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Emotional Intelligence in Computer Mediated Group Communications

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Emotional Intelligence in Computer Mediated Group Communications

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Abstract

This exploratory study investigated the role of emotional intelligence in shaping the email communication of a five member virtual team involved in the development and support of a proprietary information system. Over 1,200 email messages from a two-month period were coded for communicative goals and communicative form. EI abilities were related to the chosen form of email communication dependent upon the intent of the communicator. Results of this initial study justify further investigation into how EI abilities can be leveraged to improve virtual team dynamics and outcomes.

1. Introduction

A virtual team is a group of geographically dispersed persons, who work interdependently on a common goal, and whose communication and coordination is mediated through technology (Gibson & Cohen, 2003; Lipnack & Stamps, 1997). When communicating electronically, members of virtual teams make determinations about what cognitive and affective content to encode in their messages (Rice & Love, 1987), and how to decode and interpret received messages. While the content of electronic messages will be affected by communicative goal, personality, and social context amongst others, it is our contention that a person's ability to manage, to reason about, and to use emotions (i.e., their Emotional Intelligence (EI)) will play a role in determining the content of their

electronic messages (Murphy, Hine, Lupton & Zelenski, 2009). With the increased flattening of organizational structures and the resultant realities and necessities of virtual teams and fast team-building, EI is going to play an increasingly important role in organizations (Landale, 2007).

EI is the set of abilities enabling an individual to understand and manage self and others' emotions (Mayer & Salovey, 1997). While EI is an accepted construct within academia little little theory has been derived concerning the influence of EI on communication in general, and in computer mediated communication (CMC) usage in particular. In this paper we examine EI in the CMC of virtual teams. A small virtual team's communication archives are studied in-depth. Using a grounded theory approach, theory and hypotheses about the relationship between EI and CMC content are generated and empirically tested. This study was conducted to extend research on EI into the CMC paradigm and also to make an inroad into the more general study of emotion in the various virtual environments enabled by this medium.

An emotionally intelligent person manages and understands their own emotions and those of others, and can use that capacity to communicatively facilitate positive outcomes (Mayer & Salovey, 1997). Three approaches to EI measurement have emerged in contemporary EI research. These include measurements that are self-reported, such as the Emotional Quotient Inventory (EQ-i) (Bar-On, 1997) and the Emotional Competency Inventory (ECI) (Goleman, 1998), peer-assessed (Bar-On & Handley, 2003; Goleman, 1998), or ability-based (Mayer, Salovey, & Caruso, 1999). Self-report and peer-assessed measures of EI exhibit higher overlap with personality measures than do ability-based assessments (Bar-On, 1997; Brackett & Mayer, 2003). That is, while the extent to which EI can be accounted for by the Big 5 personality scales is the subject of some debate, ability-based measures appear to be tapping into a dimension above and beyond traditional measurements of personality (Mayer, Salovey, & Caruso, 2004). For this reason, an ability-based measurement of EI is adopted for this study.

Previous empirical work using ability-based measures of EI have established that the aforementioned positive outcomes can be actualized as task-based performance (Ashkanasy & Dasborough, 2003; Barchard, 2003; Brackett & Mayer, 2003; Lam & Kirby, 2002), constructive rather than destructive behavior (Trinidad & Johnson, 2002); long-term relationship building (Brackett, Mayer, & Warner, 2004; Day & Carroll, 2004; Lopes, Salovey, Cote, & Beers, 2005) and leadership effectiveness (Rosete & Ciarrochi, 2005). Additionally, organizations now regularly send managers for training to become more 'emotionally intelligent' and many educational institutions offer professional programs in EI. Despite these recent advancements and important findings, little work has assessed EI in the context of team or group interaction and to our knowledge no studies exist on EI and the pervasive organizational form of virtual teams.

We view addressing of the aforementioned statement as a critical first step for researchers and practitioners interested in exploring EI in virtual teams. By answering this question, academics and practitioners alike can start addressing under-explored domains of inquiry

around EI and virtual teams that are important, yet currently lack an appropriate theoretical underpinning to explore in a rigorous manner.

The remainder of the paper is organized as follows. First relevant literature on EI and communicative form and goal are reviewed. Next, our research framework is discussed followed by a methods section. Results and associated discussion are presented next followed by some conclusions, limitations and opportunities for future research.

2. Literature Review

2.1 Emotional Intelligence

According to Mayer and Salovey (1997), EI refers to the trait-like abilities of individuals to recognize emotions in themselves and others and to use emotional information effectively. Mayer, Salovey and Caruso (2004) describe EI as one of a "class of intelligences including the social, practical, and personal intelligences" (p. 197) and define it as "the capacity to reason about emotions, and of emotions to enhance thinking" (p. 197). Additionally, EI contributes to cognitive performance significantly beyond that accounted for by general intelligence (Ashkanasy & Dasborough, 2003; Barchard, 2003; Brackett & Mayer, 2003; Lam & Kirby, 2002). The Mayer, Salovey, and Caruso Emotional Intelligence Test (MSCEIT) provides performance-based measures of abilities to correctly perceive, use, understand, and manage emotions (Mayer, Salovey, & Caruso, 1999). The test provides four ability or 'branch' scores as well as an overall EI score.

The *Perceiving Emotions* branch of the MSCEIT assesses an individual's ability to identify nonverbal emotional expressions in facial expressions and abstract images (Mayer, Salovey, & Caruso, 1999). While CMC lacks pure nonverbal cues, leading researchers have posited that said cues get approximated in electronic text and users adapt their communication styles so that their messages contain as many, or more, social cues as in FtF interactions (Walther, Loh, & Granka, 2005). Further, CMC studies have determined that the content of electronic messages can contain both cognitive and emotional information (Rice & Love, 1987) and that an individual's attributions, decisions, judgments, and behavior are influenced by both perception of emotion and cognition. This exploratory study takes the perspective that the MSCEIT tests used to assess emotional perception provide the best current option with regards to reliability and validity. However, future work focusing on the assessment of perceiving emotions in CMC is warranted.

The *Using Emotions* branch assesses the extent to which individuals are able to use emotions to facilitate thought, to solve problems, and to improve performance at certain tasks (Mayer, Salovey, & Caruso, 1999). The *Understanding Emotions* branch assesses the ability of respondents to predict emotional outcomes, how these change over time, and the outcomes of emotional episodes (Mayer, Salovey, & Caruso, 1999). The *Managing Emotions* branch of EI reflects the ability of an individual to manage emotions by maintaining or inducing useful emotional states and eliminating detrimental ones in themselves and others (Mayer, Salovey, & Caruso, 1999). Given that the experience of strong emotions has been shown to reduce cognitive ability (Jones & Bodtker, 2001; Von

Glonow, Shapiro, & Brett, 2004), the ability to manage one's own emotions may explain EI's stated cognitive performance contribution beyond general intelligence.

The overall score for the MSCEIT, or Emotional Intelligence Quotient (EIQ), is an aggregation of the four branch scores. Each branch of the MSCEIT is measured by two separate tests (Mayer et al., 2004). It has been proposed that EIQ is positively related to team member adherence to role, team cohesiveness and overall performance (Jordan, Ashkanasy, Hartel, & Hooper, 2002; Prati, Douglas, Ferris, Ammeter, & Buckley, 2003). It has also been proposed that EIQ may be observed at the team or organizational level and that this is greater than the sum of individual EIQ scores (Gantt & Agazarian, 2004).

Despite the many positive findings suggesting that EI abilities enhance individual performance, no known study assesses the relationship between EI abilities and the communication of groups relying primarily on CMC technology such as email.

2.1.1 Previous Empirical Findings
Emotional intelligence includes the ability to know when and how to use positive and negative emotions to help achieve organizational goals (e.g., facilitate problem solving in groups). Emotions do not necessarily interfere with cognition; rather they may play a key role in guiding it. The affect as information approach (Forgas & George, 2001; Schwarz & Clore, 1983) suggests that cognition may be affect-congruent, to the extent that emotions can provide information deemed to be useful in making an attribution. That is, to the extent that emotion is perceived as relevant to an evaluation, it cues processing in an affect-congruent direction (Forgas, 2000). For example, presumably stable decision making patterns in groups can be influenced by ephemeral moods (e.g., those produced by nice weather, or a negative interaction with a work colleague).

Gasper & Clore (2000) showed that people high in attention to emotion were more likely to use the informational value of an emotional situation to solve problems. Emotionally intelligent individuals are better able to assess the 'emotional climate' of a situation and react in a manner that uses the informational value of the situation to make an informed attribution (Salovey & Mayer, 1990). Emotionally intelligent individuals are also more likely to use positive emotions to broaden and build the cognitive repertoires of the people around them, thus highlighting the importance of the interactional and context focused dimensions of emotional experience (Fineman, 2004).

Further evidence abounds that links EI to cognition and behavior. Trinidad and Johnson (2002) found that high EI adolescents were less likely to engage in self-destructive behaviors such as the consumption of tobacco and alcohol. It also appears that lower EI inhibits the formation and maintenance of positive relations with others (Brackett, Mayer, & Warner, 2004). Likewise, Lopes, Salovey, Cote and Beers (2005) found that EI was positively related to the quality of social interaction when controlling for Big 5 personality traits as well as verbal and fluid intelligences.

Research into EI has been extended into the workplace (Callahan, 2008) with implications for leadership and organizational member performance. A recent article

presents interview results with leaders of eight Canadian organizations on why EI is important for resilient leaders (Reid, 2008). EI has been shown to predict higher leadership competencies (Rosete & Ciarrochi, 2005). Day and Caroll (2004) found that, while EI did not predict individual organizational citizenship behavior, it did predict positive perceptions of co-workers as a group. A complementary finding is that higher EI individuals possess a more positive view of themselves and others (Kafetsios, 2004). Another study found that EI predicted lower levels of stress and a better ability to cope for some, but not all individuals, as the relationship was moderated by personality traits (Ghom, Corser, & Dalsky, 2005). The ability to manage emotions has been found to predict overall team performance to a moderate extent (Feyerherm & Rice, 2002).

Most salient to this paper, EI has been shown to be very important in team maintenance (or positive group dynamics) (e.g., Druskat & Kayes, 1999; Druskat & Wolff, 2001). Emotional intelligence, as argued by Druskat & Wolff, enables teams to establish norms for group maintenance behaviors such as expressing concern for a dispirited teammate or confronting one who oversteps his/her bounds. Further, the authors argue, "Our research shows that, just like individuals, the most effective teams are emotionally intelligent ones – and that any team can attain emotional intelligence" (Druskat & Wolff, 2001, p. 90). Other researchers have found that EI helps to build team cohesiveness and improve performance (e.g., Rapisarda, 2002). While there is much debate regarding the relationship between cohesiveness and performance, this relationship is not at the core of this paper, and we wish to emphasize the established links between team EI scores and various team performance outcome measures (e.g., Jordan et al., 2002; Wolf, Pescosolido & Druskat, 2002). Druskat & Kayes (1999) propose that the ability of a group to manage individual and group-level emotion plays a key role in the development of social capital, effective task processes, and group effectiveness.

2.2 Communicative Form and Goal in CMC

This study seeks evidence regarding the extent to which individual differences in EI are related to the choice of communicative strategy, and more specifically how that strategy is enacted in the text of email messages. The representation of strategy in text is referred to here as communicative form and we use the term to describe strategically encoded differences in message composition. Broadly speaking, communicative form represents 'how a message is being communicated' rather than the 'content of the message' itself. This could include such elements as written formality, emotional expressions, and the overall tone of the email.

Given that EI may enhance the ability of an individual to foster cooperative behavior amongst members of a group (Mayer et al., 2004) we expect it to have a relationship with the communicative form of email messages in a virtual team. Our contention is that, while much of the content of email messages may be dictated by the communication norms of a virtual team, the nature of the tasks to be performed and the particular situation in which members are operating, variance will still exist between individual communicators. This variance may be partially explained by the extent to which CMC communicators are able to make use of their EI abilities in fostering cooperative behavior and ultimately how this ability shapes the content of their messages. Consider, for

example, a high EI team member who is attempting to influence the opinions of others. Perhaps this individual's unique abilities allow them to achieve their goal with less chance of creating conflict within the team. In FtF interaction, this high EI individual may be able to get a better 'read' on the reactions of others through observing their facial expressions and vocal responses. As this individual will not be able to observe these cues while composing an email message, the strategic use of their ability, if this is even possible in CMC, must be altered accordingly.

One of the main factors that we feel will moderate the relationship between EI and communicative form is the goal of the communicator. Communicative goals serve to coordinate and direct the actions of cooperative individuals towards achieving a coherent group objective. The specific goal or intent of a message sender is central to communicative actions that may be enacted through face to face (FtF) meetings, phone discussions, or email messages. Communicative goals provide the motivation for sending a message while levels of dynamic, cognitive and affective complexity influence the choice of communication strategy (Te'eni, 2001).

Several empirically derived communicative goal schemes exist in the literature. Orlikowski and Yates (1994) derived six categories of communicative goals deemed highly relevant to the tasks of a particular organization and represented in members' email messages. MacKay (1989) derived three categories through interviews with organization members who communicated through email. These categories represented the perceptions of organizational members with regard to their primary communication goals. Carlson and Davis (1998) produced a list of thirty-seven categories that were then grouped into seven more abstract categories. These categories, however, include both the goal of the message sender and characteristics of the medium in order to explore differences in media selection between managers and directors.

The four communicative goals which Te'eni (2001) adapted from Habermas' (1987) well established Theory of Communicative Action adopted for use in this study are: managing interdependent action (coordinating); instructing; influencing; and relationship management. We have chosen Te'eni's scheme for this study because of its parsimony and its strong theoretical underpinnings. These categories provide a sufficiently diverse set of goals that can be used to describe the communication of team members regardless of the nature of the work performed. In virtual teams, geographically dispersed members work interdependently towards the achievement of a common goal through CMC. Within the email messages sent by a virtual team there should be observable actions that can be described by these categories. Furthermore, cooperative behavior may be fostered through any of the four communicative goals. Descriptions and brief examples of each of the communicative goals follows:

1. Instructing acts are unambiguous requests for information or to perform some action (Te'eni, 2001). For example, an instructing act could be enacted to request critical information that will facilitate the completion of a task.

2. Coordinating actions are those in which message senders commit themselves to performing actions while requesting actions from others in order to achieve a common goal (Te'eni, 2001). For example, a coordinating message could be sent to multiple team members to update them on overdue tasks and to explicate the interdependence of said tasks and the potential impacts of final project delivery.

3. Relationship management acts are messages used to create, reinforce, alter or sever relationships with others (Te'eni, 2001). For example, a relationship management act may be sent to communicate the individual's relative standing within their group or to offer an incentive to that individual to conform to group objectives.

4. Influencing acts are those in which opinions are expressed, contested or reinforced in an attempt to guide actions towards one of multiple alternatives (Te'eni, 2001). For example, an influencing act may be sent to solidify the group's vision of their objectives or to reorient the group to new or reprioritized sets of objectives.

A full characterization of email text is therefore deemed to be comprised of both goal, derived from the intent of the message sender, and form, which can include the strategic use of formality, punctuation and other textual effects, in addition to the lexical units of discourse chosen.

3. Research Framework

The first phase of this study involves developing theory derived from a content analysis of email data regarding the relationship between EI and email message content. This grounded-theory approach led to the development of a research framework (Figure 1) to guide the content analysis of email messages, and subsequent formulation of hypotheses in the absence of a-priori theory. Consistent with Orlikowski and Yates (1994), the communicative form categorization scheme was generated through analysis of email text. This approach was adhered to as it was foreseen that deriving the communicative form scheme from anything other than data could lead to a set of categories that did not adequately describe email content. This approach also extended to the formulation of specific hypotheses as little theory has been derived, at this point, concerning the specific influence of EI on communication in general, and in CMC usage in particular. While we acknowledge that literature exists linking emotions and communication, as well as EI and interpersonal relationships, no study has examined these relationships in a virtual team. Further, the intention of our grounded theory hypothesis testing with respect to EI, was to examine MSCEIT branches and their relation to communicative form dependent upon communicative goal.

Figure 1: Research Framework
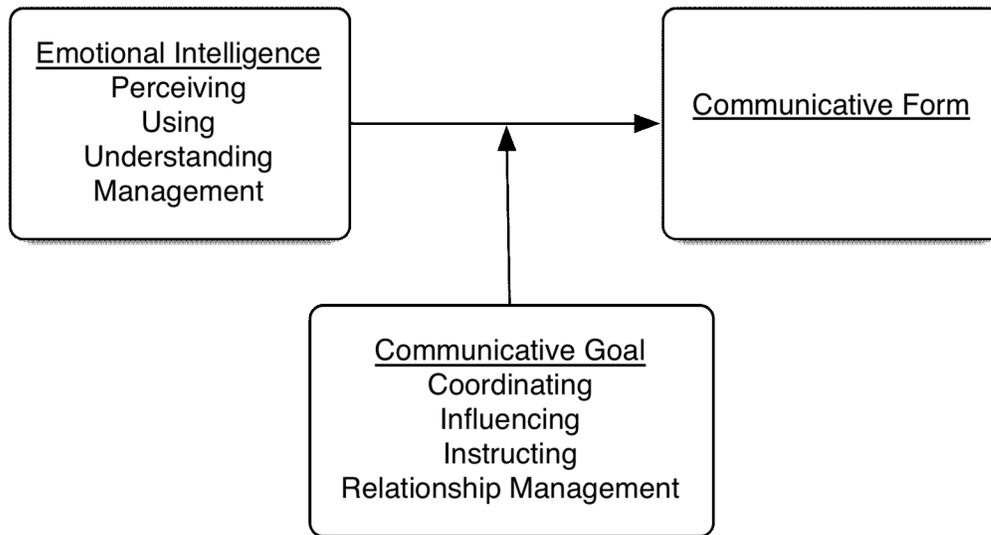
The relationship between EI abilities and communicative form was the focus of this study. The authors acknowledge the existence of other potential factors not identified in the framework, such as socially constructed norms of communication that may affect communicative form. Communication norms were assumed to be relatively stable given that the virtual team studied was in existence with largely the same members for a number of years. In addition, a potential influencing effect of communicative goals on this relationship was sought. A team member may be motivated to enact a coordinating activity as necessary, for example, but there may be several available strategies for doing so, and this may result in alternate forms of the same goal dependent upon individual differences in EI.

4. Method

The case study approach is employed here as the process to be observed, that is the communication of virtual team members, is highly dependent on several contextual factors and therefore is best observed as it occurs naturally (Yin, 1994). The participants of this study were the members of a five person virtual team involved in the design, development and support of a proprietary information system. All team members were male and over forty years old. Unlike many virtual teams which are assembled on an 'as needed' basis (Powell, Piccoli, & Ives, 2004), the membership of this team has been stable for a long time and they had been operating virtually for many years. All five persons in the team typically meet FtF once a year. Subsets of team members (typically dyads) interact FtF once every two to three months on average. So, while the team members do know each other they rarely interact FtF. Because of the all-male composition and established nature of the team, results from this study cannot be generalized to transient or stable all female or mixed-gender teams. Email messages comprised the bulk of communication for this team. Other forms of communication

included FtF meetings (noted above), telephone calls that occurred at most twice a month, and 'instant messaging' which was used at varying levels by different members of the team. Despite the availability of these other media, each member reported that email was the primary medium used by the team, accounting for ninety percent or more of all communications.

4.1 Measures

EI was measured using an online version of the MSCEIT (Mayer, Salovey, Caruso, & Sitarenios, 2003). A separate 'expert' score was obtained for each of the four branches of the EI model (perceiving, understanding, using and managing), as well as an overall EI Quotient (EIQ) score. The MSCEIT provides the ability to normalize all scores for age and gender. That option was used in this study. Each team member provided responses independently and confidentially.

Content analysis was used to assess communicative goal and communicative form. The scheme chosen for communicative goal is adapted from Te'eni's (2001) model of cognitive-affective communication. Specifically, each unit of analysis from the email was categorized as coordinating, influencing, instructing or relationship management. The scheme for communicative form was derived using open coding following a grounded theory approach. The derivation of this scheme will be discussed in the subsequent section.

4.2 Analysis

Email archives of internal team communication were obtained from the team members for a two-month period of August 1, 2004 to September 30, 2004. This sampling frame was chosen for several reasons. First, this time period is immediately prior to a major deliverable and thus represents a time of high relative activity and stress. Second, it represents a time frame for which near complete records were available. Except for one to one email communication between two of the five members, the archives were complete for the aforementioned sampling frame. Pseudonyms for team members and associated message counts are presented in Table 1. Jason was the team leader and thus sent many more emails than the other team members. Based on semi-structured interviews with team members, it was determined that messages from a single sender to a single recipient are very rare, and perhaps non-existent.

Table 1: Total Messages Sent by Team Member

Team Member	Sample
Chris	111
Brian	202
Daniel	260
John	62
Jason	606
Total	1241

4.3 Content Analysis and Theory Generation

Each unit of analysis, as described below, was categorized according to two different schemes. The first categorization was by communicative goal. The second, emergent categorization scheme about communicative form was developed in part by what is known about the behaviors of emotionally intelligent individuals (Mayer et al., 2003). This process attempted to locate observable influences of EI on email communicative form as opposed to attempting to evaluate the EI of an individual by reading their messages.

4.3.1 Communicative Goal

The unit of analysis was defined by categorical distinctions according to the communicative goal scheme. It was found that all but two of the messages contained a single communicative goal. These two messages were divided and the resulting sample size was 1,241 messages. Each unit of analysis was considered within the email message thread that it occurred. This applied to both the initial development of the emergent communicative form categorization scheme, and also during the subsequent coding. Coding was accomplished by observing each unit of analysis and interpreting the most likely goal of the communicator. Guidelines for performing this classification were derived by iteratively analyzing data.

4.3.2 Communicative Form

Once coding of communicative goals was complete, email contents were subjected to a re-analysis. In the absence of a comprehensive theory which links the EI and CMC research domains, grounded theory approach was employed to derive theory from data (Glaser & Strauss, 1967). Communicative form, therefore, was derived through an examination of the data. This does not mean that all relevant theory was ignored in the generation of the categorization scheme, as researchers cannot be expected to abandon all knowledge in pursuit of new theory (Goulding, 2005). The unit of analysis was a message. In this analysis, themes were identified within email text. Meaning was important, but instead of searching for the goal of the communicator, the manner in which the message was coded, that is its contents, drove the inquiry. The extent to which elements of written formality and conversational elements of speech were included in email messages was examined. Emotional expressions encoded or absent in text were treated as clues. This categorization was motivated by the desire to produce categories that were highly distinct from one another. This effort resulted in the following communicative forms being identified: *lean*, *firm*, *tentative* and *hybrid*.

1.   *Lean* messages are those that contained very little content and have few or no equivalencies in spoken discourse. Examples of this category include messages containing an internet address and nothing more, or messages whose sole purpose is to transfer an attachment (with nothing in the message body).

2.   *Firm* messages are those that exhibit a higher level of conviction on the part of the message sender than those classified as tentative. Firm messages may include statements about what 'must be done', 'will be done', 'has been done' and so

forth. Messages composed with a firm style do not appear to openly invite the opinions of others. For example, where a message sender indicates what 'should be done' it seems that offering an alternative might highlight a stronger disagreement than if the opinion was expressed as one of many potential courses of actions. A sample is provided below:

> "I would definitely wait until you talk with (…). We haven't talked with (…) in quite awhile -- so we don't know for sure (…) current thoughts."

In this example, the communicator appears to be offering advice to another on a course of action. The message sender appears to support only one course of action and does so firmly by using the term "definitely". The further reasoning for this course of action is presented as facts rather than vague recollections, i.e. "We haven't talked" and "we don't know".

3. *Tentative* messages were characterized by the high prevalence of a different set of words and phrases such as 'maybe', 'might' and 'could be'[1]. A sample is provided below:

> "I would suggest referencing the documents rather than breaking them up. Both the (…) and (…) docs fit. I still remain, however, uneasy about the sections having to do with (…) critique of software development not being well coordinated with an overall plan. (…) is an egregious example of not having been included in any overall plan -- and a strong argument against continued (…) could be based on that fact, I think."

Here the message sender appears to be offering opinions on how to proceed, but "suggests" what should be done instead of firmly stating it. The sender also suggests that a "strong argument" could be raised, but does not attribute that argument to himself.

4. *Hybrid* messages are those that are neither clearly firm nor clearly tentative but rather contain elements of both. A sample is provided below:

> "OK, i have no time conflicts so far, it would probably be best if we were there together. I'm flexible, give me an hour's notice and I'll be there."

> In this example, we can see that the communicator is sending a tentative message regarding whether the individuals should go somewhere together. By the same token, the communicator is also employing a firm communication strategy regarding his ability to be at the place in question if so desired.

If a message was not categorized as *lean*, an inductively derived list of firm and tentative keywords and phrases was referenced to aid in categorization into one of the other three

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[1] Previous research has determined that females use more tentative communication than males (Calnan & Davidson, 1998). Thus the gender composition of the team needs to be considered when interpreting results.

forms. Messages that contained keywords or phrases predominantly from one set were categorized as either *firm* or *tentative*. Messages that contained key words or phrases from both firm and tentative sets in roughly equal proportions were categorized as *hybrid*. A full listing of the words and phrases used to distinguish *firm* from *tentative* is provided in Appendix A.

It was noted that the communicative forms of the five members were quite similar in that, without observing who the message was from directly, it was difficult to predict who had sent it. The one exception to this was Jason whose messages were less formal than those of the other team members. A common feature amongst all members' messages was the full capitalization of member names. In the telephone interviews, designed and executed to supplement the email archives with information regarding the norms of the group, it was learned that this was a norm of communication used to draw an individual's attention to a particular segment of the email.

Through iterative examination of the messages it appeared that different members preferred to use different words to encode largely the same communicative goal. Further, the words chosen seemed to vary according to the communicative goal being performed. The emergent communicative form categorization was therefore motivated to uncover the slightly differing forms that members which shaped their email messages. It was also noted that the unit of analysis to which these categories applied was similar to the unit of analysis to which the communicative goal categories applied. Therefore, the unit of analysis for this scheme was the same as that of the communicative goal scheme.

Once both categorization schemes were finalized, a sub-sample of 200 messages were coded by two independent raters assess the reliability of the coding schemes. EI scores were not analyzed prior to coding in order to avoid possible biases in categorization of a message where the EIQ of the composer was known. This approach was taken to distance the observer from the participants in order maintain qualitative reliability (Gans, 1999). As recommended by Neuendorf (2002), email messages were provided for coding in hard-copy form to allow 'marking up' of the text. Interrater reliability was assessed with Cohen's Kappa (1960) and the prevalence adjusted bias adjusted kappa (PABAK) are presented in Table 2.
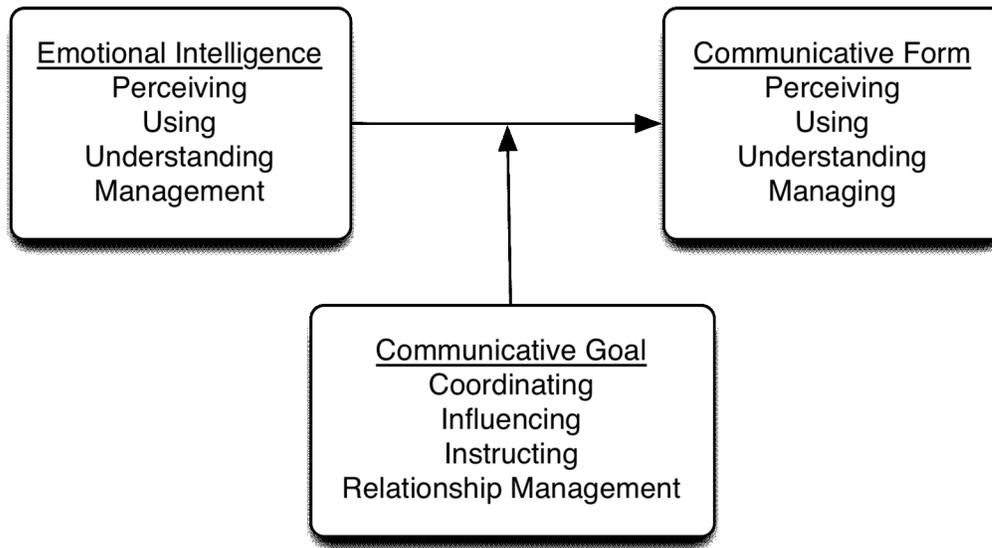
Table 2: Content Coding Scheme Rater Agreement

Categorization	Kappa	PABAK
Communicative Goal	0.74	0.82
Communicative Form	0.69	0.80

4.3.3 Theory Generation

The end result of these analyses was a separate categorization for each unit of text according to two schemes. A revised research framework is presented in figure 2.

Figure 2: Revised Research Framework

A cross tabulation between each team member and communicative goals was performed to determine whether certain individuals were engaging in more of certain goals than others. A similar comparison was made between individuals and the communicative form categories. Finally cross tabulations were calculated for each message sender comparing communicative goals and communicative form. As the emergent communicative form categories were derived focusing on attributes of EI abilities, these data suggested that certain abilities are used more in certain communicative goals. Specifically, an interaction effect was sought between communicative goal and the communicative form categories.

These comparisons were undertaken to aid in building theory about how content varies from one communicator to another and how communicative form may differ depending on communicative goal. Recorded interviews were used during this analysis to provide potential reasons for any observed differences, as expressed by the team members themselves. This qualitative analysis resulted in the grounded theory on the relationship between EI and email message content from which hypotheses were generated and tested.

5. Results

Table 3 lists the proportions and raw counts of each team member's emails in each of the goal categories. From these results it is clear that the bulk of communication for the team consists of coordinating goals. It is also appears that Jason performs more instructing communicative goals than the rest of the team which is to be expected given his status as team leader.

Table 3: Communicative Goals for Each Team Member

		Coordinating # (%)	Influencing # (%)	Instructing # (%)	Rel. Management # (%)	Total Emails
Chris		81 (72.97%)	5 (4.50%)	13 (11.71%)	12(10.81%)	111
Brian		130 (64.36%)	38 (18.81%)	24 (11.88%)	10 (4.95%)	202
Daniel		178 (68.46%)	35 (13.46%)	31 (11.92%)	16 (6.15%)	260
John		48 (77.42%)	7 (11.29%)	6 (9.68%)	1 (1.61%)	62
Jason		372 (61.39%)	41 (6.77%)	137 (22.61%)	56 (9.24%)	606
	Total	809 (65%)	126 (10%)	211 (17%)	95 (8%)	1241

Table 4 lists the proportions and raw counts of each team member's email in each of the form categories. Here the *firm* form proportions exceed those of the *tentative* form, but to varying extents amongst members. The largest differential is exhibited in Brian's results where approximately nine times more messages were *firm* as opposed to *tentative*. Alternatively, Chris's results show less than two times as many *firm* emails compared to *tentative* emails. *Lean* message proportions displayed a large range (8.91% for Brian and 43.55% for John) but the majority of team members used this form for approximately 30% of their emails. *Hybrid* messages were the least popular communicative form used suggesting that team members were consistent in the way they used language in constructing their messages.

Table 4: Communicative Forms for Each Team Member

		Firm # (%)	Hybrid # (%)	Lean # (%)	Tentative # (%)	Total Emails
Chris		41 (36.94%)	9 (8.11%)	36 (32.43%)	25 (22.52%)	111
Brian		143 (70.79%)	23 (11.39%)	18 (8.91%)	18 (8.91%)	202
Daniel		107 (41.15%)	29 (11.15%)	71 (27.31%)	53 (20.38%)	260
John		24 (38.71%)	8 (12.90%)	27 (43.55%)	3 (4.84%)	62
Jason		318 (52.48%)	50 (8.25%)	177 (29.21%)	61 (10.07%)	606
	Total	633 (51%)	119 (10%)	329 (26%)	160 (13%)	1241

To assess the possibility that relationship between EI abilities and communicative form may depend upon communicative goal, a cross tabulation of communicative goal proportions by communicative form proportions was performed for each member of the team. This analysis suggested that there are many differences between team members with respect to the communicative form employed in certain communicative goals. John and Brian, for example, use a *firm* form to encode instructing acts to a greater extent than the rest of the team. Daniel appears to have a greater inclination to employ a *tentative* form when encoding influencing acts than the rest of the team, with the possible exception of Chris. There are also similarities amongst these data such as the absence of any *lean* influencing acts and very few *lean* instructing and *lean* relationship management acts.

These results suggest an interaction between communicative form and communicative goal and that this effect differs amongst team members. For the purposes of this study, the relationship between individual differences in EI abilities and varying preferences in

communicative form by communicative goal was examined. Through this examination, specific hypotheses were derived and tested.

5.1 Hypotheses Generation and Testing

Consistent with the principles of grounded theory (Glaser & Strauss, 1967), the theory derived in the preceding section was refined by examining individual differences in EI abilities; comparing them to observed differences in communicative form by communicative goal. Each member's EI scores and qualitative assessments are first presented and apparent differences are highlighted. The unit of analysis is the individual. These differences are then compared to the communicative form differences observed in the preceding section. Finally, hypotheses are derived which are supported through this assessment, and tested.

MSCEIT branch scores and overall EI (EIQ) are shown for each team member in table 5. Reliabilities for individual tests are lower than the reliability of branch scores, and are therefore not reported nor used in hypotheses testing. A score of 100 is considered average while scores below 90 suggest a need for improvement and scores above 120 are considered strengths. All branch scores observed here may be interpreted as roughly average, above or below average, need for improvement or strength while overall EI scores are roughly average or below. For a full review of qualitative assessment categories, see Mayer, Salovey, and Caruso (2002).

TABLE 5: EI Test, Branch and Overall Scores

	Perceiving	Using	Understanding	Managing	Overall EI
Chris	*85.28*	*88.33*	*85.31*	92.56	*83.00*
Brian	*86.77*	91.18	107.13	107.53	96.15
Daniel	93.89	97.61	108.29	105.40	102.71
John	95.52	96.79	109.66	105.24	103.59
Jason	*79.24*	**121.72**	95.12	99.42	93.81
Branch Average	*88.14*	99.13	101.10	102.03	95.85

EI branch scores were considered in examining the email communicative form proportions. The influence of communicative goal category on the relationship between EI scores and communicative form was hypothesized. In some cases, there appeared to be an effect between EI scores and email communicative form for only certain communicative goals. In these cases the interaction effect is tested but not the main effect. Certain cells in the goal by form cross tabulations had 0 message counts across all team members (for example, *lean* influencing messages) or across four of the five team members (for example, *lean* relationship management messages and *lean* instructing messages). These cells were ignored when searching for patterns in the data. Also, it was noted that the understanding emotions branch scores within this sample were highly correlated with overall EIQ (Rho = 1.0). Therefore, no hypotheses were generated to assess the relationship between EIQ and email communicative form as the observed effects would likely be similar for any obtained by examining the understanding emotions

branch. This analysis resulted in the hypotheses below and the results of their testing are shown in Table 6.

It should also be noted that following grounded theory principles, and with the lack of existing theory directly relating EI to text based communication in virtual teams, the intention of the hypotheses was to examine the MSCEIT branches and their relation to communicative form dependent upon communicative goal. Said another way, we have used our understanding of EI and grounded theory derived from our data to hypothesize relations between MSCEIT branches and communicative form and goal.

To assess whether hypothesized relationships exist, correlation analysis was performed. Given that the number of participants for this study was five, it was not possible to reliably assess the normality of the distribution for each variable within this group. Therefore, Spearman's Rho, a nonparametric measure of correlation, was calculated to test the hypothesized relationships between the MSCEIT branches and the percentage of emails in the various communicative categories (communicative form and communicative form x communicative goal). Where significant correlations existed, the predictive capacity of MSCEIT branches on email message content was assessed using linear regression. The MSCEIT branch scores were modeled as predictors (independent variables) and the proportions of email messages in each category (communicative form and communicative form x communicative goal) were modeled as outcomes (dependent variables). While the team size of 5 limits the power of the statistical tests and thus the generalizability of any results, we felt it is still beneficial to run the regressions to obtain an indication of the magnitude of the relationships within the sampled real-world team.

H1: The relationship between the perceiving emotions branch of the MSCEIT and the proportion of *firm* form messages sent is influenced by communicative goal categories.

H2: The perceiving emotions branch of the MSCEIT is positively associated with proportion of *hybrid* form messages sent, and:

  H2a: This relationship is influenced by communicative goal categories.

H3: The relationship between the understanding emotions branch of the MSCEIT and the proportion of *firm* form messages sent is influenced by communicative goal categories.

H4: The understanding emotions branch of the MSCEIT is negatively associated with proportion of *tentative* form messages sent, and:

  H4a: This relationship is influenced by communicative goal categories.

H5: The understanding emotions branch of the MSCEIT is positively associated with proportion of *hybrid* form messages sent, and:

H5a: This relationship is influenced by communicative goal categories.

H6: The managing emotions branch of the MSCEIT is positively associated with proportion of *firm* form messages sent, and:

H6a: This relationship is influenced by communicative goal categories.

H7: The relationship between the managing emotions branch of the MSCEIT and the proportion of *tentative* form messages sent is influenced by communicative goal categories.

H8: The managing emotions branch of the MSCEIT is positively associated with proportion of *hybrid* form messages sent, and:

H8a: This relationship is influenced by communicative goal categories.

H9: The managing emotions branch of the MSCEIT is negatively associated with proportion of *lean* form messages sent, and:

H9a: This relationship is influenced by communicative goal categories.

Table 6: Relationships between EI Branch Scores and Communicative Forms (***$p<0.05$, **$p<0.10$, *$p<0.15$).

	Independent (EI Ability)	*Dependent (Form/Form x Goal)*	*Correlation*	*Regression Coefficient*	R^2
H1	Perceiving	Firm x Coordinating	-0.50		
		Firm x Influencing	-.87**	-.881***	0.70
		Firm x Instructing	.80*	0.529	0.04
		Firm x Relationship Management	0.50		
H2	Perceiving	Hybrid	.80*	.843**	0.614
H2a	Perceiving	Hybrid x Coordinating	.90***	.917***	0.79
		Hybrid x Influencing	0.40		
		Hybrid x Instructing	-1.0***	-.947***	0.863
		Hybrid x Relationship Management	0.05		
H3	Understanding	Firm x Coordinating	-0.30		
		Firm x Influencing	-0.67		
		Firm x Instructing	.90***	.81**	0.54
		Firm x Relationship Management	0.70		
H4	Understanding	Tentative	-0.70		
H4a		Tentative x Coordinating	-0.40		
		Tentative x Influencing	0.20		
		Tentative x Instructing	-.90***	-.893***	0.73
		Tentative x Relationship Management	-0.60		
H5	Understanding	Hybrid	.90***	.921***	0.798
H5a		Hybrid x Coordinating	.80*	0.697	0.32
		Hybrid x Influencing	0.30		
		Hybrid x Instructing	-.90***	-0.72	0.35
		Hybrid x Relationship Management	0.21		
H6	Managing	Firm	0.70		
H6a		Firm x Coordinating	0.50		
		Firm x Influencing	-0.15		
		Firm x Instructing	0.70		

		Firm x Relationship Management	0.50
H7	Managing	Tentative x Coordinating	-0.20
		Tentative x Influencing	0.00
		Tentative x Instructing	-0.70
		Tentative x Relationship Management	-0.20
H8	Managing	Hybrid	0.70
H8a		Hybrid x Coordinating	0.60
		Hybrid x Influencing	0.10
		Hybrid x Instructing	-0.50
		Hybrid x Relationship Management	0.72
H9	Managing	Lean	-0.70
H9a		Lean x Coordinating	-0.70
		Lean x Influencing	0.00
		Lean x Instructing	0.11
		Lean x Relationship Management	-0.35

5.1.1 Perceiving Emotions

H1, which predicted that the relationship between emotional perception ability and proportion of *firm* form messages is influenced by communication goal was partially supported. Significant results were found for the relationship between emotional perception and *firm* form influencing (r = -.87, p<.10) and instructing (r = .80, p<.15) messages. The regression coefficients were significant for both relationships.

H2, which predicted a positive relationship between emotional perception ability and proportion of *hybrid* form messages, was supported. Specifically, significant relationships were found for the relationships between emotional perception and *hybrid* messages (r = .80, p < .15), *hybrid* coordinating messages (r = .90, p<.05) and *hybrid* instructing messages (r = -1.0, p < .05). H2a was therefore partially supported. The regression coefficients for the relationships between emotional perception ability and *hybrid* form messages (p<.10), *hybrid* form coordinating messages (p<.05) and *hybrid* form instructing messages were all significant (p<0.05).

5.1.2 Understanding Emotions

H3, which predicted that the relationship between understanding emotions branch and *firm* form messages would be influenced by communication goal was partially supported. Only emotional understanding ability and *firm* form instructing messages was found to be significant (r = .90, p<.05). The regression coefficient for this relationship was significant (p<0.10) and fairly large (® = .81).

H4 predicted a negative relationship between understanding emotions and *tentative* form messages was not supported. While the sign of the correlation was supported (r=-.7), it was insignificant. However, H4a, which posited an influencing effect of communication goal on the relationship between understanding emotions and *tentative* form messages was partially supported. Specifically, both the correlation and regression coefficient between understanding emotions and *tentative* instructing messages was significant (-.90, p<.05; p<.05).

H5, which predicted that the understanding emotions branch would be positively associated with the proportion of *hybrid* form instructing messages was supported (r =

.90, p<.05). Additional significant correlations were found for the understanding branch and *hybrid* coordinating messages (r = .80, p<.15) and *hybrid* instructing messages (r = -.90, p<.05). H5a was thus partially supported. Regression coefficients were insignificant for the influence of communication goal on the relationship between understanding emotions and *hybrid* form emails. However, the regression coefficient for the relationship between understanding emotions and *hybrid* form emails was significant (p<.05).

5.1.3 Managing Emotions
H6, H6a, H7, H8, H8a and H9 predicted associations involving the managing emotions branch of the MSCEIT. While none of these hypotheses were supported through significant associations there were several correlations that were equal to or exceeded |.70|. These include associations between the managing emotions branch and; *firm* form emails (r=.70), *firm* instructing emails (r=.70), *tentative* instructing emails (r=-.70), *hybrid* form emails (r=.70), *hybrid* relationship management emails (r=.72), *lean* form emails (r=-.70), and *lean* coordinating emails (-.70).

6. Discussion
While the significant results generally support the proposed model of EI ability branches on communicative form as influenced by communicative goal, the findings should be interpreted with caution given the exploratory nature of the study and the small sample used. Future confirmatory research should be undertaken using more teams with diverse characteristics.

6.1 Perceiving Emotions
The ability to perceive emotions, as assessed by the MSCEIT, correlated positively with *firm* instructing messages, *hybrid* form messages, and *hybrid* coordinating messages. Its relationship with *firm* influencing messages and *hybrid* instructing messages was negative. In FtF interaction individuals performing an instructive goal of communication may be inclined to alter the delivery of their message in accordance with perceptions of the recipient's emotional state (Reilly & Siebert, 2003). In CMC, the message sender's perceptions of others' emotions may not be as readily observed. Communications occurring before the instructing goal may have shaped the message sender's perceptions of the emotional state of the recipient, but it is unclear whether these perceptions remain constant over a given period of time. It could be that emotional perceptions are altered with each message sent in CMC as opposed to a more fluid exchange achieved through observation of emotional cues such as facial expression and vocal tones in FtF interaction.

If one perceived another as being in a bad mood they may alter the wording of their instructing message to increase the probability of compliance. 'Could you please do this', as opposed to, 'Do this', for example. Given the positive relationship between ability to perceive emotions and *firm* form instructing messages, and the negative relation with *hybrid* instructing messages, it is likely that CMC users engage in different forms of instructing than FtF communicators. That is, CMC users may be aware of the ease of misunderstanding and conflict escalation in email (Friedman & Currall, 2003) and thus restrict their instructing acts to a form that minimizes the possibility of misinterpretation.

It is also possible, given the familiarity of the team members with each other, that individual members feel comfortable communicating in a firm manner without concern of a reduction in social capital. Alternatively, the possibility exists that the ability to perceive emotions, as measured by the MSCEIT, is not as useful in CMC as it is in FtF interaction. The applicability of the perceiving emotions branch of EI is examined more fully in the final section of this discussion.

Influencing and coordinating have high inherent cognitive complexity (Te'eni, 2001). Additionally, influencing is considered high in affective complexity as it relies heavily on individual differences and dispositions of the people involved in the influential action (Te'eni, 2001). When a person is able to perceive emotions within email, they may be sensitive to various affective states of the people they are interacting with and thus use more flexible forms of communication when pursuing goals of higher cognitive complexity such as influencing and coordinating. This is reflected in the positive correlations between the perceiving emotions branch and both *hybrid* coordinating messages and *hybrid* influencing messages. Similarly it is reflected in the negative correlations between the perceiving emotions branch and both *firm* coordinating messages and *firm* influencing messages.

6.2 Using Emotions
There were no hypothesized relationships involving the 'using' branch of EI. This was because a grounded theory approach was used and thus the hypotheses were derived from the data itself. So, while this particular sample did not facilitate the derivation of any theory involving the 'using emotions' branch, several relevant points are worth mentioning. In general, those who are better able to use emotions may be more aware of which emotions are helpful in facilitating thought processes for a given task (Mayer et al., 2004). It may be that a greater ability to use emotions motivates individuals to influence the emotional state of others in a manner consistent with group objectives (Russell, Bachorowski, & Fernandez-Dols, 2003). It is also possible that the individual is attempting to foster a common emotional state within the group to facilitate cooperation. This line of reasoning is supported by the emotional contagion literature, which posits that individuals experiencing certain emotion states can have a profound influence on the emotion states of individuals with whom they come into contact (Kelly & Barsade, 2001). While social contagion theory was established in FtF communication, Thompson and Nadler (2002) suggest that contagion in both the socio-emotional tone and of the linguistic structure of electronic text does occur. Contagion theory (Levy & Nail, 1993) suggests that the expression of negative emotion by one party will result in the expression of reciprocating negative emotion by the other party resulting in a downward spiraling exchange of negative communication. This effect may be exacerbated in electronic communication because of the lack of social cues and norms inherent in email communication (Friedman & Currall, 2003) and is more likely in ad-hoc or recently formed virtual teams. So while there was no evidence of an influencing factor of the 'using emotions' branch extant literature suggests that both using and managing emotions within a virtual environment are important behavioral considerations. Further study of the 'using emotions' branch with additional virtual teams is warranted to explore if any relationships exist.

6.3 Understanding Emotions
The ability to understand emotions correlated positively with *firm* instructing messages and *hybrid* coordinating messages. It correlated negatively with *tentative* instructing messages and *hybrid* instructing messages. Instructing acts exhibit less affective and cognitive complexity than other acts such as influencing (Te'eni, 2001). It is expected that instructions issued in a cooperative team would not be resisted when it is clear that they are associated with fulfillment of group objectives. Therefore, strong definitive language (reflected in the *firm* form) will necessarily be included when performing such acts. One better able to understand emotions may realize that using "weaker" language (*tentative*) or using a combination of styles (*hybrid*) may confuse other group members who are fully willing to comply with such instructions. This may be especially true of established teams where relationships between members are understood such as those found in the team referred to in this study. It is plausible that such a communication strategy was developed as a result of assessing that there was very little potential for 'emotional backlash' as a result of the contemplated instruction and because of the established nature of the team and the familiarity of team members with each others tendencies, reactions and behaviours.

The positive relationship between the ability to understand emotions and *firm* form instructing actions is similar to that observed for the emotional perception branch, suggesting that those higher in EI prefer the *firm* form when engaging in the relatively uncomplicated act of instructing. It should be noted, however, that both these branches were highly correlated within this sample, and therefore some similar relationships should be expected. This is additionally reflected in the significant positive correlation between understanding emotions and *hybrid* coordinating messages. Again, higher EI scores are associated with the use of *hybrid* messages for the relatively complex goal of coordination.

6.4 Managing Emotions
The ability to manage emotions was not significantly correlated with any of the communication form or communication form and goal combinations. The majority of correlations that were relatively strong are consistent with previously reported results. That is, there were positive correlations between managing emotions and *firm* instructing messages (r=.70), and *hybrid* coordinating messages (r=.60) . Similarly there was strong negative correlation between managing emotions and *tentative* instructing messages (r=-.70).

Of all the EI abilities, managing emotions had the strongest correlation with any of the message categories involving relationship management. In particular, managing emotions was positively associated with *hybrid* relationship management messages (r=.72). In comparison with other communication goals, relationship management has high affective and dynamic complexity and is dependent on individual personalities, emotions, and motivations (Te'eni, 2001). Relationship management can also be highly volatile given the uncertainty of reactions to a particular message. Previous research has suggested that those who are better able to understand and manage emotions should be more confident in managing relations with others (Lopes et al., 2005).

While the underlying physiological processes in managing and using emotions may be the same in virtual and face-to-face environments (Murphy et al, 2009) the way in which emotions may come into play in virtual teams may differ. As opposed to FtF communication, the relative intensities of positive and negative interaction are greater when interacting electronically, thus implying that the impact of positive and negative language within electronic text communication may be stronger than in FtF settings (Moore, Kurtzberg, Thompson & Morris, 1999). Further, it has been established that the expression of positive affect is a critical mediating factor in the establishment of rapport (Moore et al., 1999); a relationship that contributes to most types of goal achievement. While not fully supported within this exploratory study, virtual team members who are able to manage their own and others' emotions may be better able to foster positive affective relationships amongst team members. Such individuals may be better suited to leadership in virtual teams (Rosete & Ciarrochi, 2005).

A final observation concerns the measurement of emotional perception and its applicability to virtual team research. In the MSCEIT, this ability is assessed through two tasks, one involving the recognition of emotion in facial expressions and the other

through observation of images. While the MSCEIT is currently the best option, it is not possible to ascertain whether the assessment fully captures the emotional perception of those who interact primarily through CMC. In order to fully assess this ability in a virtual team where FtF interaction is rare, a different type of test may be needed. For example, the ability to perceive emotions where the communicative style of a message sender differs from their usual style may be developed by those who have greater experience in using this medium. This notion is consistent with the finding that CMC users who are able to achieve higher levels of mutual understanding perceive the medium as being rich (Carlson & Zmud, 1999). Also, it was noted that ability to perceive emotions was somewhat low for every team member. Further studies are required to ascertain whether one's ability to perceive emotions, especially in facial expressions, is potentially reduced when these individuals work for extended periods in a virtual team.

These results provide initial evidence that at least some EI abilities are related to communicative form dependent upon the goal of the communicator. As emotion plays an important role in fostering cooperative behavior within groups, and cooperative behavior is essential to the survival of groups, EI abilities should prove valuable in contemporary organizations. EI abilities, as explained, are enacted on both perceptual and behavioral levels and organizing in virtual environments presents a unique context for both.

7. Conclusions and Directions for Future Research

Research into EI has uncovered several desirable qualities and outcomes for which it accounts. Individuals who are more aware of emotions in themselves and others and are also able to understand and manage emotions may form more positive and effective relationships with others. These individuals may also be better at inducing positive emotions in others which is useful in creating and maintaining a cooperative team which consequently handles conflict more effectively, is more efficient, and ultimately is more productive. Perhaps more importantly, a team with the right mix of EI abilities should provide a positive environment such that individuals will want to remain cooperative members with less inducement. Additionally, individuals with higher EI may be better able to establish, maintain or repair trust and be more effective in serving as emergent leaders through displaying context appropriate emotional expressions (Pescosolido, 2002).

EI effects have not been previously studied in virtual teams. How do individuals who are better able to detect emotions in others detect emotions when the only available communication medium is email? Similar questions can be raised regarding the ability to use and manage emotions. The answers to these questions are part of a research agenda for which this exploratory study offers initial guidance. If EI abilities can be used in interactions with virtual team members, then the evidence must largely be contained within the content of their email communications, where this is the primary venue for interaction.

There are some indications that EI abilities influence the chosen communicative form of email communication dependent upon the communicative goal of the message sender. This study extends research on EI into the CMC paradigm where no known work previously existed. It also makes an initial inroad into the more general study of emotion in virtual environments where users interact through CMC channels (Brett, Olekalns, Friedman, Goates, Anderson & Lisco, 2007; Author, Year; Rice & Love, 1987; Walther et al., 2005). Having completed this exploratory work, it is apparent that further research may prove valuable in understanding the role of EI in virtual teams, and how the abilities derived from it may be (dis)similar than those in teams communicating primarily FtF. Potential areas of inquiry include the role EI in transformational leadership, the role of EI in conflict resolution, interaction of EI with virtual workers' job satisfaction and the ability of high EI virtual team members in establishing, maintaining and repairing trust as well as other aspects involved in fostering cooperative behavior.

The exploratory nature of this study limit the generalizability of any findings and therefore a full assessment of its validity is not possible. A substantial amount of data was collected, but from a single virtual team. This team has existed for many years and therefore evidence of the process through which the members have established norms of communication may not be observed in the data set. As each virtual team exists within its own context, and is comprised of members possessing various preferences, abilities and personalities, future studies are necessary in which several teams are included so that between person, and between group differences, and the sources for those differences, may be analyzed.

As the current study considers a five member team, the interpretation of the significant results must be done cautiously. Nonetheless, the positive findings of this study suggest that further research is warranted into the influence of EI on email message content. A greater sample size in future studies will aid in verifying the results of this study as well as uncovering effects not detected in the current sample.

As suggested here, it is not entirely clear that the manner in which emotional perception is measured by the MSCEIT will apply to emotional perception in email. Future studies may be conducted in which other measures of EI are employed, such as the ECI or EQ-i. However, what may truly be needed is a measure of EI specifically designed to assess EI abilities which are highly relevant in a virtual team employing CMC technology as a primary communication medium.

8. References

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Acknowledgement

Appendix A: Communicative Form Key Words and Phrases

Firm Word/Phrases
- Should, should not (shouldn't)
- Will (not), won't
- Need (to)
- I will, I'll, we'll, etc.
- Have to (not)
- Cannot, can't
- Would, wouldn't

- Do, do not (don't)
- "Here is"
- I am (not)
- (they, we) are (not)
- "got to" (i.e. in place of "have to")
- Definitely (def)
- "makes sense to"
- "I recommend"

Tentative Word/Phrases
- Seem(s), appear(s) to
- May (have to), maybe
- Might
- Could
- Hope/hopefully
- Shouldn't (in place of won't)
- Can (in place of will)
- "I wouldn't" in place of don't
- "feel(s) like"
- Would (in place of will)
- Probably, perhaps
- Request volunteer
- "I think/thought"
- "not sure"
- "wonder if"
- Wonder/wondering
- "Don't know"
- "I guess"
- "I suggest"
- "sounds like"

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