DISSERTATION

RELATIONSHIP BETWEEN GEO-CULTURAL IDENTITY AND LEADERSHIP CHARACTERISTIC PREFERENCES OF FOLLOWERS IN A VIRTUAL ENVIRONMENT

Submitted by

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In partial fulfillment of the requirements

For the Degree of Doctor of Philosophy

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WE HEREBY RECOMMEND THAT THE DISSERTATION PREPARED UNDER OUR SUPERVISION BY TOM HOWARD ENTITLED RELATIONSHIP BETWEEN GEO-CULTURAL IDENTITY AND LEADERSHIP CHARACTERISTIC PREFERENCES OF FOLLOWERS IN A VIRTUAL ENVIRONMENT BE ACCEPTED AS FULFILLING IN PART REQUIREMENTS FOR THE DEGREE OF DOCTOR OF PHILOSOPHY.

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ABSTRACT

Advances in technology, transportation, and changing attitudes of working in other cultures have enabled companies to compete in the global marketplace. To create, develop, and manage geographically and culturally dispersed teams, organizations are tasked with understanding the multi-faceted dimensions of a team working virtually. This study was undertaken to explore the relationship between geo-cultural identity and leadership characteristic preference of followers in a virtual environment.

A review of earlier research identified five leadership characteristics that were tested in this study – communication, technical skills, trust / relationship building, vision, and collaboration. Information was gathered on how participants ranked these five leadership characteristics, and on the participants' perception of which characteristic was most important to a manager in each of four geo-cultural regions.

The participant pool was virtual team members who worked for multi-national companies. Twenty companies participated. There were sixty-two usable responses – forty-nine from North America, ten from Latin America, three from Europe, and none from Asia Pacific.

Descriptive and inferential statistics reported that overall, the participants ranked the Communicative and the Trust / Relationship Building leadership characteristics the most significant. The participants ranked the Visionary and Collaborative leadership characteristics third and fourth and the Technological leadership characteristic fifth. The answers to the qualitative question at the end of the survey lent support to the quantitative analysis.

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Although the North American participants ranked the five leadership characteristics similarly to the overall group, the Latin American participants ranked Communicative first and the remaining four not significantly different. The participants' perception varied of which leadership characteristic was most important to a manager in each region.

Participants perceived that Communicative was most important to a North American manager and Trust / Relationship Builder most important to a Latin American manager. To a European manager, the participants perceived that Trust / Relationship Builder and Collaborative were equally important, and that Communicative and Trust / Relationship Builder were equally important to an Asian manager.

The study could not definitively answer the research question; however, as the study was exploratory in nature, it did provide insight into those leadership characteristics which are important to members of virtual teams.

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Finally, there are the critics, the naysayers, the doubters, the criticizers, and others who questioned why I pursued and completed this program given my prior educational accomplishments. The only answer I can offer is "because." As a life long learner, I can offer no other answer.

Perhaps, however, Theodore Roosevelt offered the best retort to that collective group and to all of those who stand on the sidelines, criticizing without understanding, laughing at failures without acknowledging the effort, and dismissing successes without appreciation:

> "It is not the critic who counts, not the man who points out how the strong man stumbled, or where the doer of deeds could have done better. The credit belongs to the man who is actually **in the Arena**; whose face is marred by the dust and sweat and blood; who strives valiantly; who errs and comes short again and again; who knows the great enthusiasms, the great devotions and spends himself in a worthy course; who at the best, knows in the end the triumph of high achievement, and who, at worst, if he fails, at least fails while daring greatly; so that his place shall never be with those cold and timid souls who know neither victory or defeat."

Gator and I entered the Arena together, battled with great devotion, our faces marred with dust, sweat, and blood, and in the end, triumphed together in the glow of high achievement. Metaphorically silly? Perhaps. But together with our fellow cohorts – Fisherboy, Moonshine, X-Man, the Barry White of CSU, Gigante, and the rest of the ragtags and misfits (affectionately) that formed our cohort – we take with us pride in the hard work we did; we bask in the satisfaction in achieving together all that was inconceivable when we began; and we depart into the dawn of tomorrow, knowing that we succeeded in the Arena where few others dared to go.

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CHAPTER 1: INTRODUCTION

Business today is conducted on a global basis. Companies sell their products and services virtually around the clock, twenty-four hours a day, three hundred sixty five days a year. In order to effectively compete in this new global market, companies must make smarter, more strategic decisions. They may extend to optimizing technological advancements. But perhaps most importantly, they must situate employees close to their customers (Solomon, 2001).

To meet these demands, companies are exploring the use of virtual teams. Virtual teams are groups of people who work interdependently, with shared purpose across space, time, cultures, and organization boundaries, using technology to communicate and collaborate (Gibson, Kirkman, McPherson, Rosen, & Tesluk, 2002; see also Lipnack & Stamps, 1999). Virtual teams allow organizations cost effectively to combine the best expertise regardless of geographic location. Suttling and Wood (1997) found that through virtual teams, employees can also be closer to their customers and with the right communication connection systems, can respond to inquiries quickly and accurately as they arise.

However, notwithstanding the many benefits of virtual teams, those same teams face significant challenges as varying cultures, followership types, and leadership styles merge in a virtual environment. Cultural differences have important implications since culture is a boundary condition for all interpersonal communication (Massey, Montoya-Weiss, Hung, & Ramesh, 2001). Interpersonal communication, which is naturally complicated, is even more complicated in a virtual teaming environment (Hagen, 1999).

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Beyond communications – yet closely aligned – are the characteristics and style of a virtual team leader which can impact the virtual team's success. Leaders in virtual teams or organizations are challenged to inspire and motivate people (Hedberg, Dahlgren, Hansson & Olve, 2001). In this process, leaders may encounter the need to trust the operations of customers, partners, and employees without authority or full control over them.

Impacting the leader's success at directing the virtual team is the manner in which individual team members are engaged in the team. The degree to which the virtual team's leader is effective can be directly influenced by the leader-team member relationship. This becomes complicated when resources, discretion, and responsibility are pushed lower in the organization which in turn dynamically changes the social contract associated with this relationship. The leader-team member dynamic in this relationship is referred to as "followership' (Kelley, 1992; Chaleff, 2003) and is changing as global pressures impact organizations and the organizational culture (Dixon & Westbrook, 2003).

This potentially volatile concoction of culture, virtual teaming, leadership characteristics, and followership creates not only a context for organizational efforts but also for research into the understanding and implications of these dynamics. The following sections of this study's introductory chapter describe the purpose of the study and its significance to the fields of human resource studies and organizational development. Although a more detailed literature review is offered in this study's succeeding chapter, a brief framing and grounding research section is presented in this chapter.

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Following the framing section, the problem statement for the study is presented. Research questions which will guide the study are identified whereas any hypotheses to be addressed by the original data gathered in the study will converge following the literature review.

This chapter concludes with noting the delimitations and limitations of the study along with a disclosure of biases and influences, and with a discussion of the phases to be taken in this research project.

Context for the Study

With the growing prevalence of virtual teams that span time zones and cultures, organizations together with their leaders and followers are called upon to create new ways to work together. Not only are virtual teams affected by the challenges of time, distance, and communications, they are also affected by the expectations, work habits, and communication patterns of different cultures (Massey et al., 2001). This study focuses on the cultural dimensions of this complexity, with specific interest in understanding whether culture influences the preferences of virtual team members relative to their leaders characteristics.

As used in this study, the notion of culture refers to geo-culture. Geo-culture is the intermingling of geographical, political, economic, structural, and individual cultural factors that provide the framework of intra-region interaction (see e.g. Voskopoulos, 2001). In the context of this study, and as more fully described below, virtual team member leadership preferences will be assessed from the geo-cultural regions of North America, Latin America, Europe (the 25 countries that comprise the European Union [EU]), and Asia Pacific (the ten countries that comprise the Association of Southeast

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Asian Nations [ASEAN] plus China, India, Japan and South Korea). These geo-cultural regions are bound together by their geographical location as well as their political, economic, and legal interactions.

Like team members on traditional teams, each geo-culturally diverse member of a virtual team brings to the team all of their geo-cultural influences which can manifest itself in many ways such as preference in their leadership style. The focus of this study is to understand whether these geo-cultural influences affect the virtual team. Specifically, this research is intended to examine whether there exists a relationship between geo-cultural identity and leadership character preference of followers in a virtual environment.

As the world becomes more tightly connected, and the world's marketplace grows in scope, organizations need to implement virtual teams and structure them for success. Companies that create virtual teams will gain insight and guidance from this study as they seek to understand whether geo-culture influences a virtual team, and more notably, a team member's leadership character preference. This understanding will contribute to the field of human resources studies and organizational development, and will advance the understanding and capacity to influence the development of effective virtual team leadership.

Research Framing and Grounding

This research seeks to understand the dynamics and influences of geo-culture on three key work group components – virtual teams, leadership, and followership. Geo-culture dynamics and influences on other work group components such as technology, management sponsorship and influence, and organizational structure are areas that could

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be also be studied. However, the literature emerging in the area of work done in a virtual environment suggests that the interrelation and interaction of the three foregoing components – virtual teams, leadership, and followership – form the foundation of work done in the virtual environment, and portend the success or failure of the team. Because virtual teams are increasingly comprised of members from multiple geo-cultural regions, the study of whether there are geo-cultural preferences in leadership characteristics is warranted.

A more detailed analysis and synthesis of these components as presented by the existing literature are discussed in the succeeding chapter. An initial discussion here will properly frame and ground the research problem and questions.

The framework and grounding for this study is established by examining these three components. This begins with a brief discussion of virtual teams – their rise to prominence, the benefits they afford, and the challenges that team members face. Next is a discussion of leadership and its challenges in the virtual environment. Finally, the notion of followership will be introduced and briefly discussed.

Virtual Teams

The Rise of Virtual Teams

Virtual teams were almost nonexistent a decade ago (Kiser, 1999; Solomon, 2001). But advances in telecommunications and technology along with corporations' need to operate globally have exponentially increased the number of dispersed workers today (Hagen, 1999). The trend is projected to continue. The United States Labor Department reported that 19 million people worked from home on-line or from another location in 2001, and worldwide estimates were that by the end of 2002, over 100 million

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people were working outside traditional offices (Gibson et al., 2002). The increasing numbers of workers that are no longer co-located with their team members mean that these workers are interacting with one another in a virtual environment. These team members are utilizing technology to communicate, advance projects, and to meet team and organizational goals and objectives. Furthermore, because technology is ubiquitous, these team members can be, and often are, located in multiple geographic regions.

Benefits to Corporations

Numbers, however, tell only part of the story. Researchers have found that corporations are recognizing the benefits of having a virtual team. Suttling and Wood (1997) noted that by creating virtual teams, companies could reduce overhead, increase productivity, create better customer relationships, and increase the skills of its labor pool. Flexible working solutions could provide cost-effective answers to accommodate expansion or relocation problems. Further, when location of employees is less important, the available labor pool increases. And flexible working reduces commuting, traffic congestion, and it cuts pollution.

Caldwell (2002) reported substantial savings for companies that embraced virtual workers and teams. IBM, for example, reported $100 million in savings annually from telecommuting and mobile work. AT&T noted that ten percent of its managers were full-time telecommuters and 49 percent of its employees telecommute at least one day a month, saving AT&T $25 million annually in real estate savings alone. Caldwell also reported other benefits that were noted by both telecommuters and their employers including increased productivity, higher job satisfaction, increased retention, and lower absenteeism.

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Bell and Kozlowski (2002) reported that virtual teams allow organizations to access the most qualified individuals for a particular job regardless of their location. In fact, several companies use virtual teaming as a recruitment inducement by assuring the new hire that they will be able to remain in their current location. Furthermore, they enable organizations to respond faster to increased competition due to having key personnel located near the customer. Lastly, they provide greater flexibility to individuals working from home or on the road by not requiring the team member to be centrally located.

Challenges of Virtual Teams

But along with the benefits come the challenges. Once the team is pulled together, team communication skills, together with building trust on the team, take on an increased importance (Bigelow, 2000). Virtual teams are challenged to coordinate tasks across time zones, physical boundaries, and organizational contexts (Kayworth & Leidner, 2001). Cultural diversity represents an enormous challenge for global virtual teams (Dubé & Paré, 2001). There are key cultural differences of language, expectations, and work habits of team members in different areas of the world.

Technology and the level of corporate support will directly impact the team (Kiser, 1999; Hagen, 1999). But as Lipnack and Stamps (1999) found, successful virtual teams depend more on people than they do on technology. The technology will not work unless the people issues are addressed first. Moreover, working in a virtual environment requires a new kind of organization, a new kind of management, and a new kind of leadership. In essence, successful virtual team performance depends jointly on effective team and team leadership processes (Zaccaro, 2002).

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Team organization and structure. Kiser (1999) discusses organizationally critical items needed to lead or manage virtual teams including developing team charters, defining roles and responsibilities, and planning kickoffs. The team charter needs to include its purpose, mission, and goals, and must be presented to and approved by key sponsors and stakeholders.

Once the team's charter is set, the team should hold a kick-off meeting to set its structure, process of engagement, and core team processes. Coyle and Schnarr (1995) found that the team's ability and willingness to learn, and the discipline of self-criticism, take on increased importance. Knowledge sharing and growth are essential to the team's success. Solomon (2001) found that knowledge creation is accomplished by building a new product or processes around information that people already have.

Communication. Hagen (1999) found that virtual team members' most vocal complaints dealt with communication issues. Communication processes amongst team members are naturally complicated. Virtual teaming makes it even more complex by eliminating body language, voice inflection, and other communication skills. Without seeing one's body languages, messages could be difficult to interpret. Constructive criticisms could be judged much more harshly than intended. Conflicts have a tendency to escalate when there is no opportunity to clear up a misunderstanding shortly after it occurs. No matter how clever the technology gets, the context of the communication is often removed when the team members cannot see the other's body language (Communication in Virtual Teams, 2001).

Kiser (1999) reported that communication challenges are exacerbated by differences in time zones. Because of team members living around the world, there is

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frequently only a short time window in which to communicate in real time. Consequently, phone conversations often extend into the night, and days pass with little progress on issues. Thus, virtual team members rely heavily on e-mail and videoconferences to communicate with one another.

But even with using this technology, there is frequent miscommunication. Team members often miss calls, misinterpret e-mails, and misunderstand issues. To overcome these challenges, virtual team members must develop excellent communication skills. Bigelow (2000) noted that good communication must evolve into excellent communication and become a core competency of the team. She found that virtual team members must "go the extra mile" to keep others informed, which often times is a cultural shift for many.

Going further, Solomon (2001) found that virtual teams must make use of technology tools at their disposal to create an integrated collaborative environment. The more the team can interact by voice, text and audio, the more it can overcome the barriers of time, distance, and culture.

Lastly, each team member must develop or enhance their virtual collaboration skills. Emelo and Francis (2002) suggest that team members can develop these skills by practicing intentional action (meaning acting with purpose as opposed to taking action without planning), broadening their awareness of how their actions affect others, and improving the quality of their communications.

Trust. Once the team is organized and chartered, and the team has built its core processes, it must begin building trust. Kiser (1999) believed that a team hampered by a lack of trust and respect would fail. Trust grows out of team interaction that often

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requires team members to go out of their way to take part in meetings. Teams with high levels of trust call in from airplanes, hotels, work, and home. This shows a high level of commitment to one another to actively participate. Cascio (2000) found that trust is critical in a virtual team because traditional social control based on authority gives way to self-direction and self-control. Members of virtual teams need to be sure that all others will fulfill their obligations and behave in a consistent, predictable manner.

Gibson et al. (2002) found that building trust is the greatest challenge in creating successful virtual teams. Called the glue of the global workplace, trust requires as much face-to-face interaction as is practical on a virtual team. But because face-to-face time is difficult on a virtual team, other activities are needed to engender trust. These include rapidly responding to virtual teammates, establishing norms around communication patterns, reinforcing timelines and consistency of team interaction, and meeting performance objectives. Effective managers recognize that trust is a very important component of virtual teams (Solomon, 2001). Managers have to trust that people will perform when they are away from direct supervision. Moreover, the team itself must contain members that are self-motivated and that do not need a lot of detailed instructions or structure. Finally, trust is built in a virtual team by building a sense of community amongst the team members (Handy, 1995).

Diversity and Culture. One more challenge that a virtual team faces is diversity and culture. Hagen (1999) stated that diversity is more than race, ethnic, gender, and cultural differences. Virtual team members may come from different organizations, professional backgrounds, and schools of thought. Teams need to recognize, understand, and embrace any diversity that may exist among its members.

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Culture is the prevailing values, attitudes, beliefs, and underlying assumptions about life held by majority or minority groups in society (Jennings, 2001) and is related to the ways in which societies organize social behavior and knowledge (Hall, 1973).

Dubé and Paré (2001) noted that cultural differences represent an enormous challenge for global virtual teams. Diversity and culture will impact how decisions are made, how work will be reviewed and approved, and how conflicts will be resolved. The meaning of terms such as accountability, coordination, and collaboration – and how they should be operational within the team – also need to be discussed to ensure all team members share a common understanding. In short, bringing cultural issues to the surface in a positive light can help create a virtual team that is enriched and not paralyzed by cultural differences.

As is more fully discussed in Chapter Two below, the research done to date identifies several challenges virtual teams need to address and overcome to be successful. But the research consistently discusses the foregoing challenges of team organization and structure, communications, trust, diversity, and culture as those that are most critical to the virtual team's success. Researchers have found that teams succeed or fail based on how they are established at the outset by the organization. Because not all workers can function in the virtual environment, the organization must carefully choose participants that can meet the different demands of working virtually.

Researchers have also consistently found that building trust on the team and amongst the team members is a necessity for building team unity in working toward attaining the team's and organization's objectives. To foster this trust building, communications must be clear and unambiguous, and must take into account the diversity

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of opinion and respect for the geo-cultural differences that members bring to the virtual team. Researchers believe that overcoming these challenges, then, will enhance the likelihood of the virtual team's success.

The discussion above of virtual teams, their benefits and challenges, is the first of the three work group components that form the context of this study. The second of these three components – virtual team leaders – is introduced next. The full discussion of virtual team leaders is detailed in Chapter Two. The third component – followership – is explored after this discussion below.

Virtual Team Leaders

The person that leads the virtual team operates at the intersection of global commerce and the virtual team. Historically, much has been written about leaders, and their roles, functions, behaviors, traits, and characteristics that make them successful. Bell and Kozlowski (2002) wrote that a team leader's functional role is to develop the collection of individuals into a coherent, seamless, and well-integrated work unit. Bigelow (2000) noted that the traditional notions of leadership are too "leader-centered," equating leadership with the traits and behaviors of the leader. Shamir (1999) adopted a less extreme view, finding that leaders and followers engage in a mutual or reciprocal influence process which changes both leaders and followers. Aldrich (2003) stated that leadership is accomplishment, getting a group of people to productively complete the right work.

Leading a team that is regionally or globally dispersed not only requires traditional leadership skills, but also creates a different set of challenges. For example, the team faces issues of communications and technology, and must also address its ability

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to deliver timely on projects across multiple time zones. Overlaying the practical issues are differences due to culture, expectations, work ethics, and conflict resolution. Organizations seeking to use virtual teams should understand the challenges facing a virtual team and should identify those key leadership qualities needed of the virtual team leader.

Leadership Traits of a Virtual Team Leader

Leadership in virtual teams or organizations is a matter of inspiring and motivating people (Hedberg et al., 2001). Leaders must be able to trust the operations of customers, partners, and employees without authority or full control over them.

In this area of virtual team leader traits, researchers have focused on four main areas – communicating to team members, demonstrating understanding and empathy to team members, clarifying team member roles, and leading with a positive attitude and style.

Communication. Establishing effective communications, as noted above, is one of the key challenges facing the virtual team. The virtual team leader is the focal point for creating the environment for effective communications, and perhaps there is no greater behavior of importance for a virtual team leader. To Dubé and Paré (2001) and to Gibson et al. (2002), the role of the virtual team leader is to establish and manage, through inclusiveness and communication, an electronic workplace. This workplace exists due to a variety of telecommunication and collaborative systems and tools that support the team's specific needs. The leader must maintain continuous contact with remotely situated virtual team members. He also must convene face-to-face meetings for virtual

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team members. Overcoming the challenge of communications begins with the virtual team leader.

Kayworth and Leidner's (2001) research looked at unresponsive virtual team leaders. Team members complained of leaders who "never acknowledged our suggestions" or who "failed to give us direction" (p. 21). Members also complained when a team leader was vague, or when they would be assigned tasks with impractically short deadlines. These communication patterns employed by a leader negatively impacted the team's performance.

Understanding and empathy. Kayworth and Leidner's (2001) research also focused on the "soft" communication skills that a leader should demonstrate. They reported that a leader would receive praise from their team members for being "sensitive to our schedules," for "caring for all our members," and for "appreciating our opinion and suggestions" (p. 22). Leaders scored high for demonstrating empathy and for expressing interest in their lives outside the office.

Roles. Virtual team members' roles and responsibilities can get confusing due to the lack of face-to-face interaction. To overcome this limitation, Bell and Kozlowski (2002) suggested that a virtual team leader needed to provide clear, engaging direction along with specific team and individual goals. The researchers reported that clear direction and goals enhanced individual self-regulation and enable team members to monitor their own performance.

Furthermore, researchers noted that a virtual team leader needed to be more proactive and structuring (Bell & Kozlowski, 2002; Kayworth & Leidner, 2001). Virtual team leaders need to develop mechanisms and processes that become reinforced by the

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team members themselves to regulate team performance patterns. Team leaders also needed to balance being authoritative with being communicative. While team members did not want a distant dictator, they nonetheless wanted a distant mentor (Bell & Kozlowski).

Lastly, the research points out that leaders have to frame the team's objectives so members clearly understand their roles. Leaders must establish the appropriate quantitative and qualitative data for accurate assessment of virtual team members. They must develop creative approaches for providing feedback, coaching, and support for virtual team members (Solomon, 2001; Coyle & Schnarr, 1995; Gibson et al., 2002).

Attitude and style. A final area researched has been the team leader's attitude and style. Kayworth and Leidner (2001) reported that team members were very aware of the leader's attitudes. Leaders that were either too arrogant or too timid received negative comments from team members, as did leaders who were not assertive enough, very distant, or too bossy.

As discussed above, organizations are implementing virtual teams at an increasing rate in an effort to get closer to their customers and to expand their global business. Leaders that lead these teams are tasked with working longer, harder, and differently to address and overcome the challenges of leading such a team. The discussion above began first with the work group component of virtual teams, exploring the emergence of these teams, the benefits, and the key challenges. Leadership of virtual teams was the second work group component discussed. The final work group component that impacts the success of a virtual team and its leader is the leader-follower relationship, referred to as "followership."

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Followership

Understanding followership begins with understanding leadership and organizational dynamics. Teams and organizations are successful due to the interplay of many factors, and leadership is but one strand in the complex web of human relationships that holds organizations together (Crockett, 1981).

Historically, organizational success has been generally attributed to the behaviors or personality of leaders rather than their followers (Hall & Densten, 2002). Extensive research has been done on defining what leadership is, what characteristics effective leaders exhibit, and what actions they take in leading teams. Jassawalla and Sashittal (2000) state that effective team leaders:

- clearly communicates the organization's expectations to team members,
- fosters high levels of communications within and outside the team,
- creates a climate that raises morale and energizes team members,
- takes responsibility for the team's goals,
- guides and shares the team's burdens,
- interfaces with key external constituents,
- enjoys high levels of autonomy and support from their superiors in the organization,
- involves all functional groups from the initiating stages of the project,
- balances both technical as well as human interaction issues of the project, and
- reduces destructive conflict.

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Lewis (1999) noted that, to ensure that teams achieve more than the sum of what each individual can achieve, leaders should:

- set collective performance goals,
- keep the team members informed,
- promote interaction,
- create a risk-free environment, and
- build trust.

But while the influential position leaders have in organizations cannot be denied, they are only one component of an interactional framework which may be used to understand leadership and its influence more generally. This framework illustrates leadership as occurring at the intersection of three dynamics: the leader, the followers, and the situation. Each dynamic provides a unique lens or opportunity for viewing leadership. Focusing only on the lens of the leader limits the ability to understand events comprehensively because followers and the situational aspects are being ignored. The power of followers within the organizational hierarchy is constantly underestimated by organizational stakeholders (Hall & Densten, 2002).

Leaders should be willing to prepare for wise and critical participation by virtual team members. While such participation, if constructive, can further the goals of the team, sometimes the participation, if more emotional and destructive, leads to a virtual team that is strife with conflict and constant change (Nolan & Harty, 1984). The follower shares the responsibility with the leader of overcoming obstacles that impinge upon the team, and is responsible for displaying the qualities of good followership, namely intelligence, cooperativeness, diplomacy, and sociability.

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Additionally, each role in an organization includes some following and some leading (Thody, 2003), and followership is as natural, and as important, as leadership since the proclivity to follow exists, at least latently, in every human being. Followers are as much independent as leaders; what they do is at least as much an outcome of their personalities, their positions, their purposes, and their own planning, as it is of leadership.

Rost (1993) stated that leadership is an influence relationship between leaders and followers who intend real changes that reflect shared purposes. This definition highlights the importance of followers and the reciprocal relationship between leaders and followers (Hall & Densten, 2002).

This relationship highlights the fact that a successful and effective boss / subordinate relationship demands not only some things of bosses, but it also demands some things of followers as well. Subordinates can and should be more than passive robots to be manipulated and used by bosses. They have the responsibility – as well as the opportunity – for making the situation a good one, a win / win for themselves as well as for the boss (Crockett, 1981).

In the final analysis, leadership and followership go hand in glove (Nolan & Harty, 1984), and good followers are as essential as good leaders, and truly good leaders are good followers (Madera, 2000). Followership is the interactive role individuals play that complements the leadership role and is equivalent to it in importance for achieving group and organizational performance (Howell & Costley, 2001). The followership role includes the degree of enthusiasm, cooperation, effort, active participation, task competence, and critical thinking an individual exhibits in support of group or organizational objectives without the need for star billing.

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In his seminal study on followership, Kelley (1992) concluded that leaders contribute no more than 20% to the success of an organization while followers are critical to the remaining 80%. Kelley's model divided followership styles into four quadrants along the axes of critical thinking and active involvement, and noted that that followers fall into one of five categories – alienated, exemplary, conformist, passive, and pragmatist followers. Alienated followers fell into the upper left quadrant, scoring high on independent, critical thinking but low on active engagement.

Passive followers are located in the lower left quadrant, scoring low on both independent, critically thinking and on active engagement. Conformist followers are found in the lower right quadrant. This type of follower is actively engaged but demonstrates dependent, uncritical thinking. Pragmatist followers fall in the middle of Kelley's (1992) followership style model. These followers score in the middle of both independent, critical thinking and active engagement. The final followership type is the exemplary follower. Located in the upper right quadrant of the model, exemplary followers score high on both independent, critical thinking and active engagement.

In addition to scoring each followership style differently on critical thinking and active involvement, Kelley gave detailed insight into how followership affects leadership. A more detailed review of Kelley's model, and subsequent studies that built on it, is undertaken in the succeeding chapter.

The emerging body of followership research supports the notion that the success of any group depends on the willingness of members to play both the roles of leader and follower (Madera, 2000). Being able to take the lead when called on and to follow at other times is crucial to the viability of a group. Behavior traits that are obviously

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essential to good followership are making attitudes clear, maintaining standards of performance, informing others as to what is expected of them, treating all as equals, being friendly and approachable, and accepting suggestions of others (Nolan & Harty, 1984).

As noted at the beginning of this chapter, researchers that have studied the increasing prevalence of work done in the virtual environment have identified many work group components that are key to a virtual team's success. Of the many components that the researchers have identified, three have been identified as the most critical to success in the virtual environment. These three – virtual teaming, leadership, and followership – were briefly discussed above, and are discussed in greater detail in the literature review in Chapter Two. Because this study seeks to understand whether there exists a relationship between geo-cultural identity and leadership character preference of followers in a virtual environment, the foregoing discussion of the three work group components sets the context for the following problem statement and research question.

Statement of the Problem

The problem for the present study is to examine whether there exists a relationship between geo-cultural identity and leadership character preference of followers in a virtual environment.

The body of research is rich with studies on leadership and leadership characteristics needed for leading both traditional and virtual teams. Further, research is growing in the area of key leadership characteristics needed to lead a virtual team, and how geo-cultural identity is one of many characteristics that a virtual team needs to

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consider. Research in the area of followership is gaining ground, but the volume of followership research lags considerable behind that of leadership.

Notwithstanding the voluminous research previously undertaken, it appears that minimal research has been done to examine whether a person's geo-cultural identity, in a virtual team environment, influences leadership characteristic preference.

Recently, Barth (2003) examined followership preferences for gender-based leadership behavioral characteristics in the virtual environment. Her study, however, did not include the impact, if any, of geo-cultural influences.

Research Question

The proposed research will seek to answer the following question: is there a relationship between a follower's geo-cultural identity and the leadership characteristic preference in a virtual environment?

To answer this broad question, enabling questions have been developed to guide the research and include the following:

1. Of the five main leadership characteristics identified in previous research (as is more fully described below), how do virtual team members from each of the four geo-cultural regions rank, in order of importance, the five characteristics?
2. Of the five main leadership characteristics identified in previous research (as is more fully described below), what is the single most important leadership characteristic to a manager in each of the four geo-cultural regions as is perceived by the virtual team member?
3. Do the leadership characteristic preferences vary by and among the geo-cultural regions of North America (NA), Latin America (LA), Europe (defined

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as the 25 countries that comprise the European Union [EU]), and Asia Pacific (defined as the ten countries that comprise the Association of Southeast Asian Nations [ASEAN] plus China, India, Japan and South Korea)?

Assumptions

In conducting this study, the researcher is making the following assumptions:

1. The study's participants will be open and honest in their ranking of their leadership characteristic preferences, and in their assessment of the most important leadership characteristic for a manager in the four geo-cultural regions in the virtual environment. In an attempt to support this assumption, the study will be designed to ensure confidentiality and anonymity.
2. It is further assumed that the virtual environment explored in this study has not been significantly altered due to the researcher's inquiry, that the subjects' preferences are characterized by some degree of consistency, and that the subjects have the ability to accurately report their preferences.

Definitions

The following definitions are used in this study:

1. *Virtual Team* – group of people who work interdependently with shared purpose across space, time, and organizational boundaries using technology to communicate and collaborate (Lipnack & Stamps, 1995).
2. *Virtual team member* – an individual that is one of a group of people who work interdependently with shared purpose across space, time, and organizational boundaries using technology to communicate and collaborate.

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3. *Followership* – the interactive role that individuals assume that contributes to the success of group performance and supports, or fails to support, leadership behaviors (Howell & Costly, 2001).
4. *Geo-cultural identity* – the global region from which a virtual team member originally comes. For purposes of this study, the following four geo-cultural regions are specified:
    a. *North America (NA)* – the region that contains the United States and Canada.
    b. *Latin America (LA)* – the region that contains the individual countries in Latin and South America including, but not limited to, Mexico, Puerto Rico, Brazil, and Argentina.
    c. *Europe* – the region that contains the 25 countries that comprise the European Union (EU).
    d. *Asia Pacific* – the region that contains the ten countries that comprise the Association of Southeast Asian Nations (ASEAN) plus China, Japan, India, and South Korea.
5. *Leadership characteristics* – the following five leadership characteristics have been identified in the existing research as being critically important to leadership of a virtual team, and will be assessed by this study's participants. A detailed discussion of these characteristics is done in Chapter Two below. For purposes of this study, the following definitions will be used:
    a. *Communicative* – the extent to which the leader actively communicates to and with the team about all matters.

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b. *Technological* – the extent to which the leader integrates, uses, and requires the team to use technology to drive the team including by not limited to e-mail, web casts, electronic white boards, etc.

c. *Trust / relationship builder* – the extent to which the leader builds mutual trust, respect, and cooperation amongst the team and the team's members.

d. *Visionary* – the extent to which the team creates and shares a vision that directs and drives the team, and that is embraced by all members of the virtual team.

e. *Collaborative* – the extent to which the leader actively solicits inputs from the team's members, creates alignment on objectives and strategies, and seeks out other team members' opinions about objectives, priorities and strategies.

There are many other countries that are located in or near the geo-cultural regions of Europe and Asia Pacific. For this study, the countries chosen for those regions, however, are bound together by treaties, trade agreements, and other formalized agreements and documents that impact the economic, legal, political, and cultural dynamics of each member country. As noted above, this intermingling of geographical, political, economic, structural, and individual cultural factors has been found to provide the framework of intra-region interaction (see e.g. Voskopoulos, 2001).

For Europe, it is suggested, therefore, that the countries represented in the EU are representative of most, but not all, of the countries located in Europe. For Asia Pacific, it is suggested that the countries represented in the ASEAN together with China, Japan,

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India, and South Korea, are representative of most, but not all, of the countries located in the Asia Pacific geographical region. China, Japan, India, and South Korea are not current members of the ASEAN. However, each has signed documents and has otherwise made commitments that lay the foundation to join the ASEAN and will most likely join in the next several years. Moreover, their respective economic, political, and legal impact on both worldwide and geographic economies warrants their inclusion in the Asia Pacific geo-cultural region.

Biases and Influences

For about the past 14 years, the researcher has worked for Hewlett-Packard (HP), a global company that employs people from many countries. Having recently left HP, the researcher's final position was in directing a global virtual team on which sat HP employees from many different countries including India, Singapore, Germany, Mexico, Russia, and the United States. Furthermore, the researcher interacted daily with people from other countries including China, Singapore, Brazil, the United Kingdom, and Italy. The researcher understands first hand the challenges of directing the activities of a virtual team that is globally dispersed across many time zones and multiple cultures.

In an attempt to minimize his bias, the researcher will not include HP or any of its employees in the study. Moreover, the researcher will attempt to construct and implement a methodology that identifies, explains, and reduces any and all biases and influences towards any country, any industry group, or any organization.

Delimitations / Limitations

The research will be narrowly focused and will attempt to ascertain whether there exists a relationship between geo-cultural identity and leadership character preference of

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followers in a virtual environment. Given the impracticality of including all global cultures and all industry groups in this study, the research's extensibility to other cultures and other geo-cultures, industry groups, and organizations will be limited. As noted above, the research will include the geo-cultural regions of North America, Latin America, Europe, and Asia Pacific as previously defined.

Furthermore, the research will not include subjects from all organization types in all industry groups. Thus, the generalizability of the study across industry groups will be limited. Finally, the research participants will be self-reporting, thereby potentially injecting their own bias and prejudice into their responses, which could be different from that which an independent observer might report.

The study's participants will answer a questionnaire. Construction of an objective questionnaire will attempt to address these limitations as well at that of researcher bias and influence. The researcher anticipates that the following could impact the quality of the data collected from the subjects.

First, the subjects might either accidentally or purposely misunderstand the meaning of what it means to be a virtual team member or virtual worker. The researcher estimates the likelihood of such misidentification to be low. Second, the subject may misidentify their geo-cultural regional identity. Because the researcher will neither communicate directly to them nor see them face-to-face, there is the exposure to misidentification. Like in the case above, the researcher estimates the likelihood of a subject misidentifying their own geo-cultural identity to be low.

Third, the subjects might either accidentally or purposely misidentify the geo-cultural region with which their managers identify. This may be caused by either lack of

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knowledge or incorrect assumptions, or perhaps because the subject has not worked for their manager for a time sufficient to know the identity. The researcher estimates this risk to be low to medium-low.

Furthermore, the subjects may have no know knowledge of what would be the most important leadership characteristic to their manager, or may make a faulty assumption of what that might be. The researcher will not be in a position to clarify further questions the subject might have on this or will not be in a position to challenge the choice made. The researcher estimates the risk of this misidentification to be medium to high, and will depend on many factors including the length of time the subject has worked for the manager and the amount of interaction they have had.

Fourth, the subjects, when choosing the most important characteristics of managers from the other geo-cultural regions, may have no actual knowledge of what those characteristics would be to those managers. Because the researcher will have no contact with the subjects, he will not be in a position to either clarify or question the choices made. The risk, therefore, of misidentifying the characteristics would probably be medium to high.

Finally, there is no assurance that the subjects will complete the survey only once, and the generalizability of the results may be at risk because (1) a study built on this type of sampling may impede the statistical generalizability of the results beyond the sample, and (2) those subjects that choose to participate may not fairly represent the entire accessible population of virtual team workers, so external population validity is questionable.

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Research Process Overview

With the framing and grounding of the research discussed above, and the research problem and question noted, the final discussion in this chapter is the research steps, or phases, the researcher will undertake. The research process will include separate, sequential, and significant steps that are designed to parallel the chapters of the final report. The phases in the process are:

Phase One – Introduction and Contextual Background

Phase Two – Literature Review

Phase Three – Research Methodology

Phase Four – Data Analysis

Phase Five – Interpretation, Implications, and Future Research

Research Phase Description

Phase One – Introduction and Contextual Background

This phase sets the study's context. The researcher provides details on the evolving organizational dynamics and global changes that have brought culture, leadership styles, and followership types into the virtual environment. Benefits along with challenges are discussed, and set the stage for a new way that teams must find common ground if they are to succeed. Understanding the role that culture plays in this environment and on its participants is noted and is the subject of the research.

The researcher states both the study's purpose and its significance, and frames and grounds the research with an introductory discussion of the study's key components – the rise of virtual teams, leadership characteristics needed in the virtual environment

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and the notions of followership. The specific problem on which the research will focus is offered along with specific research questions.

The research to be undertaken is further circumscribed by its underlying assumptions as well as by the researcher's biases and influences. Finally, the researcher notes the research's delimitations and limitations.

Phase Two – Literature Review

Phase Two's focus is to determine whether the research question can be answered in the existing body of literature. If a partial or wholly incomplete answer to the research question cannot be determined by the literature exploration and analysis, the researcher will create a proposition that can be examined and tested with original data. The proposition to be explored in the literature is whether there exists a geo-cultural preference on leadership characteristics of followers in a virtual environment

Upon completing the literature review, the researcher will analyze the extent to which the literature has answered the research questions, and whether the proffered proposition merits further testing as a hypothesis. Potential outcomes from the literature research include:

1. The literature fully answers the research question, in which case one or multiple hypotheses drawn from the proposition are tested with original data.
2. The literature partially answers the research question, in which case the researcher will gather original data to affirm those questions that are answered by literature and to answer those parts that are not.
3. The literature does not address or answer any part of the research question, in which case the researcher will identify the data that is needed to answer the

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research question, where the data might be located, and what research methodology could be developed and implemented to gather original data.

Phase Three – Research Methodology

The researcher in this phase will develop the research methodology needed to gather original data sufficient to answer that which comes out of Phase Two. The research design proffered will be comprehensive enough to include the design needed to, and instruments used for, gathering the data. The researcher will discuss how the measures taken to ensure the design's validity, feasibility, and reliability.

Phase Four – Data Analysis

Once the original data has been collected, the researcher first will analyze the data using the tests and methodologies discussed in Phase Three, and then will interpret the findings.

Phase Five – Interpretation, Implications and Future Research

In the final phase, the researcher will discuss the interpretation and implications of the research. The following questions will guide the exploration:

1. What do the outcomes suggest regarding the research question and/or hypotheses?
2. What new or confirmed issues have surfaced based on the study?
3. What does the study add to the existing body of knowledge or theories?
4. What are the implications for leadership, followership, and virtual teams based on the influence (or lack thereof) of culture?
5. How extensible is the research and outcomes to cultures, and other industries and companies not included in the study?

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6. What do the outcomes suggest as possible areas of future study?

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CHAPTER TWO: LITERATURE REVIEW

Introduction

The rise of teams functioning in the virtual environment has opened new ways for companies to reach customers in the expanding global marketplace. The traditional constraints of geographic location, time zone differences, and cultural barriers have given way to global teams that operate around the clock across multiple cultures. The impact of this new paradigm has been revolutionary to companies, their employees, and the customers they serve.

Along with new opportunities have come challenges. Well-researched notions of leadership are being challenged by new leadership demands of a team that is separated by geography, time, and culture. Further, the behavior of virtual team members together with their work habits and expectations are changing the concepts of followership. Finally, the inclusion of team members of varying cultures, and from different geo-cultural regions, have injected new perspectives and long delayed diversity into teams and companies. But together with this diversity have come palpable tensions and increased demands on all team members. The literature reviewed in the following section seeks to address whether there exists a relationship between geo-cultural identity and leadership character preference of followers in a virtual environment.

The purpose of this literature review is to examine the research done that could answer the foregoing research question. The review will consist of three sections. The first section will focus on the increased prevalence of virtual teams. The section will explore the rise in the number of virtual teams, the benefits to organizations, employees, customers, and the challenges these teams and organizations face.

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The second section will touch briefly on traditional leadership research followed by the emerging research of virtual team leadership characteristics. From this section will come the five key leadership characteristics that will be tested in the study's questionnaire. The final section will explore the developing field of followership research.

Based on these sections, implications will be drawn as to what the literature contributes to the research question, and whether the research question is answered, either partially or completely. This discussion will conclude with whether emergent propositions can be identified from the literature review. If propositions do emerge, an argument will be made as to whether the propositions have merit for testing as hypotheses and, if so, the hypotheses for testing will be stated, along with a short discussion on whether such hypotheses will be stated as null, directional, or non-directional. Alternatively, if no propositions emerge, the research to be conducted will be exploratory in nature.

Virtual Teams

The way in which work is done has changed. Teams that once shared space in the same office are no longer co-located. Virtual teaming, almost nonexistent a decade ago (Kiser, 1999; Solomon, 2001), is quickly becoming the norm due to advances in telecommunications and technology (Hagen, 1999). Corporations, recognizing the need to operate globally, have increased the number of dispersed workers today (Hagen, 1999).

While much research has been done on traditional teams – what they are, how they are created, what makes them successful, and the challenges they face – research

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into similar insights on virtual teams is emerging. The common themes that are surfacing in this growing body of research are converging around three main categories. The first theme arising from the growing body of research discusses the benefits to companies, employees, and customers of virtual teams. The second theme focuses on the challenges virtual teams face. The third and final theme notes the characteristics needed of a virtual team leader. The discussion below begins by defining what a virtual team is and what the benefits are of having virtual teams. Then, the challenges virtual teams face are discussed. Finally, the leadership characteristics needed of a virtual team leader are explored.

Common Notions of What Comprises a Virtual Team

Researchers have defined virtual teaming or virtual workgroups in a number of ways. Kiser (1999) defined a virtual team as workers in an organization or on a project team, with a common purpose, usually separated by both time and geographic location. Solomon (2001) thought broader. Her studies found that a virtual team may have employees from a single company or they may include representatives from several organizations. The team may convene for a few days to solve a problem, a few months to complete a project, or they may exist permanently.

Suttling and Wood (1997) called the notion of virtual teaming "flexible working," loosely defined as the ability for a staff or workgroup to operate alone or as part of an organization, and not located in the same place. Their research showed that loosening the constraints of requiring teams to be in the same place provides many benefits and advantages to both corporations and employees. Solomon (2001) concluded that virtual

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teams are characterized by highly distributed structures with key teams, functions, and individuals unlikely to be in the same place at the same time.

From the findings by these and other researchers, a picture emerges of what constitutes a virtual team. In essence, a virtual team is one that is not co-located, that can have representation from a single or from multiple organizations, and that can be formed for a single project of for a longer period of time. Once formed, there can be many advantages to a company, its employees, and customers.

Benefits of Virtual Teaming

In her research Bigelow (2000) noted many benefits to a company that embraces virtual teaming. One was that virtual teams united highly qualified people without restricting them to be physically present in one particular location. This flexibility can give an organization access to a higher level of talent by allowing it to hire the best and brightest people who would otherwise work for a company but for the requirement of location. This flexibility is particularly important in today's global marketplace where companies are seeking any advantage they can over the competition.

Bell and Kozlowski (2002) echoed this, noting that organizations that implement and support virtual teaming gives them a larger, and often times, more qualified employee candidate pool. Their research showed that employees are putting more emphasis on creating a work / life balance, and as such, these employees are seeking to work for organizations that allow them to do the job regardless of location. Moreover, their research showed that companies are using virtual teaming as a recruitment inducement by assuring the new hire that they will be able to remain in their current location. This provides a significant advantage over their competition for several reasons.

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First, it allows companies to hire the best talent. Second, it enables organizations to respond faster to increased competition due to having key personnel located near the customer. Lastly, it provides greater flexibility to individuals working from home or on the road by not requiring the team member to be centrally located.

Bigelow (2000) found that virtual team members develop a unique set of skills by working remotely. These skills can be leveraged throughout the company with experienced virtual team members becoming members of other teams. Solomon (2001) found that virtual teams can have global reach by combining dispersed members with more traditionally co-located members.

Moreover, her research found that organizations that allowed the employee the flexibility to work remotely created a more satisfied employee base due to the employees' ability to balance their life and work. Allowing remote workers, Solomon noted, can save the organization significant overhead costs.

In their research, Suttling and Wood (1997) found many benefits to organizations that have virtual teams. Overall, they stated that virtual teams can have a positive impact on corporate culture, management style, and decision making mechanisms. More specifically, they detailed the following organizational benefits:

1. Reduced corporate overhead,
2. Increased employee productivity,
3. Reduced employee sick time,
4. Improved relations between the organization, its employees and customers,
5. Increased customer response time,

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6. Increased employee retention rate,

7. Increased recruiting pool,

8. Enhanced corporate reputation, and

9. Improved environmental impact by reducing commuting.

They concluded that flexible working solutions could provide cost-effective answers to accommodate corporate expansion or relocation. When the physical location becomes less important, the organization's available labor pool increases.

Bigelow's (2000) research reached the same conclusion that virtual work option increases the potential employee applicant pool as did Kiser's (1999). Kiser stated that by not putting relocation requirements on people, a person can live wherever they choose, and can do the job in virtual space. The major advantage for the virtual team member is that they do not have to relocate, and the major advantage for the organization is that it can hire the best person for job.

One benefit noted above in Suttling and Wood's (1997) research was that organizational cost savings can be substantial. Companies like IBM, AT&T, and others have reported substantial savings by embracing virtual workers and teams (Caldwell, 2002). Companies save significant sums of money by reducing the overhead costs of real estate and facility management, and reap other benefits of increased productivity, higher job satisfaction, increased retention, and lower absenteeism. By using virtual teams, organizations can wrap their arms around the globe without spending a fortune on airfare and subjecting their employees to chronic jet lag (Kiser, 1999).

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Once the benefits of virtual teaming were identified, the researchers focused on key factors that can make virtual teams successful. Both Kiser (1999) and Solomon (2001) believed that the way in which management initially formed the team was critical to the virtual team's ultimate success or failure. Not only was choosing the team members with the right characteristics important, but also having an effective leader that directed the team was vitally important. The virtual team leader had to be effective in, among other things, establishing communication protocols and in resolving team conflicts. (The leadership characteristics needed in a virtual team are discussed more fully in the second section of the chapter.) Kiser stated that management's approach to the virtual team, specifically how it addresses its needs, must be different than how it approaches and manages a traditional team.

After the team members have been identified, its leader installed, and the team is pulled together, the team must get organized for success. Kiser (1999) found several organizationally critical items that the virtual teams needed for effectiveness. These included developing team charters, defining roles and responsibilities, and planning kickoff meetings. The team charter needs to include its purpose, mission, and goals, and must be presented to and approved by key sponsors and stakeholders.

After receiving approval for its charter, the team should begin its work by holding a face-to-face kick-off meeting to set its structure, process of engagement, and core team processes. Coyle and Schnarr (1995) stated that the team's ability and willingness to learn, and the discipline of self-criticism, take on increased importance. Knowledge sharing and growth are essential to the team's success.

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Solomon's (2001) research showed several key factors that made virtual teams successful. One key factor was the virtual team's interactions. Because these teams are separated by time and space, the virtual team had to strive to keep interactions upbeat and action-oriented. The team's day-to-day interactions had to be positive and collaborative. Her research found that the team could achieve this by creating standardized common protocols, having clearly stated goals and objectives, and celebrating when targets were reached.

Equally important, Solomon (2001) found, was for the team to create shared space – a virtual water cooler as she termed it. This 'virtual water cooler' is a place where the team could interact informally. This helps build a sense of team that is difficult to create in a virtual environment. Solomon also noted that the virtual team must identify and overcome barriers to collaboration and to developing the team's success.

From the outset, the organization must choose team members that have the right characteristics to participate in a virtual team (Solomon, 2001). Solomon found that selecting the right type of people to participate in a virtual team impacts the success the team will ultimately have. Her research indicated that a successful team member is one that is, among other things, highly self-motivated. The ideal team member will not need detailed instructions on how to work remotely, or what the project or team instructions are. The team member will have strong communication and collaboration skills, is adaptable, is technologically self-sufficient, and finally is results oriented. Solomon concluded that the organization needs to select people who are self-starters and who will be able to keep projects tasks focused.

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The final benefit of virtual teaming that researchers have found focuses on customers. Solomon (2001) noted that, to compete in the global marketplace, companies have to have a customer focus, one that puts them much closer to the customer. One of the most effective ways to achieve this is through virtual teaming. This places employees closer to customers, and creates a 'follow-the-sun' dynamic where a company is serving its customers around the clock.

In summary, then, virtual teaming gives companies, employees, and customers many benefits. Companies can tap into a greater talent pool and save expenses. They can also reach a greater number of markets and customers. Employees have the flexibility to live where they choose, and can create a better work / life balance.

Customers are better served by having company employees located closer to the markets and to them. But while companies are enthusiastic about capitalizing on the benefits of virtual teaming, implementing virtual teaming in practice is more difficult (Bigelow, 2000). The section below discusses the major challenges researchers have found in virtual teaming.

Challenges to Virtual Teaming

Virtual teaming requires individuals to learn new skills and work patterns (Solomon, 2001). Potential team members have to change the way in which they relate to other individuals. Research into these challenges converges around the themes of communication, trust, diversity and culture, and technology.

Communications

Perhaps the greatest challenge virtual teams will face in is communications. Virtual team members, by virtue of working in cyberspace, do not interact with another

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face-to-face. They do not see other team members' body language, and therefore cannot use a common communications interpretation tool. Rather, virtual team members hear only the words and must interpret what is being said only by the words and inflection in the speaker's voice (Kayworth & Leidner, 2001).

Hagen (1999) determined that communication processes amongst team members are naturally complicated. Team members, when interacting face-to-face, can use body language, voice inflection, and other communication methodologies to decipher the speaker's true meaning and intent. Because verbal communication alone is more prone to misunderstanding, constructive criticisms might be judged more harshly, and conflicts could be escalated. No matter how clever the technology gets, the context of the communication is often removed when the team members cannot see the other's body language (Communication in Virtual Teams, 2001).

Time zones create unique communication challenges amongst virtual team members. In 1999, Kiser's research reported that communication challenges are exacerbated by vast differences in time zones. It is common for virtual teams to have communication sessions when it is either very early in the morning or very late in the evening. Team members typically will not have their full cognitive capabilities during these times, so they instead exceedingly rely on e-mail and other virtual tools with which there is frequent miscommunication. Team members often miss calls, misinterpret e-mails, and misunderstand issues.

To overcome these challenges, virtual team members must develop excellent communication skills (Kiser, 1999). Kayworth and Leidner (2001) concluded similarly,

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reporting that virtual teams are challenged to coordinate tasks across time zones, physical boundaries, and organizational contexts.

Bigelow (2000) noted that good communication must evolve into excellent communication and become a core competency of the team. She found that virtual team members must "go the extra mile" to keep others informed, which often times is a cultural shift for many. Going further, Solomon (2001) found that virtual teams must make use of technology tools at their disposal to create an integrated collaborative environment. The more the team can interact by voice, text, and audio, the more it can overcome the barriers of time, distance, and culture.

Finally, Emelo and Francis (2002) determined that virtual team members must proactively build their virtual collaboration skills. One way they found that team members can do this is to act with purpose. They called this 'intentional acting' and described it to mean team members taking action only with a specific goal or objective rather than by taking random actions. By taking purposeful actions, virtual team members create a heightened sense of how their actions affect others, which in turn should improve the quality of their communication.

Trust

The second challenge researchers have found that task virtual teams is to develop trust in the team and amongst the team members. Once the team is organized and chartered, and the team has built its core processes, it must begin building trust (Kiser, 1999). A team hampered by a lack of trust and respect would fail. A team builds trust through the interaction of its members. Team members build trust by committing to the team, and demonstrate this commitment to building trust through actively participating in

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meetings. Team members call in at difficult times, they respect the opinions of fellow team members, and constructively work through conflicts.

Cascio's (2000) research showed that trust is critical in a virtual team because virtual teams are self-directional and self-controlling. This means that the traditional notions of team control based on face-to-face meetings and management authority are ineffective.

Effective managers recognize that trust is a very important component of virtual teams (Solomon, 2001). Managers have to trust that people will perform when they are away from direct supervision in a manner identical to if they were interacting face-to-face. Moreover, the team itself must contain members that are self-motivated and that do not need a lot of detailed instructions or structure. Trust is built in a virtual team by building a sense of community amongst the team members (Handy, 1995).

Gibson et al.'s (2002) findings validated and built on the criticality of trust in a virtual team. Building trust, they found, is the greatest challenge in creating successful virtual teams. Called the glue of the global workplace, trust requires as much face-to-face interaction as is practical on a virtual team. But because face-to-face time is difficult on a virtual team, other activities are needed to engender trust. These include rapidly responding to virtual teammates, establishing norms around communication patterns, reinforcing timelines and consistency of team interaction, and meeting performance objectives. Virtual team members must go out of way to attend meetings, and must make a commitment to each other to make deadlines. Virtual team members must learn to think differently about how they develop and track goals, who belongs on team at various

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stages, how they communicate with one another, and how they switch between being a follower and a leader.

Diversity and Culture

As discussed above, virtual teams are challenged to create effective communications and to build trust that will bind the team together. A third challenge that a virtual team faces is created by the team's diversity and culture. Hagen (1999) stated that diversity is more than race, ethnic, gender, and cultural differences. Diversity also encompasses coming from different organizations, different professional backgrounds, and varying schools of thought. Team members need to recognize, understand, and embrace any diversity amongst the team's participants.

Culture is the prevailing values, attitudes, beliefs, and underlying assumptions about life held by majority or minority groups in society (Jennings, 2001). Hall (1973) found that it is related to the ways in which societies organize social behavior and knowledge. These behaviors and this knowledge impact the way in which virtual teams interact.

Dubé and Paré (2001) determined that cultural differences pose significant challenges for global virtual teams. Diversity and culture will impact how decisions are made, how work will be reviewed and approved, and how conflicts will be resolved. The meaning of terms such as accountability, coordination, and collaboration – and how they should be operational within the team – also need to be discussed to ensure all team members share a common understanding. In short, bringing cultural issues to the surface in a positive light can help create a virtual team that is enriched and not paralyzed by cultural differences. Key cultural differences of language, expectations, and work habits

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of team members in different areas of the world impact the success, or failure, in virtual team members' communications.

Solomon's (2001) research found that problems arise when people work across cultures and have different perceptions of projects. Her research showed that culture impacts virtual teams. Kiser (1997) found that distance working can exacerbate language and cultural differences. Dubé and Paré's (2001) research determined that differences in cultures both positively and negatively impact the virtual team. Their research also found, however, that while cultural diversity represents an enormous challenge for virtual teams, it also offers potential for richness.

Dubé and Paré (2001) went further, stating that learning about national, organizational, and even functional cultures can be very useful. By bringing cultural issues to the surface in a positive light, team members can help create a virtual team that is enriched and not paralyzed by cultural differences.

The research reviewed to this point shows that, while culture impacts a virtual team, none of the research addresses the research question of this study, whether there exists a relationship between geo-cultural identity and leadership character preference of followers in a virtual environment.

Each team member of a virtual team naturally brings with them their background, experiences, and expectations to the team. The challenge for the team is to understand, respect, and integrate these differences into a team that meets their goals and objectives. The research done shows the importance of addressing cultural differences in a virtual team. The research done, however, does not discuss whether there exists a geo-cultural preference on leadership characteristics of followers in a virtual environment.

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Technology

The fourth and final challenge faced by virtual teams on which the research converges, but not the least important, is technology – its enabling nature and challenges. Both Kiser (1999) and Hagen (1999) recognize that technology, and the level of support from the organization, has a material impact on the team's success. But while Lipnack and Stamps (1999) agreed that technology is a challenge that virtual team's must address and welcome, they also believed that successful virtual teams depend more on people than they do on technology.

Lipnack and Stamps (1999) noted that, no matter how sophisticated the technology, it will not work unless the people issues are addressed first. Zaccaro (2002) took this notion further, finding that not only does the virtual team have to find workable technical solutions, they also require a new kind of organization, a new kind of management, and a new kind of leadership. In essence, successful virtual team performance depends on the successful integration of technology, effective team leadership, and effective team processes.

Because virtual teams are linked primarily through advanced computer and telecommunication technologies (Dubé & Paré, 2001), technology is a key enabler to the success of virtual teams (Kiser, 1999). Successful leaders understand unique characteristics of electronic communication and, as a result, there are a large number of communication tools available to the virtual team (Solomon, 2001).

Bigelow (2000) stated that the more virtual teams can interact by voice, text, and audio, the more they will be able to overcome the barriers of time, distance, and culture. She found that a thorough understanding of e-mail, teleconferencing, and

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videoconferencing is essential, and that technological tools such as webcasts and electronic white boards can assist virtual teams. Not having the right tools wastes administrative time, causes loss of knowledge sharing, and fails to address the need for corporate connectivity.

Researchers that have studied virtual teams all conclude that companies, and the virtual teams, need to invest in technology and training, and they must provide its employees with proper tools and support to foster success (Bigelow, 2000). Suttling and Wood (1997) agreed that technology support systems need to be in place to support flexible workers including helpdesks, tech training, agreements with suppliers, remote access, and wireless networks.

Dubé and Paré (2001) are aligned with this, stating that under investing in technological infrastructure can bring virtual work to a standstill even though other challenges are fully addressed. Virtual team leaders are likely to face unpleasant technological challenges such as hardware/software incompatibility, unreliability, or unavailability, especially when trying to connect people in developing countries. Overcoming these challenges, and using collaborative technologies that provide powerful support, can make a virtual team a reality.

Finally, Solomon (2001) concluded that, while technology can both enhance and inhibit virtual teams, technology nonetheless cannot replace relationships. The virtual team must have face-to-face interactions and live phone conversations.

As discussed above, organizations are embracing the benefits, and addressing the challenges, of virtual teaming. The teams allow corporations to reap the many benefits of virtual teaming including cost savings and access to a higher talent pool. Furthermore,

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virtual teams give employees greater flexibility in their work / life balance. Finally, customers can potentially benefit by having greater access to a company through its virtual worker.

However, as also discussed above, virtual teams face a difficult set of challenges. Communications are more difficult as is building trust amongst the team members. Diversity and cultural issues impact the success of the team, and technology, which is ubiquitous today, can both enhance and inhibit a virtual team.

There are two additional areas of research that have been done on the aspects of virtual teaming, and that will be explored. The first area is the characteristics that a leader of a virtual team needs to have to successfully lead the team. This will be discussed in the frame of the well-researched area of traditional leadership. The second section reviewed, and that will conclude this literature review, is on the developing field of followership.

Virtual Team Leadership

In this chapter's first section, the benefits, challenges, and technology of virtual teams was discussed. The discussion focused on key characteristics needed in virtual team members. It also discussed challenges that virtual teams and their members face. These challenges take the form of communications, trust building, roles, and responsibilities, all made more complicated because of distances in time and geography. The section was concluded with a discussion of how technology can enable a virtual team, and how it can create many problems.

A subject deferred in the first section and which will be discussed here is the research that has been done on the leadership characteristics and traits needed in a virtual team leader. Because research on the traditional notions of leadership is extensive, this

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section will only briefly touch on a few key research findings in traditional leadership. Thereafter, a review of the research of characteristics and traits needed in the virtual team leader will be discussed.

Relevant Leadership Research Regarding Traditional Contexts

Research on the traditional notions of leadership is extensive. Theories have been developed on, among other things, the traits leaders have, the behaviors they exhibit, and the situations in which leaders demonstrate leadership. Some of these theories are touched on below.

However, because this study's context is the virtual environment, the discussion below on traditional notions of leadership is offered only to ground, and give perspective on, the emerging field of virtual team leadership. The review of traditional leadership is not exhaustive, purposely so. However, out of this discussion will come two of the five leadership characteristics that the study's participants will rank. The other three come from the research done on virtual team leadership. The discussion begins with the traditional notions of leadership.

Cronin (1984) stated that, if one is to understand leadership, one must understand its essential nature. He believed that it was the process of leader and followers engaging in reciprocal influence to achieve a shared purpose. Leadership, he noted, is all about getting people to work together to make things happen that might not otherwise occur, or to prevent things from happening that ordinarily would take place.

Cronin (1984) went further, noting that leaders are individuals who can help create options and opportunities. They are influencers who can help clarify problems and

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choices, who can build morale and coalitions, who can inspire others, and who can provide a vision of the possibilities and promises of a better organization.

Leaders have those indispensable qualities of contagious self-confidence, unwarranted optimism, and incurable idealism that allows them to attract and mobilize others to undertake demanding tasks these people never dreamed they could undertake (Cronin, 1984). Leaders empower and help liberate others. They engage with followers in such a way so that many of the followers become leaders in their own right. His research identified several qualities that leaders possess including:

1. Self-knowledge and self-confidence,
2. Vision and the ability to infuse important, transcending values into an enterprise,
3. Intelligence, wisdom, judgment,
4. Learning / renewal,
5. Worldmindedness / a sense of history and breadth,
6. Coalition building / social architecture,
7. Morale building / motivation,
8. Stamina, energy, tenacity, courage, enthusiasm,
9. Character, integrity / intellectual honesty,
10. Risk-taking / entrepreneurship,
11. An ability to communicate, persuade / listen,
12. Understanding of the nature of power and authority,

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13. An ability to concentrate on achieving goals and results, and

14. A sense of humor, perspective, flexibility.

Cronin (1984) concluded that leaders are people who know who they are and know where they are going. They must be self reliant individuals with great tenacity and stamina. Leaders set team priorities. They mobilize the team and are highly focused on the major problems of the day. His research showed that leadership divorced from important transcending purpose becomes nothing more than simple manipulation, deception, repression, and tyranny.

Cronin's (1984) research and conclusions are based on voluminous research on leadership beginning with the notion of trait theory. Wiggam's (1931) research focused on isolating and identifying those specific traits that leaders possessed and that made them successful team leaders. Trait theory focused on isolating those characteristics that leaders had and that would explain one's ability to lead. Years later, Kirkpatrick and Locke (1991) revisited the notion of trait theory and found that leadership was associated with several traits including among others intelligence, honesty, integrity, and ambition. Although Wiggam's trait theory research seemed to begin to answer some of what made effective leaders, researchers began looking beyond simple traits that leaders possess, and began looking at behaviors that leaders take.

Halpin (1966) for example considered leadership behaviors across the dimensions of 'initiating structure' and 'consideration.' 'Initiating structure' was the leader's behavior in delineating the relationship between him or herself and members of the work group, and in endeavoring to establish well-defined patterns of organization, channels of communications, and methods of procedure. Halpin defined 'consideration' as the

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behavior indicative of friendship, mutual trust, respect, and warmth in the relationship between the leader and the member of his group. More than thirty years later, Robbins (1997) built on Halpin's research, stating that behavioral theory was based on a learned understanding of leadership, meaning that would-be leaders could be taught leadership.

Shortly after Halpin's (1966) research, Fiedler (1967) researched leadership, and offered a contingency leadership model. He believed that leadership style was both innate and immutable. He hypothesized that leadership success was not only a function of the traits a leader had but also was a function of the situation in which the leader operated. Based on his findings, he believed that, because a leader's style was immutable, the only way to affect a leader's effectiveness was to change the situation.

The idea that leadership was contingent on the leader's traits as well as the situation in which the leader found him or herself was further explored in 1973 by Vroom and Yetton. Their research in 1973 and later by Vroom again in 1988 (Vroom and Jago) began to put the focus on the follower. These researchers found that a leader's effectiveness was directly tied to the followers' participation in the decision process, and involved many factors including the followers' knowledge and information, shared goals by the followers', and the nature of the problem.

House (1974) followed Vroom and Yetton's (1973) research by also focusing on the followers' impact to leadership effectiveness. His path-goal contingency model continued the research being done on how followers potentially impact a leader's effectiveness. His theory suggested that leadership behavior towards goal achievement, and the followers' confidence in achieving these goals, created a higher degree of motivation and satisfaction in the follower. Leaders utilizing a path-goal approach are

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highly follower focused. House's model identifies four dimensions of leadership behavior – directive, supportive, participative, and achievement-oriented. In 1996, House updated his path-goal leadership model. He increased from four dimensions to ten the types of leader behavior and their effects on followers.

As shown above, leadership research evolved from Wiggam's (1931) notions of trait theory to Halpin's (1966) and Fielder's (1967) leadership research that focused on the leader's behavior and situations in which the leader found him or herself. Vroom and Yetton (1973) began to focus on the follower's impact to leadership success, and House (1974) continued the growing focus on the follower's impact by offering his path-goal contingency approach.

In 1982, Hersey and Blanchard began converging much of the earlier research together and concluded that the leadership process was a function of three components: the leader, the follower, and situational variables. They focused on a leader's observed behavior and in their interactions with followers in various situations.

Research on the follower's impact to leadership continued to grow after Hersey and Blanchard's (1982) work. Kouzes and Posner (1987), for example, focused on the follower, and identified specific actions of an effective leader which included inspiring a shared vision in the follower as well as inspiring them to act. Wheatley (1992) looked at the process by which leaders appeal to followers' values and emotions, a central feature in theories of transformational and visionary leadership in organizations. He felt that the major characteristic found in effective leaders is their ability to communicate clearly the guiding visions, values, and organizational beliefs.

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Howell and Costly (2001) continued to broaden the research on the how followers impact the effectiveness of leaders. They considered transformational leaders as those leaders that use charismatic behaviors to inspire followers and project a vision that is radically different than the current situation. Perhaps more importantly, these leaders demonstrate strong support of followers that go beyond simply ensuring that work gets done. The leaders show concern for their followers, and in situations where followers are displeased with their current position and feel stressed, these leaders can play an effective mentoring role.

Some of the most recent research on leadership has once again focused on the leader's behavior. Yukl (2002) recently develop a complex model that has four categories of leadership behavior, eleven mid-range behaviors, and multiple specific behaviors. His model posits that leaders take tactical actions in the short term which include setting goals, providing direction, organizing their team's work, and encouraging cooperation. In the long term, the leader has to take the strategic actions to reduce the negative and increase the positive effects of the situational factors.

The research discussed above is a very brief recitation on a few of the research topics and findings, and is offered simply to frame the following discussion on the emerging research on leadership characteristics of leaders of virtual teams, and the situation or conditions affecting virtual team leadership. Accordingly, this review has not examined leadership theory and research that does not focus primarily on leadership characteristics, contingency theory, or participative decision making.

However, and notwithstanding the limited literature review of traditional notions of leadership, two leadership characteristics emerge and on which data will be collected

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from the study's participants. These focus on how communicative and how collaborative the leader is with the team. In the context of this study, communicative is defined as the extent to which the leader actively communicates to and with the team about all matters affecting the team.

Collaborative is defined as the extent to which the leader actively solicits inputs from the team's members, creates alignment on objectives and strategies, and seeks out other team members' opinion about objectives, priorities, and strategies. As will be shown in the following literature reviewed on virtual team leadership, these two characteristics are equally important in a virtual environment, and will be combined with three key characteristics that emerge from virtual team leadership research. These three key leadership characteristics as well as others are discussed below.

Virtual Team Leadership

Research into the leadership characteristics needed in a leader of a virtual team is emerging. Many of those traits noted in the foregoing section are needed in the leader of a virtual team, and the developing research is coalescing into three themes. The first theme focuses on leadership and the necessity of creating a vision for the team. The second theme explores relationship building and developing trust amongst the team members. The third and final theme is technology and its importance to the team.

Leadership and Creating the Vision

Grenier and Metes (1995) believed that virtual teams fail without good leadership. Their research showed that leadership of virtual teams is more demanding than leadership of traditional teams. Successful leaders of traditional teams could fail in leading a virtual team unless their leadership skills are enhanced (Barth, 2003).

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Grenier and Metes (1995) posited that virtual leadership is more than simply functioning in a new or different role. They termed it a performance that can be contagious amongst the team. They believed that good leadership brings out the best practices of followership.

Virtual team leaders, who are tasked with driving a team separated by time and distance, must create a clear vision around which the virtual team members can coalesce (Kiser, 1999). The virtual team leader must develop a common vision for the team that provides a clear and common purpose (Fisher, 2000). The team leader, working with the team, needs to lead the effort to build operating guidelines which provide a common base of shared values and processes for team governance. Lipnack and Stamps (1997) found that purpose encompassed a wide range of terms, including vision, mission, goals, tasks, and results. Leaders must lead the team in understanding the role each team member plays. Role clarification and expectations need to be more explicit in virtual than face-to-face teams.

Solomon (2001) believed that the virtual team leader has the responsibility to create shared knowledge or shared vision. Virtual team leaders have to be able to create a sense of communal experience so that interaction yields creativity and knowledge sharing. Suttling and Wood's (1997) research echoed this finding, stating that the leader must be explicit about the vision, the goals, and the means by which to achieve both. Clearly impacting the leader's ability to lead the team is the role the team members, or followers, play (Kouzes & Posner, 1987). Successful following which enhances virtual team leadership requires cooperative and reliable adherence to the unique and ideal vision of the future. As is true in a traditional team, the leader must clearly articulate the vision.

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Kayworth and Leidner (2000, 2001) noted what they considered to be the main characteristics of an effective virtual team leader. First was communication. An effective virtual leader, they found, engages in timely, regular communication that gives clarity of tasks and provides continuous feedback on performance. Moreover, effective team leaders demonstrate sensitivity to team members' schedules, especially when team meetings require the virtual team member to participate outside normal business hours.

Virtual team leaders are appreciative of team member opinions and suggestions. They show care and concern over team member problems, express a personal interest in team members, and work to develop a personal relationship with each member of the team. The virtual team leader uses a leadership style that engages the team, that is not overbearing, and that shows this consistently through the life of the team.

In addition to creating a clear vision for the team and establishing achievable goals, the virtual leader must create a structure for the team that positions it for success. Kiser (1997) called this structure the 'beams of supports' and must be driven by the team leader. The six beams are:

1. Identification of the team's sponsors, stakeholders, and champions. These are the key players that connect the team to the power brokers within organization.
2. Development of the team charter that includes purpose, mission, and goals. Kiser suggest that this is best done in a face-to-face meeting.
3. Proper selection of team members that include those that are core, extended, and ancillary members.

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4. Engagement of all team members with all other team members, indicating to them why they were selected to participate on the team.
5. Conducting a team orientation session at which the team's goals, objectives, roles, and responsibilities are shared.
6. Development of team processes which detail how the team will be managed and will work together.

Barth (2003) reported that the research on leadership and visioning that virtual team leaders demonstrate relates to the research findings of leadership characteristics, traits, and behaviors of leaders of traditional teams. She cited Kayworth and Leidner's (2000, 2001) research showing that, in the context of contingency leadership theory, the virtual environment can be considered a situational factor that very likely impacts the importance of virtual team leadership roles. Communication, social facilitation, and managing the technical environment are noticeably more important amongst virtual teams that they are on traditional teams.

Barth (2003) also noted that Kayworth and Leidner's (2000, 2001) research also confirmed that more effective leaders were perceived as displaying a wider degree of leadership behaviors which was consistent with the behavioral complexity theory of leadership. These virtual team leaders demonstrated the ability to be understanding and supportive of team members while still remaining assertive and maintaining authority.

Relationship Building and Developing Trust

The first theme found in the emerging body of virtual team leadership research was the general topic of leadership and the necessity for the virtual team leader to be able to communicate a vision to the team. The next theme that comes from the emerging

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literature is the criticality of the leader building a relationship with each team member, and in engendering trust.

Part of effective leadership is building key relationships with people that share vision and purpose (Heofling, 2001). It includes using a myriad of techniques designed to influence and facilitate virtual relationships across time, space, and cultures. Grenier and Metes's (1995) research agrees. They found that the best virtual leaders accomplish their goals through the relationships they build with their team. Similar to Heofling's findings, Grenier and Metes believed that successful virtual leaders have well defined skills of influencing team members, and that these skills often have been developed (Barth, 2003). Grenier and Metes research suggested that organizations should implement a robust development program designed to enhance the skills of virtual team leaders. The program should be comprehensive and include several topics including leadership through decision and influence, creating and sustaining virtual relationships, and introducing virtual technologies in non-threatening ways.

Lipnack and Stamps (1997, 2000) found that building relationships and creating trust amongst all virtual team members was a critical item for virtual teams. They suggested that all virtual team members function as both leaders and followers. Regardless of titles, virtual teams deal with complex problems that are best resolved through shared leadership. Leadership roles are performed by all virtual team members and include acting as coordinators, designers, disseminators, and technology managers. The key to accomplishing these tasks, they found, are the relationships amongst the team members the trust that the team has.

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Dubé and Paré (2001) found that leading a virtual team requires more than working on the project's agenda. Team leaders need to create an atmosphere of trust and build relationships with each team member, being ever mindful cultural differences, communication and language barriers, and discrepancies in technological proficiency.

Lurey and Raisinghani's (2001) research agreed. Of the many factors that lead to a successful virtual team, perhaps the relationships formed between the leader and the team members had the strongest relationship to team performance. Furthermore, member satisfaction with the relationships and trust on the team contribute significantly to the success or failure of a virtual team (Barth, 2003).

The theme of relationship building and trust amongst the team, then, is the second one found in the early literature. The final theme that is emerging from the research done on leadership of virtual teams is the importance of technology.

Technology

The final theme emerging from research of leadership characteristics of leaders of a virtual team address the importance of technology. In the context of the importance of building relationships with team members, and in creating an environment of trust on the team, Solomon (2001) found that leaders, in creating the sense of connectedness and shared space, must implement technology effectively. Equally importantly is for the team to know when to forego technology in favor of using personal communication.

Leaders must be aware of the technological arsenal of tools at the team's disposal (Kiser, 1999), and both the leaders and the team have to learn which is the appropriate technology to use to communicate and collaborate so that individual team members feel connected to one another (Solomon, 2001).

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Avolio's (2000) research focused on another important aspect of leadership, followership, and virtual teaming. The research suggested that followers evaluate the quality of leadership by taking into consideration how leaders use technology to inform, monitor, and make decisions. Essex and Kusy (1999) identified several crucial virtual team leader skills including the leader's proficiency with technical tools.

To summarize, then, the first section of this literature review focused on the research done on the emergence of virtual team as an effective way for corporations to expand their operations. The benefits are many as are the challenges. The second section touched briefly on leadership theories relevant to the research proposed for this study, and went further to discuss the themes emerging from the growing body of research on virtual team leadership characteristics. These emerging themes give rise to three leadership characteristics that participant's in this study will be asked to rank.

As noted above, the leadership characteristics of communication and collaboration are prominent in the research done on traditional leadership characteristics. These also come out of the research done on leadership of virtual teams. But in addition to these two leadership characteristics, three others take on increasing importance in the virtual environment.

The first is the use of technology. For purposes of this study, a leader demonstrates technological skills to the extent to which the leader integrates, uses, and requires the team to use technology to drive the team. The research discussed above highlights the importance of technology.

The second leadership characteristic is the extent to which the leader builds mutual trust, respect, and cooperation amongst the team and the team's members. As

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noted above, Gibson et al. (2002) stated that trust is the glue that holds the virtual team together.

The final leadership characteristic that virtual team members view as important is the extent to which the team's leader creates and shares a vision that directs and drives the team, and that is embraced by all members of the virtual team.

These three leadership characteristics that research has identified as critical to the success of the virtual team will be combined with the two from the research done on traditional notions of leadership to form the five leadership characteristics ranked by this study's participants.

The final section of this literature review focuses on the developing field of followership.

Followership

As discussed earlier in this chapter, there are volumes of research on leadership. It has been, however, only in the last several years that researchers have begun to study how followership affects a leader's success. The discussion below traces the notion of followership from its early roots, through Kelley' (1992) seminal followership study, and finally to the emerging theories of followership.

Early notions of followership characterized individuals in follower roles as subservient to leaders (Hall & Densten, 2002). In the 1920s, managers operated under a leadership model of firmly directing employees to complete tasks (Dixon & Westbrook, 2003). During this time and in succeeding years, the team leader became a pseudonym for a good manager, and followers were thought of as little more than sheep-like subordinates (Dixon & Westbrook, 2003). From childhood, Blackshear (2003) wrote, the

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focus has been on becoming a leader and has been directed away from being a follower. Most early research concluded that organizational and leadership success was generally attributable to the behaviors or personality of leaders rather than followers (Thody, 2003). In this vein, Thody noted that:

> A key to gaining acceptance for followership as a legitimate and important area for study has seemed to lie in finding substitute words. This because in English culture, followership has negative connotations of 'follersheep' and followership. No-one wants to be regarded as one who follows blindly like sheep nor do people in the egalitarian twenty-first century perceive themselves as of lower status to others. Weakness is seen as synonymous with following (Fullan, 1995) and as failure to become a leader (Ouston, 1993) (pp. 143-144).

But these early dismissals of the impact of followers began to change as more researchers began to recognize leadership as being but one component of a framework that could be used to understand the success of organizations. In 1972, Tagliere made perhaps one of the first attempts at classifying the types of followers and their traits. He opined that organizations are comprised of three elements – leadership, followership, and a job to be done.

These 'cells' as he called them could be measured across individual scales to determine each cell's effectiveness. This effectiveness, in turn, would indicate the overall health of the organization. He identified four styles for each of the leadership and followership cells, and four job types. He characterized the leadership styles as the Teller, Seller, Counselor, and Co-worker. He called the four styles of followers the Authority Pleaser, Group Pleaser, Project Pleaser, and Self-Pleaser.

Tagliere (1972) described the Authority Pleaser as one that is considered reliable and that wants clear orders for precise tasks. He will do anything to please the boss, and he likes and respects the leader. This follower type dislikes responsibility but will take it

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to get approval. The leader's approach to this type of follower is to treat the follower in an authoritarian manner.

The Group Pleaser is a team player that likes challenges and goals specified. He can and will work in a variety of group-approval ways to achieve goals. He considers the group as a family, fearing rejection and staying very loyal. This follower is generally very likeable and non-threatening to others.

The third follower type Tagliere (1972) described was the Project Pleaser. This follower type prefers working with things, or on projects, rather than with people. He is the analytical type that cannot effectively deal with many people. He likes everything orderly and predictable, and enjoys turning something complex into a procedure. He avoids close human relationships.

The final type Tagliere (1972) described was the Self-Pleaser. This follower is ambitious and wants to conquer every situation. The only matter of importance to this type of follower is winning. He is a self-starter who likes recognition and can be motivated by it. He is a person that thinks he can conquer the impossible. Tagliere believed that these classifications could help the organization improve.

Tagliere's (1972) study did not appear to touch off further research on the follower types he offered. Researchers continued to note that followership was a component of leadership, but the research did not go far beyond noting that. However, in 1981, Crockett shifted the focus on followership from the leader's perspective to that of the follower. Specifically, he looked at followership from the perspective of how the subordinate could become a better follower.

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Crockett (1981), believing that both the leader and the organization had a vested interest in developing followers, stated that subordinates can and should be more than passive robots to be manipulated and used by bosses. They have the responsibility and the opportunity for making the situation a good one, a win / win for themselves as well as for the boss.

Crockett (1981) posited three overlapping areas or ways for looking at the followership role, and for mapping strategies for making that role more fulfilling and effective to followers. The first area he focused on was the job itself. He opined that being a subordinate was very much like being a steward. As a steward, the follower assumes the responsibility for the well-being of something that belongs to another.

A good steward, Crockett (1981) continued, is dynamic and risk-taking in attending to the work that they have been given. The goal is to create an atmosphere which has a high chance of ending with success for the subordinate as well as for the boss. In order for the relationship to be dynamic, the subordinate must first know what the job is. The greater the ambiguity there is in a job, Crockett suggested, the greater the danger in terms of the subordinate not delivering what the boss really expects. It is essential, then, that the critical success factors of the task be known and understood by the subordinate.

In addition to the subordinate knowing what the job is, Crockett (1981) believed that followership success was dependent on the subordinate knowing how to do the job. Furthermore, he stated that the successful subordinate must aggressively self-examine their skill set in light of the job requirements. Should the subordinate find failings or gaps, they must proactively pursue the professional development they need to meet the

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requirements of the job. Crockett concluded this first area of followership success by stating that the follower ultimately must do the job, and they must do the job well.

Crockett's (1981) second area for looking at the followership role was to focus on the boss-subordinate relationship. He believed this relationship to be a critical factor for success. Moreover, he believed that there is a mutual responsibility on the part of both the boss and subordinate to develop the relationship. From the follower's perspective, Crockett noted several actions the follower could take to enhance the relationship including challenging the boss respectfully on the boss's assumptions and decisions, acting as a trusted advisor by giving quality information, requesting feedback and input on the follower's performance, and giving feedback when asked.

Crockett's (1981) final area in exploring the follower's role was for the follower to focus on themselves. More specifically, he believed that it was critical for the subordinate to take responsibility for their own actions and decisions. Self-management, Crockett suggested, is taking charge of both one's own emotions and behavior so that they are not just reactive robots to every emotional stimulus that becomes activated within them. Crockett believed that this self-management is driven by the follower acquiring self-awareness, meaning that to explore and understand the notion that one's own behavior is often times a direct catalyst of behaviors by others. Crockett concluded by noting the criticality of the follower managing feelings and behavior.

Followership research began to increase, and in 1982, Litzinger and Schaerfer suggested that leadership endured only with a spirit of followership and that followership was the school for leadership. A couple of years later in 1984, Nolan and Harty noted the paucity of research done on followership. From their research, they suggested that there

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were many behavioral traits that were essential to good followership including making their attitudes clear, maintaining standards of performance, informing others as to what is expected of them, treating everyone as equals, being friendly and approachable, and accepting suggestions of others.

Nolan and Harty (1984) went further. They stated that the effective follower recognizes the expectations of others, is prepared to cope with problems, and formulates solutions in so doing. Their conclusions continued to build on the emerging notion that leadership was a phenomenon that could best be understood as a blending of leading and following.

In Barth's (2003) literature review, she reported that in 1988, Kelley introduced his theory on followership in an article in the *Harvard Business Review.* Kelley suggested that the distinguishing characteristics of an effective follower were enthusiasm, intelligence, and self-reliance in pursuit of organizational goals. According to Kelley, effective followers manage themselves well, thus eliminating much of the need for strong supervisory control. In fact, they see themselves as equals with the leaders they follow.

Effective followers, Kelley (1988) reported, are committed to the organization and its purpose, something outside themselves. Effective followers are competent. They hold higher performance standards than the work environment requires, and continuing education is second nature to them. Finally, effective followers are courageous, honest, and credible. They are independent, critical thinkers, who take responsibility for their mistakes and sharing successes. They form their own views and ethical standards and stand up for what they believe in.

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Effective leaders come from the ranks of followers (Lee, 1991). Because of this, he suggested, the qualities that make effective followers are the same qualities found in effective leaders. As such, followers do not want to be treated as inferior and they look to leaders to act as partners in defining direction and creating a path to the future. Effective leaders, Lee concluded, have personal integrity that demands loyalty to both the organization and to the people working for them. But Lee also believed that effective followers take responsibility for their own careers, their own actions and their own development.

The seminal study done on followership was done by Kelley (1992). Kelley opined that the leader's effect on an organization's success was only 10 to 20 percent, and that the organization's true success was from the followership that makes up the other 80 to 90 percent. Without followers, he believed, very little is accomplished in the organization.

Kelley (1992) stated that effective followers can move mountains. Followers at their best participate with enthusiasm, intelligence, and self-reliance in the pursuit of organizational goals. Far from the stereotype of passive sheep, they are linked together by their individual decision to make a personal dream or a common dream become a reality.

Kelley (1992) explored the relationship between followers and leaders, and found that it involves intimacy and personal covenants they make with each other. These roles are complementary, not competitive, paths to organizational contribution. The greatest successes he believed require that the people in both roles turn in top rate performances.

Kelley (1992) posited that good followership requires people who take appropriate actions with great skill and achievement. He discussed his seven paths to

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followership across the axes of expressing oneself to transforming oneself, and relationship bonding and personal goals. His followership model described the seven paths followers take to good followership. The first is functioning as an apprentice, which is the mastery of followership that will prepare and qualify one for leadership. Second is the follower acting as a disciple. This involves a leader passing along a body of knowledge to a follower group of students. Third is the follower becoming a mentee. Kelley noted that mentoring is different from apprenticing in its intensive one-on-one relationship between mentor and follower which enables the follower to mature. The goal of mentoring is personal maturation.

Kelley's (1992) fourth step along the followership path is for the follower to be a comrade. Followers who seek intimacy and social support develop when people bond together. Comradeship is found in any endeavor that requires the effort and talents of more than one person like team sports. The fifth step is loyalist. Followership path of loyalty, like that of comradeship, results from an emotional commitment to another.

Lifeway is the penultimate step (Kelley, 1992). This is the conviction that no other way in life is as rewarding; that following is done out of personal preference and is done as a way of serving others. The final step is the dreamer. Many of best followers are committed to their personal dream rather than to a particular leader. They are so focused on achieving their dream that it does not matter whether they are in the leader or follower role.

On these tenets, then, Kelley (1992) built his model on followership styles:

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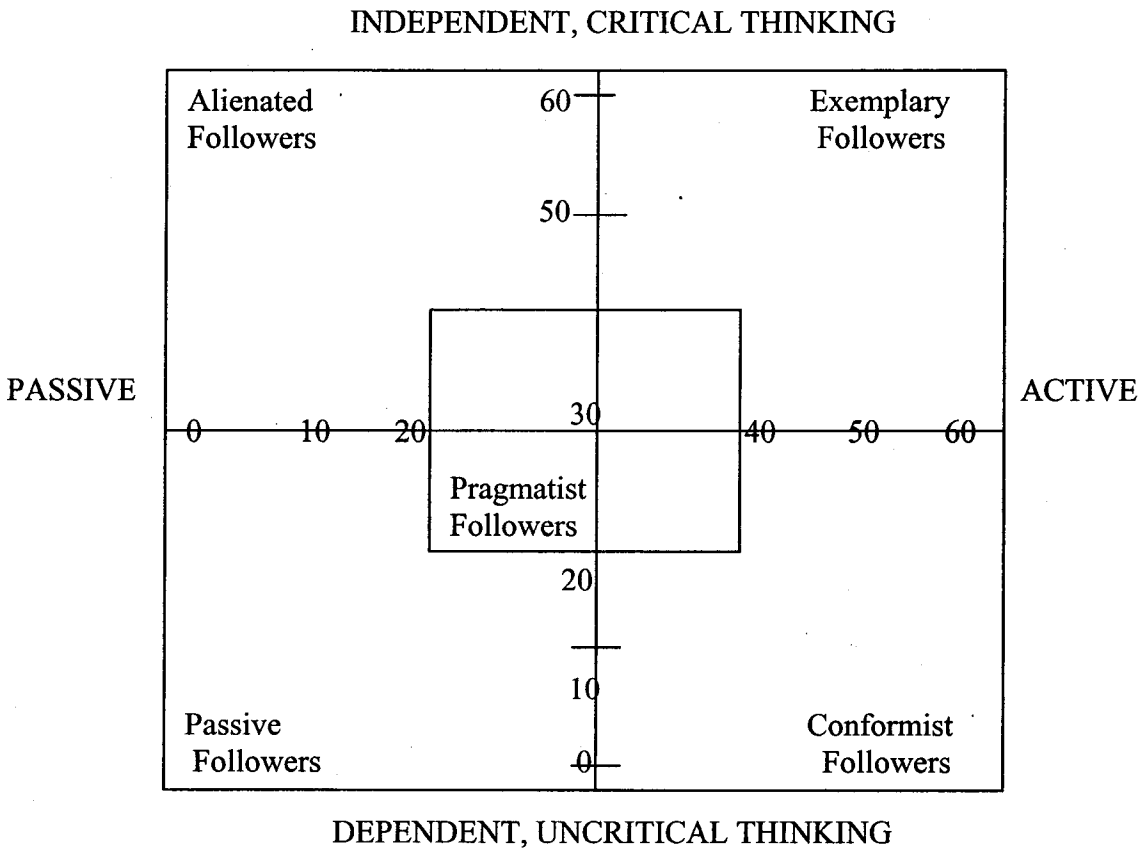

Figure 1. Followership styles.

Kelley's (1992) model measures followership style across the two dimensions of critical thinking and passive / active engagement. Kelley posited that the juxtaposition of these two dimensions forms the basis upon which people classify into the following five followership styles:

1. Alienated follower is characterized by one whose positive self-image makes them a maverick who thinks only for himself. This follower has a chip on his shoulder and a rebel without a cause personality. Leaders view this type of follower as troublesome, cynical or negative.
2. Conformist follower is the opposite of alienated, and is characterized by being eager to take orders, to defer to leader's authority, and to yield to the leader's

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views and judgments. A conformist lacks an informed intellect. Leaders view this follower's positive attributes as accepting assignments easily, gladly doing the work, team playing, trusting, committing, and being non-threatening to the leader.

3. Pragmatist follower is characterized as someone that sees the positive aspects of his followership style as: being attuned to the shifting winds of organizational politics, knowing how to work the system to get things done, keeping things in perspective, toeing the middle line so as to keep them from going overboard in either direction, and playing by the rules and regulations. Leaders sometime interpret these in negative light and see the follower as playing political games and bargaining to maximize own self-interest.
4. Passive follower is characterized by the belief that he should rely on leader's judgment and thinking. This follower takes action only when the boss gives instructions. His philosophy is to let the people who get paid for it handle the headaches. Leaders criticize this type of follower's performance because it appears that the follower puts in only the required time and little else.
5. Exemplary follower is characterized by independent, critical thinking. He is actively engaged, applying his talents for the benefit of the organization even when confronted with bureaucratic inanities. He values focusing on the goal, doing a great job on critical path activities related to goal, taking initiative to increase value to organization, and realizing that he adds value not just by going above and beyond their work but in being who he is.

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The conclusion of Kelley's (1992) study was that followers weave a web of relationships. The best followers know how to get along with co-workers and leaders in ways that benefit organization.

Chaleff (1995, 2003) built on Kelley's research on followership by stating that subordinates should become courageous followers. Courageous followership, he believed, is built on the platform of the courageous relationship – the courage to be right, to be wrong, and to be different from each other. His research offered five different types of courage that would give the follower courageous followership:

1. Courage to assume responsibility for themselves and the organization. A courageous follower takes the responsibility for self-development and for the development of the organization.
2. Courage to serve. Courageous followers are not afraid of the hard work required to serve others. They do so to conserve a leader's energy. Courageous followers help leaders make choices about demands that push their personal and professional lives out of balance. They are willing to both comfort and confront the leader, to assume responsibilities to relieve the leader, or to initiate dialogue to help the leader examine their own contribution to the overload.
3. Courage to challenge. Courageous followers give voice to the discomfort they feel when the behaviors or policies of the leader or group conflict with their sense of what is right.
4. Courage to participate in transformation. When behavior that jeopardizes the common purpose remains unchanged, courageous followers recognize the

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need for transformation. The process of personal transformation include: self-organizing processes, discomfort, threat and crisis, resistance, developing understanding, willingness to experiment, and integration.

5. Courage to take moral action. Courageous followers know when it is time to take a stand that is different than that of the leader's.

Chaleff (1995, 2003) then looked at followership from the leader's perspective, and described the courage of the leader to listen to followers. This explored the leader's responsibility to support the conditions of courageous followership and to respond to acts of courageous followership. He felt that leaders must challenge themselves as to whether they genuinely value acts of courageous followers. As Chaleff saw it, the challenge for leaders is to see past the immediate discomfort being confronted and to value the larger picture of how they and the common purpose are served by the willingness of the follower to raise sensitive issues.

Recent research that has followed in the wake of Kelley's (1992) and Chaleff's (1995, 2003) research has attempted to expand their conclusions. In 2000, Madera found that if no one is following, then no one is truly leading; that having followers is essential to the success of any leader. Good followers, she noted, are as essential as good leaders. Moreover, it is important to be able to play the role of both the follower and the leader. Truly good leaders are good followers, she concluded, and they have powerful interpersonal skills and strong teaming skills.

Hall and Densten (2002) believed that good followership involves risk-taking on a scale beyond that found for yes-people or sheep. They found that good followership requires individuals to make decisions, commit resources, and act independently of their

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superiors' instructions. They noted that followers acting independently could endanger not only the follower, but also the leader and the organization as well. They suggested an area for further research was to model the interaction between the leader and follower in a way which allows for risk to be related not just to the prospects of a given decision but also the reaction of the leader to outcomes.

Townsend (2002) stated that leading, following, and working as a team are interrelated concepts. It is especially important with teamwork to understand the range and interplay of the combination of the relationship. He characterized passive followership as the form of followership practiced "by a potato when the end of the string is being pulled by a child" (p. 16). Active followership – the desired form of followership – occurs when a follower interacts with his or her leader to insure understanding and success. Quoting from the United States Army Infantry magazine, Townsend offered the following leadership principles (p. 17):

1. Know yourself and seek self improvement.
2. Be technically and tactically proficient.
3. Comply with orders and initiate appropriate actions in absence of orders.
4. Develop a sense of responsibility and take responsibility for your actions.
5. Make sound and timely decisions or recommendations.
6. Set the example for others.
7. Be familiar with your leader and his job, and anticipate his requirements.
8. Keep your leaders informed.
9. Understand the task and ethically accomplish it.
10. Be a team member, but not a yes man.

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Townsend concluded that leadership, teamship, and followership are not all that distinct from each other – skill at one is preparation to be skilled at another.

Some of the most recent research has focused on the social contract between the employee and employer. Dixon and Westbrook (2003) based their research on the idea that as part of organizational cultural change, the social contract between employees and employers was also changing. Resources, discretion, and responsibility, they noted, were being pushed lower in the organization as leaders sought greater productivity and lower overhead. This dynamic was causing a change in the social contract between employer and employee.

In their research, Dixon and Westbrook (2003) sought to address the nature of the influence of organizational level on attributions of followership. Their research suggested several things. First, follower behaviors were measurable. Second, courageous followers exist in organizations, which seemed to validate Chaleff's (1995, 2003) research on courageous followers. Next they found followership discernable at all levels of the organization. They also found that attributions of followership were influenced by the organization.

On this, they specifically found that the executive level possessed the highest conceptual understanding and acknowledgment of follower behaviors, that the operation level possessed the lowest conceptual understanding and acknowledgment of follower behaviors, and that the supervisor and middle manager levels possessed similar levels of understanding and acknowledgment of follower behaviors. Lastly, they found that followership increases with level of hierarchy. Their research offered several application

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opportunities including organizational assessment, personal development, supporting norms, supporting structures, recruiting, retention, and personnel development.

Blackshear (2003) stated that the workplace is mainly comprised of followers who act in variable roles. Followers sometimes act as leaders and leaders sometimes act as followers. Even so, she said, followers in organizations represent an organizational asset that has long been undervalued. But no organized effort can succeed and be sustained without followers.

Highly functioning followers make the difference between highly functional organizations and mediocre organizations (Blackshear, 2003). Her research offered the followership continuum that showed the progression employees go through toward becoming an exemplary follower. In Stage One, the employee joins an organization, providing work in return for some form of pay. At Stage Two, the employee becomes a committed follower, where the employee becomes bound to the organization's mission or idea, or has an internal pledge to an effort or person.

At Stage Three, the person becomes an engaged follower where the person is an active supporter and is willing to go above and beyond the routine. The effective follower is Stage Four where the person is capable, dependable, and reliable. Finally, the follower becomes exemplary at Stage Five. Here, the follower could easily be the leader, but sets ego aside and works effectively to support the leader. Blackshear posits that the followership continuum is an organizational development model that can be used as a gauge for measuring and developing employee performance.

The research discussed above shows the increasing emphasis of the follower on the leader's effectiveness. Early research suggested that the follower was viewed as

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nothing more than one to be directed on task. Later, researchers pondered whether the follower had some impact on the leader's and organization's success. Over the past two decades, the research is not only validating the follower's importance in the leader's and organization's success, but it is also showing that there are many types of different followers. Each type of follower has a different impact on the leader and organization.

The research discussed in this chapter centered on the three work group components of work done in a virtual environment – virtual teams, leadership, and followership. From the limited discussion of the traditional notions of leadership and the review of the emerging research on leadership in virtual teams came five leadership characteristics that will be rank by the study's participants.

The first two – communication and collaboration – came from research on the traditional notions of leadership (although as the research shows, these two are equally important in a virtual environment). The other three came from the emerging body of research on the leadership characteristics needed on a virtual team. As previously stated, and as is more fully explained in Chapter Three below, participants in this study will be asked initially to rank, in order of importance, these five leadership characteristics. They will then be asked to identify what they perceive is the most important characteristic to a manager in each of the four geo-cultural regions.

Restatement of the Problem and Research Question

As stated in Chapter One, the proposed research will seek to answer the following question: is there a relationship between geo-cultural identity and leadership character preference of followers in a virtual environment. To answer this broad question, the following enabling questions have been developed to guide the research:

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1. Of the five main leadership characteristics identified in the leadership research above, how do virtual team members from each of the four geo-cultural regions rank, in order of importance, the five characteristics?
2. Of the five main leadership characteristics identified in the leadership research above, what is the single most important leadership characteristic to a manager in each of the four geo-cultural regions as is perceived by the virtual team member?
3. Do the leadership characteristic preferences vary by and among the geo-cultural regions of North America (NA), Latin America (LA), Europe (defined as the 25 countries that comprise the European Union [EU]), and Asia Pacific (defined as the ten countries that comprise the Association of Southeast Asian Nations [ASEAN] plus China, India, Japan and South Korea)?

The literature review in this chapter does not answer the research problem and does not provide data with which to answer the research question. To answer the research question and to address the research problem, original data will need to be gathered. The research methodology that will be initiated is fully described in the succeeding chapter. This study will not offer any propositions; thus, the research will be exploratory in nature.

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CHAPTER 3: RESEARCH METHODOLOGY

The problem for the present study is to determine whether there exists a relationship between geo-cultural identity and leadership character preference of followers in a virtual environment. As noted above, there are three enabling questions to guide the research::

1. Of the five main leadership characteristics identified in previous research, how do virtual team members from each of the four geo-cultural regions rank, in order of importance, the five characteristics?
2. Of the five main leadership characteristics identified in previous research, what is the single most important leadership characteristic to a manager in each of the four geo-cultural regions as is perceived by the virtual team member?
3. Do the leadership characteristic preferences vary by and among the geo-cultural regions of North America (NA), Latin America (LA), Europe (defined as the 25 countries that comprise the European Union [EU]), and Asia Pacific (defined as the ten countries that comprise the Association of Southeast Asian Nations [ASEAN] plus China, India, Japan and South Korea)?

This chapter provides detail on the methodology that will be used to explore the relationship, that will seek to answer the research question, and that will seek to address the research problem.

Research Design

The general purpose of this study is to explore the relationship, if any, between variables. Specifically, the study will attempt to assess whether there exists a relationship

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between geo-cultural identity and leadership character preference of followers in a virtual environment. An experimental design, while desirable, would be difficult to implement. The researcher would have to identify potential participants and then randomly assign those participants to groups or conditions. Furthermore, the independent variable in this case would need to be active and controllable by the researcher. This will not be the case in this study.

It is proposed, therefore, that this study take a non-experimental, comparative approach. In this research approach, the participants are not randomly assigned by the researcher to groups. Instead, the participants are taken as they are, and the relationships within and / or between the groups are analyzed. In this case, and as is more fully described below, the study's subjects will be followers in each of the four geo-cultural regions who rank, in order of preference, their preferred leadership characteristics, and then indicate what they perceive the managers in the other regions would indicate as their single most important leadership characteristic.

Subjects

The subjects for this research will be individuals who have all of the following characteristics. First, they are individuals that work for a multi-national company. For purposes of this study, a multi-national company is defined as a company that has a significant presence in two or more of the geo-cultural regions identified in this study. Second, they are individuals who are characterized as virtual workers. For purposes of this study, an individual is considered a virtual worker, or a virtual team member, if they are one of a group of people who work interdependently with shared purpose across

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space, time, and organizational boundaries using technology to communicate and collaborate.

The potential subjects will be offered the opportunity to participate in the study through an e-mail sent to them probably by their human resource manager. The content of this e-mail will give a brief explanation of the study, and will provide a Uniform Resource Locator, or URL, that, when clicked on, directs them to the survey on a secure web site. The e-mail will be non-coercive in nature, and one that encourages potential subjects to participate. It does, however, share the goals and objectives of the study and the potential benefits.

Instrument

The Leadership Characteristic Survey (LCS) was developed by this researcher and asks the subject to rank, in order, their leadership characteristic preferences. It allows subjects to indicate the single leadership characteristic they perceive is most important to their manager and to managers with other geo-cultural identities. The LCS gives the subjects information needed to complete the survey.

First, the LCS introduces the subject to the purpose of the study. This section provides a short background on the study's importance and how their input will help. Second, the study gives definitions that provide grounding and framing, and that will help the subject through the LCS. Finally, detailed instructions are given to the subject to guide them through completing the LCS.

These instructions begin with asking the subject to indicate with which geo-cultural region they identify. The subject should use the definitions provided in the definition section. The subject is then asked to rank in order of importance, from one to

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five, their preferred leadership characteristics. Once again, the subject should use the short description of each of the five leadership characteristics to guide their assessment. The five leadership characteristics identified by previous research appear to be those most critical to the success of a virtual team.

The subject is then asked to identify their manager's geo-cultural identity and to indicate their perception or belief of the single leadership characteristic most important to their manager. Finally, the subject will indicate the same for a manager from the other three geo-cultural regions.

Measurement validity denotes the degree of adequacy of a particular measurement in respect to the reality it aims to measure. It refers to the magnitude of errors within the measurement situation and is about the confidence there is that the instrument is measuring what it purports to be measuring. Content validity of the LCS will be established by seeking the cooperation of at least three experts in the field of leadership to review the LCS's content and to render an opinion on whether the instrument measures what it purports to measure. The LCS appears to have face validity.

External validity seeks to answer two questions: first, is the sample under study representative of a larger population, and second, do the variables used have ecological representativeness and can be generalized to the larger population? The researcher anticipates that the subjects will, in fact, come from the larger population of virtual team workers. However, the researcher is not assured that the responding subjects will be representative of the larger population. The researcher also anticipates that there will be ecological external validity; however, the researcher cannot be assured that the results of the study will be generalizable to the larger population.

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Data Collection

The subjects for this study will be contacted via an e-mail that will be sent by the company's human resource department. The e-mail request will give a very brief background of the study and its purpose, and will ask the subjects to consider participating in the study which should take no more than 5 minutes to complete.

The e-mail will also contain a link to a Colorado State University School of Education web site that, when clicked, will bring up the survey. The potential subjects will be able to access the survey only through this link so that individuals unrelated to the study cannot access the web site and corrupt the results. The only individuals who will have access to the server on which the web site resided will be Dr. Donald Quick, Research Associate IV in the School of Education who will establish the site and the process by which the researcher receives the responses, and the administrator of Academic Computing and Networking Services at Colorado State University. The researcher will not have direct access to this site.

Once at the site, the subjects will anonymously complete the LCS. It is anticipated that the submission of each subject's response will generate an e-mail to the researcher with answers to the questions as a text file devoid of all identifying information (IP addresses, e-mail addresses, etc). Thus the anonymity of all participants will be assured and access to identifying characteristics of the subjects will not be available to the researcher.

Once the data is collected, the researcher most likely will analyze the differences between and within the regions using the analysis of the variance, or ANOVA. This will

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be used to assess significant differences in the responses both within and between each and all regions.

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CHAPTER 4: RESULTS

Introduction

The increase in the number of teams working in the virtual environment, across time zones, geographies, and cultures, formed the basis of this study that sought to understand the relationship between a follower's geo-cultural identity and the leadership characteristic preference in a virtual environment. The study's context was virtual teams and virtual team members.

For purposes of this study, a virtual team was defined as a group of people who work interdependently with shared purpose across space, time, and organizational boundaries using technology to communicate and collaborate (Lipnack & Stamps, 1995). A virtual team member was defined as an individual that is one of a group of people who work interdependently with shared purpose across space, time, and organizational boundaries using technology to communicate and collaborate.

Geo-cultural identity was defined as the global region from which a virtual team member originally comes. For purposes of this study, the following four geo-cultural regions were specified:

a. *North America (NA)* – the region that contains the United States and Canada.
b. *Latin America (LA)* – the region that contains the individual countries in Latin and South America including, but not limited to, Mexico, Puerto Rico, Brazil, and Argentina.
c. *Europe* – the region that contains the 25 countries that comprise the European Union (EU).

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d. *Asia Pacific* – the region that contains the ten countries that comprise the Association of Southeast Asian Nations (ASEAN) plus China, Japan, India and South Korea.

Followership was defined as the interactive role that individuals assume that contributes to the success of group performance and supports, or fails to support, leadership behaviors (Howell & Costly, 2001). To answer the research question, companies were approached and asked whether they would participate in this study. For those that agreed to participate in this study, a link was provided to an on-line survey (more fully described below) which in turn they could to send to as much of their employee base as was practical or desired. Data was gathered from participants who received this link and that either previously worked for, or currently works on, a virtual team.

This chapter will report the results of the data gathered. The following chapter will put the results in the context of what was sought, was what learned, and what can be learned from further research into this subject.

Companies Approached to Participate

Companies approached to participate in this study are categorized in Appendix A. These categories, and the companies approached in each, were chosen at random and were in the pool of potential companies because of their global presence and the likelihood of their establishing and utilizing virtual teams.

Three different techniques were used to contact the human resource manager at each company. This manager was presumed to be the best contact to gain access to the company's employee base, to introduce the study's subject matter, to answer their

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questions, and hopefully to gain their agreement to have the company's participation in the research.

The first technique used was to call the corporate headquarters and to be passed along to the human resource person. The second technique used was to call the human resource manager directly. The final technique was to contact a person in the company known to the researcher and ask that person for the human resource manager's contact information. The results of this effort are reported more fully below.

Survey Instrument

Once the human resource manager's questions were answered and their concerns addressed, the following e-mail message was sent:

> "Thank you [HR manager's name] for your time today. I appreciate [company's name] participation in this research project we discussed. Please include the following text in your message to your employees. Thank you once again."

This e-mail to the human resource manager included the following message. This message was asked to be included in the human resource manager's message to those employees who would participate in this study:

> "You have been selected to participate in a brief on-line survey. This survey is from a Colorado State University Ph.D student. Your participation is completely voluntary, and your decision whether or not to participate will not in any way affect your job status. The survey should take fewer than 5 minutes to complete. The study's focus is on work done in a virtual

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environment. To learn more, click on the following link. [link to the survey inserted here]"

Participants who chose to participate in the survey where taken initially to a letter that described the research in greater detail (see Appendix B). After reading the letter, if the employee chose to participate in the survey, they would click on the words in this letter "Go to Survey" and were taken to the survey itself.

The survey developed by the researcher and used to gather information was the Leadership Characteristic Survey (LCS) (See Appendix C). At the top of the LCS were detailed instructions given to the participant to guide them through completing this survey. These instructions begin with asking the subject to indicate with which geo-cultural region they identify. Definitions for their geo-cultural identity were provided.

The participant was then asked to identify their region, to name their country, to name their manager's region, and to name their manager's country. The participant was then asked to rank in order of importance, from one to five, their preferred leadership characteristics. These characteristics were identified and defined as follows:

a. *Communicative* – the extent to which the leader actively communicates to and with the team about all matters.
b. *Technological* – the extent to which the leader integrates, uses, and requires the team to use, technology to drive the team including by not limited to e-mail, web casts, electronic white boards, etc.
c. *Trust / Relationship Builder* – the extent to which the leader builds mutual trust, respect, and cooperation amongst the team and the team's members.

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d. *Visionary* – the extent to which the team creates and shares a vision that directs and drives the team, and that is embraced by all members of the virtual team.

e. *Collaborative* – the extent to which the leader actively solicits inputs from the team's members, creates alignment on objectives and strategies, and seeks out other team members' opinions about objectives, priorities, and strategies.

The participant was then asked to identify their manager's geo-cultural identity and to indicate their perception or belief of the single leadership characteristic most important to their manager. Finally, the participant was asked to indicate the same for a manager from the other three geo-cultural regions.

Lastly, the participant was asked to indicate their gender and the age range in which they fell. They also were offered the opportunity to opine on what they thought made a virtual team succeed or fail.

A separate version of the survey was created for a company in the high technology category. The company agreed to participate provided that the age and gender questions were removed per the company's policy. It was explained to the company's human resource manager that all responses contained no identifying information, that all responses were confidential, and that therefore it was not necessary to remove the age and gender questions. The human resource manager at the company understood this but nonetheless required the questions eliminated. This was done and the company participated.

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After completing the survey, the participants clicked on a "Submit" button which sent their responses to the researcher's Colorado State University (CSU) e-mail. An example of a response and its form follows:

na,United States,na,United States,4,5,2,1,3,TRB,Vis,Tech,TRB,1 5,[comment]

All responses were completely confidential, containing no identifying information about the participant or the participant's company. The information contained in each response was as follows: the geo-cultural region with which the participant identified, their country, the geo-cultural region with which they believe their manager identified, the manager's country, their leadership characteristic ranking from one to five, the key leadership characteristic they believe is associated with a North American manager, a Latin American manager, an Asia Pacific manager, and a European manager respectfully, and finally comments, if any, they offered to the research question.

Each response was then reviewed and accepted either wholly or partially as a valid, usable response. Those accepted as wholly usable where ones where the participant properly responded to each of the survey's questions. Those accepted as partially usable were ones where the participant improperly responded to a portion of the survey, such as ranking a leadership characteristic multiple times using the same number, but correctly responded to the other portions of the survey. Typically in those cases, the usable portion of the survey was the answer to the final question.

The responses were then coded for use in the statistical software program SPSS and inputted into the software for analysis. In the following sections, the research and

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enabling questions are revisited, the results of the data reported and analyzed, and the implications to the research and enabling questions discussed.

Research Question Repeated

As stated above and in Chapter One, the study sought to answer the following question: is there a relationship between a follower's geo-cultural identity and the leadership characteristic preference in a virtual environment? As will be discussed below, most of the data came from North American participants. Thus, insights into the research question and the following enabling questions, to the extent insights could be given, were based principally from those participants.

To give the data gathered more meaning, the first enabling question will be modified. The original words in the question will be shown as stricken and the new words underlined.

The enabling questions developed to guide the research were:

1. Of the five main leadership characteristics identified in previous research, how do virtual team members from <u>all</u> ~~each~~ of the four geo-cultural regions <u>combined</u> rank, in order of importance, the five characteristics?
2. Of the five main leadership characteristics identified in previous research, what is the single most important leadership characteristic to a manager in each of the four geo-cultural regions as is perceived by the virtual team member?
3. Do the leadership characteristic preferences vary by and among the geo-cultural regions of North America (NA), Latin America (LA), Europe (defined as the 25 countries that comprise the European Union [EU]), and Asia Pacific

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(defined as the ten countries that comprise the Association of Southeast Asian Nations [ASEAN] plus China, India, Japan and South Korea)?

Results

Type of Participants and Demographics

The survey was used to gather, from virtual team members in each of the four geo-cultural regions, data on what they believed were the most important leadership characteristics of managers who lead virtual teams, and the single most important characteristic they believed was important to a virtual team leader in each of the geo-cultural regions. The participants were also given the opportunity to opine on what makes a virtual team succeed for fail.

Over thirty companies were contacted from the categories in Appendix A and asked to participate in the survey. Twenty indicated that they would participate, although it was unclear what the extent to which each would, and did in fact, participate. In some cases, the company stated that it would seek wide participation, searching for virtual teams with members from all geo-cultural regions. In other cases, the company indicated that it would seek only a few participants.

When the data collection effort ended, a total of seventy-seven responses were received to the survey. Of those, sixty-two were deemed to be wholly usable and fifteen were deemed to be partially usable.

Those deemed wholly usable were so because the participant answered all questions and properly ranked the leadership characteristics. Those deemed partially usable were so because the participant improperly ranked the leadership characteristics, typically using the same rank for multiple leadership characteristics. This part of the

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response was discarded. The portion usable from those responses was the comment, if any, the participant provided to the final question.

Of the sixty-two wholly usable responses, fifty-five included responses to the questions of age and gender. Seven of the participants did not have responses to age and gender. This was because, as noted above, one of the companies in the high technology category chose to participate on the condition that the age and gender questions were removed from the survey.

Participants' Geo-Cultural Grouping, Gender, and Age

Table 1 shows the distribution of respondents by geo-cultural region. There were no respondents from Asia Pacific. Insight into this lack of response is discussed in Chapter Five.

Table 1

Distribution of Participants' Geo-Cultural Region

Ranking	Frequency	Percent
North America	49	79.1
Latin America	10	16.1
Asia Pacific	0	0
Europe	3	4.8
Total	62	100

The distribution of participants in the table above is skewed heavily to North America. Latin America had some participation. Europe had minimal participation, and as noted above, Asia Pacific had none.

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Slightly more males participated in the survey than did females. The missing responses are from the second survey prepared and used to appease the aforementioned concerns of one of the companies in the high technology category.

The following Table 2 shows the distribution of respondents according to gender.

Table 2

Distribution of Participants' Gender

Gender	Frequency	Percent	Valid Percent
Male	29	46.8	52.7
Female	26	41.9	47.3
Missing	7	11.3	
Total	62	100.0	100.0

Table 3 shows the distribution of the respondents according to their age. There were no responses from participants under the age of twenty-one. Three participants between twenty-one and thirty responded and fifteen between thirty-one and forty provided answers.

The largest number of responses, twenty-one, came from participants between the age of forty-one and fifty. There were eleven responses from those aged between fifty-one and sixty while five participants were over sixty-one. Similar to the missing gender responses, the seven missing responses are from the second version of the survey used to appease the high technology company's concerns.

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Table 3

Distribution of Participants' Age

Gender	Frequency	Percent	Valid Percent
< 21	0	0.0	0.0
21 to 30	3	4.8	5.5
31 to 40	15	24.2	27.3
41 to 50	21	33.9	38.2
51 to 60	11	17.7	20.0
> 61	5	8.1	9.1
Missing	7	11.3	
Total	62	100.0	100.0

Participants' Managers

Because the research and enabling questions focused on management of virtual teams and on the perceived most important characteristic to a leader in each of the geo-cultural regions, the respondents were asked to identify from which region their manager came.

Table 4 below shows the distribution of participants and the actual region from which their manager comes. Of the forty-nine North American participants, forty-five reported that they had a manager from North America, one reported that they had a Latin American manager, two had an Asia Pacific manager, and one had a European manager.

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Three of the Latin American participants reported having a North American manager while seven had a Latin American manager. All three European participants had North American managers.

Table 4

Distribution of Participants and Their Actual Manager's Region

Participant	North American Manager	Latin American Manager	Asia Pacific Manager	European Manager
North America	45	1	2	1
Latin America	3	7	0	0
Asia Pacific	0	0	0	0
Europe	3	0	0	0
Total	51	8	2	1

Participants' Ranking of Leadership Characteristics

After the participants identified the geo-cultural region from which they and their manager identified, the participants were then asked to rank in order of importance to them, from one to five, these leadership characteristics: Communicative, Technological, Trust / Relationship Builder, Visionary, and Collaborative.

Participants were asked to use each ranking number only once. Sixty-two of the total seventy-seven participants properly ranked the five leadership characteristics. Table 5 shows the distribution of the sixty-two participants' rankings.

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Table 5

Distribution of All Participants' Ranking of the Five Leadership Characteristics

Rank	Com	%	Tec	%	TRB	%	Vi	%	Col	%
First	27	43.5	0	0.0	22	35.5	10	16.1	4	6.5
Second	15	24.2	2	3.2	15	24.2	14	22.6	15	24.2
Third	12	19.4	5	8.1	16	25.8	10	16.1	19	30.6
Fourth	8	12.9	8	12.9	8	12.9	17	27.4	21	33.9
Fifth	0	0	47	75.8	1	1.6	11	17.7	3	4.8
Total	62	100.0	62	100.0	62	100.0	62	100.0	62	100.0

Note. Com = Communicative; Tec = Technological; TRB = Trust / Relationship Builder; Vi = Visionary; Col = Collaborative.

Descriptive Statistical Analysis

Reading the table from left to right beginning with the Communicative leadership characteristic, over forty-three percent of the participants ranked this characteristic first, and over sixty-seven percent of the participants ranked it in the top two of the five leadership characteristics.

The necessity of the leader having technical skills, on the other hand, was ranked fifth by over seventy-five percent of the participants. Over thirty-five percent of the participants ranked Trust / Relationship Builder first with over eighty-five percent of the participants placing this characteristic in the top three. The Visionary leadership characteristic was ranked fourth by over twenty-seven percent of the participants and the Collaborative leadership characteristics were ranked as fourth by close to thirty-four percent of the participants.

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Inferential Statistical Analysis

The first enabling question, as modified from the way in which it was originally phrased, asked for a combined ranking of the leadership characteristics by participants in all geo-cultural regions. Inferential statistical analysis was done to determine whether there were any significant differences between the rankings of all participants.

The first test was done to determine whether there was a statistical difference in the rankings of the five leadership characteristics. The second test was done to determine whether there was a statistical difference between how the North American and Latin American participants ranked the leadership characteristics. The results of the second inferential statistical test are reported later in this chapter.

Because the number of participants was relatively small and the sample sizes unequal, non-parametric statistics were used to compare the rankings by these two participant groups. Europe was not included due to the minimal number of responses received from that region.

A Friedman test was conducted to assess if there were differences among the mean ranks of the leadership characteristics, χ^2 (4, N = 62) = 103.99, p = .01. Table 6 shows the mean ranks of the five leadership characteristics and the asymptotic significance. Because the participants were asked to rank the leadership characteristics in order of importance from one to five, with a rank of one indicating a higher importance, a lower mean rank indicates a higher level of importance of the leadership characteristic. An asymptotic significance of $p < .01$ or lower indicates that there are significant differences among the rankings of the five leadership characteristics.

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Table 6

Mean Ranks of the Five Leadership Characteristics

Leadership Characteristic	Mean Rank
Communicative	2.02
Technological	4.61
Trust /.R'Ship Building	2.21
Visionary	3.08
Collaborative	3.07
Asymp. Sig.	.000**

** $p < .01$

The result of the Friedman test indicates that there are significant differences in how the participants rank, in order of importance, the five leadership characteristics.

Because the Friedman test returns only an omnibus significance level, to determine which significant differences exist in the rankings of the five leadership characteristics, a set of post-hoc Wilcoxon tests was conducted between pairs of characteristics. All combinations of pairs were tested.

The comparison tables that show the positive and negative ranks together with the ties are reported in Appendix D. The tables that report both the *Z* value and the asymptotic significance level are included in this chapter and are discussed below.

The first comparison was between the Communicative leadership characteristic and the other four leadership characteristics. The statistical significance of the set of comparisons is reported in Table 7.

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Table 7

Wilcoxon Test Results Comparing the Communicative Leadership Characteristic Against the Other Four Leadership Characteristics

	Technological – Communicative	Trust Relationship Builder - Communicative	Visionary - Communicative	Collaborative - Communicative
Z	-6.908[a]	-.812[a]	-3.369[a]	-4.307[a]
Asymp. Sig. (2-tailed)	.000**	.417	.001**	.000**

a. Based on negative ranks
** $p < .01$

Table 7 reports three statistically different rankings and one insignificant ranking. Participants statistically ranked differently the importance of Communicative versus Technological leadership characteristic. All sixty-two participants ranked Technological as less significant than Communicative.

Forty-three of the participants ranked Visionary as statistically less important than the Communicative leadership characteristic and forty-five participants ranked Collaborative as statistically less important than Communicative. Finally, there was no significant difference in how the participants ranked Communicative versus Trust / Relationship Builder. Thirty-four participants ranked Trust / Relationship Builder as less important than Communicative.

The direction of the data suggests that participants believe that it is more important for a virtual team leader to demonstrate stronger communicative skills than technological, visionary, or collaborative skills. Because there was no statistical difference between Communicative and Trust / Relationship Builder, the data suggests

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that participants believe it to be equally important for a virtual team leader to be communicative and to build trust and strong relationships with and among the team.

A set of post-hoc Wilcoxon tests was run again comparing the Technological leadership characteristic against the remaining three leadership characteristics. The statistical significance of the comparison is reported in Table 8.

Table 8

Wilcoxon Test Results Comparing the Technological Leadership Characteristic Against the Other Three Leadership Characteristics

	Trust / Relationship Builder – Technological	Visionary - Technological	Collaborative - Technological
Z	-6.504[a]	-4.926[a]	-5.915[a]
Asymp. Sig. (2-tailed)	.000**	.000**	.000**

a. Based on positive ranks
** $p < .01$

Table 8 reports a statistical difference between the Technological leadership characteristic and each of the other leadership characteristics. Fifty-six of the participants ranked Trust / Relationship Builder as more significant than the Technological leadership characteristic.

Forty-nine of the participants ranked Visionary as statistically more important than the Technological leadership characteristic with thirteen ranking Technological as statistically more important than Visionary. Finally, fifty-seven participants ranked Collaborative as statistically more important than the Technological leadership characteristic.

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The direction of the data suggests that participants believe that it is more important for a virtual team leader to demonstrate stronger trust / relationship building, visionary, and collaborative skills than technical skills.

A third set of post-hoc Wilcoxon tests was run comparing the Trust / Relationship Builder leadership characteristic against the remaining two leadership characteristics. The statistical significance of the comparison is reported in Table 9.

Table 9

Wilcoxon Test Results Comparing the Trust / Relationship Builder Against the Other Two Leadership Characteristics

	Visionary – Trust / Relationship Builder	Collaborative - Trust Relationship Builder
Z	-3.551[a]	-3.351[a]
Asymp. Sig. (2-tailed)	.000**	.001**

a. Based on negative ranks
** $p < .01$

Table 9 reports a statistically different ranking between the Visionary and Trust / Relationship Builder leadership characteristics, and between the Collaborative and Trust / Relationship Builder leadership characteristics.

Forty participants ranked Visionary as less significant than the Trust / Relationship Builder leadership characteristic and forty-nine of the participants ranked Collaborative as statistically less significant than Trust / Relationship Builder. The direction of the data suggests that participants believe that it is more important for a virtual team leader to demonstrate stronger trust / relationship building than either visionary or collaborative skills.

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A final set of post-hoc Wilcoxon tests was run comparing the Visionary leadership characteristic against the Collaborative leadership characteristics. The statistical significance of the comparison is reported in Table 10.

Table 10

Wilcoxon Test Results Comparing the Visionary Against Collaborative Leadership Characteristic

	Collaborative – Visionary
Z	-.007[a]
Asymp. Sig. (2-tailed)	.994

a. Based on negative ranks

Table 10 reports no statistical difference in how the participants ranked the Visionary versus the Collaborative leadership characteristic. Twenty-nine participants ranked Collaborative as statistically less important than the Visionary leadership characteristic.

Synthesis of Friedman and Wilcoxon Non-Parametric Tests Results

The results of the Friedman test indicated that the participants significantly ranked differently the five leadership characteristics. Because the Friedman test indicates only an omnibus significance level, a series of post-hoc Wilcoxon tests were conducted to understand which leadership characteristics were ranked significantly different from the other leadership characteristics when compared in pairs. The results of each pair wise comparisons showed several significant differences in how the participants ranked the leadership characteristics.

Specifically, the participants believed that it was more important for a leader of a virtual team to be more communicative than being technological, visionary, or

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collaborative. They also believed that it was more important for the leader to build trust and relationships on the team rather than be technical, visionary, or collaborative. They did not see a difference for a leader to be visionary or collaborative. They further believed that any of the four leadership characteristics – Communicative, Trust / Relationship Builder, Visionary, and Collaborative – was more important than the leader being technical.

Thus, the data appears to suggest that all sixty-two participants viewed the Communicative and Trust / Relationship Builder leadership characteristics significantly the same, ranking them tied for the most important leadership characteristic. Furthermore, the participants as a group viewed the Collaborative and Visionary significantly the same, ranking them tied for third and fourth. Finally, as a leadership characteristic, Technological was ranked as the fifth most important.

This suggests, then, that a virtual team needs a leader who is primarily focused on communicating effectively to the team, and building trust with and amongst the team members. The participants supported this conclusion through their comments given to the qualitative question on the survey. Their comments are synthesized and more fully discussed in the following section.

Further Results

At the end of the survey, the participants were asked the following question: What do you think makes a virtual team succeed or fail? This question gave the participants the opportunity to go beyond the quantitative survey questions by offering whatever thoughts or opinions on virtual teaming they wanted.

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Those participants that chose to answer the question gave a wide range of responses that touched on each of the five leadership characteristics. The responses did not vary much by region but did vary in what were some of the most important success factors for virtual teams. The responses are summarized below and are broken down according to the five leadership characteristics. The final section summarizes responses that fall outside the five leadership characteristics.

Communicative

A large number of responses to this question had the theme of communications as being one of the most critical aspects a virtual team leader must bring to the team. Several participants noted the increased burden on virtual teams because the team members are remote from each other and do not have the opportunity to observe each others' work habits, body language, or meeting behaviors. This puts an increased burden on the team leader to ensure that the team's communications are given a high priority.

They noted that successful teams have a variety of communications processes in place including team conference calls, written reports, and offline, one-on-one conversations. Moreover, they noted, successful teams are those that rigorously observe and use those process, have clear metrics in place, regularly report on the status of those metrics, and have in-person meetings on a regular basis.

Many of the respondents' answers also touched on the necessity of the team leader to constantly reinforce the team's goals and objectives through both formal and informal communications. Several respondents seemed to express frustration at getting only partial communications either because the team leader did not have the full information or chose to only share part of what was deemed important.

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Respondents also noted that the team leader, through communicating effectively with the team, needed to create a level of trust on and amongst the team. The team members must be able to feel comfortable in expressing their opinions, and the leader must work effectively to resolve conflicts and issues when they arise since the team has infrequent face-to-face interaction.

Technological

The discussion and analysis done above reported that participants viewed a leader being technical as the least important of the five leadership characteristics. Because the participants viewed Technological to be the least important leadership characteristic, few of the comments to the qualitative question focused on the necessity of the leader having strong technical skills. Those comments offered by respondents tended to center around the types of technology a virtual team should use to enable effective communication and team building.

The participants that offered a comment on technology noted that several different types of communication tools are needed to reach each member of the team given the geographic dispersion issues. Respondents suggested that many audio and video tools are needed to build the team, and that telephone conference calls can be ineffective when relied on as the sole or prime method of team communications.

Trust / Relationship Builder

The third area where respondents offered comments was on the necessity of building trust on the team and deepening the relationship with team members. Respondents shared passionate views about the lead role the team leader had to play to build a high level of trust and respect. While building trust and relationships are

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important in a non-virtual environment, it is critical, many respondents felt, to create a shared vision and trust in a virtual environment. This is especially true since the team cannot read the body language and does not have the opportunity for extensive social interaction. Trust, many respondents felt, is the glue that makes the virtual team work.

To build the trust, the team needs frequent, regular communication following a face-to-face kick-off meeting. Moreover, the team needs to meet face-to-face at least once or twice a year to build relationships beyond those that exist in electronic meetings. These face-to-face meetings should include not only business components but also should include team building exercises. Success of the team should be celebrated and made visible not only in the team but also in the larger organization.

Each team member, the participants believed, needed to work diligently to build one-on-one relationships with not only the team's leader but also with each other virtual team member. Regular one-on-one meetings were key to building the trust and relationships needed for an effective team.

Respondents stated that trust also is built not only by having the strategies and expectations clearly spelled out, but also acknowledging and embracing cultural differences. Most important to this dynamic was to work proactively to overcome barriers that seemingly prevent trust and relationship building.

Visionary

Several respondents commented on the need for the leader to create and communicate a compelling vision for the team. The team leader, they felt, must share the vision with the team and gain buy-in from the team members. The manager of a virtual

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team needs to ensure that he or she builds a common vision and enfranchises each member of the team.

Collaborative

The final area of comments focused on the need for the team to work collaboratively. Many respondents stated that simple communication tools were not sufficient for a team to be successful. Rather, the team must learn to work together as a team given the lack of personal interaction. Each member must learn the personalities of the individuals on the team and how the individual working styles can become complementary rather than divisive. It is important for team members to recognize that working together in the virtual environment takes extra effort on the part of every individual, and that the team cannot wait until they are all together to work through differences.

The respondents emphasized the need for each team member to have a strong sense of commitment to the organization and the team's mission. Team members, they felt, must be willing to participate despite time zone and cultural differences.

A major cause of virtual teams failing to achieve its goals and objectives, respondents shared, was when they did not work collaboratively towards achieving the team's common goal. To build a collaborative environment, each team member had to feel like an important, synergistic part of the team. Working together, reaching out, and developing a sense of community were all integral parts of creating a collaborative team, respondents felt. Many respondents looked to the team leader to create the warmth and sense of community needed to pull together the team to work through both the easy and hard times.

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Miscellaneous

The respondents offered a number of comments which did not fit into any of the five leadership categories above, but nonetheless were insightful into why a virtual team would succeed for fail. The topics were varied but the central theme of commitment by each team member to the success of the team seemed to emerge.

Several of the respondents noted that a successful virtual team is one comprised of high performing, self-motivated individuals that take great pride in their work. The successful virtual team is led by a dynamic leader who consistently demonstrates to the team the importance of working together, across time, geographies, and cultures to meet the team's goals and objectives.

Many respondents also noted the importance of the team having a clear structure and expectations on how to engage, on what is to be accomplished, and on how the team will be rewarded when they achieve their goals. They stated that the team needs to have disciplined processes, primarily dealing with group communications, to be successful.

The respondents also commented on the need for the team's goals to be congruent with those of the larger organization. Moreover, a key objective of the team should be not only to meet its goals but to do so in the context of the overall organization's goals. This dynamic is driven by a leader that is in well connected inside the larger organization and that has the understanding on how to align his team's efforts with those of the larger organization.

Synthesis of Qualitative Comments with Quantitative Results and Analysis

In the quantitative discussion and analysis above, the importance of the Communicative leadership characteristic emerged. In their responses to the survey, the

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participants significantly ranked communications as more important than technology, visionary, or collaboration, and equally as important as the need to build trust and relationship on and amongst the team. The participants also ranked the Trust / Relationship Builder leadership characteristic as being significantly more important than technology, vision, and collaboration.

The responses to the qualitative question of what makes a virtual team succeed or fail seem in line with the quantitative responses and analysis. The participants noted the criticality of the team leader communicating effectively to and with the team. Furthermore, the respondents discussed the importance of the leader creating a collaborative working environment based on trust, mutual respect, and working relationships.

In essence, then, the responses to both the quantitative and qualitative portions of the survey offered by the study's participants seemed to synthesize and converge on the key leadership characteristics of Communicative and Trust / Relationship Builder, and to a somewhat lesser extent, Visionary and Collaborative.

The foregoing discussion and analysis of the quantitative and qualitative responses to the survey can now be used to shed insight into the three enabling questions and the research question of this study. The section below repeats each enabling question, provides insight into how the data gathered addresses the question, and then discusses how the enabling questions and data addresses the central research question of this study.

Implications of Responses to the Research and Enabling Questions

The data gathered and discussed above begin to show the implications of what the key leadership characteristics virtual team members view as important to a leader of a

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virtual team. Although the data gathered did not contain a sufficient number of participants outside of North America, certain patterns seem to emerge when considering the data in the context of the research and enabling questions.

Comparison and Analysis of North and Latin American Responses

The first enabling question, as modified from the original question, was: of the five main leadership characteristics identified in previous research, how do virtual team members from all of the four geo-cultural regions combined rank, in order of importance, the five characteristics?

As has been noted earlier, most of the study's participants were from North America. Some were from Latin America, a few from Europe, and none were from Asia Pacific. Thus, to address the first enabling question, data from only North America and Latin America will be considered.

Earlier in this chapter, Table 5 reported how all of the study's participants ranked the five leadership characteristics. That table showed that over sixty-seven percent of the participants ranked Communicative in the top two of the five leadership characteristics. It also showed that Technological was ranked fifth by over seventy-five percent of the participants. Trust / Relationship Builder was ranked first by over thirty-five percent of the participants, Visionary leadership characteristic was ranked fourth by over twenty-seven percent of the participants and the Collaborative leadership characteristics was ranked as fourth by close to thirty-four percent of the participants.

Insight into the first enabling question can be gained by separating the all participants' ranking into those from only the North American participants and those

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from only the Latin American participants. Table 11 reports how the North American respondents ranked the five leadership characteristics.

Table 11

Distribution of North America Participants' Ranking of the Five Leadership Characteristics

Rank	Com	%	Tec	%	TRB	%	Vi	%	Col	%
First	20	40.8	0	0	19	38.8	8	16.3	3	6.1
Second	12	24.5	2	4.1	13	26.5	10	20.4	11	22.4
Third	11	22.4	3	6.1	11	22.4	9	18.4	15	30.6
Fourth	6	12.2	6	12.2	6	12.2	13	26.5	18	36.7
Fifth	0	0	38	77.6	0	0.0	9	18.4	2	4.1
Total	49	100.0	49	100.0	49	100.0	49	100.0	49	100.0

Note. Com = Communicative; Tec = Technological; TRB = Trust / Relationship Builder; Vi = Visionary; Col = Collaborative.

Descriptive Statistical Analysis

Reading the table from left to right beginning with the Communicative leadership characteristic, over forty percent of the North American participants ranked this characteristic first, and over sixty-five percent of the participants ranked it in the top two of the five leadership characteristics.

The leader having Technical leadership skills was ranked the lowest of the leadership characteristics with over seventy-seven percent of the participants ranking this characteristic fifth. Over thirty-eight percent of the participants ranked Trust / Relationship Builder first with over eighty-seven percent of the North American participants placing this characteristic in the top three. Over twenty-six percent of the

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participants ranked Visionary as the fourth most important leadership characteristic, and over thirty-six percent ranked Collaborative as the fourth most important leadership characteristic.

Inferential Statistical Analysis

As also discussed earlier in this chapter, there were significant differences in how all participants ranked the leadership characteristics. To determine whether the North American participants alone significantly ranked the leadership characteristics differently, a Friedman test was conducted to assess if there were differences among the mean ranks of the leadership characteristics, χ^2 (4, N = 49) = 86.215, p = .01. Table 12 shows the mean ranks of the leadership characteristics and the asymptotic significance.

Table 12

Mean Ranks of the Five Leadership Characteristics as Ranked by North American Participants

Leadership Characteristic	Mean Rank
Communicative	2.07
Technological	4.63
Trust / R'Ship Building	2.08
Visionary	3.10
Collaborative	3.11
Asymp. Sig.	.000**

** $p < .01$

An asymptotic significance of $p < .01$ indicates that there are significant differences among the five leadership characteristics as ranked by the North American participants. The result of the Friedman test indicates that there are significant differences

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in how the North American participants rank, in order of importance, the five leadership characteristics.

Because the Friedman test returns only an omnibus significance level, to determine which significant differences exist in the rankings of the five leadership characteristics, a series of post-hoc Wilcoxon tests were conducted between pairs of characteristics. All combinations of pairs were tested. The comparison tables that show the positive and negative ranks together with the ties are reported in Appendix D. The tables that report both the *Z* value and the asymptotic significance level are included in this chapter and are discussed below. The first comparison was between the Communicative leadership characteristic and the other four leadership characteristics. The statistical significance of the comparison is reported in Table 13.

Table 13

Wilcoxon Test Results Comparing the Communicative Leadership Characteristic Against the Other Four Leadership Characteristics as Ranked by the North American Participants

	Technological – Communicative	Trust Relationship Builder - Communicative	Visionary - Communicative	Collaborative - Communicative
Z	-6.150[a]	-.071[a]	-2.966[a]	-3.731[a]
Asymp. Sig. (2-tailed)	.000**	.943	.003**	.000**

a. Based on negative ranks
** $p < .01$

Table 13 reports three statistically different rankings and one insignificant ranking. Participants statistically ranked differently the importance of Communicative

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versus Technological leadership characteristic. All forty-nine North American participants ranked Technological as less significant than Communicative.

Thirty-four of the participants ranked Visionary as statistically less important than the Communicative leadership characteristic and thirty-five participants ranked Collaborative as statistically less important than Communicative. Finally, there was no significant difference in how the participants ranked Communicative versus Trust / Relationship Builder. Twenty-five participants ranked Trust / Relationship Builder as less important than Communicative.

The direction of the data suggests that North American participants believe that it is more important for a virtual team leader to demonstrate stronger communicative skills than technological, visionary, or collaborative skills. Because there were no statistical differences between Communicative and Trust / Relationship Builder, the data suggests that the North American participants believe it to be important for a virtual team leader to be communicative and to build trust and strong relationships with and among the team.

A set of post-hoc Wilcoxon tests was then run on the North American participant data comparing the Technological leadership characteristic against the remaining three leadership characteristics. The statistical significance of the comparison is reported in Table 14.

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Table 14

Wilcoxon Test Results Comparing the Technological Leadership Characteristic Against the Other Three Leadership Characteristics as Ranked by North American Participants

	Trust / Relationship Builder – Technological	Visionary - Technological	Collaborative – Technological
Z	-5.954[a]	-4.347[a]	-5.148[a]
Asymp. Sig. (2-tailed)	.000**	.000**	.000**

a. Based on positive ranks
** $p < .01$

Table 14 reports a statistical difference between the Technological leadership characteristic and each of the other leadership characteristics. Forty-five of the North American participants ranked Trust / Relationship Builder as more significant than the Technological leadership characteristic.

Thirty-nine of the participants in this region ranked Visionary as statistically more important than the Technological leadership characteristic. Finally, forty-five participants ranked Collaborative as statistically more important than the Technological leadership characteristic.

The direction of the data suggests that participants believe that it is more important for a virtual team leader to demonstrate stronger trust / relationship building, visionary, and collaborative skills than technical skills.

A third set of post-hoc Wilcoxon tests was run comparing the Trust / Relationship Builder leadership characteristic against the remaining two leadership characteristics. The statistical significance of the comparison is reported in Table 15.

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Table 15

Wilcoxon Test Results Comparing the Trust / Relationship Builder Against the Other Two Leadership Characteristics as Ranked by North American Participants

	Visionary – Trust / Relationship Builder	Collaborative - Trust Relationship Builder
Z	-3.500[a]	-3.591[a]
Asymp. Sig. (2-tailed)	.000**	.000**

a. Based on negative ranks
** $p < .01$

Table 15 reports a statistically different ranking between the Visionary and Trust / Relationship Builder leadership characteristics, and between the Visionary and the Collaborative leadership characteristics.

Thirty-three North American participants ranked Visionary as less significant than the Trust / Relationship Builder leadership characteristic and forty-one of the participants ranked Collaborative as statistically less significant than Trust / Relationship Builder. The direction of the data suggests that participants believe that it is more important for a virtual team leader to demonstrate stronger trust / relationship building than either visionary or collaborative skills.

A final set of post-hoc Wilcoxon tests was run comparing the Visionary leadership characteristic against the Collaborative leadership characteristics. The statistical significance of the comparison is reported in Table 16.

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Table 16

Wilcoxon Test Results Comparing the Visionary Against Collaborative Leadership Characteristic as Ranked by North American Participants

	Collaborative – Visionary
Z	-.132[a]
Asymp. Sig. (2-tailed)	.895

a. Based on negative ranks

Table 16 reports no statistical difference in how the North American participants ranked the Visionary versus the Collaborative leadership characteristic. Twenty-three North American participants ranked Collaborative as statistically less important than the Visionary leadership characteristic.

Synthesis of Friedman and Wilcoxon Tests for North American Participants

The results of the Friedman and Wilcoxon tests on only North American participants parallel the results for all participants reported earlier in the chapter. North American participants believed that it was more important for a leader of a virtual team to be more communicative than technological, visionary, or collaborative.

They further believed that any of the four leadership characteristics – Communicative, Trust / Relationship Builder, Visionary, and Collaborative – was more important than the leader being technical. They also believed that it was more important for the leader to build trust and relationships on the team rather than be technical, visionary, or collaborative. Like the results reported above, this suggests that a virtual team needs a leader with excellent communicative, trust, and relationship building skills.

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Latin American Participants

The second analysis done to provide insight into the first enabling question was to isolate, report on, and analyze the responses from the Latin American participants. Table 17 reports the results of the responses from the Latin American geo-cultural region participants.

Table 17

Distribution of Latin America Participants' Ranking of the Five Leadership Characteristics

Rank	Com	%	Tec	%	TRB	%	Vi	%	Col	%
First	5	50.0	0	0.0	2	20.0	2	20.0	1	10.0
Second	3	30.0	0	0.0	1	10.0	2	20.0	4	40.0
Third	1	10.0	2	20.0	4	40.0	1	10.0	2	20.0
Fourth	1	10.0	2	20.0	2	20.0	3	30.0	2	20.0
Fifth	0	0	6	60.0	1	10.0	2	20.0	1	10.0
Total	10	100.0	10	100:0	10	100.0	10	100.0	10	100.0

Note. Com = Communicative; Tec = Technological; TRB = Trust / Relationship Builder; Vi = Visionary; Col = Collaborative.

Descriptive Statistical Analysis

Table 17 above reports how the Latin American respondents ranked the five leadership characteristics. Reading the table from left to right beginning with the Communicative leadership characteristic, fifty percent of these participants ranked this characteristic first, and eighty percent of the participants ranked it in the top two of the five leadership characteristics.

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The leader having Technical leadership skills was least important with sixty percent of the Latin American participants ranking this characteristic fifth. Forty percent of these participants ranked Trust / Relationship Builder third. Thirty percent of the Latin American ranked Visionary fourth with the Collaborative leadership characteristic ranked second.

Inferential Statistical Analysis

A Friedman test was conducted to assess if there were differences among the mean ranks of the leadership characteristics, χ^2 (4, N = 10) = 13.840, p = .01. Table 18 below shows the mean ranks of the leadership characteristics and the asymptotic significance.

Table 18

Mean Ranks of the Five Leadership Characteristics as Ranked by Latin American Participants

Leadership Characteristic	Mean Rank
Communicative	1.80
Technological	4.40
Trust / R'Ship Building	2.90
Visionary	3.10
Collaborative	2.80
Asymp. Sig.	.008**

** $p < .01$

An asymptotic significance of $p < .01$ indicates that there are significant differences among the five leadership characteristics as ranked by the Latin American participants. The result of the Friedman test indicates that there are significant differences

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in how the Latin American participants rank, in order of importance, the five leadership characteristics.

Because the Friedman test returns only an omnibus significance level, to determine which significant differences exist in the rankings of the five leadership characteristics, a set of post-hoc Wilcoxon tests was conducted between pairs of characteristics. All combinations of pairs were tested. The comparison tables that show the positive and negative ranks together with the ties are reported in Appendix D. The tables that report both the *Z* value and the asymptotic significance level are included in this chapter and are discussed below.

The first comparison was between the Communicative leadership characteristic and the other four leadership characteristics. The statistical significance of the comparison is reported in Table 19.

Table 19

Wilcoxon Test Results Comparing the Communicative Leadership Characteristic Against the Other Four Leadership Characteristics as Ranked by the Latin American Participants

	Technological – Communicative	Trust Relationship Builder - Communicative	Visionary - Communicative	Collaborative - Communicative
Z	-2.831[a]	-1.554[a]	-1.590[a]	-1.999[a]
Asymp. Sig. (2-tailed)	.005**	.123	.112	.046

a. Based on negative ranks
** $p < .01$

Table 19 reports one statistically different ranking and three insignificant rankings. Participants statistically ranked differently the importance of Communicative

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versus Technological leadership characteristic. All ten Latin American participants ranked Technological as less significant than Communicative.

These participants did not significantly rank differently Communicative versus Trust / Relationship Builder, Visionary, or Collaborative. However, seven of the Latin American participants ranked Communicative higher than Trust / Relationship Builder and Visionary. Eight participants ranked Communicative higher than Collaborative.

The direction of the data suggests that Latin American participants believe that it is more important for a virtual team leader to demonstrate stronger communicative skills than technological skills. Because there were no statistical differences between Communicative and Trust / Relationship Builder, Visionary, or Collaborative leadership characteristics, the data suggests that for the Latin American participants, there appeared to be no difference in importance for a virtual team leader to be communicative, to build trust and strong relationships with and among the team, to be a visionary, and to be collaborative.

It should be emphasized, however, that the tendency of these participants to rank these characteristics in this manner is based on a very limited data set. Thus, it is somewhat questionable how applicable the data is to answering the first enabling question.

A set of post-hoc Wilcoxon tests was run again comparing the Technological leadership characteristic against the remaining three leadership characteristics. The statistical significance of the comparison is reported in Table 20.

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Table 20

Wilcoxon Test Results Comparing the Technological Leadership Characteristic Against the Other Three Leadership Characteristics as Ranked by Latin American Participants

	Trust / Relationship Builder – Technological	Visionary - Technological	Collaborative - Technological
Z	-1.956[a]	-1.750[a]	-2.537[a]
Asymp. Sig. (2-tailed)	.050	.080	.011

a. Based on positive ranks

Table 20 reports three insignificant statistical differences between the Technological leadership characteristic and each of the other leadership characteristics. However, eight of the ten Latin American participants ranked Trust / Relationship Builder higher than the Technological leadership characteristic. Seven ranked Visionary higher than Technological and nine ranked Collaborative higher than Technological.

The direction of the data suggests that Latin American participants believe that it is essentially the same for a virtual team leader to demonstrate Technological, Trust / Relationship Building, Visionary, and Collaborative skills. As noted above, the extensibility of this data is questionable given the limited number of Latin American participants.

A third set of post-hoc Wilcoxon tests was run comparing the Trust / Relationship Builder leadership characteristic against the remaining two leadership characteristics. The statistical significance of the comparison is reported in Table 21.

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Table 21

Wilcoxon Test Results Comparing the Trust / Relationship Builder Against the Other Two Leadership Characteristics as Ranked by Latin American Participants

	Visionary – Trust / Relationship Builder	Collaborative - Trust Relationship Builder
Z	-.318[a]	-.155[a]
Asymp. Sig. (2-tailed)	.751	.876

a. Based on negative ranks

Table 21 reports two insignificant statistical differences between the Trust / Relationship Builder leadership characteristic and the other two leadership characteristics. The ten Latin American participants were evenly split in their comparative ranking of Trust / Relationship Builder and Visionary, and in their ranking of Trust / Relationship Builder and Collaborative.

The direction of the data suggests that Latin American participants believe that it is essentially the same for a virtual team leader to demonstrate Trust / Relationship Building, Visionary, and Collaborative skills.

However, and as was noted above, the tendency of these participants to rank these characteristics in this manner is based on a very limited data set. Thus, it is somewhat questionable how applicable the data is to answering the first enabling question.

A final set of post-hoc Wilcoxon tests was run comparing the Visionary leadership characteristic against the Collaborative leadership characteristics. The statistical significance of the comparison is reported in Table 22.

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Table 22

Wilcoxon Test Results Comparing the Visionary Against Collaborative Leadership Characteristic as Ranked by Latin American Participants

	Collaborative – Visionary
Z	-.360[a]
Asymp. Sig. (2-tailed)	.719

a. Based on negative ranks

Table 22 reports no statistical difference in how the Latin American participants ranked the Visionary versus the Collaborative leadership characteristic. Six participants ranked Collaborative as statistically less important than the Visionary leadership characteristic.

Synthesis of Friedman and Wilcoxon Tests for Latin American Participants

The results of the Friedman test indicated that the Latin American participants significantly ranked differently the five leadership characteristics. Because the Friedman test indicates only an omnibus significance level, a series of post-hoc Wilcoxon tests were conducted to understand which leadership characteristics were ranked significantly different from the other leadership characteristics when compared in pairs. The results of each pair wise comparison showed some significant differences in how the participants ranked the leadership characteristics.

Specifically, the Latin American participants believed that it was more important for a leader of a virtual team to be more communicative than being technological. However, these participants indicated that there was not a significant difference for a virtual team leader to have communicative, trust / relationship building, visionary, and collaborative skills.

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The data also suggests that these participants viewed as no different the leadership skills of technological, trust / relationship building, visionary, and collaborative. Therefore, based on the limited data set from Latin American participants, the ten participants viewed the Communicative leadership characteristic significantly more important than the other four, and viewed as statistically equal the remaining four leadership characteristics.

Comparison of North and Latin American Participants

The Friedman and Wilcoxon tests above for participants from both geo-cultural regions reported significant differences in how all of the sixty-two participants ranked the five leadership characteristics. A Mann-Whitney *U* post-hoc test was run to assess whether there was a significant difference between how the North American and the Latin American participants ranked the leadership characteristics. Europe was not included because of the minimal responses from that geo-cultural region.

Table 23 reports the results of comparing the responses from participants in these two geo-cultural regions.

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Table 23

Mann-Whitney U Test Results Comparing the North American and Latin American Participants' Responses

	Participant's Region	N	Mean Rank	Sum of Ranks
Communicative	North America	49	30.68	1503.50
	Latin America	10	26.65	266.50
	Total	59		
Technological	North America	49	30.86	1512.00
	Latin America	10	25.80	258.00
	Total	59		
Trust / Relationship Builder	North America	49	28.15	1379.50
	Latin America	10	39.05	390.50
	Total	59		
Visionary	North America	49	29.98	1469.00
	Latin America	10	30.10	301.00
	Total	59		
Collaborative	North America	49	30.87	1512.50
	Latin America	10	25.75	257.50
	Total	59		

The table above shows the mean rank of how each region ranked the five leadership characteristics. The following table shows whether there are significant differences in how the North American and Latin American participants ranked the leadership characteristics.

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Table 24

Mann-Whitney U Statistical Results Between North American and Latin American Participants

	Comm	Tech	Trust / R'ship Builder	Visionary	Collab
Mann-Whitney *U*	211.50	203.00	154.50	244.00	202.50
Wilcoxon *W*	266.50	258.00	1379.50	1469.00	257.50
Z	-.714	-1.112	-1.903	-.021	-.895
Asymp. Sig (2-tailed)	.475	.266	.057	.984	.371

The table above shows that there are no significant differences between how the North American and Latin American participants rank the five leadership characteristics. Although the Latin Americans ranked Trust / Relationship Builder somewhat higher, a reasonable interpretation of this might be that virtual team members from both of these geo-cultural regions view the relative ranking of the five leadership characteristics the same.

The foregoing analysis assessed differences in how the study's participants ranked the five leadership characteristics. On the survey, once the participants completed the sections where they reported from which geo-cultural region both they and their manager identified, and after they ranked in order of importance the five leadership characteristics, they were asked to identify what they perceived to be the most important leadership characteristic to a manager in each of the four geo-cultural regions. The results of the respondents' answers are detailed below.

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Participants' Perspective on the Most Important Leadership Characteristic For a Manager

After the participants ranked the five leadership characteristics in order of importance, they were asked to identify what they perceived was the most important leadership characteristic to a manager in each of the four geo-cultural regions. Table 25 below reports the distribution of the participant's responses.

Table 25

Distribution of All Participants' Perception of Which Leadership Characteristic is Most Important to a Manager of Each Geo-Cultural Region

Ranking	NA Mgr	%	LA Mgr	%	AP Mgr	%	Europe Mgr	%
Communicative	21	33.9	20	32.3	16	25.8	15	24.2
Technological	6	9.7	3	4.8	14	22.6	7	11.3
Trust / R'Ship Building	14	22.6	28	45.2	16	25.8	17	27.4
Visionary	16	25.8	6	9.7	5	8.1	6	9.7
Collaborative	5	8.1	5	8.1	11	17.7	17	27.4
Total	62	100.0	62	100.0	62	100.0	62	100.0

Descriptive Statistical Analysis

Table 25 reports that twenty-one participants perceive Communicative as the most important leadership characteristic to a North American manager. Twenty-eight participants perceive Trust / Relationship Builder as the most important leadership characteristic to a Latin American manager. Thirty-two participants split equally their perception that Communicative and Trust / Relationship Builder was the most important

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leadership characteristic to an Asia Pacific Manager, and thirty-four participants split equally their perception that Trust / Relationship Builder was the most important leadership characteristic to a European manager.

Inferential Statistical Analysis

A one sample chi-square test was conducted on each of the five leadership characteristics to assess if there were significant differences in the participants' perceptions of which leadership characteristic was most important to a manager in each of the four regions. Table 26 reports the results at both $p = .01$ and $p = .05$.

Table 26

Chi-square Results of All Participant Responses

Characteristic	*df*	χ^2	$p = .01$	$p = .05$
Communicative	3	1.44	11.34	7.82
Technological	3	8.67*	11.34	7.82
Trust / R'Ship Building	3	6.33	11.34	7.82
Visionary	3	9.79*	11.34	7.82
Collaborative	3	10.42*	11.34	7.82

* $p < .05$

At the significance level of $p = .01$, Table 26 reports that there are no significant differences, for any of the leadership characteristics, in the participants' perceptions of which leadership characteristic is most important to a manager in each of the geo-cultural regions. In other words, each leadership characteristic was ranked significantly the same to a manager in each geo-cultural region.

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However, at the significance level of $p = .05$, there were significant differences in the participants' perceptions for three of the five leadership characteristics, namely Technological, Visionary, and Collaborative.

Additional chi-square tests were conducted on the three leadership characteristics to assess whether there were significant differences between the region that reported the greatest number of responses and the other regions, either separately or in combination. The first leadership characteristic tested was Technological. Asia Pacific reported the greatest number of responses and the comparison was done between that geo-cultural region and the others, either separately or in combination. Table 27 reports the results.

Table 27

Chi-square Results Focused on the Technological Leadership Characteristic: Asia Pacific Versus Some or All of the Other Geo-Cultural Regions

Characteristic	*df*	χ^2	$p = .01$	$p = .05$
AP v. NA, LA, and Europe Combined	1	0.13	6.64	3.84
AP v. NA and LA Combined	1	1.09	6.64	3.84
AP v. NA	1	3.20	6.64	3.84
AP v. LA	1	7.12**	6.64	3.84

** $p < .01$

Table 27 reports three insignificant differences and one significant difference at the $p = .01$ and the $p = .05$ levels. The significant difference exists between the participants' perception of the importance of the Technological leadership characteristic to an Asia Pacific (fourteen responses) and Latin American (three responses). Based on the responses, it appears that the participants perceive that the Technological leadership

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characteristic is more important to an Asia Pacific manager than to a Latin American manager.

The Visionary leadership characteristic was tested next. North America reported the greatest number of responses, and this region was tested against the other regions separately and in combination. Table 28 reports the results.

Table 28

Chi-square Results Focused on the Visionary Leadership Characteristic: North America Versus Some or All of the Other Geo-Cultural Regions

Characteristic	*df*	χ^2	$p = .01$	$p = .05$
NA v. Europe or LA	1	4.55*	6.64	3.84
NA v. AP	1	5.76*	6.64	3.84

* $p < .05$

Table 28 reports two significant differences, both at the $p = .05$ significance level. At this significance level, the participants perceived that the Visionary leadership characteristic was more important to a North American manager than to any of the other three managers.

The Collaborative leadership characteristic was the final one tested. Europe reported the greatest number of responses, and this region was tested against the other regions separately and in combination. Table 29 reports the results.

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Table 29

Chi-square Results Focused on the Collaborative Leadership Characteristic: Europe Versus Some or All of the Other Geo-Cultural Regions

Characteristic	*df*	χ^2	$p = .01$	$p = .05$
Europe v. NA and LA	1	1.81	6.64	3.84
Europe v. NA or LA	1	6.55*	6.64	3.84

* $p < .05$

Table 29 reports only a significant difference between Europe and either North or Latin America at the $p = .05$ level. This indicates that the participants perceive that the Collaborative leadership characteristic is probably more important to a European manager than to either a North or Latin American Manager.

Synthesis of Chi-square Tests on Participants' Perceptions of Importance of Leadership Characteristics to Geo-Cultural Region Managers

The results of the one sample chi-square test on each of the five leadership characteristics reported that there were no significant differences, at the $p = .01$ significance level, on which leadership characteristic was most important to a manager in each of the four geo-cultural regions. However, at the $p = .05$ significance level, three of the leadership characteristics – Technological, Visionary, and Collaborative – reported significant differences.

Further chi-square testing suggested that Technological was more important to an Asia Pacific manager than to a Latin American Manager at both the $p = .01$ and $p = .05$ significance levels. Furthermore, the Visionary leadership characteristic was more important to a North American Manager than to a manager in each of the three other geo-cultural regions at the $p = .01$ significance level, but not at the $p = .05$ significance level.

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Finally, Collaborative was more important to a European manager than to either a North or Latin American manager at the $p = .05$ significance level.

This data seems to align with the analysis done earlier in this chapter. It appears to validate the importance of the Communicative and Trust / Relationship leadership characteristics as the two most significant characteristics with the other three leadership characteristics ranging in importance depending on from where the participant and the manager come.

Conclusion

This chapter began by revisiting the purpose of this study, the enabling and research questions that would drive the study, and the methodology by which data would be gathered. The participants' responses were reviewed, validated, and inputted into the SPSS software program for analysis. The results of the analysis were reported, discussed, synthesized, and analyzed. The following chapter begins to put the data results and analysis into the context of the enabling and research questions.

Because of the limited number of responses especially from the geo-cultural regions other than North America, the enabling and research questions cannot be answered definitively and perhaps cannot even be addressed. A further assessment will be undertaken in the next chapter.

In addition to assessing whether the data provides insight into the enabling and research questions, the following chapter discusses the potential implications of the study, compares the findings to the literature in Chapter Two, offers topics for future research in the field of virtual teaming, and concludes by exploring what worked and what could be improved in conducting this research.

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CHAPTER 5: DISCUSSION AND IMPLICATIONS

Introduction

Advances in technology, transportation, and changing attitudes of working in other cultures have enabled companies to compete in the global marketplace. Not only can companies sell their goods and services globally, but they can also hire the best people to service their customers without the requirement of co-locating their employees. To create, develop, and manage geographically and culturally dispersed teams, companies are tasked with understanding the multi-faceted dimensions of a team working virtually. One component of this multi-faceted dimension is understanding the leadership characteristic preferences of virtual team members.

The success of any team including a virtual one is tied to the effectiveness of the team's leader. Earlier research, as explored and discussed in Chapter Two above, suggests five leadership characteristics critical to the success of a virtual team leader. These five leadership characteristics – Communication, Technology, Trust / Relationship Building, Vision, and Collaboration – and understanding their relative importance to virtual team members, formed the basis of this study.

This study sought to understand the relative importance of those aforementioned leadership characteristics to virtual team members from four geo-cultural regions. In addition to understanding how those team members ranked the leadership characteristics, the study also sought to deepen the understanding of which of those characteristics were perceived to be important to a manager in each of the four geo-cultural regions. It is hoped that that this study will help companies understand, from the view of virtual team

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members, which types of leadership characteristics are important to the team and which will increase the likelihood of a virtual team's success.

The final chapter of this study will begin by revisiting briefly the study's context, grounding, and framing. The study's phases which were detailed in Chapter One will be reviewed and the research and enabling questions restated.

The insights to addressing the enabling and research questions will be summarized based on the results of the data detailed, synthesized, and analyzed in Chapter Four. These insights will then be put into greater context with a focus on the implications these insights suggest.

The insights will then be put into the context of the literature reviewed in Chapter Two and suggestions for areas of future research will be offered. The chapter and this study will conclude with a detailed evaluation of this research project together with suggestions on improving the study and with some final reflections by the researcher.

Research Context, Grounding, and Framing

This study began by noting that business is conducted on a global basis with companies selling their products and services virtually around the clock, twenty-four hours a day, three hundred sixty five days a year. Companies competing globally must seek every advantage against their competition. One potential advantage is in situating their employees near their customer base through the use of virtual teams.

For purposes of this study, virtual teams were defined as groups of people who work interdependently, with shared purpose across space, time, cultures, and organization boundaries, using technology to communicate and collaborate (Gibson, Kirkman,

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McPherson, Rosen, & Tesluk, 2002; see also Lipnack & Stamps, 1999). Virtual teams allow employees to be closer to their customers and to respond to inquiries quickly and accurately as they arise (Suttling & Wood, 1997).

But in addition to the benefits afforded to companies by implementing virtual teams, there are many significant challenges to the team and to the organization as varying cultures, followership types, and leadership styles merge in a virtual environment. Moreover, the virtual team leader's style and leadership characteristics will directly impact the success or failure of the virtual team. Understanding virtual team members' preferences for leadership characteristics should help a company assemble virtual teams that are positioned for success.

The body of research on traditional notions of leadership is extensive while the body of research on virtual team leadership is emerging. Also emerging is the body of research on virtual teams and notions of followership. The intersection of virtual team leadership, the virtual environment, and the emerging body of followership research formed the basis of this study.

As will be discussed further below, earlier research identified several key leadership characteristics critical to a virtual team member. Of those leadership characteristics, the research tended to converge on five leadership characteristics that were important to a virtual team member. These were Communicative, Technological, Trust / Relationship Builder, Visionary, and Collaborative. These five formed the basis of the Leadership Characteristic Survey that this study's participants completed.

The following section revisits the phases of this study as were more detailed in Chapter One.

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Phases of the Study

Phase One – Introduction and Contextual Background

The first phase of the study was to introduce the research's purpose and set the context for the study. Details were discussed on the evolving organizational dynamics and global changes that have brought culture, leadership styles, and followership types into the virtual environment. Benefits along with challenges were discussed along with the need to find common ground for teams to succeed. Understanding the role that culture plays in this environment and on its participants was noted and formed the grounding for the research.

The research then was grounded in the study's key components – the rise of virtual teams, leadership characteristics needed in the virtual environment, and the notions of followership. The specific problem on which the research was focused was offered along with the specific research and enabling questions.

The research to be undertaken was further circumscribed by underlying assumptions as well as by the researcher's biases and influences. Finally, the researcher noted the research's delimitations and limitations.

Phase Two – Literature Review

Phase Two's focus was to determine whether the research question could be answered in the existing body of literature. If a partial or wholly incomplete answer to the research question could not determined by the literature exploration and analysis, the researcher would create a proposition that could be examined and tested with original data. Going into the literature review, the proposition to be explored was whether there

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existed a geo-cultural preference on leadership characteristics of followers in a virtual environment.

Upon completing the literature review, the researcher would then analyze the extent to which the literature answered the research questions, and whether the proffered proposition merited further testing as a hypothesis. Potential outcomes from the literature research included:

1. The literature would fully answer the research question, in which case one or multiple hypotheses drawn from the proposition would be tested with original data.
2. The literature would partially answer the research question, in which case the researcher would gather original data to affirm those questions that were answered by literature and to answer those parts that were not.
3. The literature would not address or answer any part of the research question, in which case the researcher would identify the data that was needed to answer the research question, where the data might be located, and what research methodology could be developed and implemented to gather original data.

Phase Three – Research Methodology

After introducing the study's research topic, setting the context, and reviewing the existing body of research, the researcher in this phase would develop the research methodology needed to gather original data sufficient to answer that which would come out of Phase Two. The research design proffered would be comprehensive enough to include the design needed to, and instruments used for, gathering the data. The researcher

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would discuss how the measures taken to ensure the design's validity, feasibility, and reliability.

Phase Four – Data Analysis

Once the original data had been collected, the researcher would first analyze the data using the tests and methodologies discussed in Phase Three, and would interpret the findings.

Phase Five – Interpretation, Implications, and Future Research

In the final phase, the researcher would discuss the interpretation and implications of the research. The following questions would guide the exploration. Answers to these questions are offered later in this chapter.

1. What do the outcomes suggest regarding the research question and/or hypotheses?
2. What new or confirmed issues have surfaced based on the study?
3. What does the study add to the existing body of knowledge or theories?
4. What are the implications for leadership, followership, and virtual teams based on the influence (or lack thereof) of culture?
5. How extensible is the research and outcomes to cultures, and other industries and companies not included in the study?
6. What do the outcomes suggest as possible areas of future study?

Research and Enabling Questions Reviewed

The proposed research sought to answer the following research question: is there a relationship between a follower's geo-cultural identity and the leadership characteristic preference in a virtual environment? Three enabling questions were developed to guide

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the research. Once the data was gathered, the first enabling question was modified to fit the data. The enabling questions were as follows:

1. Of the five main leadership characteristics identified in previous research, how do virtual team members from all of the four geo-cultural regions combined rank, in order of importance, the five characteristics?
2. Of the five main leadership characteristics identified in previous research, what is the single most important leadership characteristic to a manager in each of the four geo-cultural regions as is perceived by the virtual team member?
3. Do the leadership characteristic preferences vary by and among the geo-cultural regions of North America (NA), Latin America (LA), Europe (defined as the 25 countries that comprise the European Union [EU]), and Asia Pacific (defined as the ten countries that comprise the Association of Southeast Asian Nations [ASEAN] plus China, India, Japan and South Korea)?

The next section restates and amplifies the insights to these questions that were offered in Chapter Four.

Insights Into Enabling and Research Questions

As reported in Chapter Four, seventy-seven respondents answered the survey. Sixty-two of the responses were wholly usable while fifteen were partially usable. Those partially usable were so because the participant typically used multiple ranks for the leadership characteristics, thereby eliminating their rankings. However, in many instances, the participant provided an answer to the qualitative question at the end of the survey, and this answer was usable.

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The large majority of participants came from the North American geo-cultural region. Some of the participants came from Latin America and a few came from Europe. There were no participants from the Asia Pacific geo-cultural region.

Both descriptive and inferential statistics were used to analyze the responses. Because of the limited number of responses and unequal sample size, non-parametric statistical tests were used to determine whether there were significant differences between the responses. While the results of the analysis in Chapter Four do not definitively answer the enabling and research questions, the findings perhaps provide some insight into those questions.

Enabling Question Number One

The first enabling question, as modified, asked how virtual team members from all of the four geo-cultural regions combined rank, in order of importance, the five leadership characteristics. Data from all sixty-two respondents was first reported and analyzed. Subsequently, data from only the North and Latin American participants was reported and analyzed. The three responses from Europe were not separately analyzed because of the few responses.

The data from all participants showed that the Communicative leadership characteristic was ranked first and the Technological leadership characteristic was ranked fifth. The ranking of the other three leadership characteristics – Trust / Relationship Builder, Visionary, and Collaborative – varied in their importance.

Inferential statistics were used to determine whether there were any significant differences between the rankings from all participants. The Friedman test delivered an

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omnibus significance level, and a series of post-hoc Wilcoxon tests were run and returned both significant and insignificant differences on the series of pair wise comparisons.

The results of this analysis on the responses from all participants suggested that it was more important for a leader of a virtual team to be more communicative than being technological, visionary, or collaborative. The results also suggested that the participants believed that it was more important for the leader to build trust and relationships on the team rather than be technical, visionary, or collaborative.

The participants did not see a difference for a leader to be visionary or collaborative. But they further believed that any of the four leadership characteristics – Communicative, Trust / Relationship Builder, Visionary, and Collaborative – was more important than the leader being technical.

Thus, and as was reported in Chapter Four, the data appears to suggest that all sixty-two participants viewed the Communicative and Trust / Relationship Builder leadership characteristics significantly the same, ranking them tied for the most important leadership characteristic. Furthermore, the participants as a group viewed the Collaborative and Visionary significantly the same, ranking them tied for third and fourth. Finally, as a leadership characteristic, Technological was ranked as the fifth most important.

A potential conclusion, then, that might be drawn from this is that a virtual team needs a leader who is primarily focused on communicating effectively to the team, and building trust with and amongst the team members. This not only seemed to be supported by the quantitative analysis but also through the participants' comments given to the qualitative question on the survey.

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These results were similar to those reported for the North American participants only. Those participants believed that it was more important for a leader of a virtual team to be more communicative than technological, visionary, or collaborative. Similar to the results for all participants, they believed that any of the four leadership characteristics – Communicative, Trust / Relationship Builder, Visionary, and Collaborative – was more important than the leader being technical.

Like the North American participants, the Latin American participants believed that it was more important for a leader of a virtual team to be more communicative than being technological. However, these participants differed in their opinion of the importance of Communicative to the other four leadership characteristics. They indicated that there was not a significant difference for a virtual team leader to have communicative, trust / relationship building, visionary, and collaborative skills. Caution was noted, however, on drawing strong conclusions from this analysis given the limited number of responses from Latin America.

Enabling Question Number Two

The second enabling question asked participants to give their perception of the most important leadership characteristic to a manager in each of the four geo-cultural regions. To a North American manager, the participants ranked Communicative first. To a Latin American manager, the participants ranked Trust / Relationship Builder first. The participants ranked Communicative and Trust / Relationship Builder first to an Asia Pacific manager and they ranked Collaborative first for a European manager.

Although inferential statistical analysis reported that there were no significant differences between the responses, it might be noteworthy to recognize the differences in

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the participants' perceptions of which leadership characteristic was perceived to be the most important to a manager in each geo-cultural region. These differences could potentially impact the success of a virtual team and possibly warrants further research.

Enabling Question Number Three

The third and final enabling question was whether the leadership characteristic preference varied by and among the four geo-cultural regions. Because the responses to the survey were highly North American centric, it is very difficult to answer this question. However, in looking at the responses from two of the four geo-cultural regions – North America and Latin America – some insight possibly emerges.

As reported in Chapter Four, both the North American and Latin American regions ranked the Communicative leadership characteristic first and the Technological leadership characteristic fifth. An interesting aspect of this ranking is to note how it compares to which leadership characteristic overall the participants ranked first as their perception of the most important leadership characteristic to a manager of a virtual team.

While participants from both regions overall ranked Communicative first for them, overall they ranked Communicative differently as what is perceived to be the most important to a manager of those two regions. The participants perceive Communicative to be the most important to a North American manager while to a Latin American manager, the participants perceived that Trust / Relationship Builder was the most important.

This might cause an interesting chasm between participants that expect a team leader to be highly communicative but work for a manager that puts the highest value on trust and relationship building. An organization that is staffing a virtual team should have

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visibility to this type of dynamic and should consider taking it into account when establishing a virtual team.

On the Technological leadership characteristic, both regions ranked this leadership characteristic as the fifth most important characteristic a virtual team leader must have. Perhaps this suggests that others on the team or maybe in the larger organization will have the capability and resources to accommodate a virtual team's technological needs.

On the other three leadership characteristics – Trust / Relationship Builder, Visionary, and Collaborative – the participants generally agreed on their ranking. While the rankings vary, the participants generally agreed that it is somewhat important for a leader to be a visionary. They further believed that a collaborative work environment, built on trust and respect, is key to a successful virtual team. This was supported by the participants' responses to the qualitative question on the survey.

Research Question

The study's research question was whether there was a relationship between a follower's geo-cultural identity and the leadership characteristic preference in a virtual environment. Because of the limited number of responses and the geographies from which they came, this question cannot be answered definitively. Furthermore, little insight probably could be offered from the data into addressing this question.

To answer the question, or at the very least, to provide insight into addressing the question, a statistically sufficient number of usable responses were needed from each geo-cultural region. As noted throughout this study, both the number of responses and the geographies from which they came limited the usable dataset.

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Perhaps, however, the data gathered could begin to answer two other questions not posed initially in this study. The first question is: do participants on virtual teams value the leadership characteristics found on traditional teams? The second question is: do North American virtual team participants rank similarly the key leadership characteristic important to them and that which they perceive is important to a North American virtual team leader?

Data gather and analyzed from this study's participants seem to give insight into answering the first question. Previous studies done on some of the traditional notions of leadership, and those done more recently on the emerging notions of characteristics of a leader of a virtual team, both of which were explored in Chapter Two above, seem to validate importance of the five leadership characteristics explored in this study. Further studies might be undertaken to further assess the relative ranking of the five leadership characteristics as done by this study's participants.

Data gather and analyzed from this study's participants also seem to give insight into answering the second question. The vast majority of responses in this study came from North American participants. Furthermore, most of those North American participants reported having a North American manager.

Through both descriptive and inferential statistical analysis done on these participants' responses, Communicative emerged as the statistically top ranked leadership characteristic both to the participants themselves and to what they perceive to be most important to a North American manager.

The answer to the second question posed above, then, is that there seems to be alignment on what appears to be the most important leadership characteristic to a North

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American virtual team member and what is important to a North American virtual team leader. Further research could be done on assessing the impact of this key factor that would undergird the success of a North American centric virtual team.

Comparison of Findings to Literature

In Chapter Two, an extensive review of the literature was done to examine earlier research that could answer the research question. The review consisted of three sections. The first section focused on the increased prevalence of virtual teams. The section explored the rise in the number of virtual teams, the benefits to organizations, employees, customers, and the challenges these teams and organizations face.

The second section touched briefly on traditional leadership research followed by a discussion of the emerging research of virtual team leadership characteristics. From this section came come the five key leadership characteristics that were tested in the study's questionnaire. The final section explored the developing field of followership research.

The literature review did not answer the research problem and did not provide data with which to answer the research question. Thus, original data was collected from seventy-seven participants and analyzed to determine whether the research question could be answered. As noted earlier, the data neither answers nor provides much insight to the research question. It does, however, possibly answer the two new questions posed above.

Out of the literature review came five leadership characteristics that virtual team members deemed critical to the success of a leader and a virtual team. The first was that the leader had to have excellent communication skills. For purposes of this study, the characteristic Communicative was defined as the extent to which the leader actively communicates to and with the team about all matters. Both the quantitative and

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qualitative data gathered from the participants confirmed the importance of this leadership characteristic.

The first enabling question asked how the participants ranked, in order of importance, the five leadership characteristics. Descriptive statistics used to analyze the data showed that the participants ranked the Communicative leadership characteristic first. Inferential statistical testing confirmed the similar statistical importance of the Communicative and Trust / Relationship Builder leadership characteristics. This analysis also reported significant differences between the Communicative and the other four leadership characteristics.

Responses by the participants to the qualitative question also confirmed the importance of the leader demonstrating excellent communication skills. Several respondents commented on the need for the leader to communicate often and effectively to the team, especially because the team is separated by time and distance.

The second leadership characteristic that was explored in the literature was collaboration. The Collaborative leadership characteristic in this study was defined as the extent to which the leader actively solicits inputs from the team's members. The survey's participants ranked this characteristic as the fourth most important of the five tested. The pair wise comparisons done in Chapter Four reported that the participants ranked Communicative as more important that Collaborative, and ranked Collaborative statistically more significant than Technological. There were no significant differences in the rankings of Collaborative and Visionary, but Visionary was statistically ranked lower than Trust / Relationship Builder.

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A fair interpretation of this, based on both the literature and the data analysis, is that Collaborative, while appearing to be a valued characteristic of a virtual team leader, is not quite as important as the leader communicating effectively with the team and in creating an environment that engenders trust and mutual respect.

The literature reviewed also focused on technology and the skills with which the leader demonstrates technological skills. For purposes of this study, Technological was defined as the extent to which the leader integrates, uses, and requires the team to use technology to drive the team including by not limited to e-mail, web casts, and electronic white boards.

The data gathered and analyzed from the participants suggest that Technological, as a leadership skill required of the virtual team leader, is relatively low when compared to the other four leadership characteristics. This is somewhat at odds on the earlier research done in the emerging field of virtual teaming. Several of these studies suggested that the team leader should have strong technological skills. These skills, the research suggested, were needed to drive and engage the virtual team, especially because the team was not collocated.

The participants in this study provided data that seemed to support a different conclusion. Descriptive statistical analysis showed that this leadership skill was ranked fifth by over three quarters of the respondents. Inferential statistical analysis reported that the participants ranked significantly differently the other four leadership characteristics.

A reasonable interpretation of this is that virtual team members put a higher value and significance on the other four leadership characteristics. This probably does not suggest that technological tools are not need for the team. Many of these tools are

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necessary in creating the 'virtual community' in which the team must operate. Perhaps it suggests that, in the limited context of this study, Technological, when assessed by the virtual team participants in this study, ranked more favorably the other four leadership characteristics.

The fourth leadership characteristic researched earlier focused on trust and relationship building. In this study, Trust / Relationship Builder was defined as the extent to which the leader builds mutual trust, respect, and cooperation amongst the team and the team's members. In essence, trust and relationship building is the glue that holds the virtual team together. Gibson et al. (2002) reported this in their research and the data gathered and analyzed in this study supports that notion.

Trust / Relationship Builder was ranked first by over thirty-five percent of the participants. Furthermore, inferential statistical analysis reported that the participants significantly ranked this leadership characteristic equally with Communicative and statistically more important than Technological, Visionary, and Collaborative. Furthermore, in the qualitative comments offered by the participants, many noted that the virtual team leader must create trust amongst the team, and build relationships with each virtual team member.

This is done, several participants suggested, by showing interest in each team member and by demonstrating respect for cultural differences. Moreover, the leader must understand each team member's expectations and different work habits. The leader must reach out and solicit opinions from the team members.

The final leadership characteristic explored in the literature and that virtual team members view as important is vision. This study defined Visionary as the extent to which

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the team's leader creates and shares a vision that directs and drives the team, and that is embraced by all members of the virtual team.

The descriptive statistical analysis done reported that over twenty-five percent of the participants ranked this as the fourth most important leadership characteristic. Inferential statistical analysis reported no statistical difference in the participants' ranking of Visionary only with Collaborative. There were statistical differences in how the participants ranked Visionary with Communicative, Technological, and Trust / Relationship Builder. Participants ranked Visionary as more significantly important than Technological, but less statistically important than Communicative and Trust / Relationship Builder.

Participants also, in their responses to the survey's final question, noted that the team leader not only must build an environment that is collaborative and that exudes trust, but the team leader must also have a vision as to where they want to take the team. Moreover, the team leader must effectively communicate the vision and work diligently to get the team to embrace the vision as though it was their own.

Synthesis of Literature Reviewed in Chapter Two and Results of this Study

For the most part, the data gathered from the participants in this study supports the earlier research done on the five leadership characteristics. The participants, through their responses to both the quantitative and qualitative questions on the survey, validated the importance of four of the five leadership characteristics. The Technological leadership characteristic seemed significantly less important to the participants in this study than to participants in other studies.

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Answers to Guiding Questions

The study's phases were introduced in Chapter One and revisited in this chapter. In the fifth phase of the study, the following questions were posed to help guide the research and analysis. Suggested answers to these guiding questions are offered below.

What do the outcomes suggest regarding the research question and/or hypotheses? The research question sought to address whether a relationship existed between a follower's geo-cultural identity and the leadership characteristic preferences of followers in a virtual environment. In attempting to answer the research question, enabling questions were posed and insight was sought into three things: first, how all virtual team members combined would rank the five leadership characteristics; second, what they would perceive was the most important leadership characteristic to a manager in each of the four geo-cultural regions; and third, whether leadership characteristic preferences varied by and among the four geo-cultural regions.

Because the number of participants was low and highly North American centric, the research and enabling questions cannot be definitively answered. However, the outcome from analyzing the data perhaps gives insight into the enabling questions. Analyzing the data neither answers nor addresses the research question.

What new or confirmed issues have surfaced based on the study? The study appeared to confirm the relative importance of four of the five leadership characteristics – Communicative, Trust / Relationship Builder, Visionary, and Collaborative. The results were somewhat contrary to earlier research on the relative importance of Technological as a leadership characteristic.

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What does the study add to the existing body of knowledge or theories? The study seems to confirm the relative importance of four of the five leadership characteristics to members of a virtual team. This adds to the existing body of research in that such confirmation gives increased credibility and insight to the emerging field of research focused on leadership in the virtual environment. Furthermore, the study potentially exposes two interesting dynamics.

First, there seems to be a contradiction, or a perhaps a chasm, between the characteristic that virtual team members view as the most important, and what they perceive is most important to a leader of a virtual team. Specifically, all participants, including those from Latin America, ranked the leadership characteristic Communicative first. This was true when descriptive statistical analysis was done on the Latin American participants separately.

However, when asked what was the most important characteristic to a Latin American manager, all participants, and the Latin American participants separately, ranked Trust / Relationship Builder first. Caution should be taken in drawing any firm conclusions from this due to the limited number of responses. However, further research into this might provide further insights into what seems to be a dichotomy, and maybe to better understand its implications to virtual teaming.

The second potential impact to the existing body of research is the low relative ranking the participants gave the Technological leadership characteristic. This seems contrary to what the existing body of knowledge suggests, and further research would need to be done to validate what appears to be a change in the relative importance of this leadership characteristic.

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What are the implications for leadership, followership, and virtual teams based on the influence (or lack thereof) of culture? This study appears to validate the importance of key leadership characteristics for virtual teams, their leaders, and the virtual team members. Existing literature highlights these important leadership characteristics and this study seems to validate most of them, even with the study's limited number of participants and lack of full geo-cultural region participation.

How extensible is the research and outcomes to cultures, and other industries and companies not included in the study? Given the limited participation, the study is probably not very applicable to three of the four geo-cultural regions. Perhaps some of the study's insights could be applicable to North America since most of the participants came from that geo-cultural region. Further, some of the insights drawn from the Latin American participants' responses could be the basis for further study. But little could be applicable from the few European responses and virtually nothing to Asia Pacific since there were no participants from that geo-cultural region.

As for applicability to other industries and companies not included in the study, very little probably would be applicable for two reasons. First, a number of companies in disparate industries were approached to participate. Because of the confidential nature and anonymity of the responses, there was no way to identify which companies and from which industries those that chose participated came. The second reason was that the data analyzed was done so from a geo-cultural region perspective and not a company or an industry perspective.

What do the outcomes suggest as possible areas of future study? Suggested areas for future research are discussed in the next section.

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Suggestions for Future Research

There are two areas for suggested future research, both of which have been noted earlier. The first is understanding what appears to be a gap between what participants' view as their most important leadership characteristic and what they perceive to be the most important characteristic to a Latin American manager. Specifically, and as noted above, all participants, and Latin American ones separately, ranked Communicative first. When asked what they perceived to be the most important to a Latin American manager, they ranked Trust / Relationship Builder first.

Research should be done to first to validate this possible gap exists, and then to understand the implications of this gap. Potential issues that arise if this gap in fact exists could impact the success of the virtual team in that the team's members may have expectations that are different than those of the team leader.

The second area for further research would be in understanding the relative importance of the Technological leadership characteristic. The literature explored in Chapter Two suggested that Technological was one of the top five leadership characteristics that followers required of the virtual team leader. However, the data analyzed in this study, both the quantitative and the qualitative responses, put a relatively low rank on this leadership characteristic. Further research should be done to validate whether Technological remains a relatively important leadership characteristic to virtual team members.

Conclusion

This study was developed to gain further insight to whether there was a relationship between a follower's geo-cultural identity and their leadership characteristic

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preferences in the virtual environment. As more multi-national organizations implement virtual teaming, a deeper understanding is needed of what makes these teams succeed or fail. Virtual teams are comprised of people of varying experiences, cultures, expectations, and work habits. While this combination can give participants a very rich and rewarding experience, it can also be a volatile concoction that will cause the team to fail. Strong leadership is needed, and understanding what makes for strong leadership is essential, if these teams are to succeed.

This study was designed to gain insight into follower's leadership characteristic preference from four geo-cultural regions. The study was designed properly but a significantly significant number of usable responses from the needed participant pool was not received. Responses were mostly from North America. There was some Latin American participation, minimal European participation, and no Asia Pacific participation. Furthermore, the number of responses was small which limited the quality of statistical analysis that could be done. The research question could not be answered and only limited insight into the enabling questions could be offered.

The participants seemed to validate the importance of having a leader that communicates effectively to the team. Furthermore, the participants clearly put emphasis on the team leader creating a 'virtual community' that is collaborative and then engenders trust and respect on the team. The leader must have a vision and must work to have each virtual team member embrace the vision as though it were their own. Finally, the team did not seem to think, relative to the other characteristics a virtual team leader needed to have, that the leader needed strong technological skills. This seemed to be contrary to what earlier research suggested and might be explored in future research.

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Multi-national companies are tasked with truly understanding the interplay of dynamics that make a virtual team succeed or fail. It is hoped that this study has furthered the body of knowledge in this area, and that multi-national companies, and other organizations that utilize virtual teams, will learn from earlier research, this study, and the research to be done in the future.

Evaluation of Study

This study sought to further the growing body of research on followership preference for certain types of leadership characteristics in a virtual environment. A team brought together in a virtual environment face not only those 'normal and usual' challenges all teams face, but also face the added challenges and complexities of meeting team goals and objectives while separated by time, geography, and culture. The leader of a virtual team must work to bring common sense of purpose to the team, and must work to bridge the gaps and differences in expectations and performance that each virtual team member brings.

Earlier research on virtual teaming identified several leadership characteristics important to the success of a virtual team. This study sought to test both the validity and relative importance of five of those leadership characteristics. Further, it sought to understand, compare, and contrast those characteristics across four geo-cultural regions.

As with most research, some aspects of the study worked and provided further insight into leadership in a virtual environment. Other aspects of the study needed improvements to both broaden and deepen the understanding of leadership in the virtual environment. The next two sections describe some of what worked and areas where improvement could enhance the results of a similar study.

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What Worked

Several aspects of this study worked well. First, the topic of leadership characteristic preference of followers in a virtual environment is timely. Companies today are seeking competitive advantages, and one possible way is to establish virtual teams that are geographically dispersed and near their customers. Establishing these teams also allow companies to hire the most talented people who would otherwise be required to relocate.

This study was also properly grounded in the extensive research done on some of the traditional notions of leadership, and on the emerging research areas of leadership in a virtual environment, virtual teaming, and followership. Testing the key leadership characteristic preferences of followers in four geo-cultural regions in the virtual environment was not fully addressed by the existing research, and was thus a valid area of research for this study.

The research design was sound, the survey instrument acceptable, and the targeted population valid. The research was designed to gather both quantitative and qualitative data from participants in four geo-cultural regions. The survey was relatively short but the questions appropriate to gather data to answer the research and enabling questions.

The survey was posted on the Web, thereby giving access to global participants. Responses were both confidential and anonymous which would assuage the participants' concerns over exposing either who they were or for whom they worked. The targeted population of multi-national organizations was proper because of their global presence and access to their virtual team representatives.

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Finally, how multi-national companies would be approached and solicited for participation seemed sound. The human resource manager, who assumedly would have access to key company managers, the company's entire employee population, and the company's e-mail database, seemed to be the correct contact for the research. Once engaged, the human resource manager could distribute the survey's link to participants in each geo-cultural region, thereby assuring that the research would at least be exposed to the targeted population. Further, with a little encouragement, a sufficient number of participants from each geo-cultural region would participate.

Therefore, going into the data gathering phase of the study, all pertinent parts seemed to be in place.

What Might Be Improved

The key area for improvement would be in ensuring that a sufficient number of participants in each geo-cultural region were reached, and in encouraging a statistically sufficient number of those participants to participate. In the case of Asia Pacific, it is unclear whether a sufficient number of participants were reached and, if so, why they either chose not to, or could not, participate. In Europe, only three that participated, indicating perhaps that an insufficient number of European virtual team members were reached. The same might be true of the Latin American participants. The largest number of participants came from North America, perhaps suggesting that a greater number of potential participants were reach in this region than in the others.

Perhaps one reason why there was no Asia Pacific participation was due to countries in that region, most notably China, limiting access to certain Web sites and Uniform Resource Locators (URLs). Perhaps the link to the survey was sent out by the

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company and was received by the potential participant. But when the participant attempted to access the survey, the link failed due to their country's or company's firewall. This is speculation; however, there have been a number of credible media reports that detail certain countries' limitations on its citizenry accessing certain Web sites and URLs.

A more certain reason for the low number of participants and narrow geo-cultural region dispersion was the unwillingness of several multi-national companies to participate. Their reluctance, and in many cases their outright refusal, to participate can be categorized into three reasons.

The primary reason stated by virtually all multi-nationals who refused to participate was that, as a matter of policy, their company did not participate in research done by third parties. These companies' representative, whether a receptionist or a high level human resource representative, expressed confusion when asked to participate. Moreover, many thought that they were being solicited for a donation and referred the call to their corporate philanthropy department. No amount of describing or explaining the purpose of the call and research seemed to help.

The second most frequent reason multi-nationals refused to participate was for fear that their employees would disclose confidential information. Companies, rightly so, are protective of their trade secrets and require employees to hold competitive information close. While this reasoning is understandable, it had little to do with the information and opinions the study sought from participants. It was explained to the companies' representatives that the survey sought little hard information and only solicited opinions from participants. It was further explained that there was no identifying

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information on the responses, thereby ensuring that all responses were both anonymous and confidential. Notwithstanding these assurances, many companies chose not to participate.

The third and final reason companies gave for deciding not to participate was that they felt their employee base was 'surveyed-out.' Many companies, in particular large multi-nationals, tend to survey their employee base several times a year. These surveys naturally seek opinions on a variety of subjects specific to the company. Because the employee base is solicited several times a year, the companies' representatives felt uncomfortable asking their employees to complete another survey.

For those companies that chose to participate, many did so reluctantly and limitedly. Several indicated that they would ask only a few people to complete the survey, and that those that would complete the survey would be from North America. They would not ask any international people to complete the survey.

Lastly, those that somewhat more enthusiastically agreed to participate did so but on a limited basis. Typically, the human resource manager would ask only one or two business organizations to participate as opposed to many in the company. Based on the number of responses and the geo-cultural regions from which they came, it was obvious that the survey was completed principally by employees in North America.

Suggestions for a Better Study

For researchers that would like to replicate this study, there are a few suggestions on how to make the study better, which in turn hopefully would add both breadth and depth to the results of this study.

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First and foremost, the researcher must determine who the virtual team participants are and must devise an effective way to reach them in each of the four geo-cultural regions. The seemingly logical virtual team participants for this study were those employees that worked for multi-national companies. These organizations have a global employee base and virtual teams are rapidly becoming an accepted way to meet business goals. Thus, it would seem logical that gaining access to this employee base would provide fertile participants for the research.

Identifying potential companies is fairly easy given the plethora of multi-national companies. What proved to be more difficult, however, was accessing the employee base of potential participants. One method tried in this research to gain access to the employee base was a simple phone call to the home office. The receptionist at the company proved to be a formidable gatekeeper, giving no access to a human resource person.

A second way that was tried to gain access to the employee base was to contact a person known to the researcher in the company with the request to be given the human resource person's contact information. This proved to be more successful in getting to the human resource person, but not very successful in gaining broad access to the employee base. As noted above, most human resource managers were reluctant, or simply refused, to solicit their employee base to complete the survey. These were for the reasons above, namely 'survey fatigued,' against company policy, etc. So for the person who would like to take this research further, they would have to gain access to virtual workers in a different way.

One possible way is to have, or develop a relationship with, executives high enough in the companies so that access to the employee base comes through that

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executive. Messages coming from senior executives in an organization tend to get greater attention by the company's employees.

However, this approach has potential pitfalls from both the Human Subjects approval perspective and by the quality of data standpoint. From the Human Subjects perspective, it might be viewed as unacceptable pressure by a company executive to the employee base. Accordingly, Human Subjects might not approve of this approach.

From the quality of data standpoint, if the executive sent out the request to complete the survey, the responses to the survey could be tainted because of the perceived pressure to complete the survey. The participant might feel coerced into completing the survey and might give responses that are not reflective of their opinion. This in turn would create data of a poor quality from which either no or false conclusions would be drawn.

Perhaps a better way to reach a global population of virtual team participants would be to elicit the help of global forums and organizations that have global members. There are many global forums of which multi-national organizations are members. Some of these include CorenetGlobal (corporate real estate executives), International Anti-Counterfeit Coalition (corporate anti-counterfeiting representatives), and the Cellular Telephone & Internet Association (coalition of wireless communication companies).

Maybe approaching the leadership of these forums, and maybe others, who would have access to their membership might be an effective method to reach the targeted population. However, in so doing, the researcher might fall into the company dynamics noted above, meaning that a company's human resource manager or broader policies may prohibit participation.

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One final way would be to access global virtual team members may be to choose an entirely different target population and possibly team up with a researcher inside the company. The target population for this study was logical due to the reasons discussed above. However, there are probably populations of people who do not work for multi-national companies but yet are part of virtual teams. Government employees working for certain governmental agencies, particularly at the federal level, could be a targeted population.

Overcoming these challenges, and truly reaching participants in each of the four geo-cultural regions, would add depth and breadth to the results of the study. Understanding the leadership characteristic preferences of followers in the virtual environment should make these teams and organizations for which they work stronger.

Final Reflections

Up until May, 2004, this researcher worked for Hewlett-Packard (HP), a Fortune 20 global company that sells hundreds of products and services to its customers. During the researcher's fourteen years at HP, he was part of several virtual teams that had numerous members from each of the four geo-cultural regions. Just prior to departing HP, the researcher led a global effort to address counterfeiting. On that team were members from many countries including Singapore, China, Russia, Brazil, and the United States.

The topics of virtual teaming, followership, leadership characteristics, and work in the virtual environment hold keen interests for the researcher. This study both validated some of the researcher's ideas of what works in the virtual environment and what must be addressed to make virtual teams successful.

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Finally, the discipline, the learnings (though limited they are), and quite frankly the fun, of conducting this study has created an even greater interest in the researcher to learn more about virtual teaming and the interactions – cultural and otherwise – that occur in the virtual environment.

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APPENDIX A: Categories of Companies

A. High Technology

These are companies that sell products and services in the information technology field. Products that these companies produce and sell include, but are not limited to, silicon chips, servers, personal computers, software, and peripherals. These companies also offer a range of consulting services to other companies that range from business consulting to data hosting.

B. Consumer Products

These are companies that sell a wide range of products to customers. These products include, but are not limited to, razors, toothpaste, tissue and bathroom paper, laundry soap, and diapers.

C. Pharmaceutical

These are companies that sell drugs and other pharmaceuticals that combat cancer, diabetes, osteoporosis, and arthritis. Other products include vaccines and many over-the-counter medicines.

D. Transportation

These are companies that transport both people and freight. Those companies that transport principally people are global carriers with hubs in many cities in both the United States and abroad. Those companies that are principally freight carriers transport freight via air and ground.

E. Consumer Electronics

These are companies that sell consumer electronics including, but not limited to, DVD and CD players, stereos, televisions, and a plethora of handheld electronic devices.

F. Conglomerates

These companies are characterized by having both broad and deep businesses in many industries that range from aerospace engineering to consumer products.

G. Entertainment Companies

These are companies in the music and film entertainment industries. These companies record, market, and sell music. In many cases, they also produce, create, and market motion pictures.

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APPENDIX B: Invitation Letter to Potential Participants

An Invitation to Participate in Research on the Virtual Environment

To participate, please click on the following link: **GO TO SURVEY**

Background

I am a Ph.D student in the Human Resource Development program of the School of Education at Colorado State University . My doctoral study focuses on work being done by virtual teams. I define a virtual team as group of people who work interdependently with shared purpose across space, time, and organizational boundaries using technology to communicate and collaborate. A member of this team is an individual that is one of a group of people who work interdependently with shared purpose across space, time and organizational boundaries using technology to communicate and collaborate.

The title of my study is the "Relationship Between Geo-Cultural Identity and Leadership Characteristic Preferences of Followers in a Virtual Environment." In essence, I am interested in learning how you rank 5 leadership characteristics in order of importance, and then what you believe is the single most important characteristic to your manager and that of managers in three other global locations.

You are being asked to participate if you work on a virtual team as defined above.

The questionnaire is being conducted via the web and will take about 5 minutes to complete. You can be assured that your responses are completely anonymous. Each response will generate a text file e-mail message that will be sent to me with no identifying information (IP address, e-mail address, etc.). I do not have direct access to the web site. Some companies track their employees' e-mail and web site usage, and your decision to participate might be noted by your company. The company, however, will not have access to your responses.

There are no known risks to participating in this study. There are no known direct benefits to you in participating in the survey; however, we hope that you will have the satisfaction of knowing that you have made an important contribution to research relevant to working in a virtual environment. If you have any questions, you may reply using the contact information below. Although your participation is welcomed, needed and encouraged, your participation in this study is voluntary. By completing the questionnaire, you are agreeing to participate in the study. Questions about participants' rights may be directed to the Regulatory Compliance Office, c/o Celia Walker, at (970) 491-1563.

Thank you for your interest and participation in this research. After I collect and analyze the data, I will be posting a summary of the study's results on the website later this Fall. Both you and your employer will be able to access the summary using the same link you used to participate in the survey.

Professor Gary D. Geroy
School of Education
(970) 491-5097

Tom Howard
Graduate Student

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APPENDIX C: Leadership Characteristic Survey (LCS)

Leadership Characteristic Survey (LCS)

Instructions

Completing the grid should take fewer than 5 minutes.

- Step 1: click on your region defined as follows:
  - *EMEA* – the region that contains the individual countries in Europe, the Middle East and Africa.
  - *AP* – the region that contains the individual countries in Asia Pacific including, but not limited to, China, Singapore, India, Indonesia, Japan, and Australia.
  - *LAR* – the region that contains the individual countries in Latin and South America including, but not limited to, Mexico, Puerto Rico, Brazil and Argentina.
  - *NA* – the region that contains the United States and Canada.
- Step 2: write the name of your country
- Step 3: click on your manager's region (use your best guess if you don't know)
- Step 4: write the name of your manager's country (use your best guess if you don't know)
- Step 5: in order of importance to you, **list** the leadership characteristics from 1 to 5, with 1 being the most important and 5 being the least. So for example, you might think Technical = 1, Collaborative = 2, etc. **Please don't use the same number twice.**
- Step 6: identify to the best of your knowledge the single most important leadership characteristic to a manager from each of the four regions. Draw on your actual knowledge or simply take a guess.
- Step 7: identify your age range and gender
- Step 8 (optional): briefly answer the question under the grid

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					What Do You Think is the Single Most Important Leadership Characteristic to a Manager From Each Region (Use Your Best Guess and Choose Only One)			
Check Your Region	**Write the Name of Your Country**	**Check Your Manager's Region**	**Write the Name of Your Manager's Country**	**In Order of Importance to You, List These Leadership Characteristics With 1 Being the Most Important and 5 Being the Least)**	**NA**	**LA**	**AP**	**EMEA**
NA		**NA**		**Communicative**				
LA		**LA**		**Technical**				
AP		**AP**		**Trust/Rel. Bldr**				
EMEA		**EMEA**		**Visionary**				
				Collaborative				

Your Gender: ____ Male _____ Female

Your age range:

_____ < 21 years old

_____ 21 to 30

_____ 31 to 40

_____ 41 to 50

_____ 51 to 60

_____ > 60

Optional Question: What do you think makes a virtual team succeed or fail?

_____

_____

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Definitions

Participants should apply the following definitions when completing this survey:

6. Virtual team member – an individual that is one of a group of people who work interdependently with shared purpose across space, time and organizational boundaries using technology to communicate and collaborate.
7. Geo-cultural identity – the global region from which the survey's participant originally comes. For example, a person born or raised for most of their life in Germany, but that now works in China, is considered from Germany.
8. Leadership characteristics
    a. Communicative – the extent to which the leader actively communicates to and with the team about all matters.
    b. Technological – the extent to which the leader integrates, uses and requires the team to use technology to drive the team including by not limited to e-mail, web casts, electronic white boards, etc.
    c. Trust / relationship builder – the extent to which the leader builds mutual trust, respect and cooperation amongst the team and the team's members.
    d. Visionary – the extent to which the team creates and shares a vision that directs and drives the team, and that is embraced by all members of the virtual team.
    e. Collaborative – the extent to which the leader actively solicits inputs from the team's members, creates alignment on objectives and strategies, and seeks out other team members' opinions about objectives, priorities and strategies.

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APPENDIX D: Statistical Tables

Table D1

Wilcoxon Test Results Comparing the Communicative Leadership Characteristic Against the Other Four Leadership Characteristics

		N	Mean Rank	Sum of Ranks
Technological – Communicative	Negative Ranks	0[a]	.00	.00
	Positive Ranks	62[b]	31.5	1953.00
	Ties	0[c]		
	Total	62		
Trust / Relationship Builder – Communicative	Negative Ranks	28[d]	30.82	863.00
	Positive Ranks	34[e]	32.06	1090.00
	Ties	0[f]		
	Total	62		
Visionary – Communicative	Negative Ranks	19[g]	26.42	502.00
	Positive Ranks	43[h]	33.74	1451.00
	Ties	0[i]		
	Total	62		
Collaborative – Communicative	Negative Ranks	16[j]	22.31	357.00
	Positive Ranks	45[k]	34.09	1534.00
	Ties	1[l]		
	Total	62		

a. Technological < Communicative
b. Technological > Communicative
c. Technological = Communicative
d. Trust / Relationship Builder < Communicative

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e. Trust / Relationship Builder > Communicative
f. Trust / Relationship Builder = Communicative
g. Visionary < Communicative
h. Visionary > Communicative
i. Visionary = Communicative
j. Collaborative < Communicative
k. Collaborative > Communicative
l. Collaborative = Communicative

Table D2

Wilcoxon Test Results Comparing the Technological Leadership Characteristic Against the Other Three Leadership Characteristics

		N	Mean Rank	Sum of Ranks
Trust / Relationship Builder – Technological	Negative Ranks	56[a]	33.85	1895.50
	Positive Ranks	6[b]	9.58	57.50
	Ties	0[c]		
	Total	62		
Visionary – Technological	Negative Ranks	49[d]	34.11	1671.50
	Positive Ranks	13[e]	21.65	281.50
	Ties	0[f]		
	Total	62		
Collaborative – Technological	Negative Ranks	57[g]	31.68	1806.00
	Positive Ranks	5[h]	29.40	147.00
	Ties	1[i]		
	Total	62		

a. Trust / Relationship Builder < Technological
b. Trust / Relationship Builder > Technological
c. Trust / Relationship Builder = Technological
d. Visionary < Technological
e. Visionary > Technological

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f. Visionary = Technological
g. Collaborative < Technological
h. Collaborative > Technological
i. Collaborative = Technological

Table D3

Wilcoxon Test Results Comparing the Trust / Relationship Builder Leadership Characteristic Against the Other Two Leadership Characteristics

		N	Mean Rank	Sum of Ranks
Visionary – Trust / Relationship Builder	Negative Ranks	22[a]	21.73	478.00
	Positive Ranks	40[b]	36.88	1475.00
	Ties	0[c]		
	Total	62		
Collaborative – Trust / Relationship Builder	Negative Ranks	13[d]	39.08	508.00
	Positive Ranks	49[e]	29.49	1445.00
	Ties	0[f]		
	Total	62		

a. Visionary < Trust / Relationship Builder
b. Visionary > Trust / Relationship Builder
c. Visionary = Trust / Relationship Builder
d. Collaborative < Trust / Relationship Builder
e. Collaborative > Trust / Relationship Builder
f. Collaborative = Trust / Relationship Builder

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Table D4

Wilcoxon Test Results Comparing the Visionary Leadership Characteristic Against the Collaborative Leadership Characteristic

		N	Mean Rank	Sum of Ranks
Collaborative – Visionary	Negative Ranks	33[a]	29.56	975.50
	Positive Ranks	29[b]	33.71	977.50
	Ties	0[c]		
	Total	62		

a. Collaborative < Visionary
b. Collaborative > Visionary
c. Collaborative = Visionary

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Table D5

Wilcoxon Test Results Comparing the Communicative Leadership Characteristic Against the Other Four Leadership Characteristics as Ranked by the North American Participants

		N	Mean Rank	Sum of Ranks
Technological – Communicative	Negative Ranks	0[a]	.00	.00
	Positive Ranks	49[b]	25.00	1225.00
	Ties	0[c]		
	Total	49		
Trust / Relationship Builder – Communicative	Negative Ranks	24[d]	25.23	605.50
	Positive Ranks	25[e]	24.78	619.50
	Ties	0[f]		
	Total	49		
Visionary – Communicative	Negative Ranks	15[g]	21.23	318.50
	Positive Ranks	34[h]	26.66	906.50
	Ties	0[i]		
	Total	49		
Collaborative – Communicative	Negative Ranks	13[j]	17.69	230.00
	Positive Ranks	35[k]	27.03	946.00
	Ties	1[l]		
	Total	49		

a. Technological < Communicative
b. Technological > Communicative
c. Technological = Communicative
d. Trust / Relationship Builder < Communicative
e. Trust / Relationship Builder > Communicative

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f. Trust / Relationship Builder = Communicative
g. Visionary < Communicative
h. Visionary > Communicative
i. Visionary = Communicative
j. Collaborative < Communicative
k. Collaborative > Communicative
l. Collaborative = Communicative

Table D6

Wilcoxon Test Results Comparing the Technological Leadership Characteristic Against the Other Three Leadership Characteristics as Ranked by North American Participants

		N	Mean Rank	Sum of Ranks
Trust / Relationship Builder – Technological	Negative Ranks	45[a]	26.78	1205.00
	Positive Ranks	4[b]	5.00	20.00
	Ties	0[c]		
	Total	49		
Visionary – Technological	Negative Ranks	39[d]	26.79	1045.00
	Positive Ranks	10[e]	18.00	180.00
	Ties	0[f]		
	Total	49		
Collaborative – Technological	Negative Ranks	45[g]	24.92	1121.50
	Positive Ranks	4[h]	25.88	103.50
	Ties	0[i]		
	Total	49		

a. Trust / Relationship Builder < Technological
b. Trust / Relationship Builder > Technological
c. Trust / Relationship Builder = Technological
d. Visionary < Technological
e. Visionary > Technological
f. Visionary = Technological

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g. Collaborative < Technological
h. Collaborative > Technological
i. Collaborative = Technological

Table D7

Wilcoxon Test Results Comparing the Trust / Relationship Builder Leadership Characteristic Against the Other Two Leadership Characteristics as Ranked by North American Participants

		N	Mean Rank	Sum of Ranks
Visionary – Trust / Relationship Builder	Negative Ranks	16[a]	16.59	265.50
	Positive Ranks	33[b]	29.08	959.50
	Ties	0[c]		
	Total	49		
Collaborative – Trust / Relationship Builder	Negative Ranks	8[d]	32.98	259.00
	Positive Ranks	41[e]	23.56	966.00
	Ties	0[f]		
	Total	49		

a. Visionary < Trust / Relationship Builder
b. Visionary > Trust / Relationship Builder
c. Visionary = Trust / Relationship Builder
d. Collaborative < Trust / Relationship Builder
e. Collaborative > Trust / Relationship Builder
f. Collaborative = Trust / Relationship Builder

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Table D8

Wilcoxon Test Results Comparing the Visionary Leadership Characteristic Against the Collaborative Leadership Characteristic as Ranked by North American Participants

		N	Mean Rank	Sum of Ranks
Collaborative – Visionary	Negative Ranks	26[a]	23.06	599.50
	Positive Ranks	23[b]	37.20	625.50
	Ties	0[c]		
	Total	49		

a. Collaborative < Visionary
b. Collaborative > Visionary
c. Collaborative = Visionary

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Table D9

Wilcoxon Test Results Comparing the Communicative Leadership Characteristic Against the Other Four Leadership Characteristics as Ranked by the Latin American Participants

		N	Mean Rank	Sum of Ranks
Technological – Communicative	Negative Ranks	0[a]	.00	.00
	Positive Ranks	10[b]	5.50	55.00
	Ties	0[c]		
	Total	10		
Trust / Relationship Builder – Communicative	Negative Ranks	3[d]	4.17	12.50
	Positive Ranks	7[e]	6.07	42.50
	Ties	0[f]		
	Total	10		
Visionary – Communicative	Negative Ranks	3[g]	4.00	12.00
	Positive Ranks	7[h]	6.14	43.00
	Ties	0[i]		
	Total	49		
Collaborative – Communicative	Negative Ranks	2[j]	4.50	9.00
	Positive Ranks	8[k]	5.75	46.00
	Ties	0[l]		
	Total	10		

m. Technological < Communicative
n. Technological > Communicative
o. Technological = Communicative
p. Trust / Relationship Builder < Communicative
q. Trust / Relationship Builder > Communicative
r. Trust / Relationship Builder = Communicative

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s. Visionary < Communicative
t. Visionary > Communicative
u. Visionary = Communicative
v. Collaborative < Communicative
w. Collaborative > Communicative
x. Collaborative = Communicative

Table D10

Wilcoxon Test Results Comparing the Technological Leadership Characteristic Against the Other Three Leadership Characteristics as Ranked by Latin American Participants

		N	Mean Rank	Sum of Ranks
Trust / Relationship Builder – Technological	Negative Ranks	8[a]	5.81	46.50
	Positive Ranks	2[b]	4.25	8.50
	Ties	0[c]		
	Total	10		
Visionary – Technological	Negative Ranks	7[d]	6.36	44.50
	Positive Ranks	3[e]	3.50	10.50
	Ties	0[f]		
	Total	10		
Collaborative – Technological	Negative Ranks	9[g]	5.78	52.00
	Positive Ranks	1[h]	3.00	3.00
	Ties	0[i]		
	Total	10		

j. Trust / Relationship Builder < Technological
k. Trust / Relationship Builder > Technological
l. Trust / Relationship Builder = Technological
m. Visionary < Technological
n. Visionary > Technological
o. Visionary = Technological
p. Collaborative < Technological

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q. Collaborative > Technological
r. Collaborative = Technological

Table D11

Wilcoxon Test Results Comparing the Trust / Relationship Builder Leadership Characteristic Against the Other Two Leadership Characteristics as Ranked by Latin American Participants

		N	Mean Rank	Sum of Ranks
Visionary – Trust / Relationship Builder	Negative Ranks	5[a]	4.90	24.50
	Positive Ranks	5[b]	6.10	30.50
	Ties	0[c]		
	Total	10		
Collaborative – Trust / Relationship Builder	Negative Ranks	5[d]	5.80	29.00
	Positive Ranks	5[e]	5.20	26.00
	Ties	0[f]		
	Total	10		

g. Visionary < Trust / Relationship Builder
h. Visionary > Trust / Relationship Builder
i. Visionary = Trust / Relationship Builder
j. Collaborative < Trust / Relationship Builder
k. Collaborative > Trust / Relationship Builder
l. Collaborative = Trust / Relationship Builder

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Table D12

Wilcoxon Test Results Comparing the Visionary Leadership Characteristic Against the Collaborative Leadership Characteristic as Ranked by Latin American Participants

		N	Mean Rank	Sum of Ranks
Collaborative – Visionary	Negative Ranks	6[a]	5.17	31.00
	Positive Ranks	4[b]	6.00	24.00
	Ties	0[c]		
	Total	10		

d. Collaborative < Visionary
e. Collaborative > Visionary
f. Collaborative = Visionary

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