# Chapter 6
# Discontinuities, Continuities, and Hidden Work in Virtual Collaboration


**Mary Beth Watson-Manheim**

## Introduction

In this chapter, I argue that that there is significant hidden effort required to perform actual work activities in virtual collaboration. I employ the notions of *organizational discontinuity theory* (ODT) and *articulation work* to develop this proposition and explore potential consequences for virtual collaboration. Boundaries between individuals, such as time and geography, provide an effective starting point for investigating virtual collaboration. Boundaries are static but the effects of boundaries, or discontinuities, are dynamic. For example, time zone differences exist but are not always perceived as problematic in virtual collaboration. ODT suggests it is necessary to bring together discontinuous elements of virtuality into working configurations, i.e., continuities, in order for collaboration work to be most effectively performed. In other words, a new set of shared activities, or expected routine practices, emerge such that discontinuities are reduced or eliminated.

Articulation work is "work that enables other work to occur", i.e., unplanned aspects of work left out of rational work models, such as take up and learning of technology, organizing and sequencing of tasks, and aligning constituent actors to accomplish work. Using the lens of articulation work to examine evolving construction and reconstruction of routine practices surfaces unseen, and even unappreciated, work performed by virtual collaborators. When shared routine practices are developed, collaboration effort is reduced allowing individuals to focus on the content of their work such that collaboration can effectively occur. I hypothesize, however, that the hidden or invisible work of virtual collaboration remains and, while often perceived as unremarkable, increases the complexity of collaboration activities. I discuss potential consequences and future research directions.

M. B. Watson-Manheim (✉)
University of Illinois at Chicago, Chicago, USA
e-mail: mbwm@uic.edu



K. Riemer et al. (eds.), *Collaboration in the Digital Age*, Progress in IS,
https://doi.org/10.1007/978-3-319-94487-6_6

## Virtual Collaboration

Virtual collaboration involves the performance of joint work activities by individuals who are in different geographic locations. For many years, beginning with telecommuting in the 1990s, employees have been using technologies to collaborate at a distance. As technology devices such as mobile phones and lap tops have become more sophisticated and access to Wi-Fi and broadband communications have become increasingly ubiquitous, virtual collaboration has become common and is viewed as a strategic necessity by many firms. In a recently reported survey of 1,700 knowledge workers, 79% reported working always or frequently in dispersed teams (Ferrazzi, 2014).

Moreover, to succeed in the global economy, firms are relying on far flung virtual teams to bring together employees with the best expertise and diverse knowledge and perspectives, and often lower cost talent, to address organizational challenges. These global virtual teams must navigate geographic boundaries as well as other boundaries such as time zone, language, and national culture making collaboration even more complex (Chudoba et al., 2005; Neeley, 2015). When teams consist of people from different backgrounds working at a distance, miscommunication is common and can lead to misunderstanding (Cramton, 2001) and conflict (Hinds & Mortensen, 2005) ultimately impairing global team performance (Neeley, 2015).

Despite the development of sophisticated information and communication technologies, including tools designed specifically to support virtual collaboration, adoption of these tools lags and significant challenges remain. In fact, based on a recent survey Ferrazzi, (2014) reports that nearly half of people communicating in a virtual environment admit to feeling confused and overwhelmed by collaboration technology. A recent literature review of virtual team research states that "most research finds that technology either impairs or has no effect" on performance (Gilson, Maynard, Jones, Varitiainen, & Hakonen, 2015). While there may be some debate as to how much of the research in this area has come to this conclusion, there is little debate that technology can be a facilitator as well as an inhibitor of effective communication among virtual collaborators (Watson-Manheim et al., 2012).

Thus, there is a long line of literature which has reached a clear consensus that virtual collaboration is challenging for many teams and often, but not always, results in communication and performance problems. On the other hand, many studies (over many years) have documented and championed work practices, managerial techniques, and strategies for employing ICT that are expected to enhance virtual team performance (e.g., Majchrzak et al., 2004; Ferrazzi, 2014; Neeley, 2015).

In this essay, I argue that we can gain additional understanding of the complexity of this work environment by a deeper in investigation of individual performance practices. I contend that there is significant unseen and unaccounted for effort required to perform actual work activities in virtual collaboration. I employ the notions of *organizational discontinuity theory* (ODT) and *articulation work* to develop this proposition and explore potential consequences for virtual collaboration.

## Organizational Discontinuity Theory

As discussed in the previous section, many teams face significant challenges in virtual collaboration but other teams are able to perform successfully. Organizational Discontinuity Theory (ODT) takes an interactional perspective to examine this paradox (Watson-Manheim, Chudoba, & Crowston, 2012). The theory suggests that boundaries, e.g., time zones or national borders, are static and unchanging, but the effects of boundaries on the performance of virtual team members may differ and even change over time. To separate the effects of the boundary from the boundary itself, the authors introduce the notion of a *discontinuity* and it's corollary, a *continuity*.

The theory asserts that a boundary becomes problematic when an individual perceives a change in information and communication flows that requires conscious effort and attention to handle (Watson-Manheim, Chudoba, & Crowston, 2012). This disruption is termed a *discontinuity*. Joint behaviors must be adapted at the boundary to address the disruption. The resulting new practice routines are termed *continuities*. Alternatively, when individuals are jointly performing virtual work in an effective manner and the situation is perceived as normal, i.e., flows of communication and action are as expected by team members or require minimal attention and effort to manage, then a discontinuity is not present even though boundaries exist between team members.

Faced with a discontinuity, that is, with a disruption in the expected flow of communication, individuals will attempt to make sense of the disruption and address the problem. They may be motivated to consider alternative actions to deal with the discontinuity, leading to the emergence of new behaviors and expectations, i.e., the construction of continuities. These new action routines reduce or eliminate the attention and effort required to understand and manage the situation associated with problematic boundaries (i.e., discontinuities) (Dixon & Panteli, 2010; Watson-Manheim, Chudoba, & Crowston, 2012).

I was recently a member of a team with colleagues located in Australia, Germany and the US. The extreme difference in time zones across the 3 team members was initially difficult to manage. There was really no convenient synchronous time to meet. The option of working via email or discussion board in an asynchronous manner was not effective due to the complexity of the collaboration. After several failed meeting attempts, the German member volunteered to be a 'bridge team member'. He met in his morning with the Australian member (in that member's late night) and then met with me in the US in his afternoon and my morning. Our group was able to work effectively by creating a new routine for meetings that took into account time differences and allowed us to perform effectively. Thus, the boundaries of time, nationality and geography remained, but they were no longer perceived as problematic to performance.

ODT takes an interactional perspective on virtual collaboration suggesting that it is necessary to identify problematic elements of virtuality, i.e., discontinuities, and create new practices that reduce the difficulty of the situation, i.e., continuities, for collaboration work to be most effectively performed. In other words, a new set of

shared activities, or expected routine practices, are generated such that problems are reduced or eliminated. While this theory helps us understand why boundaries may be problematic only under certain conditions, the underlying effort involved in the process of identifying discontinuities and in creating and maintaining continuities remains unexplored.

## Articulation Work

Articulation work has been described as "work that enables other work to occur" (p. 1, Sawyer & Tapia, 2006). In other words, articulation work is comprised of unplanned aspects of work not accounted for in rational work models. Activities such as organizing and sequencing of tasks, and aligning constituent actors to accomplish work (Strauss, 1985) including the take up and learning of new technologies (e.g., Grinter, 1996; Sawyer & Tapia, 2006), are examples of articulation work.

I next briefly discuss the previous research on articulation work focusing on (1) ongoing or continuous articulation work that is essential to the performance of joint work activities, (2) event-based, or episodic, articulation work that is prompted by disruptions in the performance of joint work activities, and (3) cumulative and unmet needs articulation work as identified recently by Sawyer & Tapia, (2006).

### *Ongoing Articulation Work*

Strauss, (1985) surfaced the importance of an interactional perspective in the performance of joint work activities. His conceptualization was based on intensive study of work taking place in hospitals where multiple clusters of work activities and combinations of collective activities, or projects, must take place to manage the care of patients. In addition, the care of the patient involves the performance of task clusters by different professional specialists, e.g., nurses, specialized physicians, and administrators. These different actors may work simultaneously or sequentially but the overall 'arc' of the work must be connected to accomplish the caring of the patient. The interleaving and connecting of tasks and task clusters does not happen automatically but must be negotiated and may be contested. These 'supra' work activities constitute articulation work as described by Strauss (p. 8):

> Articulation work amounts to the following: First, the meshing of the often numerous tasks, clusters of tasks, and segments of the total arc. Second, the meshing of efforts of various unit-workers (individuals, departments, etc.). Third, the meshing of actors with their various types of work and implicated tasks. (The term "coordination" is sometimes used to catch features of this articulation work, but the term has other connotations so it will not be used here.) All of this articulation work goes on within and usually among organizational units and sub-units.

Strauss, (1985) extended this concept to more generally address project work in organizations. He recognized that performing project work activities is separate from the larger organizational process of articulating the work, or joining work activities together to accomplish project work. Activities such as allocating resources to the project, persuading others of the importance of the project, and other organizational processes must be started and maintained for the project work to be satisfactorily performed and project goals to be met. Thus, the initial work on articulation focused on processes critical to accomplishing joint work activities, but which were not visible to "rationalized models of work" (Star, 1991: 275).

Early research in the CSCW community investigating the role of technologies in supporting collaborative work highlighted the importance of understanding the "nature and requirements of cooperative work" (p. 48, Schmidt & Bannon, 1992). As Sawyer & Tapia, (2006) observe, CSCW researchers viewed articulation work as primarily "overhead" activities which are the result of coordination of collaborative activities distributed across multiple actors.

This stream of research aimed to understand articulation work in order to design computer-based technologies that could manage these peripheral activities and allow individuals to focus their attention on the content work activities. The performance of joint work activities depends on the interweaving of clusters of activities distributed across individuals. Articulation work is all the coordinating and negotiating necessary to get the work at hand done" (Grinter, 1996, p. 451).

## *Event-Based Articulation Work*

Regardless of the routineness of the project, contingencies will arise that may disrupt the course of the work and require rearrangement of processes to return to the proper course of action. Disruptions lead to misalignment of processes and the need for changes will become explicit to those involved (Strauss, 1985, 1988). For example, a project for a long-time customer may have clearly established resource needs and priority. However, new management in the customer organization may demand a shorter time frame for implementation than the usual process. Meeting this demand requires changes to the established procedures and responsibilities assigned to the project. Additional resources may need to be shifted to the project affecting other project priorities. Accordingly negotiating and implementing these changes will require significant problem solving and attention from affected stakeholders to meet the new goals.

Strauss, (1985) also highlights the possibility that the "intersection of workers and their [different] social worlds" (p. 11) will create disruption in the connecting of actors and tasks in the accomplishment of common goals. While differences in individual personalities may play a role in disruption, the languages and patterns of work in different occupational communities, e.g., nurse versus specialized physicians, arguably play a larger and often more complicated role. Contingencies or disruptions may also arise when a new member is added to a team that has worked

together for a long time (Strauss, 1985). Such a team has developed a set of commonly understood practices and language about the work which will now have to be modified to bring the new team member on board.

Event-based articulation work can be thought of as the work that gets things back 'on track' in the face of the unexpected, and modifies action to accommodate unanticipated contingencies (Strauss, 1988). When processes have been adjusted to accommodate changes, the work returns to the normal course of action and the need for event-based articulation work disappears. It is important to note that event-based articulation work is also invisible to rationalized models of work (Star, 1991).

## *Unmet Needs and Cumulative Articulation Work*

Sawyer & Tapia, (2006) investigate articulation work in technology adoption and implementation as individuals try learn to use the technology and integrate it into work practices. As they note, this work is often taken for granted and invisible. For example, resources for new technologies include the cost of purchasing the hardware and software and may include cost of installation and training. On the other hand, the time spent by the user learning to use the new technology and integrating the technology into work practices is critical to achieving expected benefits but is usually not accounted for by management or other decision makers.

The authors focus on articulation work arising from an implementation of ICT into organizational work activities through a field study of mobile device implementation for police officers. The new mobile devices and the secure mobile data network enabled the police officers to access secure information while in the field, such as driver's license records and a related picture database. The device also supported secure messaging, email, and reporting functions for users. The authors collected data through multiple methods in an intensive field study of the implementation of the mobile devices.

They identify two interrelated categories of articulation activities: *unmet needs* articulation and *cumulative* articulation. Unmet needs articulation is comprised of technology-based activities that were critical to officers performing work but were not addressed by the new system. For example, prior to the implementation of the new mobile device, the officers used applications on federal, state, and local systems that were not integrated and required separate authentication procedures and different levels of technical knowledge. The new system did not address this lack of integration. Thus, the police officers must continue to go through multiple log in procedures and make use of different systems to access information needed for their job as well as integrate the new mobile devices into their work activities.

Moreover, in addition to the concept of unmet needs articulation, the authors suggest that that computer-based articulation work is cumulative. Unmet needs which are not addressed by the new system remain and associated activities must be continue to be performed by the user. This work is usually invisible to the organization. In this case, the police officers need to log into the three different systems with

very different technological designs was likely taken for granted and expected, and not accounted for in any assessment of the mobile device implementation. Thus, the new articulation work associated with the integration of the technology into an individual's work practices becomes routine. However, this new articulation work is accompanied by existing unmet needs articulation work. Each successive round of ICT implementation increases the articulation work taken on by the user in the organization.

> Implementing new ICT increases the articulation needs of the organization. However, we claim that many of these needs go unrecognized and unmet by the organization. A gap forms between the unmet articulation needs and the organizational efforts aimed at fulfilling those perceived needs. The organization does not return to its "normal" state in which all needs are met. A "new normal" is formed in which articulation issues either become invisible or are handled in some disruptive or destructive fashion. When the next new ICT is implemented, the organization does not start from zero level relative to articulation needs. This next round starts with existing, and unmet, needs (Sawyer & Tapia, 2006, p. 7).

## Surfacing Hidden Effort in Virtual Collaboration

I next use the lens of articulation work to extend understanding of effort involved in collaboration across boundaries. Collaboration across boundaries involves the evolving construction and reconstruction of routine work practices, i.e., developing continuities, in response to disruptions encountered at boundaries, i.e., discontinuities. In this section, I aim to shed light on articulation in distributed collaboration identifying behaviors by actors that are critical to performance but are outside of the formalized work activities. In particular, my objective is to surface unseen, and even unappreciated, work performed by virtual collaborators. Building on Sawyer & Tapia, (2006), I suggest that it is useful to distinguish categories of articulation work in virtual collaboration work, especially differentiating articulation work that is eventually resolved and not cumulated from that which is enduring and cumulative.

### *Recognizing Discontinuities and Creating Continuities: Event-Based Articulation Work*

ODT argues that discontinuities are perceived when individuals performing joint work at a boundary encounter unanticipated actions or information flows. Under normal conditions, distributed collaborators have developed routine practices such that their interactions and practices are expected and unremarkable. Routine and expected joint behaviors simplify the work environment and allow collaborators to focus on the content of their work. When action responses are unexpected, the individual must focus attention on the process of the joint work, moving attention away from the content of the work. The following vignette, from Watson-Manheim

et al., (2012, p. 39), illustrates perception of a discontinuity and the team leader's reaction.

> Consider a distributed team that adds a person whose first language is different from current members. An existing practice had the team leader send a short email summary of the meeting to participants listing decisions made and specific actions plans. Such a message might be too terse for a non-native speaker who had trouble following the discussion during the meeting, leading to misunderstandings and missed assignments. In response, the team leader could try a new practice of sending a more extensive email message documenting specific agreements and actions.
>
> In this case, the trigger for the team leader to change her established pattern of behavior was a discrepancy in the behavior she expected of team members. When she recognized the discrepancy, the leader focused attention on the situation and surmised that the difficulty in the team's performance was due to misunderstanding by the new member. She then varies her usual practice and observes the results of this change. (p. 40)

In this example, the team leader noticed that the new team member was not responding as expected and that this was impacting individual and ultimately team performance. Building on the concept of 'cognitive switching' (Louis & Sutton, 1991), Watson-Manheim et al., (2012) argue that three conditions trigger this movement from routine practices to a more attentive state, i.e., discrepancy, novelty, and deliberate initiative. In all three conditions, interactional processes of joint work, or articulation work as defined by Strauss, (1988), are moved to the forefront of the individual's consideration. In our example, the team leader is motivated to return team interactions to a normal state. Thus, her attention will be focused on making sense of the discrepant situation. Based on her observations and experience, she attempts behavioral adjustments to remediate the communication difficulties faced by the team.

In this example, the team leader may vary actions in an effort to alleviate the difficulty of the situation. This action response is the beginning of the creation of continuities, or action routines, that are better aligned with the changed situation.

> [Continuing] our example above, if the team leader perceives her action to have mitigated the difficulty, if this new practice enabled the new member to integrate well into the team and interactions and performance improved, then the leader would be motivated to continue the new practice. Over time, as she repeats this action under similar circumstances, she and the team members change their understanding of expected behavior in this situation.

In this example, one action was to provide more detailed action plans and observe resulting consequences. Only if the team leader observes that the additional details increase the overall team performance, will the leader adopt this change as an ongoing practice. Changes in the team performance are due to their use of the more detailed minutes to guide behavior. Thus, while the discrepancy may lead to new behaviors, a continuity, or new behavioral routine, is established only when changes are adapted and repeated.

Over time, repeated and successful actions lead to a change in understanding of the normal and expected work practices (Feldman & Pentland, 2003). Thus, the articulation work of aligning joint work practices to allow collaborators to move to a more automatic state in the conduct of their interactions is completed. We consider this as *event-based articulation*. Articulation needs stemming from the introduction

of a new boundary have been resolved and collaborators return to a normal state of interactions.

## *Maintaining Continuities: Enduring Hidden Work in Virtual Collaboration*

While the articulation work of recognizing discontinuities and creating continuities can be categorized as an event-based articulation work, the work of maintaining continuities remains. When shared routine practices are developed, collaboration effort is reduced allowing individuals to focus on the content of their work such that collaboration can effectively occur. Following our example.

> Team members may now come to expect a more extensive email from their leader after each meeting and find that the more comprehensive documentation reduces the chance for misunderstanding. With this new practice, accommodating the new member now requires little extra attention by members or the team leader; they have developed a continuity that enables activities at the boundary to occur in an expected and ordinary fashion. Members of the team develop revised expectations about behavior in the situation and are able to function in a relatively automatic mode because of the emergent continuity, allowing them to focus on the content of the work rather than the process.

While this work may be expected and ordinary, even perceived as unremarkable, it still exists. However the fact that these behaviors are considered expected and commonplace may also that the work activities are not recognized and may be hidden, even to the actor performing the work.[1] The work will likely not be obvious to an outside observer, e.g., senior management or other team leaders. Additionally, due to being an assumed and necessary activity, the work associated with developing more extensive meeting minutes may also be concealed from the actor performing it. In this case, providing longer and more detailed minutes of meetings takes the team leader longer but this has now become a routine practice. The team leader expects to perform this work and does not find it burdensome. However, the additional work still exists. While the team has returned to its previous state of interacting and the number of misunderstandings has been reduced, a 'new normal' of work activities has been created for the team leader.

I adapt the notion of cumulative work as argued by Sawyer & Tapia, (2006) to conceptualize the effects of ongoing hidden work emerging from the construction of continuities. The authors argue that articulation work in the face of ICT implementation is cumulative in that new technologies may only partially meet the needs of users leading to frustration and new articulation work is created as the users learn to use the ICT and create practices around what meets their needs as well as what does not. This hidden collaborative work and its cumulative effect emerge precisely because the frustration of navigating the challenges introduced by the boundary is

[1] I would like to acknowledge helpful discussion with my colleague Catherine Cramton in developing these ideas.

removed and the new practices have become routinized. These practices are now unexceptional and expected to all actors.

The new practice has been developed such that joint team activities can be effectively performed. However, the team leader has taken on a new work activity that did not exist before the practice was developed. This new work activity must continue to exist as expected by all team members to insure effective performance. As Sawyer & Tapia, (2006) point out, the team does not return to its 'normal' state after the continuity is developed. A 'new normal' of practice routines is formed with increased articulation work.

## The Effect of Unmet Needs in Virtual Collaboration

I have focused on the creation of continuities by collaborators when faced by discontinuities. However, not all discontinuities are successfully addressed by collaborators. While the disruption created by a discontinuity may lead to new behaviors, a continuity, or new behavioral routine, is established only when changes are adapted and repeated. As Watson-Manheim et al., (2012, p. 40) state:

> First, the new behaviors may not be perceived to mitigate the problem, rightly or wrongly. While the experiment might in fact not work, it is also the case that people can 'rationalize discrepancies to the point where they are actually seen as supporting one's expectations' [George & Jones, 2001]. A person who may be skeptical about working virtually may rationalize a problem as being inherent in this environment, and problems he encounters reinforce his expectations, thus discouraging attempts to address the problem. Second, because established structures are resistant to change, behavioral changes may be resisted and not repeated. Finally, individuals will not continue to try new behaviors indefinitely. Over time, if the behavioral trials are not successful in addressing the discontinuity, other more pressing matters may take precedence [George & Jones, 2001]. For a variety of reasons, individuals may be dissatisfied with responses to a behavioral trial and choose not to repeat it, failing to create a continuity to support virtual work and leaving the discontinuity unsuccessfully addressed. (p. 40)

Returning to our example of the global team with the new member with a different first language, if the team leader was not able to develop a continuity to enable the team to return to effective communication patterns, the entire team is likely to experience an increase in articulation work. The difficulties in joint performance are experienced by the entire team. Each member must make sense of misunderstandings, missed assignments and other consequences of the discontinuity. While dealing with these misunderstandings may become a routine practice as the team member may have unique expertise that is critical to the team, but the articulation work remains.

I characterize this work as unmet needs articulation work. Unmet needs articulation work is also likely to be cumulative in virtual collaboration potentially leading to dissatisfaction among team members and poor overall team performance. On the other hand, team members may work to individually overcome the problems and create a successful team outcome, e.g., new product design, but at the cost of significant

individual frustration and even burnout as they struggle to perform the associated level of increased articulation work.

## Conclusion

In this chapter, I have attempted to develop deeper insight into virtual collaboration from a practice perspective. I use the notions of *organizational discontinuity theory* (ODT) and *articulation work* to argue that virtual collaboration involves significant unseen and hidden work that increases the complexity and effort involved. This hidden work is often perceived as unremarkable and may not be recognized even to the involved actors.

Integrating the ODT and articulation work perspectives provides a basis for examining additional questions. For example, surfacing and acknowledging hidden work in virtual collaboration may shed light on the continued resistance of many teams to the adoption of new collaboration technologies. Adopting new technologies means that distributed collaborators must learn to use new technology and integrate use into individual as well as team practices. The adoption of the technology will lead to new significant new articulation work for individuals. Moreover, the technology will not facilitate the performance of the team unless common practices are developed by collaborators. Thus, it is not surprising that sophisticated collaboration tools continue to be resisted by virtual teams.

Moreover, much of the articulation work in virtual collaboration is perceived as expected and unremarkable even to the actor herself. This has implications for the effective design of new collaboration tools. If the hidden work is not surfaced or understood, new technologies cannot be designed to mitigate the underlying effort involved in the collaboration process.

## References

Barley, S. R., & Kunda, G. (2001). Bringing work back in. *Organization Science, 12*(1), 76–95.

Chudoba, K. M., Wynn, E., Lu, M., & Watson-Manheim, M. B. (2005). How virtual are we? Measuring virtuality and understanding its impact in a global organization. *Information Systems Journal, 15*(4), 279–306.

Cramton, C. D. (2001). The mutual knowledge problem and its consequences for dispersed collaboration. *Organization Science, 12*(3), 346–371.

Dixon, K. R., & Panteli, N. (2010). From virtual teams to virtuality in teams. *Human Relations, 63*(8), 1177–1197.

Ferrazzi, K. (2014). Getting virtual teams right. *Harvard Business Review, 92*(12), 120–123.

Feldman, M. S., & Pentland, B. T. (2003). Reconceptualizing organizational routines as a source of flexibility and change. *Administrative Science Quarterly, 48*(1), 94–118.

George, J. M., & Jones, G. R. (2001). Towards a process model of individual change in organizations. *Human Relations, 54*(4), 419–444.

Gilson, L. L., Maynard, M. T., Jones Young, N. C., Vartiainen, M., & Hakonen, M. (2015). Virtual teams research: 10 years, 10 themes, and 10 opportunities. *Journal of Management, 41*(5), 1313–1337.

Grinter, R. E. (1996). Supporting articulation work using software configuration management systems. *Computer Supported Cooperative Work (CSCW), 5*(4), 447–465.

Hinds, P. J., & Mortensen, M. (2005). Understanding conflict in geographically distributed teams: The moderating effects of shared identity, shared context, and spontaneous communication. *Organization Science, 16*(3), 290–307.

Louis, M. R., & Sutton, R. I. (1991). Switching cognitive gears: From habits of mind to active thinking. *Human Relations, 44*(1), 55–76.

Majchrzak, A., Malhotra, A., Stamps, J., & Lipnack, J. (2004). Can absence make a team grow stronger? *Harvard Business Review, 82*(5), 131–137.

Neeley, T. (2015). Global teams that work. *Harvard Business Review, 93*(10), 74–81.

Rice, D. J., Davidson, B. D., Dannenhoffer, J. F., & Gay, G. K. (2007). Improving the effectiveness of virtual teams by adapting team processes. *Computer Supported Cooperative Work, 16,* 567–594.

Sawyer, S., & Tapia, A. (2006). Always articulating: theorizing on mobile and wireless technologies. *The Information Society, 22,* 1–13.

Schmidt, K., & Bannon, L. (1992). Taking CSCW seriously. *Computer Supported Cooperative Work (CSCW), 1*(1–2), 7–40.

Star, S. L. (1991). The sociology of the invisible: The primacy of work in the writings of Anselm Strauss. *Social organization and social process: Essays in honor of Anselm Strauss* (pp. 265–283).

Strauss, A. (1985). Work and the division of labor. *The Sociological Quarterly, 26*(1), 1–19.

Strauss, A. (1988). The articulation of project work: An organizational process. *The Sociological Quarterly, 29*(2), 163–178.

Watson-Manheim, M. B., Chudoba, K. M., & Crowston, K. (2012). Perceived discontinuities and constructed continuities in virtual work. *Information Systems Journal, 22*(1), 29–52.