Communication Attributes of Virtual Teams Attaining Peak Performance:

Technology Alone Cannot Guarantee Effective Virtual Teams

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Abstract

The proliferation of new technologies has fostered new opportunities in the workplace, one of the most significant of which is virtual teams. Estimates suggest that in the US alone, as many as 8.4 million employees are members of one or more virtual teams (Ahuja & Galvin 2001). The management of virtual teams represents one of the most profound challenges traditional managers have faced in the last fifty years. Virtual teams represent a growing response to the need for high-quality, low-cost, rapid solutions to complex organizational challenges. They offer organizations the opportunity to converge the best and the brightest to tackle complex organizational issues, develop creative solutions, or design innovative products in a highly competitive marketplace. Yet, evidence increasingly suggests that virtual teams fail more often than they succeed. Challenges such teams face include (1) logistical problems, such as communicating and coordinating work across time and space; (2) interpersonal concerns, such as establishing effective working relationships with team members in the absence of face-to-face communication; and (3) technology issues, such as learning and using the technologies most appropriate for certain tasks. These are challenges similar to those faced by online students working in virtual teams (Furst et al. 2004). This paper presents findings regarding trends in high-performing virtual teams in an MBA program, focusing on communication and examining the tools that best facilitate communication in high-performing teams.

Key words: virtual teams, communication, performance, asynchronous communication, synchronous communication, social

Introduction

The proliferation of new technologies has fostered new opportunities in the workplace, one of the most significant of which is virtual teams. Estimates suggest that in the US alone, as many as 8.4 million employees are members of one or more virtual teams (Ahuja & Galvin 2001). The management of virtual teams represents one of the most profound challenges traditional managers have faced in the last fifty years. Virtual teams represent a growing response to the need for high-quality, low-cost, rapid solutions to complex organizational challenges. They offer organizations the opportunity to converge the best and the brightest to tackle complex organizational issues, develop creative solutions, or design innovative products in a highly competitive marketplace. Yet, evidence increasingly suggests that virtual teams fail

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Background

Computer-mediated communication, or CMC, is the lifeline of virtual teams and their members. In a virtual world, team members can no longer casually converge at the water cooler to share ideas and rehash issues encountered the previous day. Virtual communication is deliberate and tethered to a computer and Internet access. Yet, various communication tools allow virtual team members the opportunity to "talk" to each other synchronously (in real-time) or asynchronously (in delayed time).

Synchronous discussion, or "chat," refers to online conversation that occurs in real time. With chat, no time elapses between the sender's transmission and the receiver's receipt of the message, as there is in asynchronous communication. All discussants interact online at the same time within the same discussion space. Chat conversations typically are conducted with typed text format, but audio or video formats also are used. Chat allows for detailed explanations, follow-up questions, and immediate feedback, which make it possible to address and immediately resolve miscommunications. Murphy and Collins (1998) argued that chat allows "a sense of communicative immediacy and presence" (p. 3).

Asynchronous communication is delayed electronic communication. Forums include such tools as e-mail, threaded discussion or discussion boards, message boards, and conference areas. While synchronous communication is more spontaneous in nature, the asynchronous environment is far more deliberate. Asynchronous communication can be used effectively to discuss, develop, and collaborate on ideas. The ability to archive such discussions enhances the continuity and cohesion of the virtual team. Often, virtual team members will be tempted to pick up the phone or e-mail a fellow member. Although this type of communication may look expedient and effective on the surface, the various communication media used can affect the team adversely. Phone calls and e-mails between a subset of team members may appear to be efficient but result in other members feeling left "out of the loop" (Kirkman et al. 2002). Thus, by using a tool such as a discussion board, all virtual team members are privy to everyone's thoughts and sidebar conversations, allowing everyone to be in the "loop."

Research on virtual teams abounds with challenges unique to this environment. Although the natural evolution of a virtual team may follow the team model of Gersick's punctuated equilibrium (1988) or Tuckman's state model of development (1965), unique issues are embedded in the act of communicating and miscommunicating, inherent in geographically dispersed teams.

In their 2004 study, Furst, Reeves, Rosen, and Blackburn discovered that more than half of the program participants interviewed indicated their teams had encountered some difficulties working on their project in virtual environments. Virtual team members expressed a frustration with a perceived lack of commitment from some members. While it is not uncommon for

members of co-located teams to express concern over some members not doing their fair share, the frustrations that virtual team members expressed about non-performers appeared amplified because team members could not directly observe or influence another's behavior. Consequently, managers, who now act in the role of facilitator, share the team member's frustration.

Other studies showed that virtual team members withheld criticism in order to spare fellow members embarrassment. Consequently, important feedback that could hone ideas or reroute unproductive shifts in direction was lost (Jarvanpaa 1998; Cascio 2000). Open and honest feedback is an important part of establishing trust in earlier stages of team development. Further, Walther and Bunz (2005) found that virtual team trust could be compromised when members went absent without any explicit explanation for their absence, again emphasizing the importance of the continued conversation between team members.

Mere availability of virtual tools is not enough to overcome these challenges. Understanding the nuances in virtual communication is imperative, and it is addressed in online MBA programs. Such programs can offer future virtual managers and virtual team members an understanding of and appreciation for communication in the virtual workplace.

Procedures for collecting data

In this study, the frequency of communication was examined as it related to individual and team performance. Data were collected from 25 sections of an online accounting course. The five-week session was taught in a distance education format. All of the students in the study had previous online course experience and experience using synchronous and asynchronous tools. They also understood the protocol for attending chats and submitting assignments. As this was a distance class, the students had no face-to-face contact with each other or with the instructor. They communicated via telephone, e-mail, threaded discussion board, and synchronous chat sessions, although for this study the exclusive use of discussion boards and synchronous chat sessions was encouraged. Except for the textbook, the students received all course material over the Internet. One-hour synchronous chats were offered twice per week, and discussion threads were conducted throughout the week. The chat was used as a forum to discuss accounting concepts, clarify upcoming assignments, answer questions students had regarding the concepts presented in previous weeks or the current session, and stimulate critical thinking by discussing the ethical issues in accounting facing many companies today. Participation in the chat sessions was completely voluntary, and attendance in chat sessions was not part of the grading rubric. Threaded discussions focused on a topic or case study allowing students to apply and expand on the concepts they learned during the week.

Results

Information regarding participation was drawn from chat archival data. Seven-hundred, twenty-three students in 25 sections, each with an average of 28 students, completed the course. The grade distribution for individual and group work, are shown below (Tab.1).

Grade Awarded	Number of Students Achieving Grade	Percentage of Students Achieving Grade	Group Project Grade Distribution (By Student)	Percentage of Groups Achieving Grade
A	355	49.1	269	37.2
B	190	26.3	234	32.4
C	96	13.3	151	20.9
D	15	2.0	10	1.4
F	67	9.3	59	8.2
Total receiving a passing grade	641	88.7	654	90.5

Table 1: Grade distribution for individual and group work.

The rubrics for grading were as follows: a grade of A indicated the student justified responses with text and other research sources; a grade of B indicated the student took a position beyond merely a literal answer for the question, with a moderate explanation of why the recommendations were made; a grade of C indicated the student completed and submitted the required questions by the specified deadline; a grade of D indicated the student did not answer the questions or did not provide the appropriate answers within the specified deadline; a grade of F indicated an overall failure to meet the course requirements.

A cursory review of the data (see Table 2) indicates a positive correlation between participation in synchronous chat sessions and successful performance, grade of B or better in the group project.

Grade Awarded	Group Project Grade Distribution (By Group)	Group Project Number of DB messages	Average	Group Project Number of Synchronous Chat Session	Average
A	37	1467	39.7	126	3.4
B	27	1012	37.5	125	4.6
C	16	470	29.4	41	2.6
D	0	0	0	0	0
F	2	14	7	3	1.5
Total	82	2963	36.1	295	3.6

Table 2: Correlation between grade distribution and frequency of communication among team members.

During this time, the student teams were also monitored, and performance was evaluated as it related to frequency of communication. Among the 82 groups observed, an average of 36.1 asynchronous messages was generated by each virtual team in a one-week period using the threaded discussion forum. Each team was assigned to complete one group project and given one week to complete the task. Those teams achieving a grade of A ranged in frequency of communication from 112 messages to 22 messages, with the average number of asynchronous messages in these high-performing teams being 39.7 and an average number of synchronous communication of 3.4. Those teams achieving a grade of C had an average of 29.4 asynchronous messages and an average number of synchronous communications of 2.6. This initial

investigation appears to support previous research that indicates a positive correlation between the frequency of communication and virtual team performance. Future research is necessary to determine if the context of the messages in low-performing teams focused on process steps (encouraging participation or attempts to contact unresponsive members) or, rather, on task completion.

Discussion and Conclusions

This study is part of a continuing effort to determine the impact of communication frequency, media richness and communication content in high-performing virtual teams in order to determine the tools and skill sets that best facilitate communication in-high performing teams. The initial investigation appears to support previous research that indicates a correlation between the frequency of communication and virtual individual and team performance.

Shareware and other technology platforms that permit team members to archive documents and use message boards are among the opportunities available to virtual teams. Companies that want successful virtual teams must look to and be willing to implement innovative approaches. In the area of GroupWare, online educational institutions are starting to use synchronous chat environments that serve as both a mechanism for socialization of students and as effective lecture tools for online instructors. IBM has extended this concept into the workplace with its GroupWare prototype, Babble. Babble is an online environment intended to support both synchronous and asynchronous text-based conversations within groups ranging in size from small to medium. Managers have found that this type of CMC offers a balance between essential socializing and productivity (such as inquiring how someone is "doing" before making a work request). When used in a group context, managers see Babble as a tool to obtain necessary technical information from a variety of sectors across the organization without "wasting people's time" and, more important, to make keeping staff "in the loop" a less onerous task. Many cost effective GroupWares are available to corporations today in the form of Skype, iLync, GoToMeeting, Google's Talk, and others.

Kurland and Egan (1999) argued that highly successful managers emphasized auditory and visual communication, although no differences were found between visual means such as face-to-face interacting or video conferencing. Brosig, Ockenfels, and Weimann (1999) concluded:

> A video conference is as useful to employ the favorable features of face-to-face communication as a "real" conference. Obviously, it is important that people can see one another and talk with each other simultaneously, but it is not that important to be near each other in a physical sense. (p. 896)

Their study suggested that physical presence was not a decisive factor for predicting a successful meeting or collaboration. In 1999, Ishaya and Macaulay confirmed these findings. Organizations looking to reap the benefits of virtual teams need to invest in a technological infrastructure that will support adequate synchronous and asynchronous communication. MBA distance education programs can help defray some of the training costs of corporations by incorporating these technologies into their programs, thereby preparing future virtual team members and their managers to become fluent in virtual communication media. Walther and Bunz (2005), in their development of rules for virtual groups, emphasize the importance of frequent communication. Overtly acknowledging that messages have been received and read is imperative in virtual group interaction. Virtual team members, whether in the corporate world or in the virtual classroom,

need to be explicit about what they are thinking and share task accomplishments. When one does not explicitly state agreement or disagreement with a proposal in a virtual group, other members do not know if the group agrees, but may falsely assume that it does (Cramton 2001). Teams often underestimate the challenges associated with working virtually. Online MBA programs, whose responsibility it is to educate effective leaders and managers, can help students have an understanding and appreciation of the skill sets needed to work effectively in virtual teams.

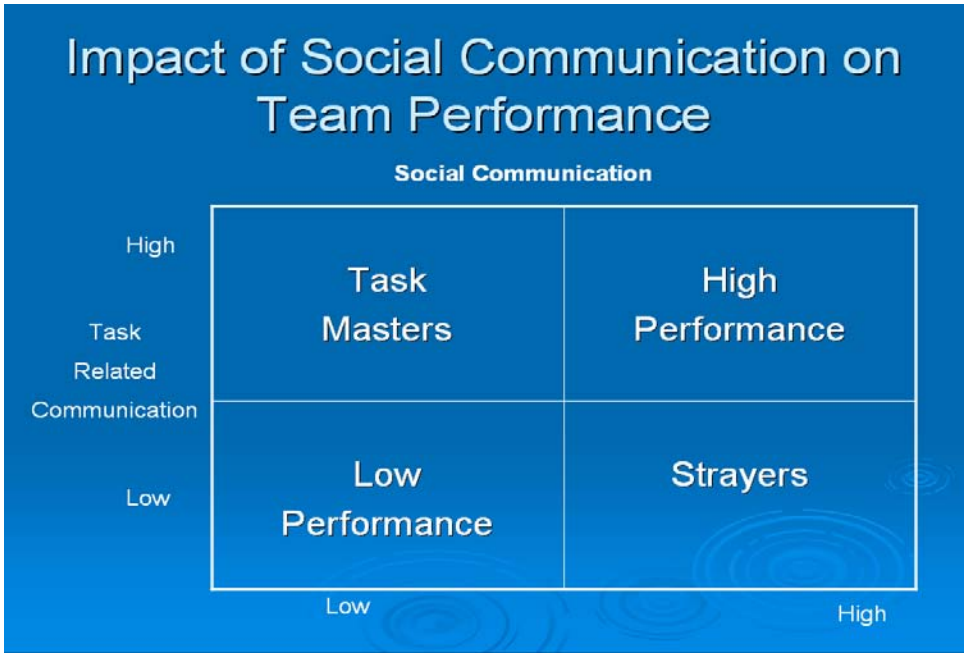

Figure 1: Correlation between Social Communication and Virtual Team Performance.

In examining the content of the virtual teams asynchronous communication I discovered, anecdotally, a social component evident in high performing teams. In a recent article in the International Journal on E-Learning, by Seung-hee Lee; Curtis Bonk; Richard Magjuka (2006): *Understanding the Dimensions of Virtual Teams*, three dimensions of virtual team: task, social, and technological dimensions were examined. The authors indicated that the task, social, and technological dimensions embedded in the nature of virtual teams influence each other interchangeably and constantly. The social dimension is one of the least explored dimensions with perhaps the most profound implications. In my next phase of research there will be an emphasis on socialization prior to the group project (sharing of bios, a common DB area to get to know each other). The heightened focus on social communication, I hypothesize will result in higher performing virtual teams .

This initial examination demonstrated that synchronous chat may have a positive effect on student performance. Further studies must be conducted to determine the degree to which chat affects virtual team member performance, what effect chat has on the performance of virtual teams, and whether chat can enhance collaborative learning overall. Finally, future research should explore the impact of social communication in an online classroom and its impact on virtual teams. Whatever the results of future investigations, it is clear that online MBA programs

can offer future virtual workers and their managers the tools and knowledge necessary to effectively function in this fascinating and dynamic environment.

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