Process development in project teams and the emergence of team members’ conflict and emotions in a virtual environment

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Abstract
Using group development theory as a frame, this paper describes an exploratory study that documents team members’ conflict and emotional behaviors throughout the different stages of team development in a virtual environment. Data were collected from 45 students working on a virtual project. Results suggested that participants engaged in distinctive stages of process development punctuated with task, relationship and role conflict while engaging in emotions of frustration and confusion. To manage the challenge of conflict and negative emotions in this virtual environment, team members set more interactional norms, offered apologies and explanations and engaged in feedback seeking behaviors. Implications for theory and practice are also discussed.

Key words: Virtuality, conflict, emotions and teams
Conflict and emotions in virtual teams

The past decade has witnessed a tremendous increase in studies focused on virtual teams and organizations. While such studies have typically focused on a general description of the characteristics of virtual teams (Bell & Kozlowski, 2002; Kayworth & Leidner, 2000; Daft & Lengel, 1984) and some interactional processes in virtual teams, they have largely ignored the conflict–related emotional behaviors of virtual team members. Yet, virtual workplaces are sites “where people bond, trust, love, get angry, frustrated, make friends, create enemies, shape identities, confront loneliness and feel oppressed or liberated” (Fineman, Maitlis & Panteli, 2007 pg 555). Consequently, our main objective is to advance research on the interactional processes in virtual teams by extending literature on emotions and virtuality (Cramton, 2001; Pantelli, 2002; Martins, Gilson & Maynard, 2004; Gilmore & Warren, 2006) and specifically by exploring the conflict and emotional behaviors of virtual team members and thus answering the call of Martins Gilson and Maynard (2004) for the need for more research in interpersonal processes in VTs such as “…affect management, group emotion…and social integration” (pg 821).

To achieve this goal, we qualitatively explored the conflict and emotional behavioral patterns of virtual team members. Identification of key socio-emotional behaviors in virtual teams will assist in maximizing the potential of virtual team members to be creative and responsive to the challenging business environment through access to diverse expertise and perspectives that are crucial for increased innovation and competitive advantage (Dougherty, 2001). Also, an understanding of the conflict, and emotional behaviors exhibited by virtual teams will be critical for human resource managers who are responsible for the recruitment, training and retention of members of VTs.

CONCEPTUAL BACKGROUND

Virtual teams

Virtual teams (VTs) are variously defined (Gibson & Gibbs, 2006). Specifically, we define VTs as dynamic teams whose members are geographically and temporally dispersed and work remotely, often dependent on electronic technology (See Gibson & Gibbs, 2006; Martin et al., 2004). Although a review of extant literature suggests that VTs may increase potential for productivity, organizations often fail to harness
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this potential (Aubert & Kelsey, 2003; Kayworth & Leidner, 2002). Studies also show that VTs can pose significant challenges both for the organizations deploying them (Kayworth & Leidner, 2002) and for individual members. Similarly, research on VTs has revealed a “dark side,” such as increased social isolation (Cascio, 2000), and problems of coordination, motivation and conflict (Aubert & Kelsey, 2003). We argue in the current research that the difficulty in harnessing the potential of VTs may be connected with an inability to effectively manage the conflict and emotional behaviors of VT members. In the next section, we review literature on team interpersonal processes and virtual work.

Virtual teams and interpersonal processes of conflict

Conflict: Team processes are about how teams achieve their outcomes (Weingart, 1997). Specifically, interpersonal processes encompass the relationships among group members and include such issues as conflict, affect and social integration (Martins et al., 2004). Prior research shows that relationships within virtual teams are tenuous (DeSanctis & Monge, 1999). Researchers have also discussed the role of technology in creating conflict in VTs, documenting that VTs that rely more heavily on technology also experience more task conflict than FTFTs (Mortensen & Hinds, 2001). In particular, scholars suggest that the core process of interpersonal conflict occurs when one or more disputants oppose their counterpart’s interests or goals (Wall & Callister, 1995). For the purpose of this paper, we conceptualize conflict as an affective event (Weiss & Cropanzano, 1996) that has the potential to elicit negative emotions in the workplace.

Although we are aware that conflict is an important process that allows teams to make better decision (Jehn & Mannix, 2001), we also know that conflict has destructive effects on team processes and outcomes (Ayoko & Hartel, 2002). More importantly, studies indicate that conflict is more likely to occur in a virtual than in a face-to-face context (Mortensen & Hinds, 2001) because of communication delays, time zone differences and lack of face-to-face contact due to space-time dispersion (Mannix, Griffith & Neale, 2002). Similarly, language differences and cultural diversity and differing opinions regarding conflict resolution add to the complexity of the team processes in virtual teams (Horwitz, Bravington and Silvis, 2006). These factors may inhibit the development of relationships and a shared understanding among group members while exacerbating the experience of emotions in virtual work.
Emotions: Research suggests that organizational conflict involves many emotions (Bodtker & Jameson, 2001). Especially, findings from recent studies show that conflict in FTFTs are associated with negative affectivity (e.g. anger, fear) (Schieman, 2003). Similarly, employees’ emotional response to conflict may include feeling of stress, anxiety, anger and frustration (Chen & Spector, 1992). Until recently, literature on VTs has ignored emotional experiences and their impact on team member behaviors and productivity (See Fineman, Maitlis & Panteli, 2007). Yet, we know that employees’ negative emotions (e.g. of anger, sadness and fear) affect behaviors and productivity (Weiss & Cropanzano, 1996) which may be evident in different stages of process development.

Group development Stages: According to Tuckman (1965), groups go through four stages of development namely: Forming, Storming, Norming and Performing. We borrow from this literature in developing the typology of conflict and emotions in virtual teams. Stage 1 is characterized by shyness, uncertainty and diffidence among the members while group maintenance is a major concern. Tuckman (1965)’s Storming Stage (Stage 2) is also marked by group members’ attempt to struggle for position, authority and influence among the members. The stage is punctuated by disagreement and role allocation. Leadership is tested and the initial leaders may not survive this period. In Stage 3 (Norming), group members basically sort out their internal structures. For example, they might have developed some process and conflict management norms and may begin the process of group identification. As the group becomes more established, the scope of its tasks and responsibilities are clearer and more consensual. Finally, in Tuckman’s (1965) Stage 5, Performing stage, groups are characterized by interdependence and flexibility. Trust, loyalty, group identity and morale are consolidated. These translate into performing the tasks at hand. We employed Tuckman’s group theory as both a theoretical and data analytical framework in the current research.

RESEARCH DESIGN AND DATA COLLECTION

The aim of the present research is to examine team process developmental stages in a virtual environment and to document team members’ conflict and emotional behaviors. To fulfill this aim, we employed the philosophical foundations of both scientific positivism and realism as our nomological network. Reflecting these paradigms we collected qualitative data using multiple methods. According to Denzin and
Lincoln (2005), qualitative methodology enables the researcher to develop an in-depth understanding of a particular research scenario. We argue that qualitative data will facilitate a deeper understanding of the various team member’s conflict and emotional behaviors in virtual environment.

**Sample**

Data were collected from eight virtual project teams who were part of a course on conflict management and negotiation in one of the tertiary institutions in the Asia-Pacific Region. Although, 80% of the participants were employed part-time in public and private organizations, over 95% of team members were amateur in virtual team work. Following Kayworth and Leidner (2002), teams worked on a major project which required students to work together online (using a technological platform called WebCt designed specifically for this purpose) to develop ways of managing everyday workplace conflict. Both the communication throughout the life of the project and the final submission (conflict management package) were analyzed for this study.

**Data Analysis**

We followed Corbin and Strauss (2008) suggestion to use a multi-step procedure that involves developing themes for analyzing material content (such as written online groups’ discussions), to objectively and systematically analyze topics in data. Themes were collapsed when it became apparent that some were overlapping. Specifically, we employed group development model (Tuckman, 1965; Gersick, 1988) as a framework to analyze our data. The raters read through the transcripts repeatedly for emerging themes. The final inter-rater reliability was 90%. Using illustrations from the data, we will now discuss each stage in detail.

**RESULTS**

The teams consisted of eight teams of students who worked completely (from the beginning to the end) on a virtual project using the Webct. As discussed previously, the transcripts of each team’s interactions were analyzed. Eight teams (Teams 1-8) participated in the study. The team size varied from 4-6 members and had no appointed leaders. Overall all about 61% of the participants were females. Table 1 describes the demographic details of the participants. Each stage has a corresponding conflict and emotions that are more prevalent within that stage than others. We now turn to a detailed discussion of each of these stages.
Stage 1:

All eight teams started with brainstorming. Specifically, brainstorming was a major process to initiate interactions and group norms about the task in virtual teams. Members discussed their ideas and interpretation of the tasks as required by the assignment. This was done in an informal manner – basically asking every member to contribute his or her idea. For example, group members encouraged themselves to “Are we ready to start!! Let’s go!” “why don’t we discuss on what we already know about conflict management and the tools used and so we can all get a bit of background on what we should/could be thinking about” (T4). In most cases, group members kept brainstorming if still uncertain about how to start the project and what to do. Also, as there was no leader assigned to direct the discussions, individual group members contributed ideas without much structure. However, as brainstorming improved, progress was made on the project.

Additionally, members laid some norms for interactions or working on the project. These norms were tested shortly afterwards.”… If you don’t, please ask me what I mean or if you disagree ... post something up” (T2) or as in T5, “just wanna remind you that each one of us will have to do some research on our own in order to contribute to our next online discussion/meeting”

While only one group (T5) started with a positive emotion—“let our creativity flow, glad to be in this group too!!, hope we have a good time together and strive for a good grade, ok? He he he he!!!” data analysis revealed that at the very beginning of process development for the other teams were the emotions of frustration and confusion. For example, words used to communicate frustration include “damn if”, (T1) “crazy”, (T7) “I’m a bit lost”, (T2), “I am worried….” (T4), “I hate the….” (T6)

In Team 2, members expressed negative emotion of frustration as below:

A “What the hell are we even suppose to be doing here??”
B “This project is outta control!”

Two factors appeared to be responsible for the participants’ expression of emotions of confusion and frustration. First, it took a while for participants to get used to the technology platform used for negotiating the
assignment. Even by the third day after the project commenced, some team members were still confused about the way to employ the technology to do the task. A member of Team 6 remarked, “I am still very confused on how to use this system” A: How on earth do you attach?, B: This is ridiculous……

The second factor for frustration was the task itself. In Team 6 for example, there were members who were still not engaged in the task and who found it difficult to begin the task. “I still don’t understand (call me dumb) how to get the ball rolling” (T6), and in T7 “I am still unsure as to how we would determine the type of conflict and its causes …”. Similarly, members of “Team 4” and “Team 8” expressed futility and resignation about the project as indicated by these team members; I have a feeling this was going to be difficult, ….need to get something done, I am still very confused….

However, towards the end of Stage 1, transcripts show that majority of the teams seem to have overcome the emotions of confusion and frustration as they seem to have discovered how to use the technology and got their heads around what the project demands from them as indicted by quotes such as “… we have finally started” (T1), “glad we can finally get started…” (T5), and “we’re on board.” (T3)

Stage 2:

At this stage, team members were now a bit familiar with each other enough to begin the task process in earnest. Although, there was little evidence of conflict in Stage 1, however, at least six of the eight teams found themselves engaged in a series of emotional discussions that fuelled or instigated task and interpersonal conflict by Stage 2. Specifically, there were some teams that were not able to overcome the initial frustration and confusion about how to begin the task and how to use technology. For example, T3 members continue to express negative emotion of frustration when they perceived that they had either lost control of the project or not able engage other team members, as illustrated below:

A: What the hell are we even suppose to be doing here??
B: This project is outta control!
A: “I agree, this is ridiculously time consuming, we need to be doing this through X chat” (T3)

Additionally, the expression of emotions was also shown not only through their written word but also through an overdose of emotional symbols as indicated “he he he, sorry for the overdose of weird emotional
symbols.....the shame...the shame…” (T6).

There was also an evidence of conflict at this stage. **Team 6**, for example, got into a relationship conflict regarding the leadership of the team. As seen below, task and relationship conflict became blurry.

K: “Anyway, who voted you guys (R & S) as team leaders? Just cos I have been sick does not mean I should not be included in the decision making process. I think you guys are being a bit bossy”

S: “Well, at least I have actually done something…you did not even log on till today…and come on, you and your wisdom teeth out…so you can’t talk…well this is an online assignment, you don’t have to talk…so what is the problem?”

R: “Okay, Okay, Back off! I think you are taking this too seriously”

M: “Well it just seems that you have NO IDEA what is going on. We need more than the advantages and disadvantages …this has to appear to look like a PROFESSIONAL manual…So I don’t think the old advantages and disadvantages are going to cut the mustard! I’m sure everyone wants to do well!!

K: “Other such crap covers stuff other than the advantages and disadvantages. God! Read my posts properly, damn it”, “cutting the mustard seed, what does the hell does that mean??

Data analysis showed indications of task and process conflict as members began to disagree about the way the project will be done and what part of the project the members will engage in. Specifically, T8 indicated that group members have different approaches to different task processes in the group. For example, members voice their opinions about the way the task should be done as seen below:

A “I do not think this is a good idea…” (T7)
B “No, I suggest something similar to what we said in the class (T8).
C “I don’t think we need to hold a workshop or speak to any one” (T2)

In particular, there were task conflicts due to role incompatibility. In this case, task allocated to an individual did not match what he/she would like to do. The conversation below reflects role incompatibility in T2:

A: “…May be EJ should do prevention and T should do the actual conflict resolution process and I’ll do mediation”.

T: “Actually, I want to do prevention that is the area I have most information on!!” (T2)

EJ: “I don’t mind doing the process. However, it is the bulk of the assignment and I don’t think it is fair for me to do the whole section by myself”

A: “Well, I guess we could all work on the process section, although I’m not sure how we’re going to manage with the limited capabilities available to us via this website” (T2).

By the end of the second stage of development, teams began to react to the difficult interactions of conflict and emotions in three ways. First, they reactively set interactions norms. Teams such as “T8” and T2 simply used phrases to confirm whether or not they were within an unwritten norm in the team. Second, team members tried to minimize difficult interaction (i.e. conflict) by looking for a confirmation of common understanding and by requesting for feedback from other team members as T7 cross-checked members understanding with phrases such as ”What do you guys think?”, “Do you see what I
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Also, T8 openly encouraged members to offer feedback:

X  “So we’re going to make an easy-to-follow guide….”
Y  “I hope this makes sense to you guys.”
Z  “To summarize what we have so far looked at.”
Y  “Everyone, please feel free to comment…”

Stage 3

Within stage 3, teams attempted to break the pattern of conflict and expression of negative emotion through the application of various methods. Several teams attempted reconciliation, where a group member who had previously engaged in interpersonal conflict made an attempt to “soothe” or “make up with” the aggrieved group member in Team 7, “I’m not being mean, I just did not appreciate being called bossy!”.

Also in this stage, there was evidence that once a pattern of negative emotional conversation was recognized, teams then made great efforts to manage the conflict and negative emotions. Usually, one of the team members emerges as a third-party mediator to assist the reconnection of team norms.

W: Okay, look guys; we need to put personal differences behind us if we are going to get this thing done. That was good assertion skills R. And S, - I have noticed that you have been demonstrating good listening skills in other conversation. I think you guys can now move on and continue working on your fantastic ideas! So far, everything you guys have thought of has been great! Keep it up, not long now"

K: You are right. I’m just getting stressed about his whole assignment… I should not take out my stress on others…sorry! I’ll try and stress less.”(T7).

The mediation worked as conflicting parties in Team 7 agreed to put their differences behind them as seen below: R: Yeah, I guess getting mad at you really wont solve anything...sorry...yes, I agree lets get the personal differences out of this ...remember “ attack the idea not the person.”

Team members also use explanation, apology and forgiveness to manage their emotional behaviors as in T4, “Sorry, if I came across as being mean” and in T7 below:

S: Sorry about earlier today…. It was just I was getting stressed about other things…
Worst of all I feel that I am behind on uni work for other subjects... I feel swamped.
K: I completely understand! I have so much other work I have yet to get done! Uni work is getting really stressful and it s really time consuming. Hey, since we do the same subjects do you want to split the notes? That way, we won’t have to stress so much. Than would be fabulous.

Stage 4

Stage 4 is a where teams pulled their efforts together to complete the project before them and it is
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heralded by phrases like “I think we are finally getting somewhere” (T1). It is also at this stage where teams began to submit the actual work done on line as in “here is my bit...” (T2). Within this stage, teams became fully engaged in completing the on-line tasks and meeting the team goals and objectives. In T7 for example,

S:  Ok so we have to develop a tool kit? So can we use tangible things?” and any suggestions?
R:  But could we tie in: How to respond to personal attacks on you rather than the idea* Rephrasing, paraphrasing, role reversal, questioning (i.e. feedback skills) MENTAL NOTE: Learn to disagree without being disagreeable, and to understand other peoples’ point of view and where they are coming from! Attack the idea NOT the person!!!!!!!

Team members also engage in humorous conversations in Stage 4. The use of humor emerged as another emotions and stress management device and it seemed to be one of the most consistent tools used within the participating virtual teams. In particular, humor was used to either thwart or cope with feelings of frustration. For example, a member from T5 remarked, “…I think a secret meeting may be called! The secret, of course “sniff……” Since the emotional behaviors that are common in the face to face interaction are missing in the virtual communication, a lot of emoticons were used. For example, the members in T2 constantly used smiley faces and similar icons to illustrate positive emotion, and was mostly used when a team member would suggest an idea or when a team member provided critical comment on other members’ ideas. Also, emoticons with grinning teeth were used to signify a member’s acknowledgement of a problem they had solved, representing a sense of achievement and joy.

DISCUSSION

The current research explored the patterns of conflict and emotional behaviors in virtual teams. Our data analysis revealed that teams in virtual environments follow distinctive stages of process development. Findings from face-to-face research in group developmental processes suggested that group progress through various stages of development (Tuckman, 1965; Gersick, 1988). Our findings regarding the four stages of process development in virtual teams are consistent with the four stages (Forming, Storming, Norming and Performing) of Tuckman’s (1965) group development in FTFTs. For example, according to Tuckman (1965), the Stage 2 (Storming) process is often characterized by members’ struggle for position, authority and influence. Although conflict was experienced by the teams at different stages of the development, our findings
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suggest that stage 2 was especially marked with increased conflict as teams attempt to sort out their internal structures such as the experience of task and relationship conflict as well as the initiation of norms and processes to manage conflict and emotions. Overall, given Tuckman’s model of group development, our findings suggest that process development in virtual project teams is similar to that of the FTFTs.

Although the study of emotions in virtual team is at its infancy, however, our data revealed a clear evidence of emotions in virtual work as teams experienced the emotions of frustration and confusion. Moreover, our results indicate that teams manage their virtual emotions using humor. The role of humor in stress relief is well documented in literature (Newman & Stone, 1966). Also, humor increases energy, leading to more positive appraisal of tasks and generates a greater willingness to perform task (Dienstbier, 1995) while studies in traditional teams have shown humor as a strategy employed by team members as a conflict management strategy (Ayoko, Hartel & Callan, 2002). Our finding in the current research is thus consistent with previous findings in this area. Given that virtual team workers may face tension on-line because of the computer mediated communication processes, team members and leaders may be able to use humor to reduce tension and foster creativity and innovation on-line.

One of the most interesting findings in the current research is team members’ use of feedback seeking behaviors and apology as strategies of managing conflict in a virtual environment. Extant literature suggests that feedback seeking behaviors are important as self-regulation behaviors that are targeted at motivating and correcting performance strategies (Ashford & Tsui, 1991). Our finding suggests that by seeking feedback, team members may be able to regulate their behaviors in their attempt to minimize or manage conflict events in the team. More work is needed to better our understanding in the way that feedback seeking behaviors can be effectively used in managing conflict. Similarly, the role of apology in managing conflict is emerging in conflict literature (See Ayoko, 2006; Ren & Gray, 2009). Specifically, apology is proposed as a strategy to repair relationship conflict (Ren & Gray, 2009). Our finding that team members use apology as conflict management strategy suggest that apology may be a promising conflict and emotions management tool. Future research is needed to future tease out how apologies can be effectively used in managing conflict and negative emotions.
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The current research has some limitations. First, data was collected in a period of four weeks and in student teams. Time constraints may have forced the kind of conflict and emotions that arose within the stages of team development. Secondly, the electronic platform used for the data collection is not real life chat room. This is may have affected the intensity of the frustration expressed in the teams especially with technology. In addition, we have employed Tuckman’s framework to track the development of virtual teams. Future studies need more sophisticated framework to track the development of virtual teams. Similarly, future research should target organizational virtual teams and design longitudinal studies beginning with amateur virtual workers and following them through to maturity stage to document differences in their virtual behaviors.

IMPLICATIONS

Although there are many studies on the interactional record of virtual teams (Nemiro, 2002; Hedlund, Ilgen & Hollenbeck, 1998), the current research extends this line of research by focusing on the processes in virtual teams using Tuckman’s stages of group development to map team members’ conflict and emotional behaviors as well as their conflict resolution strategies in virtual environments. In particular, our focus on the evolving processes in the amateur virtual teams over a period of four weeks has assisted in the isolation of the critical factors that inhibit or facilitate better outcomes in virtual work.

Our research also has some practical implications. Findings of the present research have implications for training. Managers and leaders who lead virtual teams need to pay particular attention to the second stage of virtual group developmental life cycle and devise ways of assisting teams in virtual environment to quickly move through stage 2. In addition, managers who will facilitate or manage virtually will need to consider the training needs of employees without virtual work experience. Such training needs should include the use of humor, explanation and feedback seeking activities to increase productivity in virtual teams.

CONCLUSION

The qualitative study we have discussed within this paper, albeit briefly, is exploratory, and raise additional questions. For example, how should managers and team leaders facilitate the smooth transition of virtual team members from one stage of development to another? More specifically, what can a team leader do to assist members in spending less time in stage 2 of the group development in a virtual environment? We believe that
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findings from the research reported in the current paper provide a leeway in the perception and management of virtual teams and our study underscores the need to get training for virtual work.

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Table 1: Characteristics of participating virtual teams

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