Virtual Teams: Developing Cohesiveness Through Virtual Methods

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Submitted to the Faculty of Extension

University of Alberta

In partial fulfilment of the requirements for the degree of

Master of Arts in Communications and Technology

September 2008

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Abstract

This study investigates factors important in creating cohesive virtual work teams. A phenomenological approach and descriptive empirical methods were used to explore the following research questions: RQ1: What communication patterns appear to contribute to a cohesive virtual team? RQ2: What practices of virtual teams appear to increase trust among participants? RQ3: What benefits can a team orientation or initial kick-off meeting provide a virtual team?

In-depth interviews of nine virtual team members were conducted to determine communication patterns and strategies employed early in a virtual team's development to increase a cohesive team environment. Each participant told stories of critical incidents they deemed important in developing a cohesive team and described strategies and communication patterns that increased trust, strengthened interpersonal connections and created a shared understanding necessary for a cohesive team environment. Often times these strategies were employed at the initial virtual kick-off or a face-to-face meeting.

 Findings reveal that the most influential aspects of cohesive team development were interpersonal connections and trust. These connections, which lead to a trusting cohesive environment, are fostered through personal or computer mediated face-to-face interactions, positive communication patterns, and the development of a shared understanding. Results are discussed in terms of best practices for virtual teams.

Chapter 1

Introduction

As technology increases, the need for teams to be co-located, that is, members working in the same geographical location, decreases. This has resulted in more virtual teams in the corporate landscape. Virtual teams have geographically distributed members who communicate and collaborate through electronic means with minimal face-to-face interaction (Malhotra, Majchrzak, & Rosen, 2007). They have been deemed an important management tool to take advantage of just-in-time talent (Bergiel, Bergiel, & Balsmeier, 2008). However, there is evidence that virtual teams fail more often than they succeed due to logistical problems such as coordinating work, maintaining interpersonal connections and delays and difficulties in communication (Furst, Reeves, Rosen, & Blackburn, 2004).

Research recognizes that a cohesive team atmosphere is important for team success. Cohesiveness has been linked to enhanced motivation, increased communication and higher member satisfaction (Warkentin & Beranek, 1999). These factors may be even more important for virtual teams than for co-located teams (Fiol & O'Connor, 2005). The very nature of the virtual workgroup makes it challenging for the members to work cohesively. Time zone changes, cultural, language, and regional differences, shifting team boundaries, multiple project team memberships, and failure to define vision, norms, and expectations all hamper virtual team building efforts (Dewar, 2006).

A cohesive team environment is one that facilitates better performance through interpersonal attraction, task commitment, and group pride (Stashevsky & Koslowsky,

2006). To become a cohesive team, virtual teams are no different in their needs than co-located teams; they still require high levels of trust, clear communication, goal and role clarification, and relationship building (Bergiel et al., 2008; Horwitz, Bravington, & Silvis, 2006).

Frequently, virtual teams are also project teams, which are formed solely to complete a project of set duration. Project teams can be fluid in nature with some members joining only for the time their expertise is required. The teams are formed and then disbanded once the project has been completed, abandoned, or transferred to another team for the next phase. All of these factors make the formation of a cohesive virtual team even more challenging than a co-located team.

To further hinder the development of cohesiveness, virtual team members often participate in more than one project group at a time, thereby devoting only a portion of their workday to the virtual team. If the competing project teams are co-located, the virtual team may suffer. Members of virtual project teams often do not have previous shared histories; therefore, they need to develop the personal bonds that foster team cohesiveness and productivity quickly (Cramton, 2002).

Traditional co-located project teams recognize the need for team building activities. These teams have the added benefit of being physically and mentally connected through the organization for which they work. Often organizations hold employee orientations for new hires. Orientation sessions provide a foundation upon which cohesiveness can be built. Virtual teams often do not have this pre-established foundation.

Such foundations as team building activities, company orientations, and initial face-to-face team project meetings are difficult to translate to a virtual setting. Orientations help teams develop trust between members, foster positive communication techniques, and nurture shared goals among members- three factors that contribute to a cohesive team environment. Orientation increases communication, clarifies expectations, empowers employees and relieves anxiety (Hacker, 2004).

The author of this study believes that virtual teams also need cohesion and therefore this phenomenological study examines virtual team communications and processes that help develop team cohesiveness, starting in the early stages of team development.

Literature Review

Technology has made the virtual team a reality. Team members no longer need to be in the same office or even the same country. Virtual teams transcend boundaries and allow corporations to take advantage of the talents of employees and personnel from partnering companies and consulting firms regardless of the team member's location. A cohesive team, one that is motivated and connected through interpersonal attraction, task commitment and group pride, performs better (Stashevsky & Koslowsky, 2006), but a cohesive team is more difficult to accomplish in a virtual setting. The lack of a shared understanding of team goals, behavioural norms and procedures, as well as poor communication and a lack of trust, make virtual team cohesiveness a challenge. In this review, the research on team cohesion associated with virtual teams and co-located employees is examined for possible application to the virtual team environment.

One standard cohesion builder is the orientation procedures for new employees and project kick-off meetings associated with the management of a specific project. Within these frameworks, employees develop trust, communication and shared understandings. This literature review looks at both the orientation and project kick-off formats and the elements of trust, communication and shared understandings in order to understand how these formats and outcomes are handled in the virtual team environment.

Building cohesion

Team cohesion is an important aspect of a team. A cohesive team performs better and is more motivated, which allows for greater coordination of team activities (Stashevsky & Koslowsky, 2006); it is more successful and has increased problem solving capabilities (Knouse, 2007). In general a cohesive team is more successful; however, research has determined that there is a negative correlation between the extent to which a team is virtual and the degree to which it is cohesive. Completely virtual teams, those teams who never meet face to face, are less likely to experience cohesion (Workman, 2007). Table 1 summarizes the literature related to cohesive team characteristics.

Cohesive Team Characteristics	Factors that Lead to a Cohesive Team
Interpersonal Attraction	- Members interact with each other to gain personal knowledge of team members (Harrison, Price, & Bell, 1998; Workman, 2007) - Participants experience an increase in interpersonal attraction (Stashevsky & Koslowsky, 2006) - Team members are motivation to develop and maintain social relationships within the group (Carless & de Paola, 2000)
Task & Team Commitment	- Individual are motivated and committed to completing tasks which increase the success of the team (Carless & de Paola, 2000; Stashevsky & Koslowsky, 2006) - Members cooperatively work towards a team goal (Workman, 2007) - Members can anticipate the needs and actions of other group members leading to increased problem solving capabilities (Knouse, 2006)
Group Pride	- Members experience pride in the group's accomplishments (Stashevsky & Koslowsky, 2006)
High Level of Trust	- Individuals trust other team members will complete actions as stated (Lee-Kelley & Sankey, 2008) - Team members are interdependent and share work openly (Carless & de Paola, 2000)
Clear Communication Patterns	- Team members have open, inclusive communication patterns (Carless & de Paola, 2000; Lee-Kelley & Sankey, 2008; Warkentin & Beranek, 1999; Wright & Drewery, 2002)
Shared vision and goals	- Members are motivated to achieve the organization's goals and objectives (Carless & de Paola, 2000; Wright & Drewery, 2002) - Team members contribute equally to the success of the team (Stashevsky & Koslowsky, 2006) - Members enjoy an increased understanding of the tasks and goals (Workman, 2007)
Feeling of belonging	- Individuals experience an increased perception of closeness within the group and want to remain part of the team (Carless & de Paola, 2000)

Table 1: Cohesive Team Characteristics

Orientation

Although research specific to virtual teams is limited, orientation of new

employees in a co-located environment is a standard procedure for helping them join

teams and develop trust, positive communication, and a shared understanding of goals

and responsibilities. These three factors contribute to a cohesive team environment. The

same holds true for virtual teams. A cohesive team is important for members to work

collaboratively, share knowledge, and generally function as a team.

Employee orientation is one of the most important functions for employers to increase employee satisfaction and productivity, but it is often overlooked (Brown, 2003). A well thought out orientation program, even a short one, will help with the future productivity of employees (Brown, 2003; Wesson & Gogus, 2005). As first impressions are difficult to change, orientation sessions need to provide new team members with a positive experience (Liberman, 2006).

Evidence shows that employee orientations are key to successful new employee transitions. Trust and goal clarity are aspects of a successfully functioning team; an orientation program helps teams develop a cohesive atmosphere. Well-oriented team members are more confident and understand their specific roles in the overall project design. This in turn increases the commitment and success of the team (Cirilo & Kleiner, 2003). Establishing goals and responsibilities collaboratively at a kick-off meeting has been shown to increase the common focus of the team and create a shared sense of team responsibility (Kezsbom, 1993).

Employees' perception of the work environment is defined during orientation and greatly affects the new hires performance (Klein & Weaver, 2000; Mathis & Jackson, 2003). Orientation programs are useful to reduce anxiety for new hires and set the tone for the employee/employer relationship. By increasing socialization and communication of the group, members of the team are more likely to share resources and exchange ideas, which promotes a cohesive team atmosphere (Tsai & Ghoshal, 1998). Orientation also helps to enhance the socialization process and improve communication between team members (Klein & Weaver, 2000; Mathis & Jackson, 2003).

Kick off meetings

Co-located project teams often hold an initial meeting, usually called a kick-off meeting. The kick-off meeting offers some of the same benefits as an orientation while focusing on the project at hand. The kick-off meeting introduces the team members, sets the project goals and timelines, shares the project description and indicates how the project fits into the overall corporate strategy. Table 2 compares the main purposes of an orientation program to those of a kick-off meeting. A kick-off meeting may be more important to virtual team members than to co-located team members as the virtual team is more likely to be a meld of employees and consultants from various organizations.

Corporate Employee Orientation	Project Kick-off meeting
• Introduces new hires to the company's history, mission, vision, goals and culture (Hicks, Peters, & Smith, 2006)	• Introduces project team members to the project opportunities, objectives, goals and mission statement (Messmer, 2004) • Explains how project is significant to the overall organization (Hamburger, 1992)
• Explains where the employees fits within the company and how they can achieve company goals and fit into the corporate culture (Hicks et al., 2006; Wanous & Reichers, 2000)	• Defines the team members' roles and responsibilities in relations to the project and to the organizational affiliates (Martenson, 1979) • Identifies methods of achieving the project goals (Martenson, 1979)
• Describes expectations, terms and conditions of employment, health and safety information (Wanous & Reichers, 2000)	• Establishes expectations, timelines, project end dates, and procedures (Martenson, 1979)
• Encourages socialization and support groups to develop between new and existing staff (Wanous & Reichers, 2000)	• Initiates team building and establishes an appreciation of each members' contribution to the team (Hamburger, 1992)

Table 2: A Comparison of Employee Orientation and Kick-off Meetings

Trust

Trust is the belief that others make "efforts to behave in accordance with any commitments both explicit and implicit" (Dani, Burns, Backhouse, & Kochhar, 2006). Lack of trust in virtual teams has been shown to interfere with the ability of project teams to meet their goals (Bergiel et al., 2008). Interpersonal connections help build trust but

these connections are often slow to develop among virtual team members as communication generally relies on technology and is often asynchronous (Furst et al., 2004). Casual conversations are less likely to occur and the everyday actions of individual team members cannot be noted by other team members. Team members may not even know who else is on the virtual team, especially if members join the team only for specific tasks (Beranek, Broder, Reinig, Romano Jr., & Sump, 2005; Harvey, Novicevic, & Garrison, 2005). This makes it difficult for members to track team affiliates and to develop the trust required to form a cohesive team.

In co-located teams, there is often a history of trust or avoidance based on on-going knowledge of an individual and his or her work habits. In virtual teams, trust is based on predictable performance, dependability and reliability on that particular project (Kirkman, Rosen, Gibson, Tesluk, & McPherson, 2002). When people are uncertain about other team members due to a lack of information, they often project self-expectations to reduce dissonance (Cramton, 2002; Fiol & O'Connor, 2005). When team members do not act in accordance with the expectations, unrealistic or assumed, trust is lost (Cramton, 2002). People who are part of virtual teams are less likely to know or understand other team member's situations; therefore, they are more likely to make assumptions based on their own situations and actions. This often leads to misunderstandings.

Employees who are given time and opportunities to strengthen team identities develop trust and contribute more fully to the goals of the team and the organizations (Topi, 2004). Virtual teams must find alternative ways to promote relationship building to ensure that trust and a collaborative team environment develop (Peters & Manz, 2007).

For trust to develop in a virtual team environment, it is crucial for open and thoughtful communication to be established at the beginning of the project (Jarvenpaa & Leidner, 1999). A well-designed kick-off meeting could establish norms and expectations that reduce dissonance and unrealistic expectations.

Communication

Research shows that communication is essential for successful team output and that good communication can be difficult even within a co-located team (Connaughton & Daly, 2004; Lee-Kelley, Grossman, & Gannings, 2004). Virtual team members often do not meet other members face-to-face. They communicate asynchronously through email, message boards, and issue logs and synchronously via instant messaging, telephone, and audio or videoconferences. These forms of communication are different from face-to-face interactions and are not as conducive to small talk, personal discussions, or narratives that happen in a co-located setting. Even though electronically mediated synchronous options allow people to engage in these casual conversations, in a virtual work setting these activities are often seen as time and money-wasters and are therefore discouraged (Connaughton & Daly, 2004; Qureshi, Liu, & Vogel, 2006). However some researchers do suggest that time for sharing personal narratives and information should be built into meetings as it allows for trust to develop, knowledge to be shared, and cohesion to increase (Daniel, Schwier, & McCalla, 2003).

Sometimes interacting exclusively through electronic settings increases off task behaviours and a lack of commitment. The fact that team members are not physically visible allows people to avoid responsibilities or communicate in inappropriate ways (Greenberg, Greenberg, & Antonucci, 2007). Electronically mediated communications,

especially asynchronous communications, can lead to misunderstandings or frustrations unless team members and leaders work hard to ensure clear communications. Providing more support and encouraging positive messages and recognition is important in promoting team trust and positive working relationships (Horwitz et al., 2006)

One study indicated that virtual teams struggled initially due to a lack of communication norms. This lack resulted in poor cohesion and integration of the team members (Malhotra, Majchrzak, & Rosen, 2007). With an orientation or kick-off meeting, these norms could be established and efficient communication could increase. Since establishing awareness among team members can be aided through early and frequent communications (Beranek et al., 2005). It is important for the norms to be established at the formation of the team.

Communication is essential in any work environment, but a clearly stated communication plan takes on greater importance in the virtual team setting. Team members need to understand how and when to communicate. There is a need to establish norms and ground rules to increase the understanding of how the team works. This increases the chances of successful project competition (Connaughton & Daly, 2004).

Even with clear communication plans and established routines for communication, difficulties may arise from information overload. Too much information given asynchronously and perhaps non-sequentially can pose problems of comprehension for the receiver (Millward & Kyriakidou, 2004). In addition to clear communication some researchers also suggest that if the communication is too detailed or long, the meaning may be lost (Cramton, 2002).

Shared Understanding

By developing and clearly stating goals and schedules, a shared understanding and cohesive team is more likely to emerge. A shared understanding is the "building block of successful communication and coordinated activity" (Cramton, 2002, p. 357). Without shared understanding, members will make assumptions based on their own knowledge and understanding of a situation. Virtual teams need strong, clearly stated goals and a sense of purpose to allow the team to work effectively and to increase collaboration (Lipnack & Stamps, 1999). A shared vision is also needed in order to promote contributions by team members (Dewar, 2006). Although the research suggests collaboration and shared vision as important aspects of a virtual team, specifics on how and when to develop the shared vision and goal are less often identified.

Team members who do not feel socially connected to the team will not develop the same sense of a collective norm or a shared understanding as will members of teams that are co-located. To help compensate, researchers suggest that managers introduce team members thoughtfully and provide background to validate each member's role on the team (Greenberg et al., 2007). Even in instances where the tasks and team goals are well defined, norms of interactions and protocols need to be clearly established. An understanding of the team's methods of working together is important for developing team cohesion and producing a successfully functioning team (Horwitz et al., 2006).

Research on employee orientation stresses the value of shared vision to promote employee satisfaction and increase productivity and trust (Klein & Weaver, 2000; Mathis & Jackson, 2003). For maximum impact, missions and goals must be communicated to team members (Valentine & Johnson, 2005). The kick-off meeting provides an excellent

venue to communicate these goals and ensure that all team members develop a shared understanding. This study develops upon these ideas.

Purpose of Study

This study is designed to investigate the communications patterns and practices used by virtual team members to encourage trust and a cohesive atmosphere. It is anticipated that virtual teams will be the biggest working trend in the next ten years (Cramton, 2002). As such, it is important that virtual teams quickly develop a cohesive team environment. However, without the benefits of the day-to-day synchronous communications and interactions experienced by a co-located team, creating a cohesive virtual team requires directed actions on the part of the team members.

Co-located teams often have the added benefit of employee orientation and join a project team with a common understanding of how the team fits into the bigger picture. Virtual team members may not have the common unifying experience of orientation as they are often drawn together for short periods of time to complete specific projects. It is therefore important to look at the kick-off meeting as a form of orientation. How can a kick-off meeting act as a unifying force and what should be emphasized at this initial meeting to develop the shared understanding needed by members to build a cohesive team?

In this study, interviews were conducted with individual members of virtual teams; it was not the individuals themselves or their roles in the team that was examined. The study did not examine the more individualized societal issues such as gender, culture, or age. Instead it examined practices devised to enhance the cohesiveness of the overall team as the individual team members experienced these practices. Individuals

bring unique experiences to teams and not all team members experience an event or practice in the same manner. This limitation is recognized; however, through an analysis of the responses of individual team member, patterns can be examined and best practices examined.

Research Questions

Research indicates that cohesive teams perform better. The identification of factors and practices that increase cohesion will provide help for virtual teams seeking to perform better. This study examines the individual responses to the communication patterns of members of virtual teams to establish a trusting, cohesive team environment. Particular attention was paid to practices used early in the team's development, or the initiation of new team members in an attempt to establish strong teams.

As discussed in the Literature Review, a cohesive team is one that facilitates better performance through interpersonal attraction, task commitment, and group pride (Stashevsky & Koslowsky, 2006). Its members experience high levels of trust, unambiguous communication practices, a clear understanding of the shared vision and goals and a general feeling of belonging among the team members. The literature suggests that an initial team meeting, often referred to as a kick-off meeting, is an important aspect of creating a cohesive team environment. In this study the kick-off meeting and its overall affect on the team were examined through in-depth interviews.

The follow research questions provide the framework for examining aspects of virtual team practices:

- Research Question 1: What communication patterns appear to contribute to a cohesive virtual team?

- Research Question 2: What practices of virtual teams appear to increase trust among team members?

- Research Question 3: What benefits can a team orientation or initial kick-off meeting provide a virtual team?

Discussions with people who have had successful or unsuccessful experiences with virtual teams were used to obtain information on factors that they identify as contributing to the cohesiveness of the team. Characteristics of a cohesive team can be expressed through stories and descriptions of team events. Through interviews, this study looked for the characteristics of a cohesive team. Sample indicators of those characteristics are listed in Table 3 on page 15.

In summary, this study examines the practices that virtual team members use to build a successful cohesive team paying particular attention to the kick-off meeting and initial team development

Cohesive Team Characteristic	Indicator: participant describes events, processes or activities where
Interpersonal Attraction	• Conversations begin with social messages • Group team building occurred • Conflicts are resolved though positive interaction of group members • Team members seek each other out for non-work related activities
Task & Team Commitment	• Individual tasks, deadlines, and roles are understood • Other's roles in the project are explained or documented • Members recognize their own and others contributions to the team
Group Pride	• Success is shared by the group • Team members bind together to resolve a difficult situation or project complication • Group collaboration occurs
High Level of Trust	• Trust in others was needed, shown, or rewarded • Progress is shared and understood by all team members • Team members produce and receive recognition for work, documents or communications within the deadline and to the expected quality
Clear Communication Patterns	• Clear communication plans were discussed and documented • Meetings were held regularly and described as a positive event • Technology is understood and used appropriately by all members of the team • Communication channels are used appropriately and with respect
Shared vision and goals	• Project mandate, vision, or goals are clearly described • Project scope, timelines, budges, and requirements are commonly understood or discussed
Feeling of belonging	• Recognition was received for success • A sense of interdependency or a recognition that the team works better than individuals

Table 3 Indicators of a Cohesive Team

Chapter 2 Methodology

Introduction

Virtual teams have developed because advances in communication and collaborative technology made it possible for them to exist (Bergiel et al., 2008). One aspect of the virtual project team that requires greater research is how to go about establishing a cohesive team though a well-planned orientation or kick off meeting. This study examines some of the methods practiced by virtual teams to help create a cohesive environment and focuses on, the initiation of the virtual team and the timeframe associated with the beginnings of virtual team development.

Research Design

A phenomenological approach has been used to focus on the initial stages of the development of virtual teams in order to determine the best practices associated with the development of team cohesiveness. A phenomenological approach attempts to understand the subject though conversations with those living the subject in an attempt to make "the invisible visible" (Kvale, 1996). As such, it is an approach particularly fitting for a study of virtual teams.

This study uses qualitative methodology that interprets phenomena in terms of the meanings people bring to them. In-depth interviews were used to allow the researcher to capture respondents' perspectives, using their own words to explain and account for events, and to include the stories surrounding those events. Participants provide holistic data on events than cannot be directly observed by the researcher (Lindolf & Taylor, 2002). In-depth interviews were appropriate for this study because they provided

flexibility and allowed for a dynamic that fostered disclosure and encouraged the storytelling that provides thick, rich data to be coded and analyzed (Francis, 2004). The in-depth interview format allowed the researcher to use semi-structured questions that could in turn elicit more data.

The researcher assembled the following questions prior to the interviews. Often participants answered questions through story telling and only clarification or probing for further details was required by the interviewer. Only questions relevant to the particular participant were included, so not all questions were used for every participant. The questions included the following:

- Why do you think [a particular strategy] was beneficial to the cohesiveness of the team?

- Describe the challenges you faced as part of a virtual team and how you or the team overcame these challenges.

- What recommendations would you make to encourage cohesiveness among team members in the early stages?

- Was there something that was not done that you feel would have increased the team's cohesiveness.

- If someone new joined the team after the initial stages, what strategies were used to bring that team member "up to speed"?

The in-depth interview format was further strengthened by combining it with critical incident technique that encouraged participants to reflect on the topics under discussion before the interview began. The process for setting up the interviews supported critical incident technique and reflection on the virtual team experience. Once

participants agreed to the interview, they received instructions via e-mail with a request that they reflect on a critical incident that they felt was instrumental in creating a cohesive virtual team (see questions on page 20).

Once the interview began, participants were asked to relate the critical incident. In that way, the respondent's own experience served as the starting point for the interview. The participants had at least a week to reflect on this question before the interview. Most of them responded with a narrative that provided insights into their particular circumstance and their narrative spanned the interview into questions that were not a part of the prepared questions. Many of the respondents came prepared with several narratives in answer to the initial reflection question. Then, as part of the semi-structured interview, the researcher could ask individual participants to expand on or explain in greater detail parts of their narratives.

Selection of Subjects

Although some researchers make a distinction between completely virtual teams and semi-virtual or hybrid teams, that is, teams with only some virtual members (Fiol & O'Connor, 2005; Webster & Wong, 2008), this study did not make such distinctions. The criteria for inclusion was that the participant had to have been a part of a team consisting of at least four members, at least one of which was a virtual member.

Although all participants were required to have participated with a team consisting of at least one virtual member, participants did not have to be part of a project team. However, as it turned out, all members did work on a project basis while working as part of the virtual team. All participants had worked on more than one virtual team

project, and all had acted as the team leader or in a leadership role on some aspect of the team's activities.

The nine participants who agreed to the in-depth interviews were located through the researcher's network of colleagues and classmates. Participants were chosen if they had current or past experience leading a virtual team or working within a virtual team. Participants were surprisingly easy to find through word of mouth once the researcher requested colleagues and classmates to refer contacts known to have worked in a virtual team environment. Fifteen potential participants were selected and invited to participate through an initial email explaining the process of the study (See Appendix B).

An initial set of questions was emailed to, and an interview time was set up with, the first ten participants to return the consent form. Of those ten, nine were interviewed and included in the results of this study.

Procedures

To determine what factors were important to the creation of a cohesive virtual team, nine people were interviewed over a three-week period. Perspective respondents were invited through an email to reflect on a critical incident that was instrumental in creating a cohesive virtual team. The critical incident could be any incident that made the participant feel more connected to their team mates or to the project. The participants were not asked to write the incident out, only to reflect on it as the starting point of the interview.

Participants were also asked to answer by email some general questions about their teams. This was primarily to provide background about the team and also to allow

for the use of the entire interview time to focus on the incidents that made the team

cohesive. The pre-questions were

1. How many members are (were) on your virtual team(s)?
2. Briefly explain your role in that team(s)?
3. Did the team(s) meet face to face? (If yes, in part or in whole?)
4. What are your main forms of communication between team members?
5. Where (city, country) are the team members located?

Once participants had returned a participant consent form (see Appendix A) and

answers to the basic questions, an interview was set up. Because the respondents were

from virtual teams located in various parts of Canada and the United States, interviews

were conducted through different media. Seven interviews were completed through a

Voice over Internet Protocol system (VoIP) and recorded using an audio recording

application on the computer. One interview was conducted in person as that mode was

possible and was the preference of the interviewee. One interview also included a brief

videoconference, again using the VoIP system. The video bridge was used for only for a

few seconds since it diminished the voice quality and made recording the interview

difficult.

Each interview was between a half hour and one hour long. The semi-structured

interviews were conducted in a conversational tone and focused on effective virtual team

strategies or possible solutions to difficulties. Each interview generally began with the

participant describing the critical incident they had decided to report. If the participant

did not feel that there was one critical incident, they would describe their experiences in

general. The interviews were loosely structured around the predetermined questions,

which were used to probe for greater details and/or to clarify points. Participants were

asked about the strategies they had used, or the strategies they viewed as successful in

creating a cohesive team. Each participant was also asked to respond to a definition of a cohesive team in relation to their experience with virtual teams.

Data Collection and Recording

As participants were interviewed, the researcher took notes. These notes were used to record points of interest, or items to discuss later without interrupting the flow of the narrative. Throughout the progression of interviews, a variety of themes began to emerge, including issues around face-to-face interaction, team procedures and protocols, role clarity, project vision, mandate or goals, team buy-in, team communication and technology issues. Entwined in many of these themes were issues of trust and personal connections.

After all the interviews were complete, the researcher listened to each interview again noting the time and topic when each respondent talked about any of the above themes, or made a comment of other interest. The researcher then listened to each interview again and transcribed contributions of interest, either word for word or paraphrased. These notes were then typed into a Word file with each participant's comments in a different colour. This was done to promote anonymity of participants, and allowed the researcher to cross reference participants' comments.

The content was then analyzed by sorting the information thematically. The themes for the initial groupings, chosen because several participants mentioned them, were trust, communication, meetings, face-to-face experiences, personal relationships, roles, vision, goals, and initial experiences. The comments were then grouped according to the research questions they supported, and sub-themes of each emerged. Comments

that described two or more research questions were grouped under both questions so that a complete set of data were visible and available for further analysis.

Once the interview data were categorized, the researcher conducted a more thorough analysis for patterns, including commonalities and differences. This often necessitated that the researcher return to the recordings several times.

Once the results were compiled and categorized, generalizations were made based on the participant comments and narratives. A complete analysis of data related to each research question was completed. The detailed analysis is discussed in Chapter Three.

Chapter 3 Results and Discussion

Results will be reported in three sections. First the data describing the virtual teams in which the nine respondents worked will be reported. Demographic and descriptive information from the pre-questions is summarized to give the reader an overall understanding of the kinds of virtual teams the respondents discussed. Then the data that led to creation of initial themes are summarized and described. Finally, the results that support the research questions are discussed.

I. Results: Descriptions of the Virtual Teams

The virtual team makeup and general information of subjects' teams was determined by their response to the initial email questions listed on page 20. The participants came from various backgrounds and had a variety of experience as virtual team members. Most participants had over ten years of experience as a member of a virtual team, while one had less than one year. Although the level of experience differed, each participant added to the study. Some participants described unique experiences, situations, or solutions, but for the most part, the participants' descriptions complemented one another's in aspects of virtual team experiences.

Table 4 illustrates the team makeup for each of the participants.

Participant (random order)	Office base	Team size	Industry	Number of locations	Type of locations
1	Office	20	High Tech	4	International
2	Home	6	High Tech	4	International
3	Home	10	Consulting	4	Canadian
4	Home	8	Training	2	Canadian
5	Office	13	Training	4	Canadian
6	Office	20	High Tech	5	International
7	Office	6	High Tech	3	International
8	Home	6	Training	3	Canadian
9	Home	5	High Tech	3	International

Table 4: Participant Team Composition

Five of the participants worked exclusively from a home-based office. One participant was one of two virtually based team members working with a larger co-located group. The other four worked in a traditional office-based building and worked with sub teams or individual team members from virtual locations. Eight of the nine participants worked from home-based offices some or all of the time, even if they had access to a company-based office.

Five respondents were part of international teams. Three of these teams had office-based sub teams in all locations and two had both office and home-based members. The other four teams were Canadian. All but one of the Canadian teams had members in more than one province. The teams had between two and five locations. Teams varied from four to over twenty participants. The average number of team members was ten, with the mode being six.

The participants represented three industries. Five were high tech fields, three were involved in training and education, and one respondent was in management

consulting services. Five of the participants were team leaders, but all those interviewed had acted as team leader for some portion or activity during the project's lifecycle.

Although individual participant identifiers were not considered in this study because the study concentrated on the respondents' team composition, it may be of interest to note that the majority of the respondents were Caucasian males, with two female and one non-Caucasian participant.

All participants reported that they had met most or all of the team members face-to-face at least once during the project lifecycle. Some met face-to-face on a regular basis, but most only met on an as-needed or an as-budget-allowed basis.

All participants stated that email was the most often used form of communication. The second most often used was the telephone for either one-on-one conversations or for conference calls with three or more team members. Three teams used videoconferences and five mentioned the use of some form of computer assisted meeting application such as NetMeeting[i].

II. Results: Research Findings

Research Question 1

The first Research Question asked "What communication patterns appear to contribute to a cohesive virtual team?" Communication was the issue most often discussed by respondents. As Respondent 5 noted:

> *We are each trained from an early age to understand and accept and analyse and trust our environment. A virtual team cuts off some of our senses and makes us less than we are capable of, so we have to find some ways to compensate for the lack of senses that have disappeared.*

Discussion of communication entered almost all narratives and conversations during the interviews. The respondents spoke at length about three distinct, but

interrelated aspects of communication: the role technology played in virtual team

communications; the differing protocols needed in a virtual team, and the necessity of a

well thought out communications plan with follow-through on that plan. Each participant

also discussed the importance of face-to-face communications. All these aspects were

reported by participants as important in maintaining interpersonal connections and

positive communications patterns needed for a cohesive team environment.

Technology Assisted Communication

Even though you are working together, people must use common tools and common language to say the same things when presenting an idea. The tools that have been developed to facilitate virtual teams have improved a lot in the past nine years. You no longer have a single choice; you can choose what is best for your virtual team. (Respondent 7)

The interviewees mentioned several forms of communication used by their

groups. All respondents used at least three technology-assisted methods to communicate

with team members. The most common form of communication noted was email. One

respondent logged 4000 threads and over 20,0000 emails over one 18-month project.

Email on international teams was sometimes difficult as it could take several days

of email conversation to clarify the actual question or directive, as evident in the quote

below.

Email communication was sometimes a problem because of the time lags. You would state a problem, twelve hours later a person would ask for clarification, another 12 hours would pass, and before long more than a week would pass before we had clarity of the problem. (Respondent 7)

In this team's case the problem was exacerbated because the time difference made it

difficult to speak directly to the team mates in Asia in order to resolve the issue.

The telephone was the second most popular form of communication, especially

for one-to-one conversations. One respondent mentioned that as the reliance on email

increased, telephone use decreased. This frustrated the respondent at times and after a long email chain he often wanted to say to group members, "The phone is right there, just pick it up" (Respondent 4).

Conference calls were also mentioned as a frequent communication tool to discuss issues with the entire team or within sub-teams. Conference calls were conducted either by telephone or a computer-assisted platform such a voice over Internet protocol (VoIP) system. Sometimes conference calls were assisted by computer-mediated meeting software[1]. This type of meeting software was used by most of the high tech respondents.

Instant messaging has become an important communication tool. Use of instant messaging (IM) increased over 48% in one year from 2003 to 2004 and is becoming one of the most popular forms of interoffice communications with increased use (Ramirez, Dimmick, Feaster, & Lin, 2008). However, in this study, only one respondent mentioned using instant messaging on a regular basis. Three respondents did mention IM as a form of side conversations during conference calls.

Several of the teams also used some form of version control or document repository for document sharing. This ensured that the most recent version of a document or code was available for all participants at any time, regardless of working hours or location. It was also used as a tracking system for some groups to pass documents to the next individual who needed to use them. One participant who used a version control system stressed the importance of naming the files properly as even with the system, incorrectly named files caused problems.

Several of the participants mentioned that a virtual team must be comfortable communicating though the technology the team is using. One team leader suggested that

for effective communication to occur, participants must feel comfortable with the technology. This respondent had approached this need head-on in two ways. First he set up a schedule for the initial conference call and subsequent video call meetings within the team. Each member of the team was responsible for setting up a different meeting and arranging the meeting particulars including scheduling, initiating the call, and running the meeting. In this way the team members were made aware of the time constraints of various time zones and the exercise improved interpersonal understandings and connections. The sharing of this duty also trained the team member in the use of the technology.

The second thing this participant did to ensure high comfort levels with communication technologies was to encourage members unfamiliar with the technology to discuss items with which they were comfortable. He would ask them questions about things that did not intimidate them until they were comfortable with the technology. He had them discuss more critical matters once their comfort level with the technology was apparent. In this way the members only needed to concentrate on one aspect of the multifaceted technology-assisted communication; either the technology or the message, but not both.
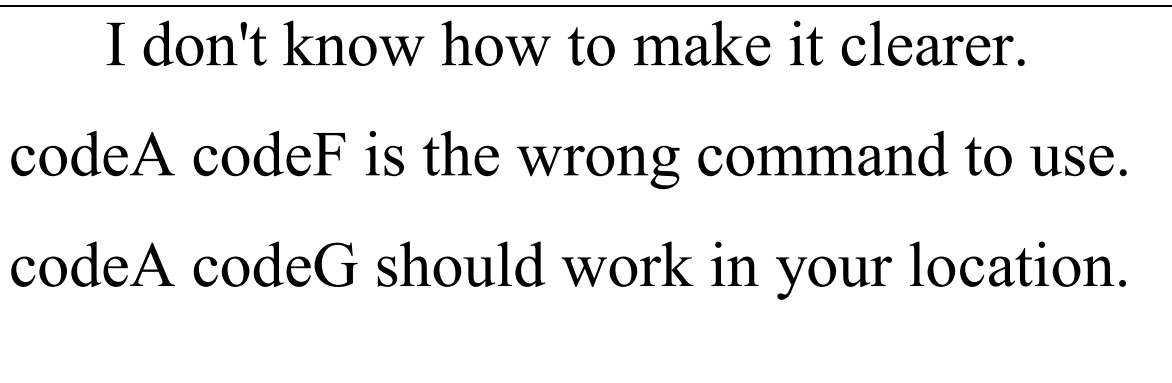
Another respondent mentioned the need for comfort within the communication medium as well. She was comfortable with one-on-one discussions by phone for collaborative working sessions, but was not yet comfortable with conference calls to discuss important issues. The respondent was fairly new to the virtual team process and reported that both her comfort level and her confidence in conference call situations were improving steadily. She continued to find it difficult to gauge whether or not her message

was fully understood. This respondent dealt with the uncertainty by asking other participants for verbal conformation of understanding. Her preferred communication method for collaborative work sessions remained face-to-face, when possible.

Another respondent felt that in order to have a cohesive team it was desirable to have fewer one-on-one phone conversations and more regularly scheduled team conference calls. As she said, "there is nothing like being able to speak, have the whole team respond; there must be an element of cohesiveness in group dynamic, which you don't get from one–to-one phone calls or email" (Respondent 9).

Difficulties with technology assisted communication need to be understood by the virtual team worker. Several respondents mentioned incidents where misunderstandings occurred due to technology. Some respondents reported incidents in which participants missing meeting because equipment was not working properly and back-up systems had not been established. One participant noted that some systems couldn't be trusted as a team member cannot be sure that an instant message or an email was received.

Sometimes the medium itself causes the miscommunication. In one instance an email was received in large bold font. (See Figure 1. The actual code has been removed for confidentiality and has been replaced with CODE and a letter.)

I don't know how to make it clearer.

codeA codeF is the wrong command to use.

codeA codeG should work in your location.

Figure 1 Initial Email as Viewed by Receiver

The recipients mistook this as shouting and responded to it as such (see Figure 2).

Charming response...

Neither works here...

Figure 2 Response to Large Font Email

It was not until a co-located team mate received the original email, noted the large font and pointed it out to the confused sender, that she understood the situation. On her email editor, the font looked as though it were the normal size. She quickly apologized, and what could have been a divisive point for the team actually turned into a team boding experience as everyone, once it was explained, found the situation humorous (See **Error! Reference source not found.**).

```
    I must apologize for the font issue... really .... that's not the
size I saw in my Netscape mail box when I wrote it!!!! What a BIG
surprise when I saw it from my Outlook exchange mail box.
    Very embarrassing! [Co-located team mate] though it was pretty
funny, however.
```
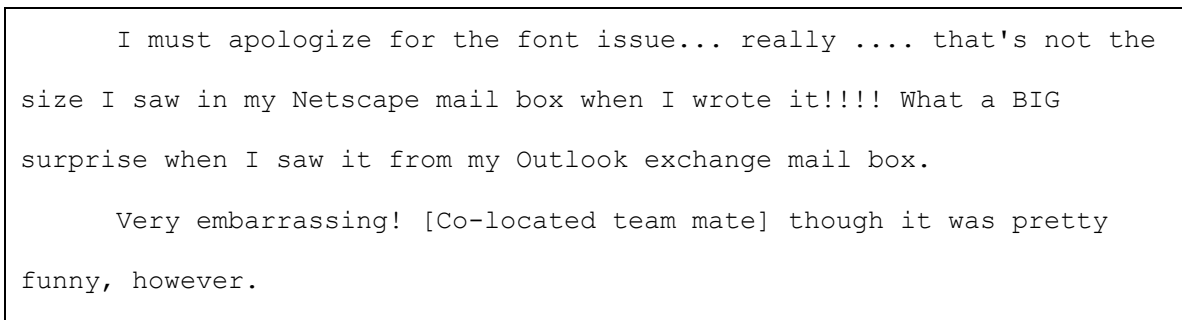
Figure 3 The Apology

This exchange of emails is a typical example of how asynchronous communication can be easily misunderstood and cause divisions among team members. One respondent said that at the initial team meeting he emphasizes how easily misunderstandings can occur in a virtual team and how important it is that everyone remain positive and extend goodwill to all team members.

Communication Plans

One way to avoid the misunderstanding associated with virtual team interaction is to develop a communication plan early in the process. As one respondent said:

The communication plan was hashed out in one of the beginning meetings. We had all done remote things, and we had all had lack of success at some meetings so we understood the need to have a plan. Some naturally evolved and some were more formal [for example, we used] action plans, kept a register, kept minutes... (Respondent 5)

All respondents reported that their teams relied on a variety of communication technologies, but noted the importance of using the appropriate communication method for the message. One participant mentioned that he sometimes had to remind team mates that a phone call may be more appropriate than a long email chain to clarify needs or solve issues.

The expectation that there will be a predicable mix of communication methods was an advantage mentioned by most participants. One respondent deliberately used a carefully designed mix of communication methods, as he explains:

In order to address the communication challenge of the virtual team, I mixed up the communication methods in a formal way. There were some forms of communication that I asked to be submitted electronically; there were some types of communications that required conference calls and there were some issues that were only addressed in videoconferencing

For each type of communication, I looked at the substance of knowledge and what we were going to do with it; what was the best method to reuse that information. If the information or knowledge was to be used in decision-making, I insisted that there be visual conformation, meaning a videoconference.

Occasionally we had people go off with some other type of communication method to try to prematurely make a decision early, and I had to tell them that we are not in the right venue to make the decision.

It was the predictability of what each one of the communication forms were going to be used for that I didn't want to mess with. Delaying a

decision hurt, but I didn't want to mess with the predictability that I had worked so hard to achieve. (Respondent 5)

This detailed layout of communication is often referred to as a communication plan. Although only this particular interviewee described his team's communication plan in such detail, most did mention the benefits of a communication plan, either formal or informal, and recommended that a well thought out and thoroughly discussed communication plan should be determined at the onset of the project. It should carefully detail the communication activities, reporting methods, timelines and communication tools. The plan should identify the flow of communication, and how the activities and document will transfer from one team member to another. Participants also reported that the communication plan often covered agenda setting, minute taking, action item recording and status reporting.

An informal communication plan is one that evolves though trial and error and becomes team protocol but is not necessarily part of the formal communication plan. Respondents mentioned that sometimes an informal set of rules would develop out of necessity. Sometimes these rules would be a result of formal discussions on how to resolve procedural problems. In other instances, they evolved and became procedure without the team members' realization that these procedures had become the norm for the team. One participant described this as coming to a "mind thought agreement" (Respondent 1).

The communication plan served as an overarching framework for the communication throughout the project, or as a standard format for interaction within the group. Most groups had formal meeting times detailed within that plan. For these there was a need for meeting protocol, which became a separate theme of this research.

Meeting Protocols

Setting meetings is often a chore for on-location teams, but for virtual teams it becomes even more complex. It involves more than just setting a time and a place, which on their own add challenges if the team spans time zones, it involves more preparation for all team members.

> *Because it is virtual and you don't see each other, you have to put in more effort to prepare the meeting …when you are face to face, you sometimes just jump into the discussion without full preparation, but for the virtual team you must prepare everything.* (Respondent 2)

Meetings are an important aspect of virtual teams. Participants whose team did not meet regularly reported that the team suffered because of it. One participant explained what happened in his team because of a lack of meetings:

> *Geographic distance and our need to really produce and get through the work made us communicate too little… We had all this stuff to do, and we just burrowed away and worked and worked and worked… We finally realized what each other was doing. We had not kept up. We were not in sync… we started meeting weekly and eventually got through.*
> (Respondent 9)

Two other interviewees also mentioned that once the project veered off track the team started to have weekly or biweekly conference calls.

All respondents noted the need for regularly scheduled conference or video calls with the entire team and also with sub-teams. The respondents who were team leaders also reported the need to communicate regularly through meetings with the project sponsors and functional managers.

The time interval between meetings varied depending on the interviewee's team needs. All participants felt that more frequent meetings were needed at the beginning and at high stress points in projects. More frequent meetings were also required if the project was in trouble or in danger of not being completed successfully.

Three of the participants mentioned specifically the role of the kick-off meeting in training the members of the team. One respondent arranged a face-to-face training as part of the initial project kick-off meeting. This was technical training to ensure that all members were familiar with the design specifications of the project's deliverables. This training session was videotaped so that those members who were unable to attend the face-to-face session and those who joined the team at a later date could benefit after the fact.

Another way to implement technical training was through computer based training programs. One international team used interactive self-paced training to train both the North American and the overseas team members. Again this training was for technology needed to complete the project deliverables.

The third respondent, who was the most experienced virtual team leader, mentioned that team members needed to be trained on the technology as well as the soft skills necessary to complete work on a virtual team. Because he felt the team needed to fully understand how the team would interact though the use of technology assisted communication, he devised a carefully orchestrated series of training sessions. The sessions were imbedding in the first few team meetings and were accounted for in the schedule and budget of the project.

Time differences in the international teams often made scheduling meetings more difficult. One respondent felt his team could have benefited from quick daily meetings, but the twelve hour time difference made that impossible as it would have affected the team's home life too drastically. That team settled for weekly meeting where one team would come in early and the other would stay late. Another respondent dealt with three

time zones. His team found a one-hour window available for all team members to meet within normal working hours. Although the respondent felt that this was not ideal as it broke up the day for those in the middle time zones too much, it was the only possible solution for that team.

The mode for meetings also varied by team or by project necessity. If regular updates and status checks were all that was needed, an audio meeting was considered adequate. However, if the team was in a crisis mode, if several decisions were needed or changes to the project plan or scope were required, most participants felt that visual cues were also required, either in the form of videoconferences or face-to-face meetings. Some teams would have preferred to use video or face-to-face for all meetings but the quality and cost of video, especially for international teams was prohibitive. As one participant mentioned "You kind of have the trade off of the expenses versus the efficiency" (Respondent 2). Another problem with videoconferencing was the differences in availability and equipment between international teams. Videoconferencing was sometimes not an option.

Several of the participants also mentioned the need for more meeting preparation for virtual teams. Advance notice of meetings is needed to give all members the opportunity to be present and to be prepared. Spur of the moment meetings were generally out of the question. Charts, reports and agendas needed to be sent out early so all participants could be fully briefed before the meeting. Also discipline within the meetings, such as sticking to the topics on the agenda and following a prepared plan, were considered essential. This discipline continues during and after the meeting with the necessity for recording and distribution of minutes, action plans and decisions. "The

death nail in the project is when people stop coming to the meetings—you must plan the agenda properly" (Respondent 6).

There were other difficulties peculiar to virtual team meetings that are not problems in a face-to-face meeting. One respondent mentioned that the team found that office co-workers who were not part of the virtual team did not treat virtual meetings with the same respect that they would give to a face-to-face meeting. If someone is meeting in an office cubicle, others do not interrupt; similarly if people are in a meeting room, co-workers are not likely to disturb the meeting. Virtual team members often wear headsets while teleconferencing, and are often disturbed by non-virtual work mates. To combat this recurring problem, one group decided to put up "do not disturb" signs on their cubicles when they were in virtual conferences.

There were also examples of things that happen in a virtual team that would be considered rude in other settings. Several of the interviewees talked about instances where team members were carrying on side conversations or multitasking during meetings. Often virtual meeting participants would complete other work or carry on side conversations using instant messaging or the mute button during the meeting. Two teams solved this problem, though not totally successfully, by confronting participants when they suspected they were not giving the meeting their full attention and by pointing out that this behaviour was unacceptable. Calling out "Hey, you're multiplexing" or "un-mute us" became acceptable comments to indicate that the perpetrators were wasting the team's time.

These difficulties during virtual team meetings lead participants to speak longingly of the advantages of face-to-face interactions. These comments were so common that the topic merits separate consideration.

Face-to-Face Interactions & Communications

The advantages of face-to-face interactions were not apparent to participants until they were confronted with virtual only situations. One participant had met the other team members in person during an earlier virtual project, which allowed him to feel comfortable in the new team, but quickly realized that his co-located team mates did not have the same advantage:

> *When you get to know individuals, their mannerisms come out on the phone and even in their email. Having the experience of meeting them helped me…even four years later, but I realized that [members of] my new team did not have those relationships and they felt more restricted communicating with those same people.* (Respondent 7)

Every study participant mentioned that one of the critical events in forming team cohesiveness was a face-to-face meeting. For some, the face-to-face experiences occurred once the team was in danger of being unsuccessful in completing the project, but for the others the face-to-face connection came early in the team forming process. All respondents were in favour of the use of face-to-face interactions as frequently as possible. One interviewee who worked from home reported that the greatest challenge of a virtual team was that "you are constantly getting to know new people, and you really have to work hard to get to know the people" (Respondent 2). To compensate for this challenge, she requested opportunity to travel to the main project site at the beginning of each project.

Many of the interviewees felt that the earlier in the project that a face-to-face meeting could be arranged, the better. Several participants stated that if the team members met early in the project it was easier to keep the momentum. A face-to-face meeting to help define the project goals, scope and vision, as well as to ensure clarity on expectations was reported as helpful at the beginning of the project.

Meeting face to face was our formative team bonding and building experience. We were able to draw pictures on the white board, go for lunch and get ourselves aligned to the vision. In addition to bonding the team, it was an attempt to fill our brains with as much information about the project as we could. (Respondent 9)

Although some participants believed that video could compensate somewhat for the lack of a face-to-face meeting, others felt that it did not. One interviewee's team tried videoconferences to resolve some major issues, but the issues did not get resolved since the remote team did not buy in to the project goals until they were able to meet face-to-face. "The direction and clarity was not there until the face-to-face meeting. We needed to have a human face attached to the rules; a personality behind them just made things click" (Respondent 1).

For some participants, especially those who had international teams, videoconferences were not an alternative as accessibility to equipment was inadequate in some countries and because poor video quality and bandwidth limitations made the videoconferences less than efficient. Cost was also cited as a deterrent to using videoconferences too frequently.

The North American portion of one participant's team did meet face-to-face, but they were unable to meet the international team participants from Asia. To compensate for this, the team had access to a liaison. The company, which had operational sites on

both continents, hired the liaison to help various teams with communication and cultural issues related to the Asian team. The liaison was not specifically assigned to either the Asian or the North American team, but could be called upon to help bridge the communication gap between the sites. The liaison position was a rotational position that lasted for six months at a time. At that time a new member of the Asian team would travel to Canada and work as the liaison for the next six month period. In this way, after the first rotation, there was someone at both sites who had a better understanding of the situational and cultural aspects of the various sites.

In this organization, the liaison also helped bridge the time difference gap. He worked different hours than the other North American contingent so that his workday spanned some time with each of the countries. The people in Asia would use the liaison to help reach the people in Canada and vice versa.

Team bonding was another benefit of face-to-face meetings. A beneficial aspect of a face-to-face meeting was the interpersonal connections that the team members made. The team meeting face-to-face did not have to be a complete team to experience the beneficial effects. One participant tried to have each member of his project team travel to the other sites at least once during the project. The importance of the interpersonal connections was a consistent theme in the discussions of the virtual team process.

Interpersonal Connections & Communications

All participants reported that interpersonal attraction was important for a cohesive virtual team to develop, and all reported that teams had to work to create occasions where interpersonal connections could be made.

Over subsequent meeting we tried to continue the dialogue; tried to get to know the other team's specific city, country, events, to be familiar with the season, the weather, the activities… just a connection. (Respondent 7)

Most respondents believed that it was best to create these bonds face to face, but felt that some interpersonal connections could be created through electronic means. The most commonly cited way to created personal connections was to allow time before and after meetings for chitchat. Participants found the sessions seemed too abrupt if the meetings started immediately, and that such beginnings did not allow the small talk that would normally occur as people enter a room for a face-to-face meeting.

Two of the participants mentioned that sharing stories was important to develop the interconnectedness of the team members. For example, one study participant gave specific amusing but work-related tasks to team members. The team members would recount the story or incident to all the members at subsequent meetings.

Participants who worked from home offices reported that they missed the casual exchanges at lunches and around the proverbial water cooler associated with on-location work. Another home-based participant phoned other team members occasionally just to chat. Generally the chat turned into discussion of a couple of work issues, but the initial purpose of the call was simply to make the personal connections

The other important role of maintaining interpersonal connections was that it allowed team members to learn about the skills that individuals brought to the team. Most participants reported that the team that they worked with had an initial meeting to allow individuals to introduce themselves and to allow them to give a bit of personal background. One participant also found that these skills needed to be reviewed periodically as without the face-to-face interaction and informal talk, team members would not retain the initial introduction information.

Summary of findings supporting Research Question 1

Most participants cited virtual team communication as one of the biggest

challenges facing virtual teams. Problems included glitches with technology, lack of a

common understanding, and difficulties creating team-bonding experiences. The

participants dealt with these difficulties in some commonly cited and some uniquely

individual ways. All respondents felt that for the team to become a cohesive entity the

leaders and team members had to work at making opportunities for connections and to be

direct in confronting issues that would sort themselves out in face-to-face discussion or

not be present in co-located teams.

Research Question 2

The second Research Question asked "What practices of virtual teams appear to increase

trust among team members?"

Many respondents felt that trust was easier to develop once interpersonal

relationships were established as described by Respondent 6 below.

> *I think it takes longer to establish the trust and relationships with team*
> *members in a virtual team. It is a lot easier if you have people on a team*
> *you have worked with before.*

Co-located teams could establish trust faster because team mates had visual

confirmation of the effort being put in and the progress of the work. The importance of

communication and a shared understanding of roles, goals and vision were closely linked

to respondents' discussion of trust. While trust was seldom talked about in isolation by

respondents, it was an overall theme throughout the discussions. The following analysis

discussed the trust issue and the issues of interpersonal connections.

Trust is a large issue in any team, but becomes even more challenging on a virtual team because, as some of the study participants reported, the risks are heightened. Eight of the nine participants reported that it took longer to establish trust on a virtual team. Several also stated that trust was slow to develop but also could disappear quickly in a virtual team, especially if personal connections had not been established.

Respondents of the study saw the lack of personal connectedness as a direct tie to a lack of trust. As one participant stated, "you can't go virtual mountaineering to build the team and help develop trust" (Respondent 1). Trust in a virtual team must be earned; however, if team members had worked together previously, trust was more easily established. Trust is also transferred though connectors, people who had worked with other members in the past. "It is one thing for me to say, 'you can trust me.' It is far more effective to have someone else say, 'you can trust [him]'" (Respondent 5). Trust on a virtual team is much more tenuous than that established in a co-located team.

Respondents suggested that teams with members who were open to virtuality made it easier for home-based team members to gain the trust of the team. This was confirmed by two participants who worked from home. They reported that other work mates and team mates often believed that if someone was working from home, he or she was not working. Both these interviewees reported that they had to work really hard to ensure that they delivered high quality work within the timelines to establish trust. This was even more important with members who were not open to having virtual team mates. Unfortunately, as some respondents pointed out, sometimes the members of a team are assigned and not chosen, so selection of open-minded people was not always possible.

Respect was also closely tied to trust. If team members respected other member's work and ethics, they reported they were more likely to trust that person. It was also reported that trust was easier to establish if respected team mates expressed trust of someone. If the expectation was that someone completed a task by a certain time, and the respected team mate expressed confidence in that person, the trust transferred to other members. This transference was sometimes limited. The team member had to confirm the faith in them in order to earn the trust of the team members

The trust issue is more difficult for virtual teams. If the team was face-to-face, one respondent explained, then other team members could see the progress; if the person did not deliver on time, the team knew he/she had been working hard to try to deliver. In a virtual team, the hard work is invisible and not making a deadline is simply seen as not working hard enough. Trust is lost. If a person did not deliver what they promised on time, other virtual team members were less likely to understand and would lose trust in that person's ability to contribute successfully to the team.

Trust was also related to the communications issue. In a virtual team, several respondents suggested that clear, open communications and a detailed communication plan helped establish trust among the members. One respondent explained that people are often reluctant to see any extra communication as real or necessary and therefore would not make the extra effort unless it was mandated. However, if the detailed communications were absent, the team experienced difficulties

In a virtual team individual effort was not visible to other team members, and therefore did not engage the necessary trust buttons. For this reason, the status of work

completed needed to be updated regularly. Predictability of communication regarding the progress of the project became key to trust and formation of a cohesive team.

Clarity of team member's roles and of the team's overall vision were also seen as important factors in fostering trust. If all members were clear on each of the other member's role within the team, there was more confidence in that person's ability to complete their tasks. A well laid out plan that included descriptions of how the activities fit into the overall project plan fostered trust in the project and in the team's ability to complete it successfully. Frequent revisiting of the plans and updating of the plan in an open transparent way was also a key trust factor reported by several study participants.

Participants tied trust to motivation, success and ability to remain focused as a team. All of these suffered if trust was not established. The success of the team itself was identified as an element that fostered trust. Once the team had a few successes or completed deliverables and the team began to see the progress, many respondents noted a jump in team trust.

Trust is a key issue in virtual teams. Although it may be slower to develop in a virtual setting, it can be achieved. Through open communication and the development of personal connections, trust can be fostered. Trust develops based on past successes. If the team follows a clearly detailed project plan that has distinct milestones to show the successes, virtual team members can begin to trust one another and maintain that trust.

Research Question 3

The third Research Question asks "What benefits can a team orientation or initial kick-off meeting provide a virtual team?" As it turned out, none of the participants specifically had an orientation session. However, several did have kick off meetings. The kickoff

meeting were described as a time to determine the project goals and vision, as well as each team member's specific skills and responsibilities. One participant described it:

> The kick-off meeting *"is your opportunity to ensure that an avalanche doesn't occur. Look at the hill, and every hill is unique; determine the best way down, find the required route to suit the project— the one least likely to trigger an avalanche. It is like contingency planning up front.*
> (Respondent 8)

Four participants mentioned kick-off meetings that occurred in a face-to-face setting. One participant described this face-to-face session as the formative building experience necessary to understand the needs and vision of the project, but also as a chance to begin building relationships and trust in the team mates abilities. The kick-off meetings were important to respondents to set project goals and visions, assigned roles and responsibilities, arrange for necessary training and serve as a new member orientation.

Project Goals and Vision

All respondents stated that the team's goals and vision must be clear to all team members in order for the team to be successful. If the mandate was not clear, members would sometimes either go off on tangents that they felt would benefit the project, or they would not devote any time to the project. Also important was that the team had to understand the reasons behind the mandate; how did the goals of the project align with the goals of the organization. Without a clear understanding of why the project was being completed, several respondents mentioned that the team members would not buy in to the project and the project completion would be in jeopardy. One respondent explained:

> *We had to get leaders for the different areas; the roles had to be spelled out with the vision statement as the guide. We truly had to understand what we were doing and how we were going to get there. There had to be*

a reason for the team, and it needed to be commonly understood
(Respondent 1).

Although all respondents stated that the project mandate, goals and plans must be fully laid out before the team began to experience success, three teams did mention that this was not done at the beginning of their projects. These three respondents held the "kick-off" meeting several weeks or months into the project as a way to get the project back on track.

"Virtual teams fall apart when there is no real mandate," said Respondent 1. The mandate needed to be explained and it was helpful, according to two respondents, if the project sponsor was available in a conference call to add motivation and importance to the project. Most participants felt that describing the project in detail in a face-to-face collaborative team meeting was the optimal method to achieve complete understanding and buy in of the team. This was especially true if the project was complex and of a longer duration.

Three participants also mentioned that if a full face-to-face kick off meeting was not possible, it was helpful to have leaders physically present at each of the team main sites to explain the vision of the project to the team in a face-to-face meeting. Two other respondents felt that if a face-to-face kick off was not an option, a videoconference could help achieve project buy-in. One participant held a kick off session at the main location and videotaped it to be viewed by remote team members.

Roles and Responsibilities

Interviewees repeated mentioned the importance of clearly defined roles, responsibilities and expectation:

We now have a formal session or sessions where people sign up, adopt, and accept their roles on the team. Not only roles related to the project delivery, but also in terms of their job as part of the virtual team; the Communication, technology, meeting schedules, back up plans… (Respondent 5)

All participants felt that it was absolutely essential for successful team dynamics and project completion to ensure roles were understood. Most participants recommended taking a clear look at the project and assigning one or more people to each task. Some participants expressed that they had had success at having this completed collaboratively either face-to-face, with a videoconference or using a collaborative software and a conference call. All participants who suggested this approach felt it had to be done in real time.

Two participants also noted the importance of having strong leadership to ensure that the roles were completely understood and each team member stayed within their boundaries. They provided examples of conflicts that could have been avoided if team members had not taken on and completed work that had been assigned to others. In both cases, the participants felt that the project leader should have realized that this was happening and should have been stronger in insisting that participants stick to their task.

A recurring theme when addressing roles and responsibilities in virtual teams was the need for clear and honest communication, and documentation, to accompany the roles. Most participants felt that in virtual teams it was not enough to have the description of the job. The actual roles and their fulfilment during the project needed to be discussed and recorded.

Roles and responsibilities were not limited to individual duties between meetings. The need for explicit description of duties also extended to clarification of how the team would interact and function together. Several respondents mentioned that they either

formally discussed and defined or assigned team functional roles. One respondent carefully laid out all the team activities and functions and asked for volunteers to fulfil these roles. Often, the role would be filled by two team mates, one from each of the major locations. Although this was not planned, it was a definite benefit as those two team members would work together on the role and by doing so would form an interpersonal connection and trust that often transferred to the rest of the team. Sometimes these unofficial roles would evolve as a need was seen and filled. Either way, respondents who discussed the functional roles of the teams felt that that discussion greatly benefited the team and added to the cohesion. Giving formal and informal recognition to the team mates who fulfilled these roles was also beneficial to the team's working relationship.

New Member Orientation

Respondents did not seem to specifically have a plan to introduce new members to the team. Some study participants did use a mentoring or buddy system for the new additions. Respondent 3 said:

> *There would be a teaming with the new person and a seasoned person.*
> *They would be mentored by one or two people, and they would get*
> *together more frequently than the rest of the group.*

The mentors were charged with making sure the new team mates were brought up to speed on the team's goals and progress thus far. One participant also charged the mentor with trying to explain all the unwritten rules that had accumulated for the team. The mentoring role was not laid out, nor was it a formal role, simply a pairing of two people, if possible two co-located people.

Four study participants did not have any systems in place. They used the project charter and communication plan as their new member orientation guide. Another

respondent mentioned that new people were usually not expected to make contributions to the team until after the first few meetings.

Although an official orientation was not part of any of the participant's virtual teams, several did hold kick-off meetings. Some teams held one official kick-off meeting where the project was laid out carefully and each person's role was established. Sometimes this would be done over more than one meeting. Some teams had less official ways to transfer this information. Those respondents who did not have clearly defined terms found that they needed to have a meeting before the team really started to produce successful results.

III. Discussion

Results indicated that the needs of the members on a virtual team are no different than those of a co-located team. Teams perform better when members have developed high levels of trust, there is clear communication, and goals and roles have been clarified and relationships have been built. Meeting the needs of a successful team is more challenging in a virtual team. Three issues vital to building virtual team cohesiveness emerged from the respondents' comments: face-to-face interaction, a shared understanding, and regular communication. These three factors are connected as they all lead to improved interpersonal connections and by extension, the development of trust. It could be argued that the key to a cohesive virtual team is positive interpersonal connections, and the establishing of a clear understanding of the individual's place within those connections. In this study, the three key ingredients for successful virtual teams were face-to-face contact, positive communication patterns and shared understandings.

Face-to-face contact is a key ingredient in creating a personally connected cohesive virtual team. Teams where people are well connected and have developed "dense social networks" are more likely to be successful (Lipnack & Stamps, 1999). The team needs to gain a level of cohesion to help motivate members and facilitate the coordination of activities (Stashevsky & Koslowsky, 2006). Connections are harder to make with a virtual team and by having some face-to-face activities connections can be strengthened more quickly. Both trust and cohesiveness require common face-to-face encounters and experiences (Hurwitz et al., 2006).

Respondents in this study all stated that face-to-face contact was either the critical incident or an important aspect of their team development. Face-to-face contact promotes relationship building that is important in ensuring trust, a shared understanding and ultimately a cohesive team. It is important for teams that cannot interact directly to find alternatives (Peters & Manz, 2007). When actual face-to-face contact was not possible, respondents referred to videoconferencing as being almost as beneficial. As well they cited the use of liaisons, or individuals who had relationships with multiple team sites, as beneficial in connecting the teams and building the relationships between the teams.

Another useful substitute when whole team face-to-face interaction was not possible was the use of individual or subgroup face-to-face opportunities. Having like-minded people at each site who worked closely together and who were able to meet occasionally helped unify the team. Often the expense of sending multiple people to a meeting is prohibitive. Sending one person to represent the team is beneficial to the whole team, as relationship building appears to be transferable, increasing the

collaboration and cohesiveness of the virtual team (Malhotra, Majchrzak, & Rosen, 2007).

The timing of the face-to-face contact, actual or virtual also emerged as an important issue. Having a face-to-face initial meeting helps promote trust through developing interpersonal connections and allowing all team members to fully understand the project and the players involved. Teams that did not have an initial face-to-face meeting reported that they experienced greater difficulty in achieving goals. Teams experiencing motivational difficulties benefited greatly from a face-to-face meeting to either establish or re-establish a shared understating and to build relationships. This finding is supported by the literature. Many studies promote an initial face-to-face meeting to establish relationships early in the team building process (Bergiel et al., 2008; Lee-Kelley, Grossman, & Gannings, 2004; Peters & Manz, 2007) and support the idea that initial face-to-face connections help foster positive communication for the remainder of the project (Joinson, 2002).

The results of this study highlight the importance of face-to-face interaction in building trust and relationships and, in turn, the importance of building trust and relationships in creating a cohesive team. If entire team face-to-face interaction costs are prohibitive, video conferencing or partial team face-to-face interaction is an acceptable, though not perfect, alternative.

The second key finding that emerged in this study to promote a cohesive virtual team was a shared understanding of the vision, goals, and direction of the team. This includes a complete understanding of each member's roles, responsibilities and the contributions of specific expertise. Respondents noted that one of the most important

initial factors for a virtual team was clarifying objectives, roles and responsibilities. Through the development of a shared understanding, personal relationships increased and bonds between members were solidified. The need for understanding each person's exact role in achieving project goals was cited time and again as an important function for team cohesiveness because it allowed members to trust that other aspects of the project were being completed. A firm understanding of the project goals and knowledge of how the project fit into the overall mandated plan was important to the virtual team members.

Team members' awareness of the other team members' roles and responsibilities through timely reporting and completion of deliverables was credited by respondents as necessary to promote trust in the team. As was pointed out by three interviewees, trust in virtual teams is earned slowly and lost quickly. Trust in a virtual team is based on actions of team members, and delivery on promised products, rather than on the goodwill built up by personal interaction since the efforts of team members are often invisible to the other members of the virtual team (Malhotra, Majchrzak, & Rosen, 2007). Trust was promoted through understanding tasks and responsibilities. Respondents mentioned that members were more likely to trust that other members were completing all aspects of the project with sufficient skill and attention if they thoroughly understood the responsibilities of each team member and their part in completing project milestones.

Many respondents noted that the formation of a shared understanding works best if all members of the team are involved in establishing the goals, roles and responsibilities of the team members. As the team members increased their understanding of the projects, and their roles within the procedures necessary to attain the set goals, the

team members' knowledge of each other increased, which in turn improved the development of interpersonal relationships and trust.

Several respondents mentioned that meetings and opportunities for team members to introduce themselves and their roles on the team and their areas of expertise, served to make team members more comfortable with each other so they could begin to form interpersonal relationships. If members had an understanding of each other's roles in the project, this understanding promoted trust and increased the team cohesiveness. The interpersonal relationships that are built through collaborative goal and role setting experiences are as important as the goals and roles themselves (Leinonen & Bluemink, 2008). Group goal setting often becomes a unifying force in virtual teams.

Participants in this study suggested that informal roles in which team members interact to maintain the team's activities were also important, perhaps as important as the official project roles. Finding a definition for these unofficial roles helped the team interact effectively and increased the collaboration and trust within the team. Although these roles were sometimes adopted through unobservable means, some experienced virtual team leaders listed the unofficial roles and asked members to volunteer for them. These respondents determined that the assignment of unofficial roles often worked best if members from various locations shared these roles. The interpersonal relationships developed between these members, through the collaboration necessary to share the roles, transcended geographical boundaries to connect multiple members.

The third factor that emerged in this research was the need for positive communication patterns. Establishing positive communications in a virtual team is more difficult than in a co-located team. Study participants found that by clearly stating and

establishing communication norms within the team, team leaders could help to establish interpersonal connections. The discussion and production of a communication plan, including the modes and norms for communication, was recommended. Although the plans mentioned by study participants varied, most included standards for asynchronous and synchronous communications, such as response-time expectations and expectation for full participation from everyone. The plans also included methods for goal tracking and setting meeting protocols, as well as expectations around general etiquette and procedures for electronically mediated communications. Several respondents mentioned that multi-tasking during meetings and the use of the telephone mute button had to be expressly forbidden in the plan.

The style and opportunity for communication set the groundwork for interpersonal relations. Study respondents felt that interpersonal connections were formed fastest through personal discussions and stories. In co-located teams, these discussions generally arise in face-to-face casual encounters. Virtual teams do not have the benefit of group lunches or the proverbial water cooler conversations. Although it is not impossible to develop interpersonal relationships in a virtual setting, it does take longer (Beranek et al., 2005). Respondents felt that opportunities for casual exchanges must be created and maintained on a virtual team.

To encourage casual communication encounters and thus promote interpersonal relationships, some study participants suggested periodically phoning other team members to chat. Inevitably the talk turned to work issues, but it also built interpersonal relationships. Other participants ensured that each synchronous encounter included time for social chat and built this time into all meetings. Another study participant devised

team-building tasks that members completed with their co-located team mates. Then at the next teleconference the story of how the team building task unfolded and the often-amusing results were shared. Teams given time to develop the foundations of a relationship were able to foster interaction, build trust and increase the cohesive environment. Established research shows that trust requires personal relationships and social networks (Jarvenpaa & Leidner, 1999), and these interaction activities allowed social networks to develop.

Respondents also saw that team success and a positive team attitude contributed to establishing a trusting relationship between members. The celebration of the successes of the team, even the small successes, reportedly helped build further success. Team members needed to assume the best of the other team mates. In a virtual team, the obvious needed to be stated and positive attitudes needed to be publicly rewarded to encourage personal connections and to allow trust to develop.

The virtual project team members interviewed for this study mentioned three aspects that helped create a cohesive atmosphere: face-to-face meetings, shared understanding, and positive communications. These three aspects all linked with positive interpersonal relationships, which lead to trust. Each is interwoven with the others. An initial face-to-face meeting helps develop positive communication patterns and a shared understanding. In turn, a shared understanding increases positive communication, and vice versa. All three contribute to improved interpersonal communication, trust and, ultimately, to a cohesive team. This concept is illustrated in Figure 4.
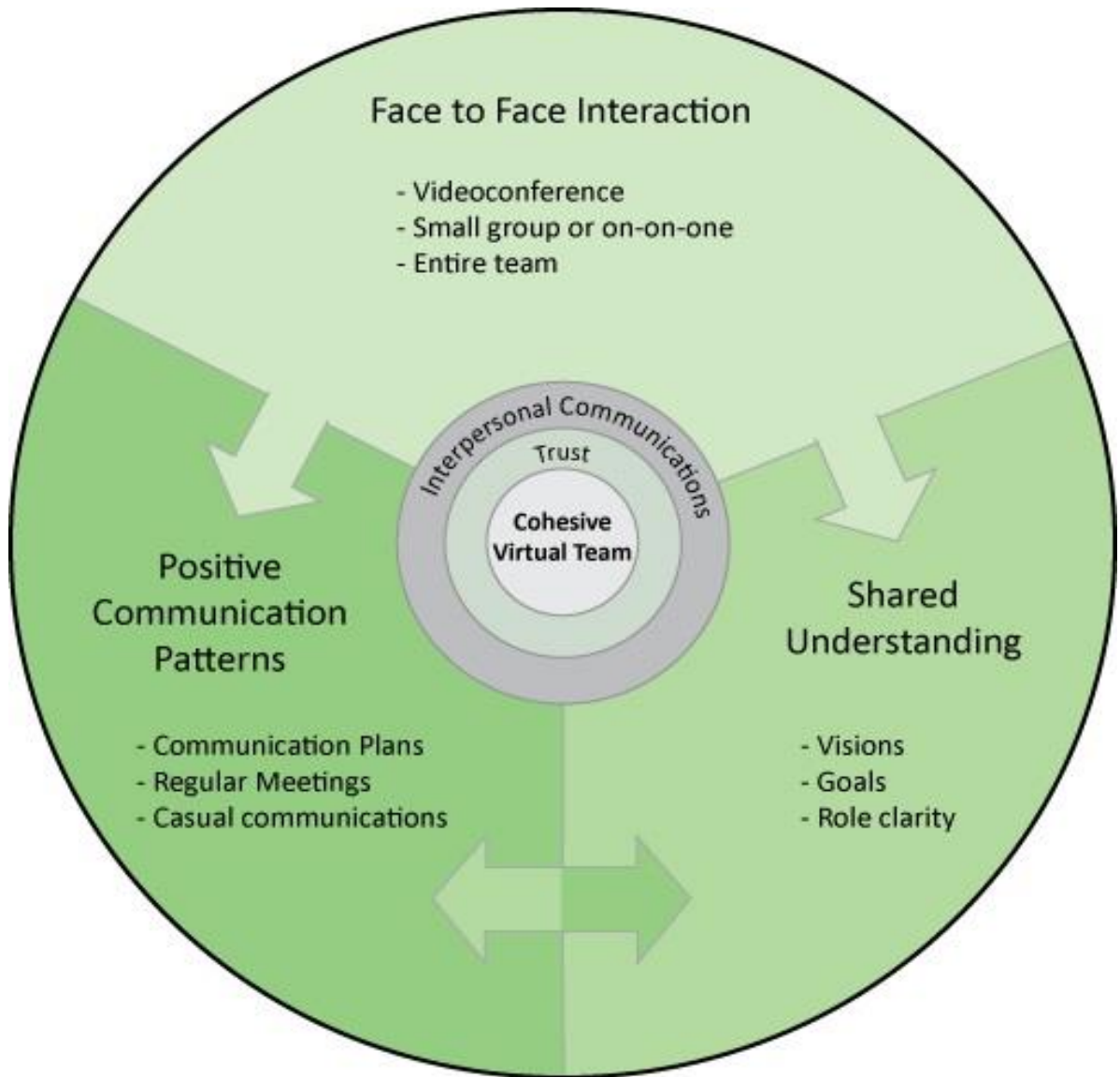
Figure 4 The Creation of a Cohesive Team

In Figure 4, interpersonal communications and trust are shown in the centre to represent how together they form the core of a cohesive virtual team. These elements are built and supported by the on-going interactions among team members, initiated in face-to-face interaction or through devices such as video conferences, small group or one on-one meetings to obtain interactions as close to a face-to-face approximation as possible. The face-to-face meetings, or approximations thereof, help to build both positive communication patterns and shared understanding. The positive communication patterns

and shared understandings develop simultaneously and each feeds the other.   Both are best nurtured through well thought out communication plans, regular meetings and planned "casual" communications. The essential aspects of the shared understand are made explicit through the articulation of the visions and goals for the group and the verbalization of role clarity among team members.

Best Practices

Findings suggest several best practices that can facilitate the effectiveness of virtual teams. For example, a properly facilitated kickoff meeting was one venue that respondents felt worked well to develop the backbone for positive communications and shared understanding. Orientation process over several meetings could be used to ensure that the participants were not overloaded with too much information in the first meeting. Skills and responsibilities have to be revisited often, as team members do not retain the information if items are mentioned only once.   It may be better to hold several meetings and review what each team member brings to the project. This approach to team orientation or project kickoff seems to be more effective in enhancing the cohesiveness of a virtual team.

Findings suggest that the meeting would best be conducted in a face-to-face setting, but electronically mediated video conferencing can also promote the relationship building needed to increase the chances of the development of a cohesive virtual team. At the kick off meeting, the vision and goals of the project need to be clearly identified, and together the team can establish the project and team related roles and responsibilities of each team member. The kickoff meeting should include a communication plan and lay

out interactions and procedures. By discussing these things, team members begin to establish relationships that will help develop and maintain trust throughout the project.

The respondents of this study clearly indicated that positive communication practices and a shared understanding helped to increase trust, build personal connections, and improve team cohesiveness. The following best practices are based on respondents' suggestions to create a more cohesive, successful virtual project team. These best practices should be implemented early in the project or at a virtual or real kickoff meeting or a series of meetings

1. Introduction of team members: this may be the most important aspect of the kick-off meetings as building connections builds trust.
   a. Personal introductions
   b. Skills introductions
   c. Role on the team
   d. What each person brings to the team (why were they selected)
   e. Establish an electronic data base of each team member
   f. Virtual team building activities
2. Project specific information (project deliverables)
   a. Company mandate: it is helpful if a project sponsor or someone who is supportive but not directly on the project team delivers this information. The presence of someone in the upper echelons of the company is also advantages as it places importance on the project.
   b. Project goals
   c. Project vision and how the project fits into the overall company plan
   d. Project specific roles of each member
3. Project team specific information
   a. Roles specific to the smooth working of the team

      b. Flow of work and information: who does what when and where does it go to next

4. Communication Plan

      a. Technology-assisted communication expectations: details of when to use each type as well as the protocols and etiquette expectation for each.

      b. Turn-around time expectations as well as length and format, especially for email communications

      c. Reporting methods and timelines

      d. Meeting expectations: preparedness, including when to send agendas, charts and other meeting documents, meeting times and dates, protocols (ie no mute button or multi-tasking, introduce all members and silent non-member who join the meeting) and follow up expectations

5. Technology training

      a. Communication technology training

      b. Project needs training: technology and soft skills

If these aspects of how the team will work as a team are developed though an interactive process, a shared understanding of the project and the team is more likely to emerge. Ensuring that the above information is not simply transferred to project team members, but is determined collaboratively will also help to develop personal connections and trust within the team.

Future Research

All the participants of this study mentioned that some face-to-face interaction did occur within their team. Researchers agree that more personal means of communication speeds up the forming of personal bonds between team members (Branson, Clausen, & Sung, 2008; Lee-Kelley et al., 2004; Peters & Manz, 2007; Warkentin & Beranek, 1999).

Further research into how to accelerate the interpersonal attraction without the benefit of face-to-face interaction would benefit virtual teams.

Also, research into the ratio of face-to-face and virtual contact time could be studied to determine the point at which teams develop into a cohesive team the fastest. Looking at a cost/benefit analysis of virtual teams meeting face-to-face would also be interesting.

One respondent suggested the use of a liaison to increase the cohesiveness between teams that were both geographically and culturally removed from one another. Another respondent suggested that a like-minded person at each site was helpful in creating a unified team. The concept of a liaison and the role of such a person merits further study. Further research into the official or unofficial use of a liaison to encourage interpersonal connections or minimize cultural or geographical differences might provide beneficial insights into virtual team cohesiveness.

This study did not focus on the gender, cultural or age differences of the respondents or how these factors may have affected building a cohesive team. Although a lot of research has been completed on the cultural and gender differences of a virtual team, not much research can be found on how the age of virtual team members affects the team's cohesiveness. As the generation entering the workforce in the next few years will be proficient at social networking and social software, surely this will affect the workings of a virtual team. Understanding how age affects the use of computer mediated software and the use of new collaborative tools is thus of interest.

Although this study pointed to three factors that respondents suggested were necessary in creating a collaborative team environment, an expanded study would be

valuable. Alternately an extensive study on any of the individual factors affecting team cohesiveness, face-to-face meetings, positive communication strategies, or a shared understanding, would add to the base provided by this study.

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Notes

[1] Computer meeting applications simulate face-to-face meetings. They allow participants to exchange visual information while being connected verbally. Computer assisted meeting software generally includes voice and videoconferencing, instant messaging for side conversations, document sharing, and cooperative document capabilities allowing the team to discuss or work collaboratively in real time.

Appendixes

Appendix A: Participant Informed Consent

Virtual Teams: Developing Cohesiveness Through Virtual Methods

Principal Investigator: Liz Benoit

You are invited to participate in a study on virtual teams and methods of developing cohesiveness in the initial stages of team development.

Purpose of the Study:

Virtual Teams: Developing Cohesiveness Through Virtual Methods is a study of the initial stages of a virtual team. There is evidence that cohesive teams perform better as they are more committed and have a sense of group pride. Through interviews this study will determine what virtual team communications and practices help foster a cohesive team environment. With analysis of the data, suggestions for best practices and orientation techniques for virtual teams can be established.

This study is being conducted as part of the requirements for the Master of Arts in Communication and Technology degree. The finding of this research may potentially be used to develop methods of virtual team orientations.

Methodology:

If you agree to be a participant of this study, you will be asked to reflect on a critical incident that was instrumental in creating a cohesive virtual team. A critical incident could be any incident that made you feel more connected to your team mates or to the project. This incident will be discussed in an interview. As well basic information on the teams will be collected before the interview; such as, communication tools, team size, location of tem members, if any face-to-face communications occur, etc.

The interview will be conducted though a face-to-face meeting, skpye voice or video, ichat video, or by telephone.

The interviews will be recorded by the researcher and kept in a password-protected file for five years. At which time they will be destroyed. The results of the study will be included in a final report, accessible in hard copy or online, and discuss in presentations and workshops. The results may also be the subject of journal papers or articles or other forms of publication. All participants will receive a copy of the final study.

Confidentiality:

Although direct quotes will appear in the dissemination of the results, no names or identifying information of participants or workplaces will be used in any publication of this study without prior consent from the participant.

All raw data will be kept in a password-protected file on the researcher's computer or in a locked filing cabinet at the researcher's house for five years as dictated by the University Ethic's Board, before being destroyed.

Interviews will be recorded, but will not be transcribed or listened to by anyone other than the researcher. Some quotes and notes of the interview will be recorded in writing, but no identifying information will be attached.

Time Commitment

Participation in the interviews will be approximately 60 minutes. Although follow-up clarifications are not anticipated, the researcher may contact participants by email or phone with the participants consent. The

clarification process will be limited to a time commitment of 30 minutes. The preliminary basic information will be collected via email, and should take no more than 30 minutes to complete.

Benefits and Risks

Participants will receive a copy of the report outlining best practices for virtual teams.

It is possible that someone could conclude your identity from quotations used in publications. There are no other known risks from participating in this study.

Withdrawal from Study

Participation in any aspect of this study is completely voluntary and you are free to withdraw up to two weeks after the interview has taken place without consequences and information I have gathered from you will not be included in the study. You may not withdraw after that point as it may not be possible to remove your comments and data from the study after data analysis has begun.

Dissemination of Results

The findings from this interview will be used as part of a research paper. In addition, the results may be used in pamphlets, workshops, presentations, published articles, or other.

Ethical Approval

All research will comply with the University of Alberta Standards for the Protection of Human Research Participants http://www.ualberta.ca/~unisecr/policy/sec66.html. The plan for this study has been reviewed for its adherence to ethical guidelines and approved by the Faculties of Education, Extension and Augustana Research Ethics Board (EEA REB) at the University of Alberta. For questions regarding participant rights and ethical conduct of research, contact the Chair of the EEA REB at (780) 492-3751.

Concerns or Questions

If you have questions or concerns please contact the principal researcher, Liz Benoit or the supervisor, Marco Adria at the numbers provided above. You may also contact Stanley Varnhagen, who is a member of the Faculties of Education, Extension, and Augustana Research Ethics Board, by phone at (780) 492-3642 or by email at Stanley.varnhagen@ualberta.ca.

If you agree to participate in this study, please sign below. Keep a copy for your records, and return the signed form to me by mail or by fax.

I …………………………………………….., understand the purpose, activities and potential benefits and risks of this research project. I understand that the researcher will protect my confidentiality and privacy, that my participation is voluntary and that I may withdraw from the study until two weeks after the interview, after which I will not be able to withdraw. I understand that I am to sign and return one copy of this form and that I may keep a copy.

_____, _____ _____
Printed name   signature   Date

Appendix B The Initial Invitation Email

…suggested you might be interested in participating in a study of virtual teams. The study is being conducted as the final component for my Masters degree in Communication and Technology and will focus on practices that develop team cohesiveness within a virtual team.

You are eligible to participate if you are, or have been, a member of a virtual team of four or more people who work together to obtain a common goal.

If you agree to participate, you will be asked to do four things with a total time commitment of about 90 minutes:

1. Sign a letter of consent and fax it back to me (optimistically attached)

2. Answer a few questions related to the make up of a virtual team you have been associated with; such as, communication tools, team size, member's locations, etc. The questions will be emailed to you and will likely take less than 20 minutes.

3. Reflect on the virtual team(s) you have worked with and decide on a critical incident that you think was instrumental in creating a cohesive virtual team. This incident could be something spontaneous or planned and of any length or significance: any incident that made you feel more connected to your team mates or to the project. There is no need to write it down.

4. Discuss this incident in a taped interview at a time that is convenient for you. The interview will be approximately 45 to 60 minutes long.

Please review the attached letter of consent for details of the study.
All interviewees will receive the results of the study including suggestions on how to make virtual teams more effective in the initial stages.

If you agree, please respond by email to let me know. I'll send you a few preliminary questions by email and set up a time for the interview. Also, if you know of anyone who might be interested in participating please provide the contact information.