The Impact of Informal Communication on Virtual Team Effectiveness

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Chapter 1. Introduction

Background of the Problem

Teams, defined as collections of individuals tasked to achieve a specific, discrete goal within an organization, have become highly popular in business settings. In particular, because of globalization and other factors, virtual teams have proliferated. Virtual teams are highly reliant on synchronous electronic communication, such as that enabled by Instant Messaging (IM), to achieve alignment and efficiency. The quality of such communication allows team members to coordinate their actions, increase their productivity, and make other contributions to team success.

Scholars are divided over the effectiveness of IM to virtual team success. Some scholars have reached the conclusion that IM is not as effective a means of communication as face-to-face and telephone-based communications because IM conversations are often insubstantial and time-wasting. Other scholars have argued that IM contributes to team success because IM use builds team morale and cohesion. Scholarly work on the contribution of IM to virtual team success has been largely qualitative in nature, with very few quantitative studies on this topic. However, qualitative studies cannot in themselves furnish guidance for businesses that want to know whether IM helps or hinders their virtual teams. For such guidance, quantitative analysis is also necessary. In the absence of such analysis, making an objective business case for the presence or absence of IM from a virtual team environment is highly difficult.

In this quasi-experimental case study, eight employees at a major corporation, all of whom were on the same virtual team, were equipped with an IM system and observed for a period of six weeks. After the observation period, quantitative and qualitative data on the contribution of IM to virtual team effectiveness were collected. These data were utilized to reach

primary conclusions about how, why, and to what extent IM use can contribute to virtual team effectiveness.

Statement of the Problem

The problem is that the contribution of electronic communication to virtual team effectiveness is not understood well. In the absence of this understanding, businesses lack insight into which electronic communication tools to deploy in virtual teams and how to deploy them.

Purpose of the Study

The purpose of this mixed-methods case study based on data from a large technology corporation was twofold. The first, quantitative purpose of the study was to quantify the contribution of the ad hoc communication tool of IM to virtual team success. The second, qualitative purpose of the study was to explore how and why IM might contribute or fail to contribute to virtual team success. These purposes were achieved by answering three research questions.

Research Questions

RQ1: What is the contribution of IM to virtual team success?

RQ2: How and why does IM use contribute to virtual team success?

RQ3: How and why does IM not contribute to virtual success?

Methodology

A quantitative methodology was applied to RQ1, and a qualitative methodology was applied to RQ2 and RQ3.

In RQ1, the purpose was to determine the contribution of IM use to virtual team success. Team success has been quantified in the Team Diagnostic Survey. The Team Diagnostic Survey returns an overall team effectiveness score based on the presence of five factors (real team; clear, engaging direction; enabling structure; supportive organizational context; and available, supportive coaching) that are used to calculate an overall team effectiveness score. The statistical procedures utilized for this comparison are discussed and defended at length in Chapter 3 and briefly presented below.

Quantitative Model

The quantitative model of the study is based on measuring the contribution of IM use to the success of virtual teams. There were two procedures used in the study, multiple analysis of covariance (MANCOVA) and linear regression.

Table 1

Quantitative Model of Study: MANCOVA

Independent Variable	Covariates	Dependent Variables
IM Use (two groups: Users and non-users)	• Non-business-related use of IM (hours per week) • Mean years of experience of team member • Functional purpose of team member (R&D, marketing, etc.) • Self-rated English capability of team member	Team effectiveness ranking on Team Diagnostic Survey in the domains of • Real teams • Clear, engaging direction • Enabling structure • Supportive organizational context • Available, supportive coaching • Overall score

MANCOVA, which will be discussed at greater length in Chapter 3, is a way of measuring the difference between two or more groups in terms of performance on more than one dependent variable. In this study, two of the eight participants did not use the provided IM feature at all, so the sample could be divided into a use group (six participants) and non-use group (two participants). MANCOVA was a means of determining how use status of IM affected scores in the six Team Diagnostic Survey domains.

The linear regression model for the study quantified the relationship between hours of IM use and total score on the Team Diagnostic Survey, according to the following model, which is explained and defended in greater length in Chapter 3.

Table 2

Quantitative Model of Study: Linear Regression

	Model 1	Model 2	Model 3	Model 4	Model 5
Hours of IM use	X	X	X	X	X
Non-business-related use of IM (hours per week)		X	X	X	X
Years of experience			X	X	X
Functional role				X	X
Self-rated English proficiency					X

Note. The dependent variable is Team Diagnostic Survey total score.

According to methodologists, there are three main ways to approach quantitative studies: experiments, pseudo-experiments, and analyses of post hoc (already available) data. In an experiment, the research controls the setting of the treatment, assigns subjects to groups randomly, and therefore is more assured that any obtained result is likely to be associated with the treatment than with random factors. In a pseudo-experiment, the researcher works within an existing setting that is not controlled by the researcher, and in which the researcher cannot randomly assign participants to groups. In the current study, IM was made available to members of an existing virtual team, but there was no control group and no random assignment.

In a pseudo-experiment, the main risk is that any result assumed to be associated with the treatment is in fact due to factors other than the treatment. In this study, for example, it is possible that any disparity in the team effectiveness scores of participants is not due to the use of IM but rather to other variables. Some of these possible confounding variables have been designated as covariates in Tables 1 and 2. Controlling their effects is a means of raising the likelihood that any observed disparity in the team effectiveness scores of participants is due to the nature of IM itself not to the non-random distribution of non-business-related IM use, experience, functional purpose, or English proficiency.

In Chapter 3, multiple analysis of covariance (MANCOVA) has been proposed and defended as a means of measuring the effect of IM use on the six domains of team effectiveness while accounting for the covariates specified in Table 1. The use of linear regression has also been detailed and defended in Chapter 3.

Qualitative Model

In RQ2 and RQ3, the purpose was to learn how and why IM might either succeed or fail in improving team effectiveness. To answer these two research questions, the eight members of

the virtual team were be interviewed about the nature and perceived value of their IM use. The questions for the interviews are presented in Chapter 3 and justified with reference to the theoretical literature on IM use, virtual teams, and organizational effectiveness.

Nature of the Study

The study is a mixed-methods case study. According to Yin (2009), case studies are designed to examine a research phenomenon "in depth and within its real-life context" (p. 18). In this study, the contribution of IM to virtual team effectiveness was examined in depth by combining rigorous methods of quantitative and qualitative analysis. The real-life context of the study was provided by the large technology organization from which virtual team members were sampled.

Theoretical Foundation of the Study

The theoretical foundation of the study consists of the body of research suggesting how IM might contribute to virtual team effectiveness. One body of existing theory suggests that IM contributes to virtual team effectiveness by virtue of its support of spontaneous creativity. People who engage in IM with each other in an ad hoc manner often share thoughts that are engaging them at the present moment. By using IM, team members can get feedback on current thoughts without having to wait for formal opportunities to interact.

There is theoretical support that spontaneous creativity is not the only potential benefit of ad hoc, informal conversations of the type supported by IM. Informal communication in general has been identified as a means of building affective commitment, which increases individual dedication to a team. In the Team Diagnostic Survey, affective commitment contributes to all five mechanisms of team effectiveness; affective commitment makes team members more

readily accept that their teams are real and purposeful and equips them to accept and act on direction, organizational support, coaching, and structural opportunities within the team.

Informal communication not only improves creativity and affective commitment but also appears to build stronger relationships between team members. Informal communication tends to be far more frequent than formal communication. Hence, virtual team members who have access to informal communication through IM and other means are more likely to become familiar and comfortable with their colleagues, which, in turn, will make team members more likely to share information, request guidance, and engage in other actions that can raise the effectiveness of the team .

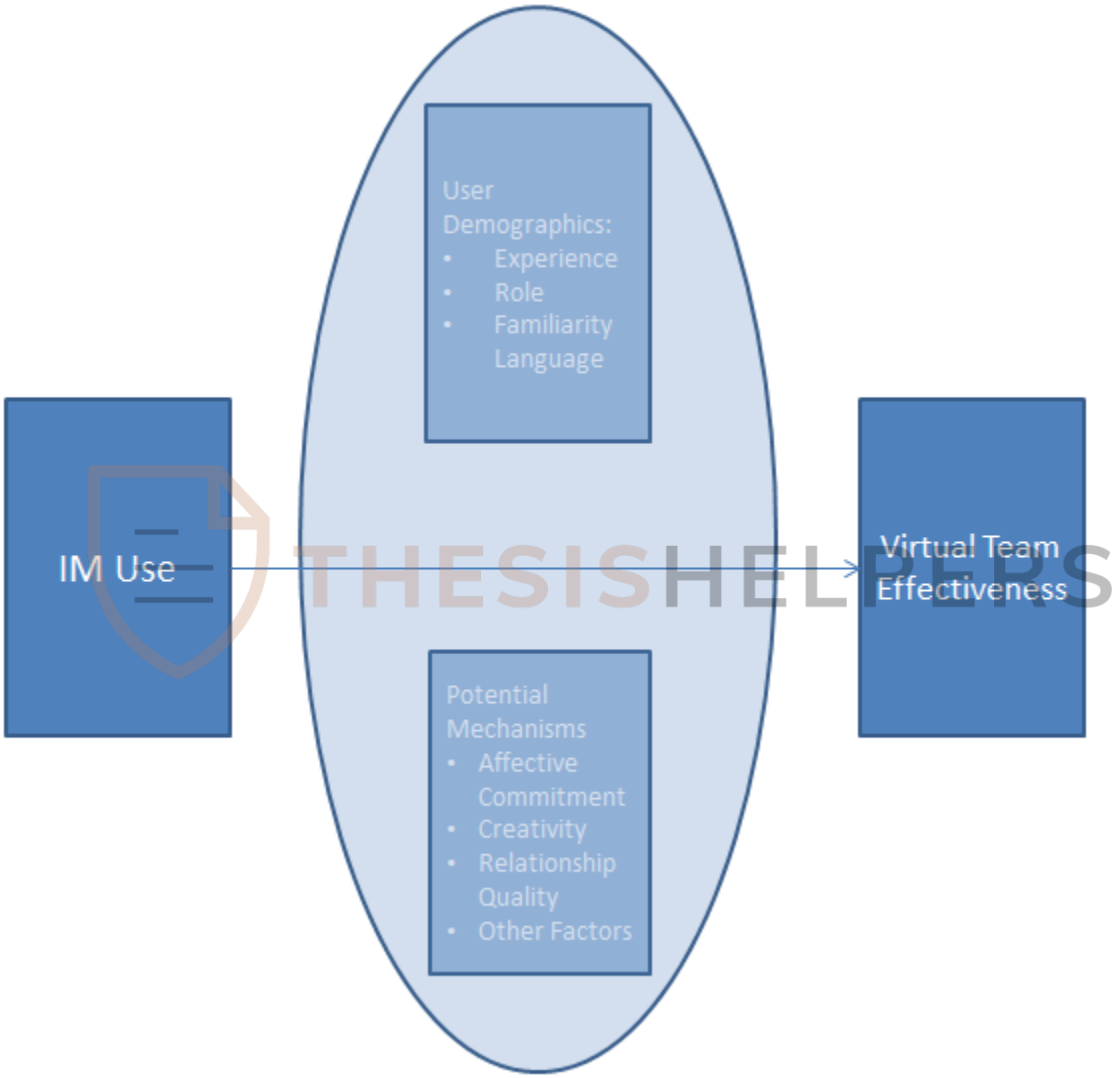
Existing theories thus offer viable reasons to believe that the use of IM could improve virtual team performance. In particular, theory suggests that informal communication based on IM can (a) improve the five effectiveness components in the Team Diagnostic Theory; and (b) provide an impetus for improved affective commitment, creativity, and relationship quality. There is, therefore, theoretical support for examining the link between the use of IM and improved virtual team effectiveness.

The theoretical foundation of the study, as represented in Figure 1 below, proposes a link between IM use and virtual team effectiveness. This link is mediated or moderated by other factors, including user demographics as well as potential effects of IM use on the user. The user demographics of familiarity with IM outside the business context, English language facility, functional role, and experience served as the control variables of the quantitative portion of the study. Other potential mechanisms of the relationship between IM use and virtual team effectiveness, including affective commitment, creativity, relationship quality, and other factors, were uncovered in the qualitative portion of the study. Thus, the theoretical model of the study

was closely integrated with the methodology of the result, and the results of the study, as presented in Chapter 4, were aligned with the model presented in Figure 1 below.

Figure 1

Theoretical Model of Study



Note. Original figure.

Background Elements of IM Virtual and Teams

Three of the core topics in the study are IM, virtual teams, and information communication. A basic overview of each of these topics is provided below. Chapter 2, the review of literature, contains a more thorough discussion of each of these topics.

Background of IM

IM applications were developed originally for direct and spontaneous information exchange. IM is mostly used in indirect ways to create and maintain a sense of connection to others by monitoring the buddy list. Most IM systems use various font styles and different indicators associated with a text label showing whether the remote 'buddy' is online or busy. The status information in the buddy list is commonly used to maintain continuous awareness about state of the remote user without planning to interact.

There are still several constraints on IM's usability and its capability to provide awareness despite the lightweight nature of IM applications. For example, availability has to be provided by the user, and keeping the personal status information current and updated requires a considerable effort from the user, although the information visible to others does not necessarily reflect the current situation. Examples include incoming phone calls or informal conversations with local colleagues.

These assumptions were confirmed in a focus group by Washington (2001) that showed the presence data gained from the buddy list is usually not 'clean,' and that panelists did not trust the validity of presence information. He also observed that users are likely to leave themselves logged on much of the time and forget to change their status, even when they are away from their computer for extended periods of time. While some authors like, e.g., Nardi et al. (2000) argue

that IM is less intrusive than calling on the phone or dropping by, empirical evidence shows that upcoming IM notifications continuously draw the user's attention.

The use of IM for social and work-related communication has created a situation where incoming messages often become a distraction to users while they are performing important tasks (Avrahami & Hudson, 2004). Investigating the impact of interruptions caused by IM applications, Czerwinski et al. (2000) observed significant negative effects on overall processing time of different types of primary tasks. However, even if interruptions are mostly unavoidable and the costs of communication are quite high, IM system might be useful to support informal interactions. Several studies on IM use in the office environments, e.g., by Nardi et al. (2000), Tang et al. (2001), or Handel and Herbsleb (2002), have shown that IM is widely used to negotiate availability for communication over more heavyweight communication channels (e.g., telephone). However, much of the daily work takes place away from the personal desk , which collides with the requirements that the user must be in front of the computer to be able to receive awareness information.

Email, as well as IM systems, lack the ability to support visual awareness, opportunistic conversations and mobility, and these three are important elements of distributed collaboration. Trevino et al. (1987), studies by Rice and Love (1987), and Connolly et al. (1990) observed that computer-mediated communication is generally less friendly and personal as well as more task-oriented and business-like, compared to FTF communications. Handel and Herbsleb (2002) conducted a content analysis of IM communications in offices and found similar results. IM communication was used overwhelmingly for work discussions, coordinating tasks, or negotiating availability.

Three main observations have been made qualifying the character of IM, namely (a) that IM conversations are brief, impromptu and informal, (b) that informal use and media switching is prevalent when needed for additional conversations, and (c) that multitasking is common while conversing in IM (DeSanctis & Monge, 1998).

The first observation about the character of IM is that conversations are brief, addressing a single purpose. They focus on rapid exchanges, such as quick questions and answers, and brief interactions to coordinate conversations in other media, such as scheduling an impromptu phone call. A few studies have mentioned one exception, noting that IM is sometimes used over long periods of time, with each person sending messages sporadically while primarily focusing on other activities.

A second point about the character of IM is that media switching is prevalent (e.g., Connell et al., 2001). Two main reasons for media switching are cited. First, the conversation becomes too complex to continue in IM, so participants agree to switch to phone or FTF interaction for more collaboration or interaction. For example, Connell et al. (2001) stated, “Each new technology has its advantages and disadvantages. For example, instant messaging is quick and efficient for brief interactions, but when discussion becomes complicated, people often find themselves abandoning the chat and picking up the phone” (p. 11-12).

While there is some consensus about the primary functions and character of IM, less is known about patterns of IM usage. A few studies estimated how many people users have on their buddy lists, and how frequently users exchange messages, but these findings vary. Reports on average numbers of buddies range from about six to ten, with some users having as many as 30. In one observation, some respondents reported using IM daily, while others use it weekly.

Another response indicated that 90% used IM daily, and those users reported having an average of 3.2 exchanges per day.

To summarize, studies suggest the following:

- IM conversations have a specific set of characteristics: (a) they tend to be brief and cover a single topic, and (b) both media switching and multitasking are prevalent.
- IM may also be used for longer, intermittent interactions between established coworkers and friends.
- IM is used for four main functions: (a) quick questions and clarifications, (b) coordinating impromptu work-related or phone meetings, (c) coordinating impromptu social meetings, and (d) keeping in touch with friends and colleagues.

Virtual Teams: Challenge and Necessity

Many organizations are bound to use virtual teams due to globalization and de-centralization (Hertel et al., 2006) and continue to be growing. More and more virtual teams are established; they are getting larger, and there are also geographically dispersed teams. This is due to mobilization of speed and flexibility needed where corporations can develop and deploy workforce skills and capabilities to match emerging opportunities. In pursuit of lower costs, have forced companies to search for skilled people regardless of physical location and using technology to manage the engagement process.

Co-location is not always possible, and in absence of FTF contact, there are many challenges. Work environments are becoming more complex, work is increasingly collaborative, work demands more social capital, and in this way, we can appreciate the importance of virtual collaboration to overall effectiveness. As more people and organizations have realized these benefits, remote work, or telecommuting work, has increased dramatically (Gossett & Tompkins,

2001; Kurland & Bailey, 1999). Corporate volatility and ever-improving technological capabilities have fueled much of this recent growth, such that some level of remote work is almost a fixture in most organizations today (DeSanctis & Monge,1998; Wellman et al., 1996).

Remote arrangements also mean corporate and individual challenges where managers need expanded and sometimes different skills to manage these employees effectively (Schilling, 1999). In organizations with tightly structured hierarchies, managers may also experience perceived loss of control (Ellison, 1999) and may struggle to maintain a coherent identity (DeSanctis & Monge, 1998; Wiesenfeld et al., 2001). Finally, telecommuting arrangements pose an inherent risk of fragmenting organizations (Wiesenfeld et al., 2001), with remote workers physically and sometimes psychologically removed from the usual visual cues, rituals, and spontaneous opportunities for the social interactions which facilitate getting the job done.

This remote arrangement poses challenges to individuals as well because remote workers are physically distanced from the parent organization and other colleagues; they operate in a fairly unsupervised fashion, typically with high levels of autonomy, managing their own time and schedule (Mallia & Ferris, 2000). Co-located workers sometimes perceive their remote colleagues' advantages as conferring special privilege or permitting slacking (Baruch, 2000), which can put remote workers in a defensive position. This means that remote workers also have fewer spontaneous and possibly fewer face-to-face opportunities for interacting. This will be followed by the arrangement that can result in a sense of isolation (Monge & Contractor, 2001; Reinsch, 1999; Wiesenfeld et al., 2001), loss and detachment (Hylmo & Buzzanell, 2002), reduced visibility (Reinsch, 1997), especially as it relates to promotion opportunities (Olson, 1987) and compromised feelings of belonging (Morgan & Symon, 2002). In other words, telecommuters report simply feeling left out (Reinsch, 1997).

The Role of Informal Communication

Research conducted among co-located employees indicates that informal communication is viewed as a key vehicle through which employees form meaningful interpersonal relationships, meet social needs, and exercise some control in their working lives (Eisenberg & Reilly, 2000). Informal communication and interactions are also important means for making useful work and non-work connections (Sproull & Kiesler, 1991); they also tend to be more personal (Johnson et al., 1994), and people tend to trust informal sources more than formal ones (Leenders & Gabby, 1999).

Even far from being insignificant, informal communications, such as gossip and small talk, make up the everyday interactions that most closely affect identity concerns (Metz & Westenholz, 2003) through common ground. More precisely, sense-making emerges through human social connections, but social and task dynamics are fundamentally altered in the remote context (Thatcher & Zhu, 2006). Therefore, how remote workers come to understand the remote context and their own roles as organizational members may, at least in part, emerge through the informal connections they have with co-located peers and other workers.

This is because the remote setting offers fewer spontaneous occasions for everyday informal interaction and usually increases reliance on technological means. It is important to ask and know as to what extent and how this significant form of communication facilitates critical functions. This study's focus is that not only is establishing common ground possible in the remote-to-co-worker context, but also the idea of 'belonging with' is essential to often-researched concepts, such as organizational identification, commitment and job satisfaction.

These outcomes are then perceived in certain ways by remote employees and are instantiated in a dynamic concept of what it means to 'be a member of'(H. Clark, 1996). The

perspective taken here reflects the constructivist (O'Keefe & Delia, 1982; O'Keefe et al., 1980; O'Keefe & Shepherd, 1989) approach in that it views identity (and, by extension, organizational outcomes as experienced by individuals) as created in talk-in-interaction. Further, it emphasizes the often-ignored realm of *informal communication* as playing an important role in many ways. As Smith and Ellis (2001) indicate, it is within the micro-world of everyday communication that people coordinate and create meaning that produces social structure and that is produced by social structure.

This perspective views the social world as created by the coordinated actions between persons-in-conversation (Pearce & Pearce, 2000), reflective dialogue, and linguistic practices as the process by which an organizational sense occurs (Shotter & Cunliffe, 2003). Any act of communication serves to forward tasks, relationships, and identities (Clark & Delia, 1979). It is important that certain activities increase common ground, enabling joint meaning-making, or "social poetics" (Shotter, 2005). Increased common ground facilitates workflow and builds relational ties (Arnseth et al., 2004). To communicate successfully, mutual knowledge must first be established (DeSanctis & Monge, 1998); many of the inferences people make about such knowledge are gleaned from physical and linguistic proximity (co-presence).

Summary

Virtual teams are widely used in organizations. IM is a commonly used tool among virtual teams, although there remains disagreement on the contribution of IM to virtual team success. The purpose of this quasi-experimental study was to draw upon the experiences of eight virtual team members in a large technology company to (a) quantify contribution of IM to virtual team success, (b) document how and why IM use contributed to virtual team success, and (c) document how and why IM use did not contribute to virtual success. These purposes were

achieved by a combination of quantitative and qualitative analysis explained in Chapter 3. The results that emerged from the analysis are presented in Chapter 4 and used to reach conclusions about the usefulness of IM in Chapter 5. Chapter 2, the review of literature, contains an overview of the relevant theoretical and empirical literature on the relationship between IM use and virtual team effectiveness.

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