Reconceptualizing Virtual Teaming from a Constitutive Perspective:

Review, Redirection, and Research Agenda

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Abstract

Despite the growing importance of virtual teams in modern organizations and the fundamental role played by discursive practices in enacting such teams across time, space, and cultural boundaries, the burgeoning literature on virtuality and virtual teams tends to be predominantly confined to management, computer science, and information systems journals; whereas, communication research has paid scant attention to virtual team interaction and processes. As a result, such research tends to take a functionalist approach, which regards communication as a variable, rather than examining how virtual teamwork is constituted through communicative practices. This chapter synthesizes the existing research on virtual teams and provides a critical reassessment of the literature from a constitutive perspective. We propose a conceptual framework that situates communication processes as central as an alternative to the dominant inputs-processes-outcomes model and suggest a programmatic agenda of future research for communication scholars across a variety of areas—organizational, interpersonal, group, mediated, and intercultural communication.
Reconceptualizing Virtual Teaming from a Constitutive Perspective:
Review, Redirection, and Agenda for Future Research

New workplace trends toward distributed work, reliance on computer-mediated communication (CMC), and flexible work arrangements have led to the rise of virtual teams, which span boundaries of space, time, and culture. Virtual work arrangements--such as distributed product development or design teams, communities of practice, or telework--have become critical for organizational survival due to intensified global competition and corporate restructuring, which often involve downsizing, outsourcing, and mergers and acquisitions (Martins, Gilson, & Maynard, 2004). As Lurey and Rasinghani (2001) contended, “globalization of the marketplace alone…makes…distributed work groups the primary operating units needed to achieve a competitive advantage in this ever-changing business environment” (p. 523). Virtual teams represent a particular type of new work arrangement that is characterized by varying degrees of geographic dispersion, dependence on communication technologies, cultural diversity, and dynamic structure (Gibson & Gibbs, 2006).

The landscape of communication research has been changing rapidly in light of the ubiquitous political, economic, and social changes worldwide, with increasing attention being directed to processes of global organizing (e.g., Stohl, 2005) and non-standard work arrangements (e.g., Ballard & Gossett, 2007). Virtual teams, in which individuals from diverse contexts and locations come in contact, often provide a critical coordination mechanism in integrating units across organizations. Understanding processes of organizing in virtual environments comprises an important issue that communication scholars are well equipped to address, but one that remains understudied in the communication discipline. This chapter reviews the virtual teams literature and recasts it from a constitutive perspective, inviting scholars from
across the discipline to examine processes of virtual organizing and the centrality of communication in constituting such processes.

Virtual teamwork bridges a number of areas within the communication discipline—namely, organizational, interpersonal, group, mediated, and intercultural communication. As interpersonal, group, and organizational interactions become increasingly mediated through technology, scholars in each of these areas may benefit from greater understanding of ways in which virtual relationships are constructed between individuals, in groups, and within and among organizations. This research can benefit a range of organizations, given virtual teaming’s importance across many types of organizations—from multinational corporations to governmental and non-profit agencies to higher education. Further, exploring the ways in which stakeholders negotiate cultural differences in virtual contexts will enrich research in intercultural communication, which has largely been conducted in face-to-face settings. Finally, scholars in areas as diverse as information systems, instructional and developmental communication, health communication, and language and social interaction may also benefit from research on constitutive approaches to virtual teaming. Issues uncovered by studying virtual teams are relevant to an international community of scholars and practitioners. 1 Thus, we call for diverse communication scholars to devote greater attention to this important feature of the contemporary workplace.

Over the last decade, a burgeoning literature has emerged on virtual teams. Research provides critical understanding of various aspects of virtual work by illuminating unique characteristics of virtual teams, comparing them to traditional co-located teams, and identifying advantages and disadvantages of working across time and space by means of information and communication technologies (ICTs). Studies have focused on issues such as creating and
maintaining trust (e.g., Coppola, Hiltz, & Rotter, 2004; Jarvenpaa, Shaw, & Staples, 2004; Krebs, Hobman, & Bordia, 2006; Piccoli & Ives, 2003; Walther & Bunz, 2005), conflict management (e.g., Hinds & Bailey, 2003; Hinds & Mortensen, 2005; Montoya-Weiss, Massey, & Song, 2001), leadership (e.g., Bell & Kozlowski, 2002; Connaughton & Daly, 2005; Kayworth & Leidner, 2001; Zaccaro & Bader, 2003), knowledge sharing (e.g., Cramton, 2001; Griffith, Sawyer, & Neale, 2003; Sole & Edmondson, 2002; Zakaria, Amelinckx, & Wilemon, 2004), and identification (e.g., Connaughton & Daly, 2004a; Fiol & O’Connor, 2005; Wiesenfeld, Raghuram, & Garud, 2001). Largely separate research streams have addressed challenges posed by geographical dispersion of team members, reliance on computer-mediated communication (CMC), cultural diversity, and dynamic structural arrangements, although recent empirical studies are beginning to examine several or all of these factors together in a systematic fashion (c.f. Gibson & Gibbs, 2006).

Despite the growing importance of such teams in modern organizations and the fundamental role played by discursive practices in enacting such teams across time, space, and cultural boundaries, the burgeoning literature on virtuality and virtual teams tends to be predominantly confined to management, computer science, and information systems journals, while communication research has, until recently, paid scant attention to virtual team interaction and processes. As a result, most existing research on virtual teams takes a managerial or functionalist approach (also called post-positivist--see related arguments by Zoller & Kline, this volume). Indeed, most small group research has been conducted from a functionalist perspective (for a review, see Hollingshead et al., 2004), so, perhaps not surprisingly, virtual groups and teams research has continued in the same vein (e.g., Staples & Webster, 2007; Walther & Bazarova, 2007). The functionalist approach focuses on understanding and improving group
performance effectiveness, which scholars in this tradition assume to be a causal outcome of internal and external input factors (Wittenbaum et al., 2004). Few studies examine how teaming (whether virtual or not) is constituted through communication among team members. As Martins et al.’s (2004) review of research on virtual teams suggests, the inputs-processes-outcomes model has become the dominant framework used to investigate virtual teams. Input variables span group size, knowledge, skills and abilities of virtual team members, technology, task, and composition. Team processes include planning processes, action processes (team communication and participation), and interpersonal processes (conflict, uninhibited behavior, trust, or group cohesiveness). Finally, team outcomes encompass various affective states and performance indicators. According to Martins et al.’s review, researchers discuss other factors that influence virtual working in terms of moderators of virtual performance such as task type, time, and social context. In other words, recent investigations of virtual teams are dominated by variable-analytic studies of factors that produce significant effects on work processes and may contribute to or interfere with virtual team effectiveness and productivity. In a similar vein, interpersonal processes--including communication itself--tend to be viewed as variables that may either improve overall team performance or disrupt completion of a task.

The functionalist perspective has its merits in precisely measuring and testing relationships among discrete variables and identifying best practices for team effectiveness. Communication scholars are, however, well-positioned to extend this approach by conceptualizing and investigating organizational phenomena from alternative interpretive and critical perspectives that regard communication practices as central in virtual team processes, take a more discursive, constitutive view of communication, and examine how virtual teams are socially constructed through the communication practices of their members and larger
organizational environment (for further explanations of social constructionist and interpretive/critical approaches, see Bartesaghi & Castor, this volume; Zoller & Kline, this volume). Such an approach calls attention to the diverse historical and cultural contexts of team members and their role(s) in shaping different meanings and interpretations of work processes, as well as power relations undergirding the negotiation of cultural practices and which interpretations and assumptions become privileged (for related arguments, see Lacy, this volume; Pal & Dutta, this volume).

This paper synthesizes existing literature on virtuality and virtual teams and offers a critical reassessment of the literature from a constitutive perspective. We propose an alternative conceptual framework for studying virtual teams, which regards communication practices as constitutive of virtual teamwork and integrates key dimensions of virtuality (geographical dispersion, electronic dependence, cultural diversity, and dynamic structure) as well as key team processes (trust, conflict management, leadership, knowledge sharing, and identification). Rather than regarding these factors as variables to be operationalized and tested through quantitative research, we advocate the use of interpretive and critical approaches that examine teaming as a dynamic process that is socially constructed through intersubjective interactions among team members. In doing so, we identify gaps in the current literature and suggest a programmatic agenda for future research.

Virtuality and the Centrality of Communication

Defining Virtual Teams

Virtual teams have been defined as groups of geographically dispersed individuals who collaborate on mutual projects using ICTs to communicate (Townsend, DeMarie, & Hendrickson, 1998) and whose members are dispersed across geographical, temporal,
organizational, and cultural boundaries (Jarvenpaa, Shaw, & Staples, 1998; Lurey & Raisinghani, 2001). Whereas early research relied heavily on laboratory studies contrasting purely “virtual” or 100% computer-mediated with non-virtual or 100% face-to-face groups (e.g., Burke & Chidambaram, 1995; Hollingshead, 1996; Kiesler, Siegel, & McGuire, 1984; Potter & Balthazard, 2002; Straus & McGrath, 1994; Walther, 1995; Warkentin, Sayeed, & Hightower, 1997), contemporary conceptualizations of virtuality have begun to treat it as a continuum (Gibson & Gibbs, 2006; Griffith, Sawyer, et al., 2003; Martins et al., 2004). As Martins et al. observed, in contemporary organizations, very few purely virtual or purely face-to-face teams exist. Rather than being a new and different breed of team, all teams can be characterized on a continuum of virtuality, ranging from low to high on each dimension.

Scholars commonly recognize virtuality as a multidimensional construct (Cohen & Gibson, 2003; Kirkman & Mathieu, 2005; Martins et al., 2004). Although the literature often imprecisely uses the term “virtual” to refer to many different types of teams, and specific dimensions of virtuality vary from study to study, the most common dimensions involve geographical dispersion, electronic dependence, cultural diversity, and dynamic structure (Gibson & Gibbs, 2006). Geographical dispersion refers to physical and temporal distance among team members as they are spread out across multiple locations and time zones. Electronic dependence describes a substantial (although not necessarily exclusive) reliance of team members on electronic means of communication such as e-mail, instant messaging, videoconferencing, or groupware. Cultural diversity stems not only from the differences in nationality or ethnicity among team members but also from variations in professional, organizational, and project team cultures (Earley & Gibson, 2002; Goodman, Phillips, &
Sackmann, 1999). Finally, as Gibson and Gibbs noted, *dynamic structure* refers to frequent change or turnover among members and their roles and relationships to one another.

*The Centrality of Communication in Virtual Teams*

Virtual work arrangements offer a number of competitive business advantages to organizations such as flexible jobbing (Stough, Eom, & Buckenmyer, 2000), spatial independence (Majchrzak, Malhotra, Stamps, & Lipnack, 2004), cost savings, quick information gathering and exchange, increased innovation through participation, and construction of mutual knowledge (for review, see Gillam & Oppenheim, 2006). Interestingly, scholars also find that the same advantageous features lead to difficulties in establishing trust (Bradley & Vozikis, 2004; Jarvenpaa et al., 1998; Kanawattanachai & Yoo, 2002; Murphy, 2004; Panteli, 2005), maintaining productive collaboration (Harvey, Novicevic, & Garrison, 2004; Jarvenpaa et al., 1998), executing effective leadership (Connaughton & Daly, 2005; Gillam & Oppenheim, 2006), dealing with disagreements and differences, negotiating task processes, group roles and work relationships, or resolving conflicts (Henderson, 1994) as well as breakdown of coordination, loss of communication “richness,” and cultural misunderstandings (Gibbs, 2006). Hence, we emphasize that members enact virtual teams through communicative processes as they engage in various practices (e.g., information sharing, electronic message exchange, choice of a particular vocabulary, timeliness and responsiveness), which may have positive or negative consequences depending on the context and the particular communicative practices employed. Thus, we underscore the crucial role of communication in virtual teams. Although teaming, in general, may be conceptualized as constituted through communication, the constitutive role of communication may be even more pronounced in virtual teams because communication facilitates the team’s existence (Ahuja, Galletta, & Carley, 2003).
In this chapter, we shift the view of virtual teams as predetermined by technological design (Lea, O'Shea, & Fung, 1995) or structural characteristics, and we set the stage for reconceptualizing virtual teaming as communicatively constituted through continuous mundane interactions among team members. In particular, the dynamism of virtual working is not necessarily revealed through unique technologies, performances of individual group members, or characteristics of media, but teaming evolves through reciprocal interactions between members through technology use. Thus, virtual teams must be considered relational and emergent (Boczkowski & Orlikowski, 2004). The following section reviews key areas of research on virtual teaming. We then critique several major assumptions running through the literature and offer a new conceptual framework and future research agenda that reconceptualizes each of these concepts as constituted through communication.

Review of the Virtual Teams Literature

A comprehensive review of the virtual teams research published in communication, management, organizational behavior, small groups, computer science, and information systems journals revealed that the literature can be characterized by five key themes which are of particular interest to communication scholars: trust, conflict management, leadership, knowledge sharing, and identification. We elected to focus on these particular themes based on two criteria: the existence of a substantial body of research on each of them and their relevance to interpersonal and group communication processes. While input variables (such as demographic composition, team size, and task type) and outcome variables (such as satisfaction, time, decision quality, and creativity) have been commonly studied (Martins et al., 2004), communication scholars should also consider unpacking and articulating the ways in which interpretive and
discursive practices work to construct these dynamic processes. We now discuss major findings in each of these areas.

*Trust*

Researchers have identified trust as a crucial ingredient in the productive and effective functioning of virtual teams (Goodbody, 2005; Govindarajan & Gupta, 2001; Jarvenpaa et al., 1998; Nandhakumar, 1999). Trust functions as an informal control mechanism that replaces traditional forms of control in post-bureaucratic organizations, and scholars regard it as more effective than formal control or authority status in getting members of decentralized virtual teams to work together (Handy, 1995; Murphy, 2004). Studies have determined that trust significantly impacts the efficiency, effectiveness, and quality of virtual team projects (Edwards & Sridhar, 2005). It is an important component for creating a safe environment (Gluesing & Gibson, 2004), increasing collaboration among members (Hossain & Wigand, 2004), and improving productivity (Govindarajan & Gupta, 2001). Furthermore, trust has been linked to power issues and shared goals (Panteli, 2005) because they serve as a foundation upon which members build confidence in work partnerships and minimize the use of coercive power in pursuit of a collaborative partnership. In a similar vein, trust has been found essential for successful distanced leadership because it promotes effective communication and positive work relationships (Connaughton & Daly, 2004b, 2005).

Despite these benefits, research indicates that virtual work arrangements pose challenges to team members in terms of forming and maintaining trusting relationships (Millward & Kyriakidou, 2004). In particular, the lack of face-to-face communication characterizing virtual teams likely makes it more difficult to build trust among geographically dispersed team members who interact electronically. Some remain skeptical about the ability of virtual teams to perform
well without face-to-face interaction—as Handy argued, “trust needs touch” (1995, p. 46). Trust can also be impeded by the inadequacy of CMC to provide access to the “backstage” of participants’ activities (Nandhakumar, 1999). Further, virtual team members lack rich nonverbal and social context cues which help to convey tone, feelings, and nuances of meaning (Millward & Kyriakidou, 2004; Platt & Page, 2001; Stough et al., 2000). Because membership of virtual teams is often culturally diverse, cultural differences may present challenges for developing trusting relationships (Gibson & Manuel, 2003; Gillam & Oppenheim, 2006), given that people more likely trust members of their own cultural in-group and tend to distrust members of out-groups (Brewer, 1981). Finally, the dynamic structure and turnover characterizing many virtual teams can result in greater uncertainty and perceived risk due to less stable and cohesive relationships, leading to lower trust among team members (Gibson & Gibbs, 2006).

Given the challenges of working virtually, experts commonly recommend establishing and cultivating trust to improve relationships among team members and raise productivity of virtual teams (Gluesing & Gibson, 2004; Grosse, 2002). The following practices can be employed to compensate for the lack of nonverbal cues in online interactions: rotating and diffusing team leadership, linking rewards to team performances, building social capital (e.g., building social networks among managers from different countries), scheduling face-to-face meetings (Govindarajan & Gupta, 2001), and cultivating face-to-face relationships among virtual team members (Nandhakumar, 1999). Another important strategy for overcoming difficulties in forming trust among virtual team members involves establishing and following a number of rules: (1) get started right away, (2) communicate frequently, (3) multitask getting organized and doing substantive work, (4) overtly acknowledge reading messages distributed by teammates, (5) be explicit about what one is thinking and doing, and (6) set deadlines and stick to them (Walther
& Bunz, 2005). In their student sample, Walther and Bunz found strong support for the effectiveness of these rules to structure virtual team work, form trust in groups, and demonstrate better performance on tasks. However, behavioral control mechanisms may also have a negative impact on trust development in temporary virtual teams because they increase the salience of incidents caused by reneging and incongruence (Piccoli & Ives, 2003).

**Conflict Management**

Conflict management comprises another major aspect of virtual teamwork that is fundamental to productive group functioning (Gillam & Oppenheim, 2006; Hinds & Bailey, 2003; Montoya-Weiss et al., 2001). Indeed, researchers suggest that conflict significantly affects group performance and satisfaction (DeChurch & Marks, 2001; Jehn, 1995, 1997). By definition, a team consists of a group of people who work interdependently. This interdependence entails processes of coordination, integration, and negotiation, thus making conflict an inherent feature of teamwork (Amason, 1996; DeChurch & Marks, 2001). Ting-Toomey (1994) defined conflict as “the perceived and/or actual incompatibility of values, expectations, processes, or outcomes between two or more parties over substantive and/or relational issues” (p. 360). According to conflict literature, teams experience three types of disagreement. **Relational conflict**, also known as affective conflict, refers to emotion-laden disputes about interpersonal issues (Amason, 1996; Griffith, Mannix, & Neale, 2003; Jehn, 1997). Amason labeled relational conflict as dysfunctional, and Jehn reported that it negatively impacts team performance. According to Jehn, **process conflict**, on the other hand, stems from disagreements about how to approach a particular task. Finally, **task conflict** refers to disagreements about the task itself (Amason, 1996; Griffith, Mannix, et al., 2003; Jehn, 1997). Dubbed as cognitive conflict by Amason, it can be advantageous or detrimental to team effectiveness depending on the situation (Jehn, 1995;
Virtual teams generally face greater conflict than traditional teams due to their geographic dispersion, the reduction of social context cues in CMC, cultural differences, and dynamic structure. For example, the absence of important nonverbal cues may lead to misinterpretation of electronic messages and misunderstanding of other team members’ intentions and expectations (DeSanctis & Monge, 1999), which increases the challenge of achieving a shared and unified understanding of the task among team members (Hinds & Bailey, 2003). Furthermore, geographically distributed teams do not benefit from situated knowledge, characterized by mutual engagement in activities, shared enterprise experience and repertoire of resources (Sole & Edmondson, 2002), which may lead to communication difficulties and also result in misunderstanding among team members. Moreover, Montoya-Weiss et al. (2001) determined that virtual team members face temporal coordination challenges in resolving internal conflicts because groupware technologies do not have the capacity to convey the multiple nonverbal cues that characterize face-to-face interactions. The lack of such cues makes decision making and consensus building in teams more difficult, given that miscommunication and misunderstandings tend to occur, and, as a consequence, conflicts among team members are heightened and less easily dispelled (Zakaria et al., 2004).

Other sources of conflict include cultural differences, weak identity, and ambiguous tasks, group roles, and responsibilities (Maznevski, Davison, & Jonsen, 2006; Shin, 2005). For example, Mortensen and Hinds (2001) found that shared team identity was associated with less task conflict within distributed product development teams. They reported similar effects for affective conflict, suggesting that a shared identity may help distributed teams to better manage conflict. The results also suggest that teams relying heavily on CMC face more task conflict.
Furthermore, despite the lack of socioemotional cues in CMC, affective conflict may be surprisingly more acute in computer-mediated groups because technology filters out much important social information which supports negotiation processes in face-to-face interactions. Moreover, Paul, Samarah, Seetharaman, and Mykytyn Jr. (2005) concluded that conflict management styles vary across cultures, with individualistic cultures preferring less collaborative styles and collectivistic cultures favoring more collaborative styles. Scholars have also used face-negotiation theory (Ting-Toomey, 1988; Ting-Toomey & Kurogi, 1998) to explain cultural differences in conflict management styles, given that those from individualistic cultures focus more on self-face concerns; whereas, those from collectivistic cultures tend to express more concern for the face of others and preserving mutual face (Cocroft & Ting-Toomey, 1994; Oetzel et al., 2001; Trubisky, Ting-Toomey, & Lin, 1991).

Leadership

Scholars have investigated issues of leadership according to the following themes. First, researchers generally define leadership in terms of functions that leaders should perform to build and to facilitate work processes within the team (e.g., performance management and team development) (Bell & Kozlowski, 2002). Second, the managerial literature focuses primarily on developing prescriptive instructions to overcome challenges of leadership in virtual or distanced contexts in order to ensure leadership effectiveness. Challenges associated with leading from afar include “building trust, inspiring, managing conflict, preventing feelings of disconnectedness, monitoring and evaluating performance, communicating vision, establishing loyalty to the organization, and maintaining teamwork” (Connaughton & Daly, 2005, p. 188). Suggestions include establishing credibility at the executive level, selecting appropriate leadership style and strategies, building credibility, managing performance, and clearly defining tasks (Connaughton
Third, a number of research studies aim to distill similarities and differences between virtual and co-located teams, in which effective leadership practices in proximate teams serve as a benchmark to assess leadership in distanced ones (Bell & Kozlowski, 2002; Kerber & Buono, 2004). Fourth, researchers often conceptualize leadership as a set of observable and measurable variables (e.g., style, effectiveness, strategies, perception, character traits or personality, etc.) which produce impacts on team effectiveness (e.g., Kayworth & Leidner, 2001; Lurey & Raisinghani, 2001). Many studies seek to identify phenomena often conceptualized as input variables (e.g., task complexity, trust, identification, isolation, information equity) that produce significant impacts on leadership effectiveness. In other words, as Kayworth and Leidner explained, the main concern in studying leadership in the virtual environment has been unearthing factors that contribute to or contaminate leadership effectiveness and identifying a set of styles or behaviors suitable to improve leadership efficiently in a variety of situations.

Knowledge Sharing

Because researchers and practitioners agree that mutual or shared knowledge (Baba, Gluesing, Ratner, & Wagner, 2004; Cramton, 2001; S. Sarker, S. Sarker, Nicholson, & Joshi, 2005; Zakaria et al., 2004) comprises a critical asset for successful functioning of a social unit, transfer of knowledge appears to be especially important for virtual teams, in which knowledge is distributed and less likely to be shared (Baba et al., 2004; Sarker et al., 2005; Zakaria et al., 2004). The process of knowledge exchange may be conditioned by a number of factors. In particular, according to Sarker et al., the volume of communication, the credibility of the communicator, and cultural values held by the communicator impact the extent of knowledge transferred. Information access, storage, and retrieval also constitute key issues; successful
collaboration in virtual teams requires having access to project-related information and sufficient channels to distribute information to all team members (Shin, 2005; Sivunen & Valo, 2006).

Researchers generally associate virtuality with challenges in terms of knowledge sharing. Virtual teams face difficulties in exchanging, disseminating and sharing not only explicit knowledge (documents, reports, data, etc.) but also more subtle and less visible tacit knowledge which “is gained through social experience in a specific context and consists of cognitive knowledge (mental models or beliefs) and technical knowledge (skills or crafts)” (Flanagin, 2002, p. 243). Along these lines, research on distributed teams reveals that members in different locations often experience difficulty with sharing “situated” or tacit knowledge which is embedded in particular local contexts with members in other locations (Sole & Edmondson, 2002) and that they may not realize that certain knowledge is not shared, assuming that other members already know things that they take for granted (Cramton, 2001).

Another barrier to knowledge sharing in geographically distributed teams involves the tendency for subgroups or “faultlines” to form based on geographical location, particularly if they are aligned with demographic attributes (Cramton & Hinds, 2004). Subgroups also likely play a divisive role in moderately culturally diverse teams because conflict among strong cultural sub-factions can prevent such teams from transcending cultural differences and forming “hybrid cultures” or common understandings (Earley & Mosakowski, 2000). Gibson & Vermeulen (2003) determined that moderately diverse teams are, indeed, able to engage in learning behavior so long as subgroups do not become too strong and distinct. In addition to learning behavior, Cummings (2004) linked external knowledge sharing with the effectiveness of structurally diverse work groups, given that members benefit from knowledge gained from diverse geographic locations, organizational roles and affiliations.
Identification

Wiesenfeld, Raghuram, & Garud (1999, 2001) advocated identification as particularly critical in virtual contexts because it facilitates coordination and control of employees, which presents a key challenge due to the lack of direct supervision or monitoring. Scholars argue that identification provides a type of “social glue” that holds virtual teams and organizations together and helps them cohere in the absence of face-to-face interaction (Fiol & O’Connor, 2005; Wiesenfeld et al., 1999). For instance, Mortensen and Hinds (2001) associated shared team identity with less task and affective conflict within distributed teams. These findings suggest that a shared identity may help distributed teams to manage different types of conflict in a more constructive way. In a similar vein, Connaughton and Daly (2004a) found significant relationships between trust and identification in dispersed settings.

Virtuality poses challenges to inducing identification, however. First, the temporary, project-based nature of many virtual work arrangements and the shifting nature of membership results in a more ephemeral environment (Kristof, Brown, Sims, & Smith, 1995), which leads to temporary rather than fixed identifications. Additionally, the existence of multiple identification targets tends to problematize identification among virtual team members (Scott, 1997). Given that virtual team members may perceive isolation from a team or an organization, identification with a team may be particularly important as well as problematic for virtual team members (Kirkman, Rosen, Gibson, Tesluk, & McPherson, 2002). Gossett (2002) determined that managers of temporary workers engage in strategic practices designed to limit, rather than promote, such identification, in order to exclude such members from decision-making and relieve the organization from feeling responsible for their general welfare. Overall, virtual work arrangements may be expected to pose challenges to identification due to weakened
identification across time and space and reduced loyalty due to temporary relationships and the existence of multiple competing identity targets.

Assumptions in the Literature

The virtual teams literature can be characterized by several major assumptions. We argue for the need to reconceptualize the study of virtual teams from a constitutive perspective (e.g., Mokros, 2003; Putnam & Pacanowsky, 1983; Weick, 1979), and we call for rethinking these major premises. In this section, we critique several main assumptions underlying the dominant inputs-processes-outcomes model (e.g., Martins et al., 2004); in the following one, we outline how communication scholars may reconceptualize virtual teaming from a discursive, constitutive perspective. In the final section, we propose a new conceptual framework and outline a programmatic agenda for future research on virtual teams by communication scholars.

Communication as a Variable

As Martins et al.’s (2004) review suggests, the inputs-processes-outcomes model (e.g., Lurey & Raisinghani, 2001) has become the dominant framework for investigating virtual teams. As a result, according to Lurey and Raisinghani, virtual teams tend to be conceptualized as fixed and stable entities, and researchers treat team processes, communication patterns, and internal relations as internal or external variables that produce significant impacts on team performance and effectiveness. The literature has focused on identifying antecedents to conflict, leadership, trust, identification, and knowledge sharing and measuring the impact of these factors on outcomes such as satisfaction or productivity. Although identified as processes in the inputs-processes-outputs model, the dominant perspective taken in most managerial studies of virtual teams regards communication (and other constructs) as static variables rather than processes (e.g., Martins et al., 2004). Studies still tend to conceptualize communication among virtual team
members as a physical process of transmitting instrumental and social information from one person to another, in line with the conduit metaphor (Axley, 1984). This process is constrained and conditioned by such factors as electronic dependence, geographic dispersion, cultural diversity, and dynamic structure. Such defining features of virtual teams serve as determinants that shape and constrict interactions among virtual workers. Even studies of virtual teams by communication scholars often take rather limited views of communication by measuring it in terms of variables such as frequency or type of media use (e.g., Connaughton & Daly, 2004a; Timmerman & Scott, 2006). Such a view adopts a mechanistic view of communication that overlooks its symbolic qualities and active role in creating and re-creating social structures and processes of organizing (Putnam, 1983). As such, it fails to capture the dynamic nature of practices workers engage in to create and re-create the context of virtual teamwork. Furthermore, scholars and practitioners exploring various aspects of virtual work tend to treat the work context of virtual teams as a stable entity and, therefore, overlook the complex reciprocal interrelation between the context of virtual work, action, and human agency (Lea et al., 1995).

For example, studies of conflict in small groups tend to be conducted from a functionalist perspective (Wittenbaum et al., 2004), in which researchers generally conceptualize conflict as an output variable that is affected by the complex interrelationships of input variables (e.g., conflict resolution styles, trust variables, degree of identification with a team). Although research has shed light on diverse dimensions of virtual organizing, studies usually rest almost exclusively on an oversimplified view of the nature of conflict, negotiation, and conflict management processes. These studies typically consider relationships between parties in terms of competing interests and assess the outcomes of conflict in terms of winning or losing (Conrad & Poole, 2005).
Furthermore, scholars treat communication as a variable that contributes to (or impedes) effective conflict resolution through various bargaining tactics. Such perspectives virtually ignore conflict framing, dynamic processes of socially developing interpretations of events, and socially constituted negotiating processes. For example, the few studies that examine cultural heterogeneity in virtual settings treated it as a variable that leads to increased conflict and has direct or indirect effects on performance (e.g., Mortensen & Hinds, 2001; Paul, Samarah, Seetharaman, & Mykytyn, 2005; Paul, Seetharaman, Samarah, & Mykytyn, 2004) and fail to consider processes through which it shapes conflict perceptions and dynamics among dispersed multicultural team members. However, cultural differences do not affect conflict levels or conflict management styles by virtue of their existence but, instead, because they shape the way that people perceive themselves, others, and the relationships between them (Singelis & Brown, 1995; Ting-Toomey & Oetzel, 2001). Thus, a better understanding of the effects of cultural differences on conflict in virtual teams may be attained by examining the ways in which these differences shape members’ perceptions, behaviors and interactions.

*Deficiency Model of Virtuality*

Another assumption prevalent in much of the emerging literature on global, virtual, and distributed teams relies on a “deficiency” model, which regards aspects of virtuality as detrimental to team performance. Definitions and operationalizations of virtuality vary, with geographical dispersion, electronic dependence, cultural diversity, and dynamic structure as the most common dimensions (Gibson & Gibbs, 2006). However, Gibson and Gibbs asserted that researchers tend to theorize that each of these features or *decoupling characteristics* (Gibbs, 2002) of virtual teams negatively affects teams.

For example, geographic dispersion presents potential challenges to effective team
processes (Goodbody, 2005; Knoll & Jarvenpaa, 1998), leadership (Bell & Kozlowski, 2002; Connaughton & Daly, 2004a; Kerber & Buono, 2004; Maznevski et al., 2006), knowledge management (Cramton, 2001), and detection and management of conflict (Armstrong & Cole, 2002; Shin, 2005). Sole and Edmondson (2002) concluded that dispersed team members often have trouble with sharing “situated” knowledge of site-specific work practices, which is often taken for granted. Cramton determined that those team members also struggle to attain *mutual knowledge* due to the lack of common ground.

Electronic dependence in virtual teams poses formidable problems due to the lack of nonverbal cues that convey important social information in face-to-face interactions (Townsend et al., 1998) and, thus, may lead to misunderstanding, deterioration of trust, and escalation of conflict (Hinds & Weisband, 2003; Kirkman et al., 2002). This view is rooted in the cues-filtered-out perspective (Culnan & Markus, 1987), which suggests that the challenges of achieving mutual understanding and collaborating effectively in groups intensify as one moves from face-to-face to computer-mediated interaction. Early CMC theories such as social presence theory (Short, Williams, & Christie, 1976) and media richness theory (Daft & Lengel, 1986) considered CMC to be deficient compared to face-to-face communication due to the former’s reduced social context cues (Sproull & Kiesler, 1986) and information richness. These perspectives frame CMC messages as impersonal and task-oriented in comparison to face-to-face interaction (Walther & Burgoon, 1992). In addition, Sproull and Kiesler concluded that the reduced social cues in CMC were prone to produce a *deregulating effect* in which people tended to exhibit self-focused and unrestrained behavior. More recent CMC theories such as social information processing (SIP) theory (Walther, 1992, 1997) and SIDE theory (Lea & Spears, 1992; Postmes, Spears, & Lea, 1998) depart from the traditional view of CMC as deficient and
describe it instead as simply different and having unique characteristics (Walther & Parks, 2002). Much of the virtual teams literature, however, still relies on earlier cues-filtered-out perspectives which emphasize the limitations of CMC (e.g., Bell & Kozlowski, 2002; Hinds & Bailey, 2003; Kirkman et al., 2002).

Although empirical findings are mixed, researchers often cite cultural diversity in teams as detrimental to team performance due to the potential for differing values and norms to create conflict and misunderstanding (e.g., Elron, 1997; Jehn, Northcraft, & Neale, 1999; Kirchmeyer & Cohen, 1992; Kirkman & Shapiro, 1997, 2001; Maznevski, 1994). Elron noted that, although cultural heterogeneity may add to the group by enhancing creativity, homogeneous groups share greater similarities in attitudes, beliefs, and experiences. In a comprehensive literature review, Maznevski concluded that homogeneous teams performed better overall and engaged in less conflict than more diverse teams. Scholars have consistently found that demographic diversity, in particular, negatively affects group processes, due to heightened emphasis by group members on social categories rather than project-related information (for a review, see Williams & O’Reilly, 1998). For example, although they found a curvilinear effect such that highly diverse and homogeneous teams outperform moderately diverse teams over time, Earley and Mosakowski (2000) attributed team failures to individual members’ cultural differences generating conflict and negatively affecting group dynamics. On the other hand, for teams that functioned well, the authors ascribed the success to that team’s particularly well-managed process, which included creating rules to follow throughout their meetings, being open with each other, showing respect for others’ opinions, and so on. These two attributions for failure and success seem to indicate that, although success can be attributed to a successful process, group failure cannot be blamed
for the failure of the process. The underlying premise, whether made explicit or not, seems to be that cultural difference begets communication breakdowns.

Finally, research has linked a dynamic structure with challenges related to sharing knowledge and developing strong relationship ties (Burt, 2004; Granovetter, 2005). The fluid structure and temporary nature of many virtual teams tends to create difficulties establishing identification, given the temporary (rather than ongoing) nature of relationships among members (Kristof et al., 1995). Further, virtual team members from different organizations less likely trust each other with confidential or proprietary information, which may also hinder knowledge sharing; indeed, greater diversity in organizational cultures (e.g., a greater number of cultures represented) has been associated with lower trust within virtual teams, due to greater challenges connected to risk and interdependence (Gibson & Manuel, 2003).

Based on our review, deficiency models rely on the assumption that fostering shared understanding, cohesiveness, and frequent communication--features typically associated with traditional co-located teams--are prerequisites for virtual teams to be successful, rather than exploring the communicative practices through which virtuality features may become productive for team members. On the contrary, this review proposes that virtual teaming can be best understood by observing the way in which people structure their interactions and that failures to create such structures might be the ones responsible for ultimate failures of the group, not the innate cognitive or cultural characteristics of team members.

As an example, studies on leadership in virtual teams generally focus on identifying problematic areas in work processes, examining consequences (positive and negative) of these challenging aspects of virtual working, and developing specific recommendations to address the identified challenges and diminish the negative impact of reduced nonverbal cues in the context
of virtual work. Similar to studies of trust and conflict, research on leadership is mainly conducted in the framework of the popular inputs-processes-outputs model of work processes, which defines successful team functioning in terms of measured effectiveness, productivity and efficiency, and reduction of problematic aspects (e.g., lack of commitment, difficulties developing trust, forming and maintaining group cohesiveness, etc.). Leadership, as well as other “human” or “social” aspects of teamwork, comprise important ingredients that need to be carefully performed to ensure productive team functioning (Connaughton & Daly, 2004b; Kerber & Buono, 2004).

**Conceptualization and Measurement of Virtuality**

Finally, conceptualizations and measures of virtuality have been limited in much of prior research. As mentioned earlier, many laboratory-based studies rely on dichotomous comparisons between virtual and non-virtual or co-located teams. Such measurement may explain the previous assumption that virtual teams are “deficient” compared to face-to-face teams. These studies compare purely “virtual” or computer-mediated to purely “face-to-face” teams and groups, and virtual/CMC teams generally come up short (e.g., Burke & Chidambaram, 1995; Kiesler et al., 1984; Potter & Balthazard, 2002; Straus & McGrath, 1994; Warkentin et al., 1997). Similarly, a largely separate body of research on team and group heterogeneity has followed the tradition of comparing heterogeneous to homogeneous teams, finding that culturally diverse teams face greater challenges than homogeneous teams (e.g., Maznevski, 1994; Thomas, 1999; Williams & O’Reilly, 1998). Scholars in both of these areas have shifted away from dichotomous comparisons which inherently privilege traditional (face-to-face, homogeneous) over virtual or heterogeneous teams, reconceptualizing both virtuality (e.g., Gibson & Gibbs, 2006; Griffith, Sawyer, et al., 2003; Martins et al., 2004) and cultural diversity (e.g., Earley &
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Mosakowski, 2000; Gibson & Vermeulen, 2003) as continua on which all teams can be characterized rather than absolute conditions. We need more empirical work in this regard.

Methodologically, the findings of many studies on virtual teams may be limited because they are based on controlled laboratory studies using student samples. Many studies rely on samples of student teams performing class assignments (e.g., Burke & Chidambaram, 1995; Hollingshead, 1996; Jarvenpaa & Leidner, 1999, Jarvenpaa et al., 2004; Walther & Bunz, 2005). As such, the virtual teams in many studies tend to be temporary and project-based, often purely virtual (e.g., Jarvenpaa & Leidner, 1999; Kristof et al., 1995) and comprised of anonymous members with no history performing an artificial task (see, for example, much of the early GSS research as evident in the meta-analysis by McLeod, 1992). Such a focus limits generalizability of findings to ongoing virtual teams that perform real tasks, engage in at least some face-to-face contact, and function in the context of preexisting relationships. In addition, virtual teams are often nested in organizational or other social contexts, and lab research fails to account for the role of context in team functioning. Similarly, much of the research on culturally diverse groups has been conducted in highly controlled laboratory settings over short time periods and provides limited findings (Maznevski & Chudoba, 2000; Nkomo & Cox, 1996). As a result, findings on the impacts of cultural heterogeneity on team performance have been inconsistent and inconclusive (Gibson & Vermeulen, 2003; Hambrick, Davison, Snell, & Snow, 1998). More longitudinal field studies in naturalistic settings could clarify conflicting results, ensure that findings generalize to continually evolving technological and organizational settings, and further articulate the communicative processes and practices through which members enact virtual teaming.
Reconceptualizing Virtual Teaming from a Constitutive Perspective

Although functionalist research has generated a great deal of knowledge about conditions leading to effective virtual team practices, additional conceptual tools may be applied to make sense of and understand emergent forms of virtual organizing. The so-called “interpretive turn” in organizational communication shifted scholars’ focus away from viewing organizations as concrete, reified containers in which communication takes place through information exchange to more dynamic and constitutive views of organizing as socially constructed through communication (Taylor, Flanagin, Cheney, & Seibold, 2001; Weick, 1979). Rather than attempting to predict and control behavioral regularities, the goal of interpretive approaches is “…to explicate, and in some cases, to critique the subjective and consensual meanings that constitute social reality” (Putnam, 1983, p. 32). Interpretive or critical perspectives (Cheney, 2002; Deetz, 1994; Zoller & Kline, this volume; Putnam & Pacanowsky, 1983) would enable researchers to regard virtual team interactions as socially constructed (for related arguments, see Bartesaghi & Castor, this volume; Berger & Luckmann, 1966). Such alternative approaches envision communication not as a vehicle to transmit work-related information or a channel to deliver important social cues (see Axley, 1984) but as a process through which stakeholders accomplish teaming. We propose an alternative framework for conceptualizing and studying virtual teamwork that recognizes the dynamic nature of such team processes as trust, conflict management, leadership, knowledge sharing, and identification.

Rather than conceptualizing these processes as static variables that produce effects on various team outcomes, we suggest that virtual team members engage in various practices to form and maintain trusting relationships, navigate and resolve conflicts, enact leadership, share knowledge, and negotiate identities. Instead of assuming that fixed team characteristics
determine communicative or other outcomes, we focus on those practices that constitute the very core of teaming as a communicative accomplishment. The meanings of events and processes emerge out of team members’ engagement in communicative practices; in other words, members negotiate and actively (although often routinely and non-consciously) enact meaning through the use of verbal and nonverbal messages that create and sustain social reality (Polanyi, 1966; Polanyi & Prosch, 1975; Putnam, 1982). This approach is informed by the view of communication as constitutive (Mokros, 2003; Mokros & Deetz, 1996), which treats an instance of interaction as containing all the elements needed to understand socially constructed meanings: meanings co-created by participants in interaction. According to Mokros and Deetz, proponents of this perspective contend that people form their perceptions of reality by engaging in communication practices, as opposed to the view of communication as information exchange, where “communication is a phenomenon to be explained rather than a mode of explanation” (p. 31).

In shifting the focus of scrutiny away from team properties fixed in team input or outcome variables, we treat virtual teams as social collectives constituted and reconstituted continuously through goal-oriented communicative practices among their members (Mumby & Clair, 1997). The dynamism of virtual teaming is not necessarily revealed through unique properties of technologies in use, but rather co-produced through a series of interaction incidents incorporating a set of decision processes configured by aspects of the team’s structural elements (Maznevski & Chudoba, 2000). Our framework calls communication scholars to re-direct the focus of analysis from performances of individual group members or media characteristics to interactions among individuals through technology use by addressing social phenomena that are relational, emergent, and enacted (Boczkowski & Orlikowski, 2004). Following Weick (1979),
virtual teaming involves “the inventions of people, inventions superimposed on flows of experience and momentarily imposing some order on these streams” (pp. 11-12).

The proposed framework presents a constitutive view of teaming as emerging through communication processes of virtual team members as they participate in everyday work practices. Just as Zoller and Kline (this volume) call for health communication scholars to employ more interpretive and critical approaches, we encourage communication scholars to embrace such alternative approaches in studying virtual teams, to further extend our knowledge of how teaming is discursively constructed. This framework opens up a new space to investigate virtual teams from different theoretical perspectives, broadens the spectrum of phenomena examined in virtual work contexts, and raises important new research questions to be addressed.

First, taking a constitutive approach allows and invites scholars to study virtual teaming from different theoretical perspectives such as the bona fide group perspective (Putnam & Stohl, 1996), sensemaking (Weick, 1995), structuration (Banks & Riley, 1993), or tensional perspectives (Tretheway & Ashcraft, 2004). Emerging research is beginning to adopt such perspectives. For example, Gibbs (2007) employed ethnographic methods to examine dialectical tensions of autonomy versus connectedness, inclusion versus exclusion, and integration versus differentiation in a global software team and the ways in which such tensions were negotiated through communicative practices of team members. According to Gibbs, focusing on tensions—rather than overlooking them in an attempt to identify stable predictors of effectiveness—revealed that certain tensions were necessary and irresolvable given the complex nature of global organizing. Another qualitative field study employed adaptive structuration theory to analyze the use of a collaborative technology in a virtual team, examining the types of structural adaptations that occurred within the team over time to resolve initial misalignments among organizational
environment, group, and technology structures, and ways in which the team retained, modified, and reverted back to pre-existing structures (Majchrzak, Rice, Malhotra, King, & Ba, 2000). As a third example, a recent case study investigated how a virtual team socially constructed and reinforced its boundaries and evolved a team identity over time, drawing on the bona fide group theory (Zhang, 2007). Such perspectives challenge notions of teams (and organizations) as stable, fixed sites of clarity and consensus as they recognize and capture the dynamic nature of teaming, the differences and disjunctures that often characterize virtual teams, and the permeability and flux of team boundaries. They also consider account the organizational contexts in which virtual teams are embedded—an important (yet overlooked) influence on team interaction. We urge communication scholars to adopt such perspectives--still nascent in the virtual teams research--and to go beyond survey and experimental methods to study virtual teaming using more qualitative approaches such as ethnography, participant observation, and discourse analysis, as well as combining multiple methods (both qualitative and quantitative) in creative new ways.

Taking a constitutive approach also refocuses scholarship around new phenomena by examining virtual teaming as discursively constructed. Working in different parts of the world and being electronically dependent involves such mundane practices as checking one’s email, retrieving information from databases, and conducting virtual meetings, to name a few. Hence, team members continually reproduce the context of virtual working through recurrent discursive practices which bring into play a unique configuration of dimensions. A constitutive approach draws attention to understanding how team members reveal and enact virtual teaming during routine interactions. This perspective allows us to examine the specific practices, strategies, and messages that team members employ to sustain the ongoing process of organizing. As Boden
(1994) observed, “It is through the telephone calls, meetings, planning sessions, sales talk, and corridor conversations that people inform, amuse, update, gossip, review, reassess, reason, instruct, revise, argue, debate, contest, and actually constitute the moments, myths and, through time, the very structuring of the organization” (p. 181).

Furthermore, because the proposed framework highlights the importance of understanding not only what aspects constitute the work of virtual teams but also calls for investigation of specific processes through which members co-construct these unique work entities, the framework has implications for studying interpersonal and socialization processes in the context of virtual work (Jarvenpaa et al., 2004; Knoll & Jarvenpaa, 1998). In particular, certain technological choices help team members to establish interpersonal relationships, develop and maintain trust, facilitate and support knowledge exchange (Grosse, 2002). As Shin (2005) concluded, sources of conflict in virtual teams include difficulty establishing trusting relationships with team members and confronting ambiguous tasks, roles, and responsibilities. Therefore, understanding the complexities of the interpersonal aspects of task-oriented activities may provide novel insights into the dynamics of team relationship building, conflict negotiation, and development of group cohesion. This research involves detailed analysis of message exchange, topic control and avoidance, and turn-taking in conversations, and highlights issues of relationship building and maintenance in the virtual environment.

The final section outlines a conceptual framework for studying virtual team processes that integrates key structural features of virtuality with communicative processes characterizing such teams. Furthermore, we outline ways for researchers to reconceptualize each of these processes from a constitutive perspective and propose topics and questions for future research of virtual teams.
Future Research Agenda for Virtual Teams

Advancing a New Conceptual Framework

The various dimensions of virtuality (geographic dispersion, electronic dependence, cultural diversity, and dynamic structure) tend to be studied largely independently. Because many teams rank high on multiple dimensions of virtuality (e.g., they are highly culturally diverse, geographically dispersed, and electronically dependent), we need more research that simultaneously examines the interrelationships among multiple dimensions. We propose a conceptual framework that integrates these four dimensions and the five key team processes described above (see Figure 1). The four dimensions of virtuality outside the box—geographic dispersion, electronic dependence, cultural diversity, and dynamic structure—comprise structural characteristics of teams. The five terms inside the box—trust, conflict management, leadership, knowledge sharing, and identification—represent key team processes that are shaped by communication.

[INSERT FIGURE 1 ABOUT HERE]

Although incorporating all of these components in a single study may not be possible, we call upon communication scholars from a variety of areas—organizational, interpersonal, group, mediated, and intercultural communication, among others—to engage in more programmatic research on virtual teams incorporating multiple components in order to examine the dynamic relationships and interdependencies among these processes and contexts. Our framework integrates the key pieces of a future research agenda for studying virtual teaming, which can also be unpacked and combined in various ways. A constitutive perspective is well suited for taking such a dynamic and integrative approach; rather than isolating variables and their interrelationships, it examines virtual team interaction as embedded in processes and contexts.
involving varying degrees of geographic dispersion, CMC use, cultural diversity, and dynamism of structural arrangements.

In particular, the suggested framework serves as a useful conceptual tool to explore social phenomena in new ways through research on virtual teams. Our review has illuminated scholarly interest in examining social aspects of virtual working such as identification (Fiol & O'Connor, 2005; Gossett, 2002; Wiesenfeld, Raghuram, & Garud, 1999), knowledge networks (Monge & Contractor, 2003; Zakaria et al., 2004), leadership (Bell & Kozlowski, 2002; Connaughton & Daly, 2004b), trust (Jarvenpaa et al., 1998; Murphy, 2004), and conflict (Armstrong & Cole, 2002; Mannix, Griffith, & Neale, 2002; Mortensen & Hinds, 2001). Furthermore, the current project contributes to our understanding of virtual teaming by emphasizing the active role that members play in constructing the very context of virtual work. We not only focus on investigating structural and formative issues related to ICT use, but, by proposing a new framework, we recommend further exploration of critical constitutive processes such as ways in which members deal with disagreements and differences, negotiate task processes, group roles and work relationships, or resolve conflict situations (Henderson, 1994). The question is not whether geographically dispersed and culturally diverse team members are (or feel) connected through communication and information technologies but, rather, how (e.g., by what means and through which practices) they enact such connectivity in their mundane interactions. In this regard, adequate relational communication appears to be essential for developing and maintaining trust as this aspect of virtual working “pertains to the reciprocal process of how partners regard one another and how they express that regard” (Walther & Bunz, 2005, p. 830). Communication scholars, thus, need to investigate how members employ technology use in numerous practices and how virtual team members negotiate assignments, build relationships,
form impressions, or informally communicate with team members.

**Reconceptualizing Trust**

Researchers generally conceptualize trust in virtual teams research as an affective or cognitive construct (Kanawattanachai & Yoo, 2002; Millward & Kyriakidou, 2004); they treat it as a cognitive “belief” that determines the quality of team processes and outcomes (Jarvenpaa et al., 1998; Jarvenpaa & Leidner, 1999; Walther & Bunz, 2005). Therefore, the majority of research studies investigating this phenomenon in virtual environments have sought to unveil differences between low- and high-trust teams (e.g., Jarvenpaa et al., 1998; Jarvenpaa & Leidner, 1999). Prior studies have clearly demonstrated the importance of considering issues of trust when attempting to effectively managing virtual work processes. What remains virtually overlooked, however, involves *how* virtual workers develop, maintain, or break trust as they engage in various communicative practices. Communication scholars are well positioned to address this question by examining processes that constitute trusting relationships among virtual team members rather than explicating well-defined structures, roles and rules that purportedly ensure effective performance in the virtual context (Poole, 1999). This reconceptualization encourages scholars to reflect more on the relationships between trust and communication processes in virtual teams by conducting longitudinal observation- and interview-based studies in naturalistic organizational settings. In particular, the proposed framework sets the stage for examining trust as a communicative accomplishment achieved through a coordinated sequence of meaningful actions in routine interactions.

**Reconceptualizing Conflict Management**

Taking a more discursive perspective offers unique conceptual tools to avoid the limitations of the inputs-processes-outputs model of conflict resolution in the context of virtual
teams. Expressly, as a phenomenon of human communication, conflict comprises “a process in which a participant formulates interpretations that develop and change over time, contingent upon the prior and subsequent actions of the co-participant(s)” (Arundale, 1999, p. 126). From this perspective, researchers conceptualize framing as a dynamic process of collectively shaping, maintaining, and/or changing shared meanings (Gamson, Croteau, Hoynes, & Sasson, 1992). Furthermore, because all participants negotiate these issues, they serve as a framework for stakeholders’ present and future actions in terms of sustaining or resolving a conflict and, thus, become collective action frames (Gamson, 2001). Several benefits exist in shifting the focus of analysis from examining properties of conflict situations to processes that constitute them.

First, this perspective conceptualizes participants in conflict as members of interpreting communities who continuously define and redefine their situations. Second, through their direct or indirect participation in framing a conflict, stakeholders co-construct collective knowledge about this conflict and, thus, shape and justify their actions (Shin, 2005). Therefore, a conflict is not a fixed and stable phenomenon but rather a complex continuous process in which each stakeholder actively participates in resolving a situation, aggravating polarization, and/or obscuring optimal conflict resolution. The aim of participants in the conflict situation entails not only reaching the settlement of immediate issues but “… transform[ing] the parties by giving them insights into themselves, insights into how they are contributing to the conflict and how they might change to improve the situation” (Conrad & Poole, 2005, p. 337). Future research on conflict should focus on the socially constituted communicative processes through which members frame conflicts and develop social interpretations of events.
Reconceptualizing Leadership

Research that challenges a functionalist approach to communication between leaders and subordinates in co-located settings calls for greater attention to processes or micro-practices through which stakeholders communicatively construct leadership. For instance, Fairhurst and Chandler (1989) described how a leader and employees utilized power and social distance as conversational resources to enact organizational structure. Moreover, these researchers suggested that “conversational resource use can create new structural forms, thereby altering the trajectory of the relationships” (p. 230). Fairhurst (2007) reviewed discourse approaches and applied a discourse approach to studying relationships between leaders and employees, which situates communicative interactions as central. Ford (2006) also explored leadership as a discursive accomplishment that shapes managerial workplace identities. Applied to the context of virtual teams, these approaches regard leadership as continually (re)negotiated through communicative interactions between team members.

Future research on leadership should investigate how leadership practices are constituted and negotiated through communicative practices. Communication scholars (for review, see Connaughton & Daly, 2005) have contributed to studies on distanced leadership by emphasizing the role of communication in dealing with paradoxes and challenges of leading from afar. For example, Connaughton and Daly (2004b) identified several communication processes that contribute to successful distanced leadership: building more personalized relationships through small talk and personalized textual message exchange, establishing expectations and ground rules about communication at the stage of initial team formation, and symbolically demonstrating leaders’ commitment to team members through travel to distanced locations. These findings present fresh insights on the dynamics of virtual teaming and the role of team
leaders in effective team functioning, and they also invite scholars and practitioners to set
research agendas to further investigate the processes and implications of leadership and
relationship building in the virtual work environment.

Reconceptualizing Knowledge Sharing

Knowledge and knowledge management tend to be defined in fairly narrow terms: (a) as
cognitive structures of an individual which, once explicitly shared as information, become
valuable resources for other individuals and (b) as technical information (explicit knowledge).
Either way, researchers define knowledge in terms of information and, as a consequence,
“information is viewed as a kind of preliminary stage of knowledge” (Lueg, 2001, p. 151). Given
the close relationship between knowledge and information, current research often reduces the
complex processes of knowledge co-construction to simple information exchange among team
members. However, recent studies of knowledge management in organizations (e.g., Heaton &
Taylor, 2002) and online communication from an interpretive perspective (Ngwenyama & Lee,
1997) caution against such an approach because, as Lueg noted, it tends to overlook the
representation problem, interpretation processes (Cramton, 2001; Lee, 1994), and organizational
contextuality (Ngwenyama & Lee, 1997). We require further clarification of when/how
information becomes knowledge and the underlying communication processes that transform
information into knowledge.

Current perspectives (e.g., Griffith, Sawyer, et al., 2003) also tend to focus on knowledge
as an individual property and, thus, virtually ignore social aspects of constructing mutual
knowledge. Information becomes transformed into social knowledge when the same information
becomes internalized by several persons in a similar way and converges individual cognitive
structures into collective ones (Baba et al., 2004). Although this approach to establishing
common ground in teamwork alludes to communal aspects of knowledge creation, this perspective still promotes the idea that “knowledge originates in the individual and that once made explicit, subsequent interpretation of the representations of knowledge in symbolic form is unproblematic” (Heaton & Taylor, 2002, p. 232). Furthermore, although researchers generally acknowledge the importance of communicating and retaining contextual information (Cramton, 2001), they seem to characterize knowledge by specific properties that are drawn from disparate sources (Baba et al., 2004). Finally, the most efficient use of knowledge may be based on the ability of individual team members to separate knowledge from actions (Sarker et al., 2005).

We argue that communication as a mode of explanation (Deetz, 1994) offers fresh insights into how virtual team members constitute knowledge in interactions without separating knowledge from actions yet conceptually distinguishing between knowledge and information. First, Zorn and Taylor (2004) suggested that knowledge management constitutes “a process of organizational communication… because knowledge management is fundamentally concerned with sensemaking: the construction of meaning by people who are caught in a practical world of work, with multiple and frequently immediate concerns” (p. 104). In contrast to functionalist approaches, such scholars do not consider meaning to be an outcome of cognitive processes that reside within individuals, nor do meanings have stable properties that prompt similar interpretations by different individuals and, thus, result in predicted behavioral outcomes. Conversely, from a constitutive perspective, meanings are public (Geertz, 1973, 1983) and emerge in the process of people’s engagement with each other. Communicative practices involve information sharing but are not limited to mere exchange of social or technical information. To become knowledge, information must be interpreted with reference to cultural meanings, acted upon in specific situations, and situated in a particular social and historical context.
In this regard, Sole and Edmondson’s (2002) conceptualization of situated knowledge is particularly useful in overcoming some of the limitations above. Indeed, the researchers appropriated a communicative view of knowledge sharing in the context of virtual teams and introduced the concept of situated knowledge, which refers to site-specific work practices. This perspective emphasizes both knowledge creation and its enactment in organizational practices. Such an approach allows researchers to uncover processes through which contextual elements both shape and are shaped by social practices performed by individual virtual team members. Thus, participants actively take part in constituting every aspect of virtual teamwork. Through collaboration on projects, team members and leaders learn to adjust their styles, incorporate professional expertise, negotiate work roles, appropriate relevant knowledge, and overcome challenges associated with geographic dispersion, electronic dependence, cultural diversity, and dynamic structure.

Future research should further explore conceptual distinctions and the relationship between information and knowledge, terms which researchers often use interchangeably. We invite scholars to critically appraise the communicative aspects of information sharing and exchange by exploring conceptual links between these two phenomena as well as differences in meaning. Research should examine knowledge sharing as a sensemaking process (Weick, 1995). The following question deserves particular attention: How do team members use bodies of knowledge to make sense of information? If they create knowledge through sensemaking or interpretation of different kinds of information and communicative enactment of these knowledge claims, then mutual knowledge is situated in a specific interactional context and should be viewed a communicative accomplishment.
Reconceptualizing Identification

Although scholars call for investigation of identification processes in virtual teams (e.g., Fiol & O’Connor, 2005), they seem to be focused on unearthing stable antecedents that produce certain effects on the processes of identification and, therefore, would allow for reliable predictions about psychological and behavioral outcomes. Dominant conceptualizations of identification have been rooted in social identity and self-categorization theories (Tajfel, 1982; Tajfel & Turner, 1986), which argue that individuals locate or define themselves in terms of their social categories or groups and that they classify themselves and others as members of social in-groups and out-groups, based on differentiation of themselves from others (Ashforth & Mael, 1989). Furthermore, scholars conceptualize and measure the “processes” of identification in terms of individual perceptions, psychological attachment, feelings of trust and commitment.

Although the findings of such studies suggest important clear-cut managerial implications of the most efficient strategies to facilitate collaboration in virtual teams, these findings provide limited insights into what virtual team members actually do to identify with a group and how they communicatively enact identifications with (possibly) multiple targets. In addition, the dominant managerial approach takes a limited view of identification as a control mechanism, which arguably removes agency from employees. Taking a more interpretive approach allows for exploration of communicative strategies through which identified employees seek coordination and connections within virtual teams, rather than focusing exclusively on management efforts.

Communication scholars as far back as Burke (1950/1969) have viewed identification as symbolically and socially constructed, and more recent scholars in the field have adopted conceptualizations with an emphasis on communicative practices rather than cognition (see Cheney, 1983, 1991; Kuhn & Nelson, 2002; Larson & Pepper, 2003; Scott, Corman, & Cheney,
Scott et al. developed a structurational view of identification, which regards it as inherently communicative --situated in everyday social interaction--and shows how organizational identities become meaningful in action by structuring employees’ experiences. Scott et al. conceptualized identity as a structure that constitutes a set of rules and resources that may be drawn upon by an organizational member. Thus, members constantly produce and reproduce identity through processes of identification, which represent “the forging, maintenance, and alteration of linkages between persons and groups” (p. 304). Hence, communicative manifestations of identification can be observed as they occur in social interactions with other organizational members. Organizational communication studies are starting to adopt this view of identification (e.g., Kuhn & Nelson, 2002; Larson & Pepper, 2003), but it has yet to be extended to virtual work contexts.

The desirability of identification in the virtual context has been both asserted and questioned by extant research. In our review, we tracked salient developments in conceptualizing the relationship between identification and team processes. Yet, future research should further explore the relation between teeming and processes of identification. For instance, the proposed framework calls scholarly attention to the following issues of central concern. Are processes of teeming and identification (construction of group identity) in reciprocal relationship? How does teeming become a resource for group identity and identification? How do expressions of identification become relevant in a particular context? How are particular identities enacted and negotiated in interactions between group members? What communication practices constitute processes of identification? Do processes of identification vary situationally in the virtual context (as argued by Scott et al., 1998)? What rhetorical strategies (Cheney, 1983) facilitate
construction of team and individual team members’ identity(ies) in the process of identification? What discourses of identity construction exist in the virtual context?

New Areas of Study

In addition to reconceptualizing the areas specified by our framework, embracing a constitutive approach also draws our attention to new areas that have not previously been studied in virtual team research. One important area is the role of emotions and emotionality in virtual teaming. First, examining how emotive displays contribute to or impede the development of productive working relationships might enable us to challenge the widely accepted but overly simplistic view of virtual working as essentially the mechanistic exchange and transmission of work-related information. Second, such an approach allows us to gain a better sense of the communicative aspects of emotional enactment in group processes. Despite a wide range of approaches to defining emotions (Denzin, 1984; Harré, 1986; Lazarus, 1991; Lupton, 1998; Zajonc, 1980), researchers generally agree that emotions carry their communication function through their expressions: facial expressions, vocal cues, physiological cues, gestures or body movements, and action cues (Burleson & Planalp, 2000; Planalp, 1999; Planalp & Knie, 2002). The proposed framework serves as a point of departure for studies that seek to investigate expressive aspects of emotions in the virtual environment as well as the role of emotion work in communicative processes through which the context of virtual group work is constructed, maintained, and altered. In this sense, it continues the line of research (Ellison, Heino, & Gibbs, 2006; Orlikowski, Yates, Okamura, & Fujimoto, 1995; Tanis & Postmes, 2003; Walther & Parks, 2002) questioning the cues-filtered-out model (Culnan & Markus, 1987), which suggests that, with cues filtered out, communicators are less able to “alter the mood of a message, communicate a sense of individuality, or exercise dominance or charisma” (Kiesler, 1986, p. 48).
Third, revealing how and why employees choose to enact certain feelings while hiding others in mundane organizational practices might shed light on why some teams (including virtual teams) that consist of workers who are highly knowledgeable and experienced in the field of their specialization turn out to be unproductive, inefficient and unsuccessful compared to others. Member performance of emotions through communication in the virtual environment also warrants further investigation, for the very notions of emotional labor, emotion management, and emotion work within organizational settings have been an ongoing topic of interest for organizational scholars and practitioners (Fineman, 2000; Hochschild, 1983; Rafaeli & Sutton, 1989; Tracy, 2005; Van Maanen & Kunda, 1989).

Next, an interpretive approach provides a useful means of studying issues related to different meanings of work. Cheney, Zorn, Planalp, and Lair (this volume) instructed scholars to “consider how employee meanings of work are constructed and co-constructed in connection with specific organizational policies and work activities” (pp. TBA). Such an approach emphasizes understanding different perspectives, a particularly important matter in virtual teams which cut across diverse geographical, temporal, and cultural contexts. For example, notions of work-life balance, work ethic, and the meaning of work likely vary across cultures and geographical locations and, thus, offer a fruitful topic for future research on virtual teams.

Finally, the proposed framework opens up new directions for investigating power dynamics in the context of global working. On the one hand, scholars argue that geographic dispersion and electronic dependence flatten the hierarchical structure of virtual organizations (Majchrzak et al., 2000; Saunders, Van Slyke, & Vogel, 2004; Workman, 2004) and, thus, “filter out” social and structural differences and inequalities. On the other hand, virtuality seems to transform the nature of authority and control structures, raising questions of power relations,
power differences, and emergent practices of power construction in the virtual context to the forefront. Interestingly, researchers of virtual teams have commonly focused on assessing those aspects/variables (e.g., trust, identification, commitment, group cohesion) which supposedly “glue” individual members together into an efficient entity transcending geographical dispersion and time differences. The issues pertaining to the politics of everyday life and power struggles in virtual teams-- including access to and control of information, negotiation of team norms and member status, allocation of resources and decision-making processes--often remain unnoticed and ignored. In contrast, the proposed framework advocates a more detailed emphasis on the process through which team members communicatively construct teaming during interactions (e.g., telephone conversations, e-mail exchanges, etc.).

A possible approach to investigate power dynamics entails examining how team members negotiate different issues, the strategies that members use to exert social influence during collaboration on projects, and how competing interests get resolved through the control and manipulation of symbolic and discursive recourses. Although research has successfully demonstrated far-reaching implications for managerial practices (Gillam & Oppenheim, 2006; Gluesing & Gibson, 2004; Grosse, 2002; Harvey et al., 2004; Stough et al., 2000), virtual teams are generally overlooked as unique sites of decision-making characterized not only by cultural, ethnic or territorial differences but also by power struggles emanating from diverse individual perceptions, attitudes, expectations, goals, and agendas. We may believe that the virtual teaming context reduces, filters out or even eliminates those cues that point to differences and, therefore, creates an illusion of virtual teams as devoid of power relations. However, the persistent focus on consensus, best practices and commonalities may “preclude debate and conflict, that substitute images and imaginary relations for self-presentation and truth claims, that arbitrarily limit access
to communication channels and forums, and that then lead to decisions based on arbitrary authority relations” (Deetz, 2001, p. 29). Based on our proposed framework, we recommend a critical investigation of decision making in virtual teams and consent as a hidden side of power relations. Researchers should pursue questions such as who controls or monitors the flow of information? Under what conditions or structural circumstances is such control exerted? How do members achieve consensus or agreement? What are consequences/implications of control/monitoring practices for decision making in virtual teams? How is control and resistance enacted in virtual contexts?

As suggested by Pal and Dutta in this volume, scholars should place studies of global teams, in particular, in the context of globalization and resistance and pursue ways in which processes of transnational hegemony and resistance play out in the micro practices of team members. For example, global software teams involve power relations and inequalities due to the different national economic and political contexts in which teams are embedded, especially in the arena of off-shore outsourcing (Gibbs, 2007). Rhetorical studies of global teams may illuminate ways in which team culture inadvertently or unconsciously privileges “white” or dominant cultural assumptions, thus excluding or undermining racial or cultural positions of other team members (see Lacy, this volume). Future research should also examine the tensions between control and resistance, disjunctures, disruptions, and reconfigurations of traditional identity and culture due to globalization and time-space distantiation, and implications for the experience and identities of global team members, who remain deeply impacted by processes of global organizing.

In summary, virtual teamwork constitutes a timely topic that bridges a number of areas of the communication discipline—namely, organizational, interpersonal, group, mediated, and
intercultural communication, among others--and in which processes of communication are central. We have proposed an alternative conceptual framework and constitutive perspective that broaden the role of communication in processes of virtual organizing by regarding them as communicatively or discursively constructed. While we advance this framework primarily to help direct and advance theory and research on virtual teaming, it offers practical benefits as well. Although we hope to expand attention beyond an exclusive focus on effectiveness, the knowledge generated from taking a constitutive perspective may be used to improve virtual team performance and enhance employee well-being within such teams. For example, it is useful in identifying and understanding differing perspectives and concerns which may not be compatible with management views. Managers and practitioners can also draw on the context-specific knowledge gained to generate customized solutions and best practices that would work in their particular organizations. This research area is also important in appealing to a global audience of scholars within the discipline, helping to foster international research collaborations, and generating insights from research conducted in diverse international settings. As such, we encourage communication scholars from a variety of epistemological perspectives, subdisciplines, and countries to devote greater attention to this important arena of the contemporary workplace.
References


Figure 1. Conceptual Framework for Studying Virtual Team Processes from a Constitutive Perspective
Notes

1 First, research on virtual teams is conducted by scholars in different parts of the world: the United Kingdom (Crossman & Lee-Kelley, 2004; Matlay & Westhead, 2005), the Netherlands (Rasters, Vissers, & Dankbaar, 2002), Australia (Anawati & Craig, 2006), Canada (Aubert & Kelsey, 2003), New Zealand (Pauleen & Yoong, 2001), Finland (Leinonen, Järvelä, & Häkkinen, 2005), and the United States (Baba et al., 2004; Fiol & O’Connor, 2005; Lurey & Raisinghani, 2001; Maznevski & Chudoba, 2000). Other studies are the product of international collaboration among scholars from multiple countries: the U.K. and Hong Kong (Panteli & Davidson, 2005), the U.S. and China (Qureshi, Liu, & Vogel, 2006; Saunders et al., 2004), Australia and the U.S. (Hossain & Wigand, 2004), the Netherlands, China and France (Rutkowski, Vogel, van Genuchten, Bemelmans, & Favier, 2002), the U.S. and India (Edwards & Sridhar, 2005), the U.S. and the Netherlands (Huysman et al., 2003), and the U.S. and France (Jarvenpaa et al., 1998). Finally, empirical research often examines global virtual teams that span multiple countries: the U.S. and the Netherlands (Huysman et al., 2003); the U.S., Canada, Australia, and Portugal (Cramton, 2001), Canada and India (Edwards & Sridhar, 2005); Europe, Mexico, and the U.S. (Kayworth & Leidner, 2001); Thailand and the U.S. (Kanawattanachai & Yoo, 2002), the U.K. and Western Europe (Crossman & Lee-Kelley, 2004), and North America, Europe, Asia, and South America (Baba et al., 2004; Gibbs, 2007), to name just a few. Thus, extant research projects investigating various aspects of virtual work in the global environment present not only a scholarly interest as they uncover processes of teaming under novel but increasingly common circumstances. These studies and research collaborations also exemplify the very global trends that they set out to examine.
It should be noted that research increasingly differentiates between spatial and temporal dispersion, which are both captured within our notion of geographical dispersion. For example, a team that is geographically dispersed over multiple locations across several time zones likely faces a different set of challenges in coordinating work than a team that is dispersed between multiple locations within the same time zone, in which case it may be easier to meet and interact synchronously. Research increasingly focuses on the temporal dimension (e.g., Ballard & Gossett, 2007; Rutkowski, Saunders, Vogel, & van Genuchten, 2007; Saunders et al., 2004); whereas, other research further explores the multiple dimensions of geographical dispersion (see O’Leary & Cummings, 2001). We acknowledge these differences and encourage scholars to further explore their nuances.