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Collective sensemaking in virtual teams

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ABSTRACT

Virtual teams (VT) have been studied since two decades because of their increasing presence in today's organizations. To better understand how VTs work, our research tries to address this issue by analysing interpretive frameworks through which students made sense of a VT experience as part of a course taught simultaneously in two distant universities. Using the concepts of sensemaking (Weick, 1995) and sensegiving (Gioia and Chittipeddi, 1991), I ask: how does individual sensemaking contribute to constructing collective sensemaking? I used a narrative approach to study reflective narrations produced by the students and logs they posted on their team's forum. The findings show how competitive frameworks hinder collective sensemaking; the importance of sensegiving on the development of VTs; and how perceptions of CMC limitations depend on interpretive frameworks.

Keywords

Virtual teams, sensemaking, sensegiving, collaborative sensemaking, collaboration, narrative approach, naratives.

INTRODUCTION

Virtual teams (VT) are the subject of much attention since two decades. The internationalization of an increasingly large number of organizations transforms the teamwork reality so that workers often collaborate remotely in space and time (Axtell, Fleck and Turner, 2004; Hinds and Kiesler, 2002; McDonough, Kahn and Barczak, 2001). Universities also offer courses that recreate the working conditions of VTs. They do it to stay in tune with this new labour market (Rutkowski, Vogel, van Genuchten and Saunders, 2008) and for economic reasons (Bliuc, Goodyear and Ellis, 2007).

LITERATURE REVIEW

The experience of working in virtual teams (VT) is greatly influenced by the characteristics of virtual environments (VE) in which they operate. They present certain advantages absent in face-to-face interactions such as the flexibility in time management (Burge, 1994), the possibility of revising conversations through archiving, the reduction of digressions by focusing conversation on task (Lopez-Ortiz and Lin, 2005) and low hierarchical structures (Warschauer, 1997). In addition, their asynchrony helps to build and share knowledge (Stacey, 1999) and it allows more reflection on posts (Sorensen, 2004). All these advantages have been highlighted with enthusiasm by the first authors interested in CMC (computer mediated communication). In their vision, technology tends to naturally improve collaboration.

Hara and Kling (2000, p. 558) describe this position as a "promotional bias". Although original enthusiasm has not waned, researchers, who multiply studies on their own teaching experiences with VEs, realize that some benefits provided by technology can also become disadvantages. Indeed, if asynchrony is useful for learning by allowing a reflection on posted messages (Burge, 1994; Sorensen, 2004; Stacey, 1999; Vonderwell, 2003;Warschauer, 1997) it becomes a problem in terms of interaction. It leads to delays that may be harmful to collaboration: discrepancies in the interpretation of messages (Finegold & Cooke, 2006), misunderstandings due to the absence of nonverbal cues (Kreijns, Kirschner and Jochems, 2003; Lopez-Ortiz and Lin, 2005), or frustration due to delays in feedback (Burge, 1994; Finegold and Cooke, 2006; Sorensen, 2004). These limits imply that VTs generally communicate less efficiently (McDonough, et al., 2001) and less frequently (Webster and Wong, 2008) than traditional teams. According to Axtell and her colleagues (2004), the greater the distance and the dispersion between team members, the lesser are opportunities for communication. Under these conditions, shortcomings in the development of shared knowledge and language appear which, in turn, further undermine communication (Crampton, 2001).

Most researchers who mainly focus on the limitations of technology draw their inspiration from the theory of media richness (Daft and Lengel, 1986; Daft, Lengel and Trevino, 1987). In this perspective, face-to-face interaction is considered the richest media available. Hence, constraints imposed by CMC diminish the quality of interactions due to the poverty of online medias

(Axtell et al., 2004). This theoretical approach, called the "cues-filtered-out" paradigm following Culnan and Markus (1987), became the canonical position in the study of VTs.

The main criticism addressed to this approach is that it does not take into account the effects of time. Walther (1992), for example, argues that cues alleged to be lost in CMC are in fact available but slow to take effect. Yet, not all VTs have time due to budgetary and profitability constraints or their temporary nature.

Thus, to address the problems introduced by the use of CMC, practitioners and designers worked on enhancing the technology (Suthers, 2006). However, some believe that improved technology do not guarantee better collaboration within VTs. According to Axtell et al. (2004) the extent of CMC limitations also depends on the adaptability of users, one's experience with the technology, communication partners and the context of interactions.

I think the question of how VTs members' interpretative frameworks shape their collaborative experience is an interesting avenue that must be inquired. Several authors outline the importance of shared common grounds (knowledge, language and meaning) among members in VTs (including Bjorn and Ngwenyama, 2009; Crampton, 2001). Others, like Suthers (2006), discuss intersubjective meaning making to study collaborative learning in VEs. By cons, I found no studies on how the individual construction of meaning helps to shape the collective construction of meaning. Also, it seems interesting to widen the issue of construction of collective meaning in VTs focusing on sensemaking of individual members. I propose that the quality of a collaboration in a VT depends on which environmental cues individuals ad the group decide to focus their attention.

This research attempts to answer the following questions:

1.How do students make sense of their collaboration in VT?

2.How does individual sensemaking contribute to constructing collective sensemaking?

In order to answer these questions, I adopt an interpretive stance and a narrative approach to study VT collaboration lived by students in Belgium and Quebec as part of a course taught simultaneously in a Belgian university and a Quebec university.

THEORETICAL FRAMEWORK

Sensemaking relates to meaning construction and reconstruction by the actors involved in developing an interpretive framework for understanding an experience (Gioia and Chittipeddi, 1991). It is a process of both cognition and action that involves "environmental scanning, interpretation and associated responses" (Thomas, Clark and Gioia, 1993, p. 240). An important feature of sensemaking is its narrative character (Robichaud, Giroux and Taylor, 2004; Weick, 1995). According to Bruner (1991), narration is the primary means by which we organize our experience and memory. For Robichaud, Giroux and Taylor (2004), it is a natural disposition of language that allows us to make sense of our experience and our interactions.

Through the course of narration, we choose, among the elements of experience, those we consider important and determine how we will present them. This builds an interpretive framework defining roles, what is normal or not, a conception of order, etc. The roles that we give ourselves when narrating refer to how we conceive ourselves. Sensemaking works the same way because it is grounded in identity construction (Weick, 1995). Thus, "who I am" influence my choices, my actions and my interpretations which, in turn, influence "who I am". When picking environmental cues to make sense, we proceed according to who we are at that moment and our choices define us in return.

Similar to narration, sensemaking is a retrospective (Weick, 1995) and reflexive process (Giddens, 1984; Robichaud et al., 2004). When one tells a story, one normally knows the end and all the information given leads to it and contributes to meaning making. So to make sense of experience, it is necessary to step outside of it, in order to put it into bracket and observe it (Weick, 1979; 1995, p. 25). This implies we observe past actions: "An action can become an object of attention only after it has occurred" (1995, p. 26).

For collective sensemaking to emerge, interaction must necessarily take place between individuals. When discussing a situation, each individual expresses the sense he makes of it. Gioia and Chittipeddi (1991), call sensegiving the process by which sensemaking and meaning construction of individuals with whom we interact is influenced. It provides plausible interpretations of situations to those with whom we interact so that they adopt it as their own. It can be animated or controlled (Maitlis, 2005) and works by contagion effect. Back and forth translations between sensemaking and sensegiving occur reciprocally between the actors involved in order to enlist expanding audiences to what is being promoted (Gioia and Chittipeddi, 1991). This activity is often seen as crucial for organizations' survival because it influences all members of the organization' actions and the ensuing results (Thomas et al., 1993).

The inability of a group to build shared representations of situations hinders its ability to act. Indeed, teamwork depends on members' ability to socialize to the organizational context, in order to make sense of others' actions and to respond to those actions (Weick, 1993). Nevertheless, presence of interactions is not sufficient for collective sensemaking to emerge. It implies the existence of intersubjective meaning. For Weick (1995), intersubjective meaning arise from the synthesis of two or more individuals' thoughts, feelings and intentions. The fusion occurs through conversations in which self is transformed from "I" to "we". It is more profound than sharing norms through interactions; it constitutes a new form of social reality made of merged subjects (Weick, 1995) constructing reality through interactions (Boyce, 1995). VTs in which we find intersubjective meaning are at this level of organization.

METHODOLOGY

Data collected

To understand each student' sensemaking and the effect it had on their collective sensemaking, I chose to study the collaboration in a virtual team composed of students from Quebec and Belgium. Reflexive narratives composed by students as an assignment in the course compose the data. In an interpretative perspective, those narratives bring out both the sharing of meanings and the plurality of experiences lived by members of an organization (Giroux and Marroquin, 2005). It also illustrates the plurality of views on the experience (Rhodes, 1997). Thus, using narratives as data source allows to take into account the VT phenomenon complexity. It also provides a good idea of the climate that prevailed during the collaboration. It finally allows to extract quite easily the sensemaking process components out of students' stories.

The case analysed has been extracted from a pilot simulation in communication led in 2008. Students from Quebec and Belgium enrolled in an undergraduate communication course given simultaneously at the Université de Montreal (UdeM) and Université Libre de Bruxelles (ULB) had to produce a chore in VTs. Their job was to audit the communications of a fictitious organization. Each student also had to produce an individual reflective narrative on the experience he came to live.

Teams communicated with each other through the Internet primarily using email and the Blackboard learning platform (UV) of the ULB. Each team had to use the blog made available on the UV to record interactions occurring during the semester.

The team I selected was composed of eight students distributed into two subgroups (4 ULB and 4 UdeM). The quality of its members narratives justified my choice, according to the criteria of internal consistency and fidelity to the experience (Fisher, 1989). My participation in the project as member of the teaching team enabled me to recognize internal inconsistencies. The use of several narratives telling a collective experience enables me to check each story by comparing it to the others - fidelity.

Analytical method

To analyse students' narratives, I applied the semiotic model of texts analysis developed by Greimas (1966, 1983). Using the actantial schema (Greimas, 1966), I cut the action to distribute its constituents within classes of actants (subject, object, adjuvants, opponents, sender and recipient) and reproduce the narrative structure of stories. Thematic roles analysis (Greimas, 1983) identifies remarks that students made on each actor (human or not) found in the actantial schema of their stories. Thus, the actor is "the meeting point of at least one actantial role and at least one thematic role" (Giroud and Panier, 1979, p. 99). The first positions it in action and the second defines it. Finally, using the sanction phase drawn out of the canonical narrative schema (Greimas, 1983), I tested the internal validity of the analysis. This phase is the keystone of any narrative. It is the focal point of the semantic structure of a story. There is one for the main action, but there is also one for each secondary action. Internal validity is reached when all relationships established between actantial schemes of actions analysed concur with the final sanction.

This method allowed to:

1. Observe identity construction each student made of himself, his colleagues, each sub-group, and the team;

2. Observe the influence different factors played into the collaboration from each student's perspective;

3. Raise the definition that each student made of his identity, of others, of the sub-groups, and of the team;

4. Raise different definitions of elements that influenced the course of collaboration.

Each student placed himself as observer describing the cues on which he focused his attention (1 and 2), how he, other members, the subgroup, or the team interpreted them (2, 3, 4 and 5) and what actions were taken. This operation emphasizes individual sensemaking.

To analyse collective sensemaking, I built a meta-narrative (the collective narrative) of collaboration from the narrative schemes of the eight students' reflections. I then proceeded to actantial analysis, which allowed me to identify different narrative schemes. For the thematic roles analysis I established relationships between the different narrative schemes. I finally compared each individual reflection analysis results with those obtained in the analysis of collective narrative schemes. In so doing, I could identify the elements of shared meanings in each subgroup and the team. Finally, to understand how individual sensemaking were merged into one or more collective sensemaking, I spotted the clues contained in the reflections and the collective narrative that related to activities of sensegiving.

RESULTS

The analysis shows that students in the team, facing a situation they have never met before (online collaboration), focus their attention on different aspects of their experience and, according to these choices, interpret and act in different ways. *Outsiders* nurture an image of collaboration in terms of power struggles and reflected mainly on conflict and not on technology. They enact an environment in which they see themselves as marginal and are perceived as such by others. *Victims* see the collaboration as a competition and enact an environment in which there is no room for collaboration. The *authoritarian leader* and her *adjuvant* perceive collaboration as a cooperation[1] which they should coordinate and on which they should exercise their authority. The environment enacted is a hierarchical structure not conducive to collaboration.

The results also reveal that the two sub-groups use different interpretive frameworks to make sense of their collaboration. Although each subgroup was able to construct shared meaning, this difference lead them to fail at building shared meaning and tensions tear them apart. It becomes, therefore, impossible to bring forth a united team with an intersubjective vision of the situation. Even events that play in favour of the resolution of their conflicts are not interpreted the same way on both sides.

Structures appear to be the central concern of Quebecois. According to them, effective structures can ensure good coordination and good communication within a team. The importance accorded by Quebecois to structures and task related processes, suggests that they have a cognitive approach to collaboration. This approach frames their interpretation from everything that relates to task production and to effective processes leading it. Their reflections speak therefore mainly of effective communication (which allows to progress quickly and efficiently with the assignment) and coordination.

For the Belgians, working on better relationships ensures a good experience of collaboration. The importance they attach to the relationships suggests they have an emotional approach to collaboration. This approach frames their interpretation from anything related to the socio-emotional processes. Hence their interest goes to building social relationships, cohesion and confidence. The actantial scheme of their sub-group results in a negative balance. They are unable to develop interpersonal relationships with the Quebecois. The actantial scheme of each Belgian defines their sub-group as a victim of too much opposition, technology, the negative attitude of Quebecois and their emotions. This negative balance results in a negative sanction too: because of too much opposition, they are unable to turn their impersonal team into one with interpersonal relationships. Furthermore, both their controlled sensegiving and animated sensegiving were strong.

Both sensemaking lead each group to perceive the same elements of collaboration differently: Quebecois are more rational, while the Belgians are more emotional. By placing the emphasis on processes related to the task, Quebecois are less emotionally involved in the collaboration, which for them consists in exchanging knowledge and information to accomplish a task. By placing the emphasis on socio-emotional processes, the Belgians expect to develop interpersonal relationships to achieve tasks together. The lack of a shared interpretive framework between the two subgroups does not allow the creation of shared meaning. Also, the lack of shared expectations vis-à-vis the collaboration that stems from the absence of shared meaning creates breakdowns in communication and prevents the construction of a team identity.

Finally, our analysis demonstrates the importance of effective sensegiving by the senders. Indeed, one of the teacher's controlled sensegiving saves the collaboration and the collapse of the team. This demonstrates that sensegiving of a unifying leader (in this instance because of his authority) can have positive effects on collective sensemaking in VTs. In my view, an effective sensegiving is clearly missing in the team explaining the tensions they experience during the four month long collaboration.

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1 The type of team work that the team should produce is collaborative, that is to say, focusing on conversation (Verdejo, 1996), in which students have a lot of autonomy (Henri, 1992) and in which they built synchronously and interactively a solution to a problem (Dillenbourg and Schneider, 1995; Paquette-Frenette, 2005). In this type of work, all members construct a final product as opposed to cooperative production in which members work separately on sub tasks extracted from the main task (Dillenbourg and Schneider, 1995) and where communication is primarily sharing information (Paquette-Frenette, 2005).

CONCLUSION AND DISCUSSION

This research aims to explore avenues that have not really been explored until now. I hope to have demonstrated that concepts of sensemaking and sensegiving are relevant to study VTs. In so doing, I answer the call of researchers like Sarker, Lau and Sahay (2001) and Schiller and Mandviwalla (2007) who believe it is necessary to study VTs with original theoretical and methodological tools little used.

That is what I try using concepts frequently used in the field of organizational communication (among others Meyer, Frost and Weick, 1998; Patriotta, 2003; Taylor and Lerner, 1996; Weick, 1998, 2001; Weick and Roberts, 1993; Weick and Sutcliffe, 2001). The analysis of the narrative construction of meaning in VTs allows observing subtle perceptions of the CMC. Indeed, the results show that those who see the VT working primarily as interpersonal relations have experienced the use of CMC as a constraint that was undermining collaboration. Those who perceive work in VTs in terms of communication or coordination are more likely to try to adapt.

I also find that sensegiving plays an important role in the development of VTs. If effective, it allows the production of shared meaning. If it is not, cohesion in the VT is fragile if not impossible. The sensegiving can emerge for the animation of members or controlled by some leadership. It seems that the sensegiving of a recognized leader is more effective than the animated sensegiving in a VT that is experiencing tensions and conflicts. It finally seems that in an educational setting, teachers have an important leadership role to play in the collective sensemaking of their students in VTs.

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