid environments characterized by continuous change in work group formation (Kristof, Brown, Sims, & Smith, 1995; Shockley-Zalabak, 2002) and dynamic structure is conceptualized as a key component of virtuality (Gibson & Gibbs, 2006). Rather than being detrimental for relationship formation, temporary teams have been found to be characterized by swift trust, a form of trust that is role-based rather than personalized (Meyerson, Weick, & Kramer, 1996) and which can be quickly built – and eroded – in global teams depending on the team's communicative practices (Jarvenpaa & Leidner, 1999). Team technology use has been theorized to be a process of adaptive structuration in which technological and social structures both shape and are shaped by agentic processes of interaction (DeSanctis & Poole, 1994). Field studies have supported this view. One study demonstrated that virtual teams go through adaptation processes in which they attempt to align technology use with pre-existing group structures and the organizational

environment, which may result in changes to both technology and group structures (Majchrzak, Rice, Malhotra, King, & Ba, 2000). Another field study found that team learning occurred in both email and face-to-face meetings in ways that were nonlinear and subject to change over time (Erhardt, Gibbs, Martin-Rios, & Sherblom, 2016). A third study of sensemaking in global teams found that teaming was an on-going process of making and unmaking the team, and that three teams that were anatomically similar had radically different teaming processes (Einola & Alvesson, 2019).

Research on subgroups more specifically has demonstrated that interpersonal communication (what you do) matters as much or more than social identity (who you are) in virtual groups (Wang, Walther, & Hancock, 2009; Yilmaz & Pena, 2014), suggesting that subgroup dynamics may be influenced by the communication practices of GVTs. In line with the broader CCO perspective, we propose a more dynamic notion of GVT subgroups as communicatively constituted (Gibbs, Nekrassova, Grushina, & Abdul Wahab, 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). In this view, global teaming is regarded as a dynamic process that is constituted in language and social interaction (Gibbs et al., 2008). This view is in line with the CCO approach, which goes a step further in helping to

explain how micro interactions produce organizational structures and patterns that endure across time and space (Putnam & Nicotera, 2009). 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 structural 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 outcomes are not predictable or given. This branch of CCO includes the 4 Flows Model (Nordbäck, Myers & McPhee, 2017; McPhee & Iverson, 2009), another structural view that posits that organizations are constituted by on-going flows of communication: activity coordination (managing collaborative tasks), membership negotiation (negotiating roles and status), reflexive self-structuring (including both formal structure and informal interactions that produce and reproduce norms and relationships), and institutional positioning (managing relations with external stakeholders).

The grounded-in-action discourse approach relies on the notion of lamination (Boden, 1994), in which organizational members draw from past circumstances to select rules or

structural features that are immediately relevant to their local situation. These choices then laminate upon one another as conversations take place. In this sense, subgroups are likely to arise through a combination of structural features (e.g., demographic or linguistic differences) and communicative actions that serve to reify, reject, or transform these rules in the moment. Organizational members rely on rules and identity structures from prior interactions in the ongoing flow of team interaction (Scott, Corman, & Cheney, 1998) and this may serve to either construct subgroup differences or minimize them to construct a team identity.

Taking a grounded-in-action view provides an understanding of how subgroups are dynamically formed through everyday discursive actions and structures. It allows us to go beyond the language of dormant versus activated faultlines, which positions structure as pre-existing in the form of demographic characteristics and as simply activated (like flipping a switch) or not, without allowing for the ways in which action reproduces or transforms structure. This helps to explain how subgroups can play a positive or negative role even though a team's demographic characteristics are similar. In particular, a team's discursive practices work to invoke subgroups and imbue them with positive or negative meanings, such that they pose benefits or challenges to the team. It is thus possible that teams with similar configurations may differ in their degree of subgroup divisiveness, as it depends on the discursive practices developed as a team and whether they unfold over time in a way that fosters team unity or subgroup divisiveness. This leads to our research questions:

RQ1: How are subgroups discursively constructed in the electronic communication of GVTs?

RQ2: How does the discursive construction of subgroups shape how these subgroups are experienced?

Method

Research Context

This study is an inductive qualitative analysis of two globally distributed project teams. The multi-method analysis incorporates data from in-depth interviews with team members with archival data from intra-team electronic messages. Both sets of data were collected from a graduate level global product development course, organized by a medium-sized U.S. West Coast university. Several universities from Europe and the U.S. participated in the course. Altogether six global, interdisciplinary teams were formed consisting of graduate students from various educational backgrounds, such as mechanical engineering, marketing, industrial design and information studies. We focused on two teams of students from three Finnish and two U.S. universities. We selected these teams because they were the most comparable on demographic attributes and they mirrored language and cultural expertise of our research team. The Finnish and the U.S. universities were each co-located in the same geographical area in Finland and in the U.S. and the team members in each country had regular meetings face-to-face. Both teams had the same task: design and implement complete prototypes of a product or service for two different global corporations: an electronics manufacturer (Team PenTech) and a car manufacturer (Team AutoCorp).

Both teams collaborated closely with one liaison (per team) from the collaborating company and one coach (per team) from industry. Both the liaisons and coaches were located in the U.S. Student teams were supervised by a 5-member teaching team consisting mostly of personnel from the coordinating U.S. university. The coordinating university received funding from each company that participated in the course, part of which was allocated to each team as

an allowance to cover travel expenses and material costs. Furthermore, students received course credit from their home universities.

After completing IRB procedures at the U.S. university, we followed two GVTs with 7 members each over the 9-month duration of their project. While zero-history student teams may not approximate many organizational global teams, they provided the advantages of being longitudinal and field-based, conducting a realistic task with corporate funding and a deadline, and allowing us to observe the teams over their entire lifecycle. Further, we studied two teams that were similar in composition, task, communication modalities, and project design. This allowed us to control such structural factors – which would be more difficult to control in naturally occurring organizational teams – in order to observe the ways in which discursive practices contributed to subgroup formation over time. See Table 1 for team level characteristics.

[INSERT TABLE 1 ABOUT HERE]

Procedure

The course consisted of several phases that included face-to-face visits and virtual collaboration among the global student team members. In October, at the beginning of the course, all of the students met for several days on the campus of the U.S. university to conduct preliminary design tasks. At the end of the face-to-face meeting, the students were divided into teams that worked together virtually when back at their universities. They had an email listserv and a wiki they used for daily communication and document sharing. The GVTs also held regular video calls. In the U.S., the teaching team of the coordinating university organized weekly coaching sessions for the local U.S. members. Team members from Finland could not always participate in these sessions due to time differences, but their results were often discussed with the whole team through a video or teleconference. Similarly, teams could contact their

liaisons and coaches to arrange meetings with them. The local U.S. members sometimes met with their liaisons and coaches face-to-face, while team members in Finland emailed and had video conferences with them. In early January, after three months of virtual collaboration, the student teams again met face-to-face, this time in Finland. The American members travelled to meet their Finnish counterparts and collaborate with them for a week. After this meeting, the groups separated again and worked virtually for the next three to four months. The teams gathered once more in the U.S. in May to finalize their prototypes, prepare for presentations and write their final reports.

Data Collection

Team email corpus. Email constituted the primary means of team communication in both teams. A specific project email list was used when communicating with others during the project duration. We gathered all emails from the two teams, including information on the sender, subject, time, and date of the message. There were 450 unique emails in the email archive of PenTech and 389 emails in the archive of AutoCorp, consisting of a total of 512 single spaced pages (254 in PenTech and 258 in AutoCorp). In addition to intra-team emails, emails to and from the teaching team (coordinators representing the U.S. and the Finnish universities) and company liaisons that were crucial for team collaboration were included in the analysis as they served an important purpose in reporting on task progress, coordinating activities, and defining membership.

In-depth interviews. Two researchers (fluent in both Finnish and English) conducted 16 semi-structured interviews with all team members and their coaches at the end of the course. Interviews were conducted in either Finnish or English, depending on the participant's

preference. Each interview lasted 55 minutes, on average. Interviews were audio recorded and transcribed verbatim, producing a total of 150 single spaced pages of transcripts. Interview questions included reflections on the team process, questions related to subgroups, and team members' retrospective analysis of certain email messages and critical incidents in the team during the time when those messages were sent. The protocol is available from the authors.

Data Analysis

We conducted qualitative discourse analysis (Putnam & Fairhurst, 2015) of the email and interview data to explore how the teams experienced and discursively constructed subgroups. Discourse analysis requires careful attention to the unique properties of language as patterns that constitute organization, and that arise in the ongoing flow of social interaction (Putnam & Fairhurst). It involves a focus on everyday talk, and the recognition that it involves more than simple information exchange but also the accomplishment of other activities – including identity work, which is defined as “the process through which talk makes available to participants and observers who the people doing the talking must be” (Tracy, 2002, p. 7). In line with the grounded-in-action approach, there are two components of this: talk serves to construct or accomplish identities, and preexisting identities in turn shape how people talk. As such, we focused our analysis around the building blocks of talk, including words used to reference the team as a whole as well as subgroups within it, in order to identify discursive actions of these subgroups.

We analyzed both teams' email corpuses at the same time, side-by-side, as the course syllabus kept both teams on similar tracks of task activity. We focused our analysis primarily on emails that used subgroup language as well as key episodes that revealed the ways in which each team discursively constructed subgroups. For instance, we found that the use of “we” sometimes

referred to the GVT as a whole, while other times it referred to a subgroup within the team – with the major subgroup being the Finnish versus the U.S. subgroup. Table 2 summarizes the key terms that were used to refer to the team versus subgroups. Analyzing this language enabled us to understand the ways subgroups were discursively constructed in order to address RQ1. While the email data allowed us to observe the discursive construction of subgroups in team communication, the interview data helped us address RQ2 by understanding team members' subjective perceptions and final evaluations of team dynamics.

[INSERT TABLE 2 ABOUT HERE]

Our coding process proceeded as follows. We used Atlas.ti software to facilitate data management and analysis. Email messages were organized and analyzed by team in conjunction with analysis of that team's interview data. We conducted several rounds of *focused coding* (Charmaz, 2006) to examine emails containing language reflecting team and subgroup identities and attempted to identify the particular discursive actions of these subgroups as constructed through language. We did this by focusing on how team members discursively framed their relationships with team members, their location-based subgroups and their actions in emails, whether the verbs and statements they used in their messages were opening up or closing off dialogue (for instance, questions such as “What do you think?” opened up dialogue while imperatives such as “stick to what has been agreed on” served to close it off), as well as what expressions they used to refer to team processes and outcomes both in email and in interview data. We also identified key events within each team including salient subgroup conflicts. We compared the email and interview data in an iterative process, using the interview data to provide context to the team communication. Next, we engaged in *axial coding* (Strauss & Corbin, 1998), where we related categories to one another and formed second order categories. This coding took

place at a more abstract level, and represents themes and dimensions derived from our theoretically-based interpretations of the participants' language. This step enabled us to link pronoun "we" use and location-based subgroup labels with discursive actions of subgroups. Finally, we searched for relationships amongst these second order categories and arrived at our final aggregate dimensions (in terms of the discursive flows of reflexive self-structuring, activity coordination, and membership negotiation) through *selective coding* (Strauss & Corbin, 1998). We analyzed these dimensions and their linkages to create an in-depth understanding of how subgroups were constructed in the teams, paying attention to the identity targets used and how they related to particular discursive actions of subgroups.

Findings

Discursive Construction of Subgroups

In response to RQ1, our analysis revealed that throughout both teams' life cycle, subgroups were manifested through electronic discourse and the language of both teams served to draw and demarcate subgroup boundaries between the two geographical locations, in particular. These subgroup identities arose based on demographic differences in geographical location (U.S. versus Finland), but they were anchored in discursive constructions that varied across the two teams and produced different outcomes for team dynamics. We found that three of the communication flows from the 4 Flows Model (McPhee & Iverson, 2009) provided sensitizing concepts that helped to make sense of the ways in which subgroups were discursively constructed. While the same subgroup labels were used and each team performed the same discursive actions around *reflexive self-structuring* and *activity coordination*, the teams discursively engaged in *membership negotiation* differently such that the subgroups took on status differences in one team, while they were constructed of equal status in the other.

Drawing of subgroup boundaries. We found similarities in the *reflexive self-structuring* flow (McPhee & Iverson, 2009) in terms of the language used to draw and demarcate subgroup boundaries, which in both teams were based primarily on geographical differences. See Table 2 for a list of terms used to differentiate and enact these subgroups as opposed to team identities. Interestingly, the most common terms used were the primary U.S. university name (which was a prestigious university as well as where the project was hosted) and either “Helsinki” or “the Finns” – both geographical terms. Some members would even sign their emails with their subgroup affiliation, e.g., “Finnish Team / Tim”. The following email from AutoCorp illustrates how “we” was used deftly and interchangeably to refer to the team as a whole as well as subgroups (all original language has been preserved including misspellings and incorrect grammar, all names and university names have been replaced with pseudonyms, and bolded text has been emphasized by the authors):

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

In this quote, Cathy uses “we” and “us” to refer to both the entire team and to the U.S. subgroup interchangeably. The first (“we need to plan”) and third (“we should all have Skype on”) statements refer to the team as a whole, while the second (“let us know”) and fourth (“let us know your plan”) statements refer to geographical subgroups. While “we” was used ambiguously to both construct members as part of a single team as well as to separate members into two distinct subgroups, this language seemed to work seamlessly and we have no evidence of particular “we” usages being confusing or misinterpreted in context.

The self-structuring processes of both teams were similar in terms of formal structuring properties (geographical locations and time zones), and informally they drew on those properties to create identities as separate subgroups. Subgroups in both teams seemed to form along geographical lines due to the physical separation of team members in space and across time zones (for instance, the email above refers to Skyping when it is morning for some and night for other team members). Given that many of the emails were about scheduling real-time audio or video conferencing meetings, the time zone differences among members often led to them being distinguished as separate subgroups. This structural feature seemed to be stronger in determining these identity labels rather than other demographic characteristics such as nationality, university, or gender. We regard these subgroup labels as being prominent due to the geographical distribution of members across locations rather than due to perceived or experienced cultural differences between team members in the two countries.

Construction of status differences. While these messages were seemingly task-related, our analysis revealed an additional status-related subtext that served to negotiate influence and voice, constructing status in the context of discussion about tasks and contribution. In this sense, many of the messages were related to *activity coordination* (coordinating tasks, sharing information, and managing disputes) but were also about *membership negotiation* (negotiating team roles and status). The most common discursive action was coordinating tasks, which were often split between geographical locations to avoid the difficulties of working across time zones. Messages of this type included dividing up tasks, coordinating schedules, and making arrangements for one of the subgroups to travel to the other location. A second discursive action of subgroups was sharing information, which involved a subtext of negotiating feedback and

recognition through sharing feedback and status updates. A third discursive action was managing disputes, which involved negotiating accountability and managing conflict. While these discursive actions were common across the two teams in terms of activity coordination, they differed in terms of membership negotiation as they served to construct status dynamics in different ways. This status-related subtext played out differently in PenTech and AutoCorp.

PenTech. In PenTech, beyond simply demarcating boundaries, subgroups based on functional differences (which aligned with geographical differences) were used to discursively construct status differences. The team's discourse constructed the U.S. subgroup as experts and the Finns as non-experts. A status imbalance was created in which the U.S. team members were considered more technically proficient than the Finns due to their technical backgrounds as mechanical engineers compared to the Finnish members, who were business and arts students. This was evident early on in a self-deprecating email message from one of the Finnish members: "As most of you know I'm not technical genius (cheers Joel) so I'll let the more capable ones do the handy work :)" (Sara, PenTech, Finland, November 15). An early response from one of the U.S. members acknowledges the differences in expertise between the two sites in a friendly and positive way: "the questions from benchmarking page are from Tuesday's class, Please also help to provide some ideas from Finland team, With different background, Finland team can generate very different ideas that would be very helpful :)" (Seol, PenTech, U.S., November 7).

These status differences were exacerbated through the team's discourse and over time had the negative impact of infusing status differences into the subgroup boundaries. Through discursive processes of membership negotiation, the impression was created that the Finnish members had less to contribute due to their lack of technical competence. Some of the

correspondence from the Finnish members hinted at feeling excluded from meetings with the teaching team (and sponsor company), which were held at the U.S. headquarter site, due to its lack of physical proximity to them. This led them to make discursive efforts to ensure that their contributions were recognized.

Around this time (which was shortly after the U.S. team members visited Finland in early January), the tone of the emails started to change. The Finnish subgroup started to express frustration with the lack of feedback and responsiveness from the U.S. members and escalated the emotional tone of its language in emails. One particularly vocal member complained: “C'mon people! Get a grip and do something! :) No, seriously... The [U.S. University] guys really do need to get all this stuff in time, so please try to send me the time estimates!” (Matti, PenTech, Finland, January 10). This message asked the U.S. team members to send their contributions on time, with an attempt at humor that revealed a sense of frustration and suggested that tensions were running high. Shortly after this, Matti began sending daily to weekly status update newsletters until the end of the project, detailing the progress of the Finnish subgroup. Many of the task division and coordination emails had negative undertones that hinted at dissatisfaction with how work was distributed, team process, and a perceived lack of value of the contributions of the Finnish side, in particular. The high frequency and detailed nature of these messages created the impression that the Finns were trying hard to make their contributions visible to the U.S. team members and teaching team so that they would not go overlooked. We did not observe similar status update emails being sent by the U.S. members.

In addition, the Finnish team members began to bypass the U.S. subgroup and reach out directly to the client liaison to seek direction and feedback. The following is one of several emails sent to the team liaison:

Hi Amanda!

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

Thanks for the answers,

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

In the email above (sent by Tim), the Finnish subgroup of PenTech wrote collectively, on behalf of all of the Finnish members, acknowledging that they felt “lost” and asking for feedback and guidance. They also asked for regular meetings with the liaison, separate from the U.S. subgroup, presumably to counterbalance the in-person meetings the liaison was already having with the U.S. team members. This discursive strategy involved copying the U.S. team members on the email, in an attempt to make them aware that the Finns were feeling excluded. This way, team members anchored their discourse in the structure of physical proximity to construct subgroups and assign status differences according to their functional expertise and proximity with the team liaison. Despite these efforts, however, face-to-face meetings were held exclusively at the U.S. headquarters, working as reflexive self-structuring processes that maintained workgroup norms to exclude the Finns.

Rather than presenting a unified front when communicating with external parties, the two subgroups sent separate messages and the Finns in particular made requests for feedback that reflected feelings that their contributions were overlooked. These discursive efforts worked to exacerbate status differences and entrench subgroup differences by putting each “side” against one another, segregating the team over time. Near the team midpoint, conflict in PenTech (which was largely invisible in their previous emails) came to a head. After months of building frustrations over feeling devalued and excluded, Matti sent an email on behalf of the Finnish subgroup to the U.S. subgroup titled “Letter from the Finns”. Here is an excerpt:

Teamwork means, that we should know what we all are doing and why. Some people seem to be never online in Skype - there is hardly any conversation besides the polycom meetings with the group - What happened to the Forum and the Log? 1. Keep your promises and stick to what has been agreed (this means doing the task and deadlines you have been assigned to) 2. Don't fall in love with your own idea too much (we are also working hard on this here in Finland!) 3. Commitment (showing up on meetings on time, answering to emails swiftly and giving genuine input to the project) 4. Uphold open communication (ask when you're not sure or don't understand something, tell when something irritates you or you e.g. feel that your opinion is not listened to) ... Matti (PenTech, Finland, January 28)

Several of the Finnish team members told us in interviews that they wrote the "Letter from the Finns" collectively as a subgroup. It took on a negative and accusatory tone that chastised the U.S. based subgroup for not following team processes, revealing an adversarial relationship between the two subgroups. The message was constructed in terms of a series of imperatives (e.g., "keep your promises"). This discursive framing served to assign blame and shut down the conversation – which was ironic since it implored members to communicate openly – rather than opening up dialogue and discussion. After a brief response from Joel, the email went unanswered for a full ten days without a response from the American subgroup, although members continued to send task-related emails. During the long delay between the Letter from the Finns and the responses to it from Joel and Huang Jiao, Matti suggested that the team should start working as two separate teams. This resulted in splitting the team into two distinct subgroups late in the team lifecycle:

About the team division. If no one objects I think it would be great if we started to work as two teams (U.S. + Finns) and start gradually dividing the work within the distributed teams (some of the work done at each end for same target) so that we would get a good start and then later on build on the good base! :) (Matti, PenTech, Finland, February 8)

By the end of the project, the team became even more divided and started to work on two separate prototypes. Information sharing across locations was so poor that Matti ended up coming to the U.S. early for the second visit to work with the U.S. members in person and act as

a communication liaison with the Finnish subgroup, which the team coach said he viewed as “breaking the rules” of the project, which was designed to be performed through distributed collaboration. Further, the situation was so dire that the team ended up paying an external consultant (from their allowance) to fix the prototype design at the last minute, enabling PenTech to complete the project just in time. In sum, structural differences in geographical location as well as functional expertise formed the basis for subgroup distinctions in PenTech, which were produced and reproduced in the team’s discursive flows over time (i.e. through membership negotiation), assigning negative meanings to subgroup relations that served to divide the team.

AutoCorp. The AutoCorp team had similar demographic composition as PenTech, and further, the same location-based subgroup labels (Finland vs. U.S. university) were mentioned with equal frequency in both teams. In addition, the same types of discursive actions (coordinating tasks, sharing information, and managing disputes) were evident as in PenTech. However, subgroups were discursively constructed in a more egalitarian and positive manner in AutoCorp, rather than reflecting status differences. In particular, while similar functional differences existed in both teams, AutoCorp constructed these differences more equally, expressing respect for the different skills among members. This is reflected in an early exchange in November, in which Anni acknowledges that she may have messed up the wiki due to her lack of technical skills:

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

"Hey Anni! (and all) No worries! The extra nice thing about wikis is that it saves every single saved change in its history, so the old page is still in there! I'm just happy you put

something up :) However, this does bring up a good point that we should all be careful about, especially with my new templates. ... Thanks for updating it! And even if it were erased forever i wouldn't hate you! Things happen!" (Cathy, AutoCorp, U.S., November 20)

In this example, Anni is apologetic and Cathy responds compassionately and reframes Anni's mistake as one that could be made by anyone. She uses it as a learning experience for the whole team. This collaborative tone continued throughout the team's life cycle. Later in April, Cathy sent another, appreciative email referring to functional differences among the subgroups:

"While I have always felt very strongly about making things beautiful, and have always put that as a top priority in individual projects I have worked on in the past, I also feel very strongly about making beautiful things that work well mechanically and are optimized in functionality. While I perhaps don't have as much background in industrial design as Anni, and I know from seeing her portfolio that she is incredibly talented, my heart is in fact in that field, but I became a mechanical engineer so I could help making products which are both aesthetically AND mechanically beautiful. I believe we are lucky to have an industrial designer on the team, and that whatever function we believe is best will be able to be transformed into something optimized in style." (Cathy, AutoCorp, U.S., April 26)

As the informal and emergent leader of AutoCorp, Cathy sent the majority of emails and set the tone for the team's communication style. In the email above, she showed appreciation for the team members' functional differences in mechanical engineering versus industrial design and affirmed that both were adding value to the team's product. Over time, these repeated communications worked to discursively construct and reconstruct the two subgroups as equal in status in AutoCorp. In this team, discursive practices worked to create the perception that both subgroups had an equal voice, independent of their geographical or functional differences.

AutoCorp also did a better job of sharing information internally across subgroups to provide mutual awareness. One example is an email from Anni in Finland, sent on Sunday morning on January 13, saying "Hi [U.S University]! Did you guys meet Camille? How about grade, how did we do? Can you give us a short update on the comments and stuff like that? have

a nice Sunday there :)” This was followed just over an hour later by an email from one of the U.S. team members that provided an extensive report of feedback from the U.S. teaching team. In addition, AutoCorp was able to use its time zone differences effectively to distribute work across the two geographical subgroups such that there were two shifts, as illustrated by an email in December: “Anni said you guys had also talked about taking advantage of the time difference while working (in other words doing stuff in two shifts). This is a good idea since we are in a bit of hurry I guess” (Ismo, AutoCorp, Finland, December 4).

While AutoCorp’s team interaction was positive overall, the team also struggled with conflict. Both AutoCorp and PenTech went through a critical conflict around the project midpoint, but the way they handled it discursively differed. In terms of the status-related goal of negotiating accountability, AutoCorp was more successful in framing accountability collectively rather than assigning blame, which helped prevent its subgroups from becoming divisive. This is evident in the following message from Cathy in response to cumulating team conflict which was due not to status differences but to excessive mutual influence that complicated decision-making. The message, titled “Frustrations”, was sent during the midpoint and openly expressed some pent-up emotions. Here is an excerpt from the 4-page, single-spaced letter (emphasis added):

Hi team. As I'm sure all of you were as well, I left our meeting today a bit frustrated. Because of this I felt it necessary to just put down my thoughts in words rather than in another never ending argument/discussion...This is not a personal attack on anyone...**we** are just spending wayyy too much time arguing...I think **we** have strong personalities on the **team** (myself included), and everyone gets a little frustrated and wants to get their point across about everything...The time has come to jump in!...all of **our** strengths can really produce a great product...You are **all** great, and I hope this is only helpful in clarifying things and understanding how frustrated **we all** feel about how the meeting wasn't quite as productive as **we** wanted. Cathy (AutoCorp, U.S., January 30)

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

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

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

Anni’s email acknowledged the two geographically based subgroups by saying “The weekly updates part in the wiki was made to keep both halves of the team as aware as possible of what’s happening on the other side of the ocean”. But she avoided assigning blame and framed the issue as a team issue rather than a conflict between subgroups. She even took U.S. team member (and informal leader) Cathy’s side and backed her up, saying “the dullest thing is that Cathy has reminded people about this several times”. In response, a fellow Finnish team member acknowledged that he had forgotten to do his task and offered to make up for it by taking on

additional work. This active engagement and sharing between team members contributed to constructing equal status between the two subgroups. Rather than overcoming or eliminating subgroups, AutoCorp used them effectively and they were discursively constructed in a positive way that united the team and facilitated team learning.

Positive or Negative Experience of Subgroups

In response to RQ2, our interview analysis revealed that although subgroups were salient in both teams, they were experienced quite differently: in PenTech, subgroups played a negative role, while in AutoCorp, they played a positive role and in fact enabled collaboration across both geographical and disciplinary boundaries. While team members' emails did not display a high level of emotion, participants were quite open about their perceptions and feelings in the interviews.

PenTech. Subgroups played a negative role in PenTech, as team discourse worked to construct status inequalities among team members that resulted in low trust and exclusion of Finnish members. Seol, one of the Asian members at the U.S. site, commented on the lack of technical expertise among the Finnish subgroup specifically: “the reason that I feel very difficult to communicate and work with non-engineering based students is that...they don't know about the sensors.” These quotes reveal a lack of trust in the competence of the Finnish members, which led to the U.S. members trying to do the work themselves. In turn, the Finnish members felt frustrated that their contributions were not valued and their ideas were not heard. This is evident in the following interview quotes from Meri and Sara:

When we presented our ideas, they were like, nice, but can you show it to us... like have you really done anything?...The approach here (of the course in the U.S. university) is technology-oriented, and we are not very technology-oriented, we worked with the ideas

and tried to present them as well as possible. It was a bit difficult at times...(Meri, PenTech, Finland)

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

These interview quotes reveal a strong sense of frustration among the Finnish team members, in particular, due to the perception that their skills were undervalued or inappropriate for the project. They also expressed frustration about the lack of feedback on their ideas:

At some point we thought that we were working on the same thing, but then we suddenly realized that the interpretation of our debrief differed for us and them... so we decided to do two separate prototypes. And we did not get any feedback from the [U.S. University] teaching team about our ideas; we were just told that it is up to the local team to forward this info, but our team is not working in this ideal way and they are quite indirect, like when asking them about what feedback we got, the comments were very superficial. (Matti, PenTech, Finland)

Matti's comment reveals a sense of frustration about the lack of feedback from the U.S. teaching team to the Finnish subgroup. While this feedback was supposed to be shared with the Finns by their U.S. teammates, the Finnish members felt that they only received superficial comments that were insufficient. This contributed to their perception that they were disenfranchised as part of the remote location and worked to segregate the team. As Meri described in an interview:

We got this feeling that 'are we one team or not?' ...They did not say that the Finns did this but they presented our things... We thought that if the going is like this, let's put then a Finnish stamp on each slide we send them. (Meri, PenTech, Finland)

This gives more insight into the subtext of the conflict that arose in PenTech. Although it was presumably about process issues and activity coordination, it was really a struggle over membership negotiation in which the lower status subgroup felt excluded and was striving to have its voice heard and its contributions valued. As the teaching coach put it, referring to the

Letter from the Finns, “the Finns had sort of major issues in email that came out, and in the email system you see that there are reverberations of that message that go on for weeks.”

Interestingly, the big PenTech conflict occurred in late January, a few weeks after the U.S. team members went to Finland for a face-to-face visit:

Then they [U.S. team members] came to Finland and our bonding did not go so well... And AutoCorp team was there at the same time; we went to a summer cottage and AutoCorp team members and we are like, let’s drink and go to sauna, but then again, Joel ... and ... Seol or Huang Jiao, they are not like partygoers. So that wasn’t very good... we [Finnish team members] partied with the AutoCorp team and they [U.S. team members] went to bed. (Tim, PenTech, Finland)

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

As the quotes by Tim and Meri demonstrate, the Finnish members did not feel closer to their U.S. counterparts after their face-to-face meeting in January. Tim’s quote indicates that the U.S. members were not interested in partying and socializing with the Finns, who ended up spending more time with the other team (AutoCorp) than with the U.S. members of their own team. Meri echoed Tim’s comments about the in-person visit not being a “fun time” and acknowledged that it did not provide a better connection among the two subgroups. In sum, the subgroups in PenTech played a negative role that segregated the team over time due to the status differences that were constructed around functional expertise and physical proximity.

AutoCorp. On the other hand, subgroups arose along the same lines in AutoCorp as in PenTech, but in AutoCorp they played a positive role as the two subgroups were discursively constructed as equals (despite having similar functional diversity among sites). At the end of the project, one team coach commented on the equality of both subgroups:

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

The coach in this quote constructs subgroup differences among locations yet also acknowledges that there was equality among all team members. Several team members talked about how the team became “bonded together” after the mid-point face-to-face week:

We were pretty separate [subgroups]. Until they came to Finland, it was always like we were two, like in every document we returned, in every Skype discussion, it was like “we want this” and “[U.S. University] team” and “Finland team”. And then when we were one week [together] we were saying like “we are one team” and after that we got the same response from them. We were bonded together to become one team. (Anni, AutoCorp, Finland)

It [meeting face-to-face] meant a lot and it was really important that they visited for two reasons. Because that was the first time I felt that we really were together, spent time together, we became concretely a group, one team. So we blended in, during fall we were like, okay these are your co-workers, you work with these people but it was still two dispersed teams. And when they were visiting we were able to bond together. And the other thing was that we ideated together, brainstormed together. What resulted was that everyone got a sort of an ownership of the ideas. (Ismo, AutoCorp, Finland)

These quotes reveal that physical collocation helped to foster team integration in AutoCorp, as the midpoint site visit to Finland helped the two geographical subgroups to cohere as a unified team and increased their responsiveness over email. Interestingly, PenTech did not experience a similar type of team bonding during its face-to-face visits. This suggests that it was not simply the experience of coming together in person that unified the team, but rather properties of the team members' communication practices that had an integrating versus segregating impact.

Discussion

In this study, we have taken a grounded-in-action CCO approach (Boivin et al., 2017) to explore how subgroups are discursively constructed in GVTs over time and the ways in which discursive actions contribute to team dynamics. In summary, our analysis revealed that

subgroups arose on the basis of the same structural characteristics (primarily geographical location) in each team, but that the way they were dynamically and discursively constructed over time differed – due largely to the different 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, as they served 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 segregated the team. Interestingly, both teams reported earning an A grade on their team project. They were assigned a group grade by the US teaching team that was based on their performance outcome. This highlights the importance of taking a discursive view of subgroups, as it helps to reveal differences in teaming processes that may not be apparent through measures of team performance. In fact, one of the US professors in the teaching team later used PenTech as an example of how “a dysfunctional team” can end up getting good results. Our analysis has important implications for CCO as well as the discursive construction of subgroups in GVTs.

[INSERT TABLE 3 ABOUT HERE]

Theoretical Implications

Our study makes several important contributions to the literature on GVT subgroups as well as CCO. First, by taking a grounded-in action CCO approach to the constitution of subgroups, it highlights the dynamic nature of subgroups, which – rather than being based on a priori, fixed demographic characteristics as much of the literature assumes – are in flux, permeable, and produced by the team’s discursive practices. Second, it demonstrates that whether subgroups function as positive or negative for GVTs depends on how they are discursively constructed. Both of these contributions also help extend and add insight into the grounded-in-action approach to CCO (Fairhurst & Putnam, 2004; McPhee & Iverson, 2009).

GVT subgroups as dynamic and in flux. Our findings help to extend the faultlines literature by contributing a more dynamic view of subgroups as communicatively constructed. Specifically, we show that subgroup development does not simply emerge from faultlines; rather,

subgroups emerge through dynamic team processes of coordinating tasks, sharing information, and managing disputes that take place through on-going discursive flows. While these processes seem to be mundane and task-related, our analysis of team discourse shows that language played an important mutual role of simultaneously enacting structural boundaries (reflexive self-structuring), accomplishing tasks (activity coordination), and constructing status dynamics (membership negotiation) within the team. This deviates from dominant conceptualizations of faultlines in the literature that regard them as stemming from demographic differences at one point in time (e.g. Lau & Murnighan, 1998). We therefore contribute a conceptualization of subgroup formation as a dynamic, discursive process that is shaped by linguistic choices of team members, which contrasts with earlier views that regard subgroup conflict as inevitable (Earley & Mosakowski, 2000; Lau & Murnighan, 1998). In this sense, faultlines are not destiny.

As the broader CCO perspective suggests, it is such linguistic micro interactions that are the key ingredients producing larger organizational structures and patterns (Putnam & Nicotera, 2009) – in this case, team integration or segregation. We extend conceptual work that regards virtual team processes as communicatively constituted (Gibbs et al., 2008) and contribute to the grounded-in-action CCO approach (Boivin et al., 2017) by accounting for the role of both discursive actions and structures in constructing GVT subgroups. This helps to integrate the structural approaches taken by most subgroup studies (e.g., Lau & Murnighan, 1998; Polzer et al., 2006) with the teaming literature that tends to emphasize agency over structure (e.g., Einola & Alvesson, 2019; Shockley-Zalabak, 2002). Our analysis shows empirically how GVT subgroups both arise through and transform existing structures, as discursive practices produce different consequences for team processes. Discursive constructions of subgroups, thus, carry traces of past organizing logics and routines that are laminated upon each conversation. We

propose that geographical faultlines in GVTs may provide initial structures that are drawn upon in discursive actions, which in turn recursively reproduce these structures or create new structures – in this case subgroups – again influencing subsequent discursive actions. Applying this view to the faultlines literature offers a way to escape a deterministic view of faultlines and overcome subgroup divisiveness in teams.

Explaining when subgroups are positive or negative. Our analysis further contributes to an understanding of the discursive conditions that construct subgroups as positive or negative, which has direct implications for the effects of language on team outcomes. While Panteli and Davison (2005) found that subgroups tended to impede collaboration and to form in GVTs with more task-oriented communication, our findings suggest that subgroups can also be collaborative and that task-oriented communication can lead to positive subgroup impacts, depending on how they are discursively constructed. Our findings also problematize the task versus social distinction that has been drawn in prior studies (Jarvenpaa & Leidner, 1999; Panteli & Davison) as we found that many task-related messages had either a positive or negative status-related goal (e.g., negotiating accountability or negotiating influence and voice) that made it difficult to separate task from social communication. While most of the subgroup literature has focused on the negative effects of subgroups (e.g., Jehn & Bezrukova, 2010; Shemla et al., 2014), our findings provide a counterpoint that both illustrates the positive role of subgroups and helps to explain the discursive conditions underlying this role.

More specifically, our findings reveal that three of the four communication flows (McPhee & Iverson, 2009) were particularly important in constructing subgroups: reflexive self-structuring, activity coordination, and membership negotiation. Similar to Nordbäck et al.

(2017), we found little evidence of institutional positioning (which involves managing relations with external stakeholders) – which may have been due to the nature of the student teams, which were not embedded in larger organizational structures. We observed that discursive flows around reflexive self-structuring and activity coordination were the same across the two teams – which were structurally similar – but that membership negotiation was the key discursive flow through which subgroups were constructed as positive or negative due to emergent status dynamics. Namely, subgroup membership was discursively constructed in terms of unequal status in one team, which resulted in segregating the team, while in the other team subgroups were constructed as equal in status, which – along with the team’s self-structuring and activity coordination processes – had an integrating effect. Our findings provide theoretical implications for CCO, given that the four flows have been considered analytically distinct yet intertwined (Nordbäck et al., 2017). While Nordbäck and colleagues (2017) showed how different self-structuring processes at the outset caused different activity coordination and membership negotiation processes, we showed that membership negotiation processes may be enacted differently despite similar self-structuring and activity coordination processes. That is, despite both teams having equal structural properties at the outset (having similar potential for dormant faultlines to be activated into subgroups) and similar activity coordination processes, communication played a powerful role in activating dormant faultlines over time by constructing subgroups as either equal or unequal. These findings suggest that membership negotiation plays a key role in explaining differences in how subgroups are discursively constructed and whether they have positive or negative impacts on team processes.

Practical Implications

The findings also suggest important implications for GVT practitioners. The CCO perspective highlights the powerful role of language in constructing meaningful patterns of organizing that may be both productive and destructive. Specifically, discursive practices enabled one team to work across geographical and disciplinary boundaries, while they hindered collaboration in the other team. This insight is important given that GVTs are often formed to enable multidisciplinary collaboration. It suggests that managers and team members are not merely subject to divisive subgroups arising based on team composition, but that they play an active role in constituting the meanings and outcomes of subgroups through their discursive practices. More specifically, our findings suggest that both team members and leaders can actively construct, manage and take advantage of subgroups through inclusive and supportive language use. Our findings suggest that both assigned and emergent leaders should set the tone for team discourse by constructing subgroups as equal in status. This is particularly important in discussing sensitive issues and handling conflict in a way that does not point fingers but acknowledges that the team as a whole bears responsibility for problems. In this way, emphasizing team unity casts an inclusive boundary around the whole team and demonstrates that members are collectively accountable for team outcomes. This calls attention to the strategic discursive choices made by team members and shows that even simple pronouns like “we” can significantly impact team processes. Team members should undergo training on inclusive communication and team building across geographical locations and time zones.

Interestingly, while face-to-face site visits have been found to be important in developing relationships within GVTs (Hinds & Cramton, 2014), our findings suggest that this may have helped for one team (AutoCorp) but not the other (PenTech). Given that AutoCorp had already developed a collaborative communication style while PenTech did not, it is likely that the face-

to-face interaction for each team reflected the discursive tone that had already been set over email. This suggests that the discursive practices developed among team members may transcend communication medium, and that face-to-face communication is not a panacea for GVTs.

In addition, our findings suggest that global teams should exercise caution when labeling subgroups based on location especially when subgroups may have different status. Such labeling might be counterproductive and may result in lower-status subgroups feeling left out. Rather, team members should be encouraged to find other ways to discursively build subgroupings, for example based on sub-tasks, in order to reduce negative attitudes and promote positive inter-subgroup interactions. For instance, assigning cross-location pairs to work together in order to break down subgroups and encourage cross-location bonding could be an effective strategy if implemented well. Ideally, GVTs should be designed such that expertise is distributed across locations, so that status differences are not superimposed onto geographical differences.

Moreover, our findings suggest that while subgroups are likely to arise in distributed teams, they are not necessarily problematic. There are benefits to having coherent subgroups, such as team learning across sites, but they need to be managed well by skillful leaders building shared team identity discursively. More specifically, by applying inclusive language in the team to coordinate its tasks (e.g., by assigning equal voice to all subgroups), share information (e.g., by maintaining transparency throughout the team), and manage disputes (e.g., by highlighting shared accountability), subgroups can be constructed as equal and play a more positive role.

Limitations and Future Research

This study comes with limitations. First, although we gathered the entire corpus of emails over the duration of the project, we did not analyze the content of virtual meetings, individual emails, or face-to-face communication. Thus, we do not know how these communications among

and between team members at each location may have aided in subgroup formation. It is also possible that the slightly higher amount of diversity in PenTech as well as the nature of software (rather than hardware) development may have introduced additional challenges. Future research should better account for the role of different communication media in subgroup construction as well as face-to-face site visits and background conversations. A great deal of subgroup conflict and emotional responses came out in the interviews that were not evident in the team email data. Thus, our interviews provided an important source of context for the email interactions and revealed both members' and coaches' perceptions and evaluations of their interactions. This is a benefit of our multi-method approach and speaks to the importance of combining behavioral with self-report data. Additional data, such as team member diaries, meeting transcripts, or interviews at multiple time points could also help understand subgroup formation in GVTs.

Further, the small sample of two student teams makes it difficult to generalize our findings to GVTs more broadly; future research should examine organizational GVTs in field settings as well. Finally, discourse cannot explain everything. Studies should examine the role of opinion leaders who may have shaped the team's discourse, as well as better incorporate material features of the teams' technological infrastructure and physical environment. Nevertheless, this study makes an important contribution by highlighting the ways subgroups are discursively constructed and the interplay of structure and action in this process. Given that teams in contemporary global organizations tend to be dynamic and fluid rather than having long-term, stable membership (Shockley-Zalabak, 2002), the teams in our study depict a rather realistic scenario for virtual project teams consisting of members with no common work history who must solve complex and ambiguous tasks in a short amount of time. The ubiquity of email use in

GVTs (see e.g., Erhardt et al., 2016; Lee & Panteli, 2011) provides further validation of the methods and data used in this study.

Conclusion

This study underscores the constitutive role of language for the functioning of subgroups in GVTs and demonstrates the important role of electronic discursive practices in subgroup formation. Given the rise in multicultural, distributed settings, where context cues are lacking, it is increasingly important to pay attention to the mediated linguistic choices of the team members that work to constitute such teams. While we have identified three discursive flows of GVTs through which subgroups emerge, namely reflexive self-structuring, activity coordination, and membership negotiation, our goal has not been to offer a finite set of discursive actions through which subgroups are shaped. Clearly, there may be additional aspects central in the discursive practices of GVTs contributing to positive or negative subgroup dynamics. By learning more about how subgroups are discursively constructed, the divisive effects of subgroups can be reduced to help teams become more innovative and productive.

References

- Boden, D. (1994). *The business of talk: Organizations in action*. Cambridge, UK: Polity Press.
- Boivin, G., Brummans, B. H. J. M., & Barker, J. R. (2017). The institutionalization of CCO scholarship: Trends from 2000 to 2015. *Management Communication Quarterly*, *31*, 331-355. doi:10.1177/0893318916687396
- Carton, A. M., & Cummings, J. N. (2012). A theory of subgroups in work teams. *Academy of Management Review*, *37*, 441-470. doi:10.5465/amr.2009.0322
- Charmaz, K. (2006). *Constructing grounded theory: A practical guide through qualitative research*. London: Sage Publications.
- Chrobot-Mason, D., Ruderman, M. N., Weber, T. J., & Ernst, C. (2009). The challenge of leading on unstable ground: Triggers that activate social identity faultlines. *Human Relations*, *62*, 1763–1794. doi:10.1177/0018726709346376
- Connaughton, S. L., & Shuffler, M. (2007). Multinational multicultural distributed teams: A review and future agenda. *Small Group Research*, *38*, 387-412. doi:10.1177/1046496407301970
- Cooren, F. (2015). *Organizational discourse*. Malden, MA: Polity Press.
- Cramton, C. D., & Hinds, P. J. (2005). Subgroup dynamics in internationally distributed teams: Ethno-centrism or cross-national learning? *Research in Organizational Behavior*, *26*, 231-263. doi:10.1016/S0191-3085(04)26006-3
- DeSanctis, G., & Poole, M. S. (1994). Capturing the complexity in advanced technology use: Adaptive structuration theory. *Organization Science*, *5*, 121–147. doi:10.1287/orsc.5.2.121

- Earley, P. C., & Mosakowski, E. (2000). Creating hybrid team cultures: An empirical test of transnational team functioning. *The Academy of Management Journal*, *43*, 26-29.
doi:10.2307/1556384
- Einola, K., & Alvesson, M. (2019). The making and unmaking of teams. *Human Relations*, *72*, 1891-1919. doi:10.1177/0018726718812130
- Erhardt, N., Gibbs, J. L., Martin-Rios, C., & Sherblom, J. C. (2016). Exploring affordances of email for team learning over time. *Small Group Research*, *47*, 243-278.
doi:10.1177/1046496416635823
- Fairhurst, G. T., & Putnam, L. (2004). Organizations as discursive constructions. *Communication Theory*, *14*, 5-26. doi:10.1111/j.1468-2885.2004.tb00301.x
- Gibbs, J. L. (2009). Dialectics in a global software team: Negotiating tensions across time, space, and culture. *Human Relations*, *62*, 905-935. doi:10.1177/0018726709104547
- Gibbs, J. L., Nekrassova, D., Grushina, Y., & Abdul Wahab, S. (2008). Reconceptualizing virtual teaming from a communicative perspective: Review, redirection, and agenda for future research. *Communication Yearbook*, *32*, 191-218.
doi:10.1080/23808985.2008.11679078
- Gibson, C. B., & Gibbs, J. L. (2006). Unpacking the concept of virtuality: The effects of geographic dispersion, electronic dependence, dynamic structure, and national diversity on team innovation. *Administrative Science Quarterly*, *51*, 451-495.
doi:10.2189/asqu.51.3.451
- Hinds, P. J., & Cramton, C. D. (2014). Situated coworker familiarity: How site visits transform relationships among distributed workers. *Organization Science*, *25*, 974-814.
doi:10.1287/orsc.2013.0869

- Jarvenpaa, S. L., & Leidner, D. E. (1999). Communication and trust in global virtual teams. *Organization Science*, *10*, 791–815. doi:10.1287/orsc.10.6.791
- Jehn, K. A., & Bezrukova, K. (2010). The faultline activation process and the effects of activated faultlines on coalition formation, conflict, and group outcomes. *Organizational Behavior and Human Decision Processes*, *112*, 24–42. doi:10.1016/j.obhdp.2009.11.008
- Kristof, A. L., Brown, K. G., Sims Jr., H. P., & Smith, K. A. (1995). The virtual team: A case study and inductive model. In M. M. Beyerlein, D. A. Johnson, & S. T. Beyerlein (Eds.), *Advances in interdisciplinary studies of work teams: Knowledge work in teams* (Vol. 2, pp. 229-253). Greenwich, CT: JAI Press.
- Kuhn, T. (2005). The institutionalization of Alta in organizational communication studies. *Management Communication Quarterly*, *18*, 618-627. doi:10.1177/0893318904273851
- Lau, D. C. & Murnighan, J. K. (1998). Demographic diversity and faultlines: The compositional dynamics of organizational groups. *The Academy of Management Review*, *23*, 325-340. doi:10.5465/amr.1998.533229
- Lee, J. Y. H., & Panteli, N. (2011). You got email! The cases of inter-organizational collaboration for engineering product design. *Engineering Management Journal*, *23*, 18-21. doi:10.1080/10429247.2011.11431903
- Majchrzak, A., Rice, R., Malhotra, A., King, N., & Ba, S. (2000). Technology adaptation: The case of a computer-supported inter-organizational virtual team. *MIS Quarterly*, *24*, 569-600. doi:10.2307/3250948

- McPhee, R. D., & Iverson, J. (2009). Agents of constitution in comunidad: Constitutive processes of communication in organizations. In L. L. Putnam & A. M. Nicotera (Eds.), *Building theories of organization: The constitutive role of communication* (pp. 49–88). New York, NY: Routledge.
- Meyerson, D., Weick, K. E., & Kramer, R. M. (1996). Swift trust and temporary groups. In R. M. Kramer & T. R. Tyler (Eds.), *Trust in organizations: Frontiers of theory and research* (pp. 166-195). Thousand Oaks, CA: Sage Publications.
- Nordbäck, E. S., Myers, K. K., & McPhee, R. D. (2017). Workplace flexibility and communication flows: A structural view. *Journal of Applied Communication Research*, 45, 397-412. doi:10.1080/00909882.2017.1355560
- O’Leary, M. B., & Cummings, J. N. (2007). The spatial, temporal, and configurational characteristics of geographic dispersion in teams. *MIS Quarterly*, 31, 433-452. doi:10.2307/25148802
- Panteli, N., & Davison, R.M. (2005). The role of subgroups in the communication patterns of global virtual teams. *IEEE Transactions of Professional Communication*. 48, 191–200. doi:10.1109/TPC.2005.849651
- Polzer, J. T., Crisp, C. B., Jarvenpaa, S. L. & Kim, J. W. (2006). Extending the faultline model to geographically dispersed teams: How collocated subgroups can impair group functioning. *Academy of Management Journal*, 49, 679-692. doi:10.5465/AMJ.2006.22083024
- Putnam, L. L., & Fairhurst, G. T. (2015). Revisiting “organizations as discursive constructions”: 10 years later. *Communication Theory*, 25, 375-392. doi:10.1111/comt.12074
- Putnam, L. L. & Nicotera, A. M. (2009). *Building theories of organization: The constitutive role of communication*. New York: Routledge.

- Rink, F. A., & Jehn, K. A. (2010). Divided we fall, or united we stand? In R. J. Crisp (Ed.) *Psychology of social and cultural diversity* (pp. 105-128). Wiley-Blackwell: Oxford, UK.
doi:10.1002/9781444325447.ch12
- Scott, C. R., Corman, S. R., & Cheney, G. (1998). Development of structural model of identification in the organization. *Communication Theory*, 8, 298–336.
doi:10.1111/j.1468-2885.1998.tb00223.x
- Shemla, M., Meyer, B., Greer, L., & Jehn, K. A. (2014). A review of perceived diversity in teams: Does how members perceive their team's composition affect team processes and outcomes? *Journal of Organizational Behavior*, 37(S1), 89–106. doi:10.1002/job.1957
- Shockley-Zalabak, P. (2002). Protean places: Teams across time and space. *Journal of Applied Communication Research*, 30, 231-250. doi:10.1080/00909880216587
- Strauss, A. L., & Corbin, J. (1998). *Basics of qualitative research: Techniques and procedures for developing grounded theory*. Thousand Oaks, CA: Sage.
- Tracy, K. (2002). *Everyday talk: Building and reflecting identities*. New York: Guilford Press.
- Wang, Z., Walther, J. B., & Hancock, J. T. (2009). Social identification and interpersonal communication in computer-mediated communication: What you do versus who you are in virtual groups. *Human Communication Research*, 35, 59-85. doi:10.1111/j.1468-2958.2008.01338.x
- Weick, K. E. (1979). *The social psychology of organizations* (2nd ed.). Reading, MA: Addison-Wesley.
- Yilmaz, G., & Peña, J. (2014). The influence of social categories and interpersonal behaviors on future intentions and attitudes to form subgroups in virtual teams. *Communication Research*, 41, 333-352. doi:10.1177/0093650212443696

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