Connection in Creative Virtual Teams

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ABSTRACT

This paper describes a qualitative study investigating the work environment necessary for virtual teams to be creative. Nine virtual teams, with a total of 36 team members participated. One semi-structured, telephone interview was conducted with each participant. Team members also completed a background survey. Grounded theorizing was used to analyze the data and generate meaning. Connection, defined as the elements that need to be in place for a team to develop and maintain identity and a sense of community, emerged as important to the realization of creativity in virtual teams. Connection was further subdivided into task connection (made up of dedication/commitment, and goal clarity); and interpersonal connection (made up of information sharing, trust, and personal bond).

Introduction

Creativity is increasingly becoming a critical topic for contemporary organizations. Perhaps one of the most crucial reasons for organizations to promote creativity has been global competition. To meet the demands of fierce global competition, organizational structures are changing, becoming increasingly more flexible. These new organizational structures, in which independent firms across the globe join together to function as a single corporation, are characterized by such terms as virtual, boundary-less, or networked (Davidow & Malone, 1992; Galbraith, 1995; O'Hara-Devereaux & Johansen, 1994).

Global competition has not only created a dire need for organizational creative efforts; it has forced companies to get products out faster. Teamwork in the virtual corporation is essential to tap into the best talent to create the highest quality and fastest response to customer needs. Virtual teams are groups of geographically dispersed organizational members who communicate and carry out their activities through information technology (Kristof, Brown, Sims, & Smith, 1995; Lipnack & Stamps, 1997). Thus, the traditional office, conceptualized as a collection of cubicles in a high rise, is shrinking as individuals are finding themselves working in an "anywhere/anytime" mode, connected to co-workers through information technology (O'Hara-Devereaux & Johansen, 1994).

Virtual team structures may lead to higher levels of team creativity as a result of more openness, flexibility, diversity, and added access to information as compared to more traditional group structures. However, it may be extremely difficult to build a sense of personal connection and trust in these types of structures--elements crucial to high levels of creativity (Ekvall, Arvonen, & Waldenstrom-Lindblad, 1983; Geber, 1995). In designing virtual teams, we cannot ignore the social context of such arrangements. Technology allows for the electronic connection of geographically spread out individuals, but it does not necessarily lead to effective personal connection, communication and creativity. Virtual corporations and teams cannot function

without information technology. But technology alone is not the answer to the problems of working across geographical and cultural boundaries. The ultimate answers to these problems lie in the realm of human and organizational relations and creating work environments that bring out the best in people involved in these virtual structures.

What then can team designers, team leaders, and managers do to create a work environment that will help virtual teams realize their creativity? The answer to that question may be relatively simple--create a connection between team members. Connection involves both task connection (made up of dedication/commitment, and goal clarity) and interpersonal connection (made up of information sharing, trust, and personal bond). In this paper, I will describe a research project that explored the work environment necessary for virtual teams to be creative. The major focus will be to illustrate the concept of connection, and the accompanying dimensions, and to offer suggestions on how managers can establish and develop connection in their own virtual teams.

Background Literature

The Context for Creativity in Traditional Organizational and Team Structures

As early as 1954, Carl Rogers talked about the social conditions necessary for creativity, which included creating an environment characterized by psychological safety and freedom, high internal motivation, and the absence of external evaluation to allow creativity to flourish (Harrington, Block, & Block, 1987). Since that time, the literature investigating the influence of the social environment on creativity has further demonstrated the importance of creating the appropriate social conditions for enhancing creativity. Experimental research has demonstrated that creativity can be undermined by (a) evaluation (Amabile, 1979; Amabile, Goldfarb & Brackfield, 1990); (b) surveillance (Amabile et al., 1990); (c) reward (Amabile, Hennessey & Grossman, 1986; Kruglanski, Friedman & Zeevi, 1971; McGraw & McCullers 1979); (d) competition (Amabile, 1982); (e) time pressure (Amabile, Dejong & Lepper, 1976); (f) external motivational orientation (Amabile, 1985); and (g) restricted choice (Amabile & Gitomer, 1984; Runco, 1995; Shalley, 1991). A strong link has also been found between intrinsic motivation and high levels of creativity of individuals (Amabile, 1983; Pelz & Andrews, 1966). Intrinsic motivation has been characterized as an internal locus of control, a sense of being self-driven, an excitement about the work, and a commitment to an idea (Amabile & S. Gryskiewicz, 1987).

An important outgrowth of the examination of social and environmental influences on creativity has been an increasing interest in the ways the work environment might influence the creativity of employees (Amabile, 1989; West & Farr, 1990). From a comprehensive review of the literature, Nemiro and Runco (1996) identified six factors necessary for a work environment that fosters creativity in organizations and work groups. The factors are described in Table 1.

Table 1
Factors Necessary for a Work Environment that Fosters Creativity in Organizations and Groups

Factor Name	Description
Autonomy and Freedom	Allowing individuals responsibility for initiating new ideas and making decisions, a sense of control over one's work (Amabile & S. Gryskiewicz, 1987; Andrews, 1975; Ekvall et al., 1983; VanGundy, 1987).
Challenge	Work that is stimulating, engaging, and meaningful, a sense of having to work hard on challenging and important tasks (Amabile & N. Gryskiewicz, 1989; Ekvall et al., 1983).
Clear Direction	Goals that facilitate creativity are clear, negotiated, attainable, shared, and valued (Amabile, 1988; West, 1990).
Diversity/Flexibility/Tension	Diversity, both in terms of the work assignments offered and the people one interacts with, and a tolerance of differences (Andrews, 1975; VanGundy, 1987). In order to be tolerant of differences, flexibility is needed (Abbey & Dickson, 1983; VanGundy, 1987). Both diversity and flexibility can lead to a sense of excitement and creative tension (Ekvall et al., 1983; Runco, 1994).
Support for Creativity	An organizational focus on support for or encouragement of creativity (Amabile & N. Gryskiewicz, 1989; Andrews, 1975; Ekvall et al., 1983; VanGundy, 1987).
Trust and participative safety	Especially crucial for group creativity is trust and participative safety. The emphasis is on encouraging participation in a non-threatening, non-evaluative environment (West, 1990).

Prior research, then, has shown that dimensions of connection, both task (clear direction and commitment) and interpersonal (trust and participative safety) are important for enhancing creativity in traditional organizational and team designs. However, these studies did not directly address dimensions that may be necessary when organizations and groups no longer interact in traditional structures.

The Context for Creativity in Virtual Teams

One of the problems with virtual work structures is that electronic interaction eliminates much of the work context, stripping off everything but the message and leaving the rest for inference. A major consideration for virtual teams is how much contextual information people need to work effectively and creatively, and how much of this information can be communicated across time and distance.

One of the contextual factors that is stripped away in virtual interactions is nonverbal communication. Although certain etiquettes have been established to communicate some form of nonverbal behavior through text, many virtual teams who communicate through media in which the message is shared in text or audio format (faxes, e-mail, phones) lose valuable visual nonverbal cues. Technology such as videoconferencing allows for the transmission of an image of the speaker as well; but, in most cases, the absence of visual nonverbal feedback is a characteristic of virtual interactions (Kiesler, Siegel, & McGuire, 1991). Nonverbal behavior can be used to control, regulate, and modify exchanges. Without such feedback, additional dimensions may be necessary to establish connection, coordination and collaboration for a work environment that will enhance creativity.

Another condition of computer-mediated communication is the level of dehumanization and social isolation that may develop in this type of communication. Some research has suggested that communication through electronic means is dehumanizing, creating a sense of social anonymity (Kiesler et al., 1991). As a result, messages in electronic mail tend to be stronger, and more uninhibited and assertive. Additional dimensions, then, may be necessary to establish connection, collaboration, and unity in the context of possible dehumanization and social isolation.

Finally, another contextual factor that can lead to miscommunication in virtual teams is cultural differences or diversity. Virtual teams may be dispersed all over the globe, indicating that these teams may be made up of members from varying cultural backgrounds. Cultural diversity can be a boon for creativity, as individuals from varying backgrounds may offer differing perspectives and insights. However, considering the more or less "context-less" environment of virtual work, dimensions specifically addressing these cultural differences are important to include in a work environment conducive to creativity in virtual teams.

So, what has the research suggested about the dimensions necessary for facilitating creativity in virtual teams? Virtual teams are a fairly recent phenomenon, thus no known research (prior to the current study) has directly addressed the social context necessary for fostering creativity in virtual teams. However, some preliminary dimensions may be drawn from existing related research on virtual team effectiveness. This research has suggested that key factors in effective virtual teams have been establishing goal and role clarity, and a sense of trust among virtual team members.

Goal and role clarity

Lipnack and Stamps (1997) saw purpose as the essence of a virtual team, and the best predictor of success. Purpose stood for a range of terms including vision, mission, goals, tasks, and results. Common goals and vision were necessary to build loyalty and trust among geographically dispersed and culturally diverse virtual team members. George (1996) stressed that specifying the overall direction is crucial for virtual teams. Having clear guidelines and expectations agreed upon at the onset helps to ensure that members of virtual teams know what their tasks are and how they will accomplish them. O'Hara-Devereaux and Johansen (1994) also viewed shared goals as important to effective virtual teams. They wrote:

> Distributed team members stay oriented to each other and their tasks through high-level shared vision, goals, and roles rather than through detailed implementation plans. This level of understanding is a critical substitute for the informal, face-to-face meetings that play such an important role in keeping on-site teams in tune with one another. (p. 125)

In addition to having clear, compatible, and shared goals, role clarity appears to be an important factor for successful virtual teams. Lipnack and Stamps (1997) suggested that roles helped geographically dispersed team members to relate. Roles for virtual team members, however, require greater clarification, and expectations need to be more explicit than in co-located teams (Kossler & Prestridge, 1996; Lipnack & Stamps, 1997). George (1996) suggested that one of the best practices for beginning virtual teamwork was to provide a profile of what team members were expected to do, including the roles of both virtual team members and their leaders. While role clarity is important for virtual team members, the roles they play are often multiple, and flexible due to the dynamic nature of virtual teams (Lipnack & Stamps, 1997).

Trust

Trust may be the most crucial dimension necessary for virtual team effectiveness. Davidow and Malone (1992) emphasized trust as a defining feature for virtual corporations:

The road to world-class supply chain management meanders through a series of cultural changes--to a new plateau of trust. To achieve true partnership, customers and suppliers must share information--on new products, designs, internal business plans, and long-term strategy--that once was closely guarded. (p. 145) Lipnack and Stamps (1997) also stressed that trust is something virtual teams must possess, "In the networks and virtual teams of the Information Age, trust is a 'need to have' quality in productive relationships" (p. 174).

O'Hara-Devereaux and Johansen (1994) suggested that building trust in the early stages of team development is perhaps the most effective measure in guaranteeing the success of virtual teams. The key rule in building trust is to take the time to build relationships, to create "the human glue of teams" (p. 171).

In a case study of one successful virtual team, Kristof et al. (1995) found three elements of trust: (a) trust the company placed in the team members, (b) trust the team members had in the organization, and (c) trust that existed between the members of the team. These three elements of

trust combined to create an atmosphere where each team member had both the freedom and responsibility to contribute their best.

Trust may develop more slowly among virtual team members, as compared to face-to-face team members. With less visual contact, it may take longer to identify and adjust to the habits, quirks, and skills of team members (Kossler & Prestridge, 1996). George (1996) suggested that lack of trust or mistrust may put a virtual team on a "collision course." And, unfortunately, mistrust is likely, as employees from different locations, cultures and technical backgrounds are apt to question how the information they offer will be used, whether their contribution will be recognized outside the team, and whether other team members will make an equal contribution to the work.

Summary

Elements of connection, then, have been shown to be important for enhancing creativity in traditional organizational and group designs, and crucial to the success of virtual teams. However, there is still considerable question about the unique dimensions of connection specific to highly creative virtual teams. The major objective of the current study was to decipher the key dimensions necessary for creating a work environment conducive to creativity in virtual teams. Connection emerged as a key component of the social context for creativity in virtual teams.

Methods

Data Collection

Nine different virtual teams, with a total of 36 virtual team members, participated in this study. Participation ranged from 100% of the team members in two teams to 25% of the members in one team. For the other six teams, participation ranged between 50-83% of the team members. (In this paper, names of the teams, individual team members, and other company specific information have been disguised to ensure the anonymity of the study's participants.)

One semi-structured interview was conducted with each participant. Interviews were conducted over the telephone and were audio-taped (with the consent of the participant). In the interviews, team members were asked to (a) provide background on the organization in which their team resides; (b) discuss their specific role in the team and describe a typical work day; (c) describe the characteristics, behaviors, and norms of their virtual team; (d) describe what they liked and did not like about working in a virtual team; (e) address the strengths and limitations of virtual teams; (f) describe how the creative process evolves in their virtual team; (g) share two stories of projects completed by their team--one story that they felt exemplified high creativity, and one story which exemplified low creativity (Amabile, 1990; Amabile & S. Gryskiewicz, 1987); and (h) comment on how crucial several specific dimensions of the work environment were to the effectiveness of their virtual team (dimensions previously shown as important for the realization of creativity, Amabile, 1990; Amabile & S. Gryskiewicz, 1987; Amabile & N. Gryskiewicz, 1989; Ekvall, 1983; and Ekvall et al., 1983). (Data that emerged from discussion of the last two topics--(g) and (h)--are particularly relevant to this paper's discussion.)

After the interview, participants were either e-mailed or mailed a background survey. Thirty-three (out of 36) participants returned the background survey. The purpose of the survey was to provide descriptive information on the individual virtual team member, the virtual team, and the organization in which the virtual team resided. The survey was a mixture of both closed-ended and open-ended questions.

The Sample

Sampling in qualitative research is typically characterized as purposive or theoretical (Miles & Huberman, 1994; Strauss & Corbin, 1990, 1998). Maximum variation sampling is a form of purposive sampling in which the researcher deliberately selects a heterogeneous sample and observes the commonalities in their experiences (Miles & Huberman, 1994). Maximum variation sampling was the method that guided sampling in this study. Teams were purposively selected to vary on several key team and individual participant-level characteristics to increase the generalizability of the study's results.

Nature of the work. Teams varied with respect to the nature of their work and the organizations in which they resided. Three teams were organizational consulting firms including (a) Alpha Consultants Incorporated (ACI), specializing in assisting clients with organizational change; (b) Vital Training Group (VTG), specializing in personal productivity and time management training, and helping clients streamline their workflow; and (c) Jacobs/Taylor, who assisted clients in technological diffusion.

Two teams were educational consortiums. The Job Search Consortium team was composed of career development professionals from universities with high quality MBA programs. The team's yearly task was to put on an effective, annual recruiting event for their students. The Electronic Learning Consortium (ELC) team was responsible for developing and maintaining a text-based, educational virtual community dedicated to education, medicine, psychology and disability issues.

Three teams were classified as on-line service providers. Two (of the three) teams resided in the same organization, Worldwide Software Development, a large software development company. The WN-Current Events team was responsible for producing an on-line publication which featured a calendar of events of what was happening on the on-line service network. The WN-Religion Forum team managed an on-line chat on religion. The third on-line service provider team resided in OfficeTech, a large, multi-national organization that manufacturers business machines and computers. The major work of the OfficeTech team was to develop and sustain a company virtual community to foster knowledge sharing among globally dispersed workers in the corporation.

The final team was made up of product design engineers, all of whom worked full-time for AutoMax, a large auto manufacturing company. The engineers were responsible for designing circuit boards for radios, clusters, odometers, anti-lock brakes, and electric windows.

Methods of communication. Teams varied in the methods of communication used, and the degree of face-to-face communication utilized. Results for how frequently each individual team

used each of 12 different communication methods are presented in Table 2. The most frequently used communication method for each team is shown in bold. E-mail was the most frequently used method of communication in seven out of the nine teams.

Table 2
Mean Frequency of Methods of Communication for Each Team

	[Org. Cons.]		[Educ. Cons.]		[On-line Serv. Prov.]		[Engineers]	
Method	ACI	J/T	VTG	ELC	JSC	OfTch	WN-CE	WN-R
A/Max								
Face-to-Face	1.2	2.5	1.3	1.0	1.0	1.0	2.3	1.0	3.3
Videoconferencing	1.0	1.0	1.0	1.7	1.0	1.0	1.0	1.0	1.2
Teleconferencing	1.7	1.5	2.3	1.0	1.2	2.7	3.0	1.0	2.5
Telephone	2.9	**4.5**	3.3	1.7	2.3	4.7	3.7	1.5	**3.7**
Voice mail	2.7	4.0	2.3	1.0	1.8	3.3	3.0	1.0	3.0
Remote screen sharing	1.3	1.0	1.0	2.3	1.0	1.3	1.0	1.0	2.5
Computer conferencing	1.0	1.0	1.0	**5.0**	1.0	1.3	1.7	1.5	2.0
Shared database	2.0	2.5	**5.0**	4.3	1.5	3.0	3.3	2.0	2.7
BBS/listserves	1.5	1.5	2.3	4.0	1.0	3.3	2.7	2.0	2.0
E-mail	**3.2**	4.0	**5.0**	4.7	**3.7**	**5.0**	**4.7**	**5.0**	**3.7**
Fax	2.7	3.0	2.0	1.0	2.0	2.0	1.0	1.0	1.7
Mail (express/regular)	2.2	2.0	1.7	1.0	1.7	1.3	1.0	1.0	1.2

Note. Scale used: 1 = rarely or never; 2 = a few times a month; 3 = a few times a week; 4 = daily; and 5 = several times a day.

The degree of face-to-face communication used within the teams varied from none to a few times a week. The AutoMax and WN-Current Events teams had the most frequent face-to-face communication, with members in the same geographic location meeting a few times a week. Jacobs/Taylor was next, with face-to-face communication occurring at least on a monthly basis. Members of ACI, the Job Search Consortium, OfficeTech, and VTG teams met between 2 to 4 times a year. There was no face-to-face communication between team members on the ELC and the WN-Religion Forum teams.

Geographic dispersement. Participants were mostly located within the United States, but were widely dispersed across the country, coming from Western, Central, and Eastern sections of the United States. California had the most participants, with 10 out of the 36 participants residing

there. One participant was from England. Teams also varied in the number of members in each team that were geographically dispersed, ranging from only one member being physically separated from the rest of the group, to all team members residing in different geographic locations.

Work location. While some team members worked out of a company office, others worked out of offices in their homes. Within teams, the combination of home-based and office-based members varied, ranging from teams where all the members worked in an office setting (AutoMax; Jacobs/Taylor), to a team where all the members worked in their homes (WN-Religion Forum).

Team and individual-participant demographics. The size of the teams varied from 3 to 12 individuals. Teams ranged in years in existence from as little as six months to as long as 15 years.

Individual participants varied widely in age, ranging from 23 to 58. The median age for the total sample was 40. Gender was evenly balanced in the overall sample, with 17 females and 19 males. Educational level varied, although all participants had at least some college education. Four participants had some college education, 7 had a bachelor's degree, 11 had some graduate education, 8 had attained master's degrees, and 3 had attained professional or doctorate degrees.

Data Analysis

The overall approach to data analysis followed Glaser and Strauss' (1967; Strauss & Corbin, 1990, 1998) suggestion of using grounded theory techniques to generate an in-depth understanding of the phenomena under investigation. Value was placed on finding what emerged from the data, from what the participants discussed in the interviews, rather than on forcing the data into preconceived, a priori categories. Data analysis involved two major phases--data description and data explanation (Miles & Huberman, 1994).

Data description. The goal of the data description phase was to make "complicated things understandable by reducing them to their component parts" (Bernard, 1988, cited in Miles & Huberman, 1994, p. 90). Specifically, this phase involved coding the interview transcripts. Two levels of coding were involved--first level coding and pattern coding (Miles & Huberman, 1994). In first-level coding, descriptive codes were suggested and data were summarized. One of the most useful techniques during this portion of the analysis process was memoing,"the theoretical write-up of ideas about codes and their relationships as they strike the analyst while coding" (Glaser & Strauss, 1967, p. 83). Over 100 theoretical memos were constructed on creating and defining new codes, combining codes, and constructing categories. HyperResearch, a computer-assisted data analysis program, was used during the coding process.

After interview transcripts were coded, the process of pattern coding began. Codes generated during first-level coding were reviewed for how they could be grouped together into categories. Memoing (Strauss & Corbin, 1990, 1998), visual displays (Miles & Huberman, 1994), and colleague meetings were utilized to view the data from a broader level.

To assess the reliability of coding, two independent raters check-coded (Miles & Huberman, 1994) selected portions of the interview transcripts that were originally coded by the author. Overall, inter-rater reliability was good, with perfect agreement on 69% of the quotes check-coded. Specific areas of disagreement were discussed until either agreement was reached or a code was revised and renamed to resolve the disagreement.

Data explanation During this phase, the goal was to make "complicated things understandable by showing how their component parts fit together according to some rules--that is, theory" (Bernard, 1988, cited in Miles & Huberman, 1994, p. 90). Writing theoretical memos (Strauss & Corbin, 1990, 1998), and crafting diagrams and visual displays of the data (Miles & Huberman, 1994) were used to examine the relationships between the categories that emerged during the data description phase.

Survey data. Descriptives and frequencies were calculated on the closed-ended survey data questions. Responses to open-ended survey questions were coded and categorized.

Data Presentation

The interview data to be presented in the next section focuses on describing and explaining the environmental features that emerged from what virtual team members shared when asked to discuss high and low creative experiences in their teams. To better describe and explain the answers to these questions, the participants' own words are provided. The goal is to provide an absorbing, coherent, and candid account of the virtual teams under investigation. In presenting the raw words of the participants, I did minimal editing, favoring authenticity over readability. A few conventions were used to present the words of these virtual team members. Pauses are indicated by three dots (...). Pertinent expressed emotions or nonverbal behavior are included within brackets, for example [laughs]. If irrelevant information was deleted from a quote, it is indicated by four dots (....). On occasion, clarifying information was added to a participant's words, which is enclosed in brackets: [ ]. My own dialog within a quote is indicated by pointed brackets: { }.

Findings

A key category that emerged as important to an environment encouraging the realization of creativity in virtual teams was connection, defined as the elements that need to be in place for a team to develop and maintain identity and a sense of community. Connection was further subdivided into task and interpersonal connection. Environmental features within the overriding category of connection were summarized into five dimensions, shown in Table 3. Task connection was made up of the dimensions of dedication/commitment, and goal clarity; and interpersonal connection was made up of the dimensions of information sharing, trust, and personal bond. Each of these dimensions is described in more detail in the following sections.

Table 3
Dimensions of Establishing Connection for Creativity in Virtual Teams

Task Connection:

Dedication/Commitment -- a sense of dedication, intense involvement, and commitment to the work; the ability to work hard on difficult tasks and problems, and persevere.

Goal Clarity -- clearly defined, developed goals (through constant clarification and feedback) shared by all members.

Interpersonal Connection:

Information Sharing -- regular communication; sharing the results of one's efforts; providing needed information; timely updating of information.

Personal Bond -- a personal connection among team members; a "family-like" feeling; a sense of connectedness that goes beyond common goals and commitment to the work, to a bond in which team members are also committed to and care for one another.

Trust -- a sense of trust that team members will do their designated tasks within the designated time frame; trust in the accurateness of the information provided by other team members; trust that team members will give honest and constructive feedback on ideas, thoughts, and creative efforts shared electronically; trust in one another's expertise and ability to do the work effectively; and trust that team members will hold ideas shared in confidence if requested.

Task Connection

Dedication/commitment. When team members discussed high creativity experiences, they spoke of having a strong sense of dedication, intense involvement, and commitment to the project or task. They worked hard on difficult tasks and problems, and persevered.

> But the bottom line, we've had people who are committed, who really want the thing to succeed, even if they're not... if the personalities have some kind of conflict. And so people are able to sort of disconnect the personality from the fact that the job is being done and how it's being done, and it's getting done properly. (Melanie, Job Search Consortium)

On the other hand, in low creativity experiences, the degree of commitment to a particular project differed among team members. Differing levels of commitment not only hampered creativity, but caused the mere existence of a project to be in jeopardy. Richard (of OfficeTech) candidly shares how he and his partner differed in terms of their levels of commitment to a project. As a result, a potentially creative outcome was dropped.

Keith was very keen to develop a model of knowledge sharing, got the software, did some preliminary work…. sent me a copy of his model electronically and we were going to collaborate

on it. I was going to extend the model in ways I felt it needed to be, so on and so forth. The long and the short of it is it didn't work….

> The reason for failure is pretty darn simple. And that is, it wasn't as high a priority for me as it was for him.... it clearly was an example of low level of creativity and low level of anything... I really needed to be able to walk away from the office for a week, or more, and say, I'm unreachable, I'm doing something else. And for better or for worse, I didn't choose to do that. (Richard, OfficeTech)

Goal clarity. A team's goals, and the clarity of those goals was a prevalent characteristic of high creativity stories.

> I think we had [the] overall goal of making a product that could be manufactured, that would pass all of our testing, that was inexpensive. I think that basic underlying goal was always there and always clear. (Larry, AutoMax)

Interestingly, although goals were crucial for success in creative work, some participants felt it took more effort in a virtual team to make sure those goals were clear. Constant checking, feedback, and asking questions were needed to ensure clarification.

In low creativity stories, participants described situations in which goals were fuzzy or unclear. As a result, misunderstandings and faulty assumptions occurred, and valuable time was wasted. Melissa (of VTG) illustrates how a lack of clarity around the team's goals and roles lead to frustration, misunderstandings, and faulty assumptions.

> … a marketing project we did, it was the least creative project, and it was the least fun. It was the most aggravating, where everybody was just pulling their hair out.... It should have been a very fun project. It was not fun because there were a lot of assumptions made, which I think sometimes a problem with [a] virtual environment is that assumptions are made by one party sitting in their office, closed door, typing away, and they said, oh yes this must be what this meant, so they fire off an e-mail. We interpret it a completely different way. We don't have the luxury of a dialogue back and forth. Instead we have the aggravation of e-mails back and forth, one shot e-mails. So there was a tremendous amount of unclarity, and there was a lot of assumptions made about which party would do what, and who would pay for what, and what the end result would be, and basically what people's roles would be. So potentially it was a good project gone bad. (Melissa, VTG)

Additionally, for some of the teams, creativity suffered due to the indecision that resulted from unclear goals. Consequently, some projects became unwieldy. Cheryl (of ACI) revisits the "Manual from Hell" project to illustrate how lack of goal clarity turned a project into a frustrating, massive undertaking.

> {What about an experience in which you felt the creativity of the group was rather low?} I don't have to think very far for this one. [Laughs] We have had a few little mishaps in my career here. The major one was what was now [we] affectionately refer to as the

> "Manual from Hell." It was a project where three consultants were writing this manual, and they each had a different section that they were supposed to write. And then I was to edit it and put it together and it was going to go to the client. It was actually pretty simple. But it just turned into this massive undertaking. It was like opening Pandora's Box. Once they started writing, it was like, oh, we've got to talk about this and we've got to go out here and then oh well, let's talk about this. So, it just grew and grew and grew and grew. And it got to the point where there was no way that it was going to be finished when it was supposed to be. (Cheryl, ACI)

Finally, in a few of the team members' low creativity experiences, goals were communicated clearly in initial face-to-face meetings. However as team members dispersed, goals were either forgotten or dropped.

Interpersonal Connection

Information sharing. In the highly creative stories, team members described situations in which they communicated regularly with one another, shared the results of their efforts, offered open and honest feedback, and updated information regularly.

When people meet in a face-to-face meeting, individuals can be directly asked for information, feedback, or input. In virtual teams, individuals can also be directly asked electronically, but it is easier for individuals to "disappear" or drop out of the discussion. To avoid this, norms for communicating and exchanging information were created in many of the teams. For example, in the OfficeTech team, members agreed to talk daily.

> Well, I think very regular, predictable communications, even if they're remote communications, are important. My principal colleague, Keith, and I agree to talk with each other at least once a day, and more typically several times a day. (Richard, OfficeTech)

All senior members of the Jacobs/Taylor team also agreed to daily phone contact, even on weekends. One of the ways in which we've figured out how to do this is, the senior members of the team have agreed upon daily contact times. We talk to each other every day, including week-ends.... I know every night at 5:30 Pacific coast time, my partner is going to call me from wherever he is at, or I will call him. The person out of town calls home base is another rule. And so if I'm at home base, 5:30 every night, my phone will ring and it will be him. So, I can save up all of the things during the day, and I don't even have to think about that 'cause I know when that correspondence is going to take place. (Chad, Jacobs/Taylor)

However, in low creativity experiences, norms for communication were either not established, unclear, or ignored. Communication, and as a result, information exchange, became inconsistent or nonexistent.

There were several specific issues mentioned in the low creativity stories that led to problems in information sharing. The self-serving attitude of some team members (who withheld information to protect their own interests) hampered information sharing. In addition, some

members experienced information overload. In attempting to deal with the constant flow of information between themselves and their geographically dispersed co-workers, some team members felt overwhelmed with more information than they could effectively comprehend. Finally, members of one team felt information was distorted as it was filtered electronically from the company's headquarters to the team leader, and down to individual team members.

Trust. The most frequently-mentioned environmental feature surrounding the high creativity stories was trust. Trust was composed of several elements: (a) a sense of trust that individuals would do what they said within the designated time frame; (b) trust in the accurateness of the information provided by other team members; (c) trust that team members would give honest and constructive feedback on ideas, thoughts, and creative efforts shared electronically; (d) trust in one another's expertise and ability to do the work effectively; and (e) trust that other team members would hold ideas shared in confidence if requested.

Participants felt it took a great deal of trust to share ideas and accomplish work electronically, "there's a level of trust with putting everything that you're doing on [the] computer, and knowing everybody's seeing everything you're doing" (Melissa, VTG). Several participants suggested that trust was crucial not only for the team to be creative, but for the team to even exist.

Oh, it has to be 100%. The only way you can operate [in] this environment is to trust every person is doing what they should be doing, and also that they are not doing things to undermine the group as a whole. So, trust is just... I mean, it's crucial. You could not work in this kind of environment that we have….without trusting each other. (Todd, Job Search consortium)

Although trust was seen as essential in a virtual environment, it was sometimes difficult to establish, and it developed slowly. Trust developed from a sense of accountability, from seeing that others followed through on what they said they would do. Trust was also based on a belief in the expertise of others, and on positive, ongoing experiences with one another.

In low creativity stories, the level of trust waned, was lost, or did not exist at all. The most frequently mentioned reason for a decline in the level of trust was low accountability, team members not carrying through on their designated work, or not "pulling their weight." For example, in the ACI team, all of the team members interviewed mentioned the same project in their low creativity stories, adoringly named, the Manual from Hell. Lack of accountability was a key factor in why the team members felt the experience was low in creativity.

We fondly refer to it as the Manual from Hell. We were working on a project for a client and trying to come up with a manual that spelled out the steps that they had to go through in this process. It was a new process for us, and so it was where [we] were having to create something from the ground up.... the process was divvied up to different people to do different things. That didn't work well because some of the people didn't do their part by the deadline that they agreed to do it. So, then that caused the process to be pushed out. It caused the envelope to be pushed, because we did have a deadline that we had to have this to the client. So, the problem was everyone not getting their piece ready. (Barbara, ACI)

Personal bond. One of the more intriguing themes that emerged was the ability of virtual teams to establish a personal connection or bond. Team members, even though separated by distance and sometimes time, in many instances suggested they felt like a family. A personal sense of connection can lessen the problematic misunderstandings and faulty assumptions that hamper creativity, and help to develop the trust, respect, understanding, acceptance, and compassion that team members need to feel comfortable sharing ideas and taking risks across distances. This kind of connection goes beyond common goals and commitment to the work. Team members are also committed to and care for one another.

Personal connection in these virtual teams was established through face-to-face get-togethers; sharing humor and being playful with one another; sharing personal issues and crises with other team members; and, in general, functioning as a support network for one another.

Although one of the teams had never met face-to-face, for the majority of teams face-to-face contact was beneficial in beginning to develop a personal bond between team members. Several participants shared how their relationships with team members changed after they had met one another face-to-face. For example,

> The fact that we are actually talking to the U.S., and we know names and everything, it really has made a big impact and a big improvement.... Since I went over there [to the United States] last October, and that was the first time anyone had gone over there from our area. I spent 3 weeks with them. When I came back, we've had an excellent relationship since then.... because up until then it was just a name. (Eric, AutoMax)

Sharing humor was another way virtual team members established a personal bond. Even for one of the teams that had never met face-to-face, humor helped to build a sense of community.

> We don't feel impersonal, because we translate our humor through the written word.... So we are using little bits of humor, and we're real loose and personal, we're not rigid. And we're very, very comfortable with each other. (Scott, WN-Religion Forum)

> Sometimes, playful games were used to develop the team's identity.

> We do crazy, silly little game things that build identity, little competitions, or silly things, that we share. And those become the inside jokes that people outside don't know but it forms identity and helps build community. (Chad, Jacobs/Taylor)

In any relationship, taking the time to show personal interest in another person helps to create a bond. The same holds true for virtual teams as well. Team members took the time to pass along information they thought other team members might be interested in. At times, taking a personal interest in one another went beyond simply forwarding interesting information or sharing jokes. It involved sharing personal issues and crises with one another, and supporting one another through these crises. This kind of sharing was instrumental in creating a "family-like" feeling between team members.

> This group of six people is up there close to my family in terms of folks I feel connected with. I mean, and it's not just because we're all in this one life boat called economic survival, but we have been through each other's personal crises. When Pam's husband was sick for so very long, and dying for years, and fighting like heck, and I've been going through some very traumatic times with my older teenage son, and these people are... they're just supportive. I mean, there's just no other way to say that. This is family. (Jason, ACI)

Finally, functioning as a support network for one another, both personally and professionally, solidified the connection between team members.

> The things that I like are the camaraderie. I feel that I have a built-in support system.... I think having people that you know are always going through the same thing that you are, and being able to call and bounce ideas off of each other, that is a very supportive environment, and something that I really enjoy. (Elaine, Job Search Consortium)

So, it is possible to establish a real personal connection in a virtual team, even in those teams where no face-to-face contact occurs. Scott, a WN-Religion Forum team member who has never met the other team members, shares:

{So there's kind of a connectedness between the members?} A very personal one. A very, you know, human one. And I think a lot of people who are not familiar with virtual teams would definitely expect that we're all a bunch of robots, you know what I mean? You just automatically assume that if you're just communicating through a computer, how could there be any connection, how could there [be] anything personal, how could there be anything warm about it, and there is. (Scott, WN-Religion Forum)

Limitations and Future Directions

It is a humbling experience to consider the limitations of a project that has consumed a major portion of one's time. However, it is crucial to review a study's weaknesses so that future researchers may consider adapting their research designs to avoid these limitations.

The first limitation revolves around the fact that a good deal of the current study's conclusions were based on interview data. In the interviews, individuals were asked to recall creative experiences in their virtual teams. However, memory biases could have affected the accuracy of reporting, as recollections may have been clouded or incomplete. Future research may benefit from using a case study research design (Yin, 1994). This type of research design is particularly appropriate for pursuing a deep level of understanding of the dynamics within single settings (Eisenhardt, 1989). A key principle of case study research is triangulation of data, defined as the combination of methodologies in the same study. Triangulation rests on the assumption that the weakness in a single method will be compensated by the strengths of another method. Thus, triangulation of data improves the credibility of a study's conclusions (Jick, 1979). In the current line of research, data triangulation could be strengthened by incorporating evidence from direct and/or participant observation. Actual observations of the virtual teams' creative experiences while they are occurring would add insight beyond the interview data. In

addition, as virtual teams now have the ability to document and archive their creative process through electronic mail and shared databases, a review of these documents and electronic communications might be beneficial to future investigations.

A second limitation concerns the assessment of high and low creative experiences. Stories of high and low creativity were shared by the team members themselves. There was, however, no validation of these high and low creativity stories with independent experts or outsiders to the team. External validation of the high and low creativity stories by outsiders to the team would be beneficial in future investigations.

Third, as this was an exploratory study, there were no control or comparison face-to-face teams. However, future researchers may want to explore differences in the impact of the dimensions found in this investigation on virtual and face-to-face teams. The question might be, "Are certain dimensions more crucial for one type of team over the other?" A comparison of traditional team structures with virtual teams from the same organization would assist in deciphering these differences, if any.

A final limitation concerns the study's sample. Background survey data revealed that overall the study's participants felt they had an advanced degree of experience with information technology, and were relatively comfortable with information technology as well. A sample that included individuals who felt they had less experience with information technology, and felt less comfortable with information technology may have yielded different results.

Implications and Conclusions

> “I think because virtual teaming is a comparatively new organizational approach that it definitely adds challenge, and adds stress. I think a lot of companies, mine included, are rushing rather head long into an embrace of the virtual concept. And I must say, even though I am a proponent of an aspect of virtuality, this community business, I do have some reservations about whether people will be able to accommodate the new framework of the virtual workplace as rapidly as management expects it to.” (Richard, OfficeTech)

The present research stresses the importance of the human side and the personal connection in virtual teams. This realization has practical implications for organizations considering moving to a virtual design, and for managers and team leaders of existing virtual teams. As the quote at the top of this section indicates, management in many contemporary companies are "rushing rather head long into an embrace of the virtual concept" (Richard, OfficeTech). However, management cannot assume that they can move workers into their homes and simply leave them there to do work. It is important for managers and team leaders of virtual teams to actively encourage and support a personal bond between virtual team members. This may include providing funds for team members to get together initially to discuss common goals and shared values, and to build trust. Further, once the team is up and running, having periodic face-to-face, social get-togethers or celebrations after completion of particular projects can also help encourage and maintain team identity.

Aside from face-to-face meetings, there are other ways in which organizations, managers, and team leaders can encourage connection, and as a result, creativity in virtual teams. Companies or teams can sponsor team games. Or perhaps one team member may function as a team historian, documenting team stories and sending them out electronically to members. For teams that do not meet face-to-face, even low-tech strategies such as sending all team members pictures of one another can be beneficial (O'Hara-Devereaux & Johansen, 1994). Any number of techniques can be used to help establish a personal connection among team members. The point is it cannot be ignored, but rather must be actively encouraged. The human side of teams does not go away just because members are interacting electronically. As Jason (of ACI) shares:

I don't think that people should get it in their head that because I'm working at a distance with somebody that the human side and the human issues go away.

> They don't. All of the personality or what people call personality issues, all of the communication issues, all of the need to respect and be conscious of the other person's feelings and where they're coming from, all of that is still there. Whether you're in the same office building and conference room together, or whether you're on the other end of a telephone or a computer terminal, the person doesn't go away in a virtual team. What we have had to do is to work very hard to keep this a very personal relationship. You have to respect the fact that it's another human being who has feelings and emotions, and ups and downs, and assumptions and lenses. That doesn't go away when you [are] working [at] a distance. And you have to find ways to manage all of that if your team is going to be successful. (Jason, ACI)

To assist in establishing a connection between virtual team members, training is needed prior to moving into a virtual team design. Virtual team members need to be trained in how to use a range of collaborative software and information technology to enhance the team's work. Training, however, needs to go beyond how to use the technology, to incorporate how to communicate effectively through these kinds of technologies. Since many of the traditional nonverbal cues (body language, hand gestures) used in communication are lost in electronic interchanges, virtual team members benefit from training in how to use more linguistic precision in their communications (Townsend, DeMarie, & Hendrickson, 1996). Virtual team members also need training in team management, and interpersonal skills such as maintaining esteem, reaching consensus, and conflict resolution (George, 1996). Lastly, training and educating team members in the different working styles of each of the team members is essential. This type of training, if conducted early on in the team's development, will help eliminate misunderstandings that may be disruptive to the creative process. Team members who understand one another's working styles and trust one another are less likely to attach negative interpretations to incomplete or unclear communications (O'Hara-Devereaux & Johansen, 1994). Training should occur not only at the team's inception, but when new members enter the team as well.

I have emphasized that managers and team leaders need to help create a personal bond between the members of their teams. But managers and team leaders of virtual teams need other skills as well. Team leaders need to take care in the communication of team goals and tasks, making sure their communications are as clear as possible. The development of writing skills for managers has been, and will continue to be, important.

Team leaders must also develop norms for communication within the team. O'Hara-Devereaux and Johansen refer to this as creating "a communications drumbeat" (1994, p. 174). Devising a communication routine, whether daily or weekly, is critical to ensure regular and consistent communication and information sharing. Further, particular attention should be paid to matching the message of the communication with the appropriate method.

Electronic links have increased connectivity so that team members have access to other individuals across the globe. However, as connectivity increases, so does the amount of information provided. Managers must be sensitive to the overwhelming amount of information that can be provided, and develop ways to deal with and eliminate information overload, both for the team members and themselves.

One last, and perhaps most important, future implication of this research was suggested by the participants themselves--the impact working virtually will have on society and its members. This area of proposed research, while perhaps outside of the scope of the current study, will certainly need to be addressed as virtual teams have been predicted to be the wave of the future (Wilson, George, & Wellins, 1994). If this is true, and virtual work will become the standard mode of working in the future, how will this impact society at large? If the trend is toward teams and organizations composed of members that are increasingly working out-of-site of one another, geographically dispersed, and communicating through electronic means, what will happen to the interpersonal skills of those workers? Will they change? Will our society, in general, become too isolated? Some of the participants in this study were worried about this dilemma.

> But if you look at books about the future, everybody predicted this, that we would get more and more isolated. And it really is happening. We are getting more and more isolated in a physical way. So it's something for people to look out for. (Patricia, WN-Religion Forum)

I personally do not believe that virtual teams will totally replace conventional teams in performing creative work (or any type of work for that matter). Virtual teams seem to work best when the nature of the work is easily broken down into components or tasks (Nemiro, 1998). However, not all creative efforts may be so easily divided into sections. Managers or team leaders will need to consider seriously whether the creative task at hand can be effectively accomplished with a virtual team design, and if so, in what ways they can best establish connection to enhance the creativity of these teams. It will also be the task of future researchers to determine the situations or types of creative tasks in which virtual teams are most appropriate, and when they are not.

References

Abbey, A., & Dickson, J. (1983). R&D work climate and innovation in semiconductors, Academy of Management Journal, 26, 362-368.

Amabile, T. M. (1979). Effects of external evaluation on artistic creativity. Journal of Personality and Social Psychology, 37, 221-233.

Amabile, T. M. (1982). Children's artistic creativity: Detrimental effects of competition in a field setting. Personality and Social Psychology Bulletin, 8, 573-578.

Amabile, T. M. (1983). The social psychology of creativity. New York, NY: Springer-Verlag.

Amabile, T. M. (1985). Motivation and creativity: Effects of motivational orientation on creative writers. Journal of Personality and Social Psychology, 48, 393-399.

Amabile, T. M. (1988). A model of creativity and innovation in organizations. In B. M. Staw & L. L. Cummings (Eds.), Research in organizational behavior (Vol. 10, pp. 123-167). Greenwich, CT: JAI Press.

Amabile, T. M. (1989, November). How work environments affect creativity. Paper presented at the IEEE International Conference on Systems, Man, and Cybernetics, Cambridge, MA.

Amabile, T. M. (1990). Within you, without you: The social psychology of creativity and beyond. In M. A. Runco & R. S. Albert (Eds.), Theories of creativity (pp. 61-91). Newbury Park, CA: Sage Publications.

Amabile, T. M., & Gitomer, J. (1984). Children's artistic creativity: Effects of choice in task materials. Personality and Social Psychology Bulletin, 10, 209-215.

Amabile, T. M., & Gryskiewicz, S. S. (1987). Creativity in the R&D laboratory. Technical Report #30. Greensboro, NC: Center for Creative Leadership.

Amabile, T. M., & Gryskiewicz, N. D. (1989). The creative environment scales: Work Environment Inventory. Creativity Research Journal, 2, 231-253.

Amabile, T. M., Dejong, W., & Lepper, M. R. (1976). Effects of externally imposed deadlines on subsequent intrinsic motivation. Journal of Personality and Social Psychology, 34, 92-98.

Amabile, T. M., Goldfarb, P., & Brackfield, S. C. (1990). Social influences on creativity: Evaluation, coaction, and surveillance. Creativity Research Journal, 3, 6-21.

Amabile, T. M., Hennessey, B., & Grossman, B. S. (1986). Social influences on creativity: The effects of contracted-for reward. Journal of Personality and Social Psychology, 50, 14-23.

Andrews, F. (1975). Social and psychological factors which influence the creative process. In I. Taylor & J. W. Getzels (Eds.), Perspectives in creativity (pp. 117-145). Chicago, IL: Aldine Publishing Co.

Bernard, H. R. (1988). Research methods in cultural anthropology. Newbury Park, CA: Sage Publications.

Davidow, W., & Malone, M. (1992). The virtual corporation. New York, NY: HarperCollins.

Eisenhardt, K. (1989). Building theories from case study research. Academy of Management Review, 14, 532-550.

Ekvall, G. (1983). Climate, structure, and innovativeness of organizations (Report 1). Stockholm: Swedish Council for Management and Organizational Behavior.

Ekvall, G., Arvonen, J., & Waldenstrom-Lindblad, I. (1983). Creative organizational climate: Construction and validation of a measuring instrument (Report 2). Stockholm: Swedish Council for Management and Organizational Behavior.

Galbraith, J. (1995). Designing organizations. San Francisco, CA: Jossey-Bass.

Geber, B. (1995). Virtual teams. Training, 32, 36-40.

George, J. (1996, November). Virtual best practice: How to successfully introduce virtual team-working. Teams, 38-45.

Glaser, B., & Strauss, A. (1967). The discovery of grounded theory. Chicago, IL: Aldine Publishing Company.

Harrington, D., Block, J., & Block, J. (1987). Testing aspects of Carl Rogers' theory of creative environments: Child-rearing antecedents of creative potential in young adolescents. Journal of Personality and Social Psychology, 52, 851-856.

Jick, T. (1979). Mixing qualitative and quantitative methods: Triangulation in action. Administrative Science Quarterly, 24, 602-611.

Kiesler, S., Siegel, J., & McGuire, T. (1991). Social aspects of computer-mediated communication. In C. Dunlop & R. Kling (Eds.), Computerization and controversy: Value conflicts and social choices (pp. 330-349). Boston, MA: Harcourt Brace.

Kossler, M., & Prestridge, S. (1996). Geographically dispersed teams. Issues and Observations (Center for Creative Leadership), 16, 9-11.

Kristof, A., Brown, K., Sims, H., & Smith, K. (1995). The virtual team: A case study and inductive model. In M. Beyerlein & D. Johnson (Eds.), Advances in interdisciplinary studies of work teams: Knowledge teams the creative edge, (Vol. 2, pp. 229-253). Greenwich, CT: JAI Press.

Kruglanski, A. W., Friedman, I., & Zeevi, G. (1971). The effects of extrinsic incentive on some qualitative aspects of task performance. Journal of Personality, 39, 606-617.

Lipnack, J., & Stamps, J. (1997). Virtual teams: Reaching across space, time and organizations with technology. New York, NY: John Wiley & Sons.

McGraw, K., & McCullers, J. (1979). Evidence of a detrimental effect of extrinsic incentives on breaking a mental set. Journal of Experimental Social Psychology, 15, 285-294.

Miles, M. B., & Huberman, A. M. (1994). Qualitative data analysis (2nd edition). Thousand Oaks, CA: Sage Publications.

Nemiro, J. (1998). Creativity in virtual teams. Unpublished doctoral dissertation. Claremont Graduate University, Claremont, CA.

Nemiro, J., & Runco, M. A. (1996). Creativity and innovation in small groups. Unpublished manuscript, The Claremont Graduate School, Claremont, CA.

O'Hara-Devereaux, M., & Johansen, R. (1994). Global work: Bridging distance, culture, and time. San Francisco, CA: Jossey-Bass.

Pelz, D. C., & Andrews, F. M. (1966). Scientists in organizations. New York, NY: John Wiley & Sons.

Rogers, C. (1954). Towards a theory of creativity. ETC: A Review of General Semantics, 11, 249-260.

Runco, M. A. (1994). Creativity and its discontents. In M. P. Shaw & M. A. Runco (Eds.), Creativity and affect. Norwood, NJ: Ablex.

Runco, M. A. (1995). The creativity and job satisfaction of artists in organizations. Empirical Studies of the Arts, 13, 39-45.

Shalley, C. E. (1991). Effects of productivity goals, creativity goals, and personal discretion on individual creativity. Journal of Applied Psychology, 76, 179-185.

Strauss, A., & Corbin, J. (1990). Basics of qualitative research. Newbury Park, CA: Sage Publications.

Strauss, A., & Corbin, J. (1998). Basics of qualitative research. 2nd edition. Thousand Oaks, CA: Sage Publications.

Townsend, A., DeMarie, S., & Hendrickson, A. (1996, September). Are you ready for virtual teams? HR Magazine, 123-126.

VanGundy, A. (1987). Organizational creativity and innovation. In S. Isaksen (Ed.), Frontiers of creativity research: Beyond the basics (pp. 358-379). New York: Bearly Limited.

West, M. A. (1990). The social psychology of innovation in groups. In M. A. West & J. L. Farr (Eds.), Innovation and creativity at work (pp. 309-322). New York, NY: John Wiley & Sons.

West, M. A., & Farr, J. L. (1990). Innovation at work. In M. A. West & J. L. Farr (Eds.), Innovation and creativity at work (pp. 3-13). New York, NY: John Wiley & Sons.

Wilson, J., George, J., & Wellins, R. (1994). Leadership trapeze: Strategies for leadership in team-based organizations. San Francisco, CA: Jossey-Bass.

Yin, R. (1994). Case study research: Design and methods. 2nd edition. Thousand Oaks, CA: Sage Publications.