2017

Emotional Intelligence in Leadership and Project Success within Virtual Teams

Betsy Ferronato
Walden University

Walden University

College of Social and Behavioral Sciences

This is to certify that the doctoral dissertation by

Betsy Ferronato

has been found to be complete and satisfactory in all respects,
and that any and all revisions required by
the review committee have been made.

Review Committee
Dr. Gwynne Dawdy, Committee Chairperson, Psychology Faculty
Dr. Robert Haines, Committee Member, Psychology Faculty
Dr. James Herndon, University Reviewer, Psychology Faculty

Chief Academic Officer
Eric Riedel, Ph.D.

Walden University
2017

Abstract

Emotional Intelligence in Leadership and Project Success within Virtual Teams

by

Betsy Suzanne Ferronato

MS, Walden University, Minneapolis, Minnesota 2009

BS, University of Minnesota Morris, Morris, Minnesota 2006

Dissertation Submitted in Partial Fulfillment

of the Requirements for the Degree of

Doctor of Philosophy

Psychology

Walden University

November, 2017

Abstract

Previous literature has focused on the traits of various leadership styles. Due to the lack of research on leadership styles, the focus of this study was to identify which emotional intelligence characteristics of a leader are significant to the success of virtual team projects. Supported by emotional intelligence and transformational leadership theories, the research questions addressed (a) whether, among virtual teams, a relationship exists between overall emotional intelligence scores and the success of virtual project teams, and (b) to what extent virtual team leaders' abilities to express and use their emotions predict the success of virtual team projects. The target population for this study included virtual team leaders who embodied a transformational leadership style. The correlation analysis showed that the overall emotional intelligence score correlated significantly and positively with project success of virtual teams in the areas of client satisfaction and perceived quality, as well as with the overall project success measure of virtual teams. The regression analysis did not reveal statistical significance for the relationship between the independent variables of aspects of emotional intelligence and the dependent variable of overall project success, as perceived by virtual team leaders. The underlying conclusion of the survey data included: among transformational virtual team leaders, there was a relationship between overall emotional intelligence scores and the success of virtual teams; however, the extent of that relationship remains uncertain. This study may aid organizations in the development of virtual teams by determining which leadership traits and attributes are essential for success.

Emotional Intelligence in Leadership and Project Success within Virtual Teams

by

Betsy Suzanne Ferronato

MS, Walden University, Minneapolis, Minnesota 2009

BS, University of Minnesota Morris, Morris, Minnesota 2006

Dissertation Submitted in Partial Fulfillment

of the Requirements for the Degree of

Doctor of Philosophy

Psychology

Walden University

November, 2017

Table of Contents

Abstract iv

Table of Contents i

List of Tables v

Chapter 1: Introduction 1

Background of the Study 3

Statement of the Problem 4

Purpose of the Study 5

Research Questions 5

Theoretical Framework 6

Nature of the Study 8

Definition of Terms 9

Emotion: 9

Emotional intelligence 9

Leadership 9

Leadership style: Leadership style is 9

Transformational leadership: 9

Team: 9

Virtual team: 9

Assumptions 10

Scope and Delimitations 10

Limitations 10

Significance of the Study 11
Summary 12
Chapter 2: Literature Review 13
Literature Search Strategy 13
Virtual Teams 13
Virtual Team Leadership 16
Virtual Team Development 17
Challenges of Leading Virtual Teams 20
Addressing Challenges of Leading Virtual Teams 24
Successful Virtual Teams 27
Virtual Teams and Transformational Leadership 33
Theoretical Orientation: Emotional Intelligence Theory 35
Leadership and Team Effectiveness 37
Transformational Leadership and Team Effectiveness 39
Emotional Intelligence and Leadership 44
Summary 48
Restatement of Research Questions and Hypotheses 50
Research Design 52
Target Population and Sampling 53
Instrumentation 55
Threats to Validity 57
Data Collection Procedures 58

Data Analysis Procedures 60
Ethical Considerations 61
Summary of the Chapter 62
Chapter 4: Results 64
Introduction 64
Data Collection 65
Results 68
Descriptive Statistics Analysis of Study Variables 68
Results of Pearson Correlation Analysis for Research Question 1 69
Results of Hierarchical Regression Analysis for Research Question 2 70
Summary 74
Chapter 5: Discussion, Conclusions, and Recommendations 75
Introduction and Summary of the Findings 75
Results of Pearson Correlation Analysis for Research Question 1 77
Results of Hierarchical Regression Analysis for Research Question Two 78
Interpretations of the Findings 80
Virtual Teams 84
Emotional Intelligence 84
Transformational Leadership 88
Implications of the Findings 93
Limitations of the Study 96
Recommendations for Future Research 97

Summary and Conclusions 99

References.....101

Appendix A: Approval to Use Measure: Information Systems Project Success Tool 124

Appendix B: MLQ Permission to use Measure…….. 126

Appendix C: MLQ Questions Sample 127

Appendix D: Invitation to participate statement- Amazon Turk: 128

Appendix E: MSCEIT Sample Questions.....129

Appendix F: LinkedIn Invitation Wording 130

Appendix G: Information Systems Project Success Questionnaire.....131

Appendix H: Correspondence with Accenture and Transamerica Contacts.....132

List of Tables

Table 1. Frequency and Percentage Summaries of Categorically Measured Demographic Information 67

Table 2. Descriptive Statistics Summaries of Continuous Measured Demographic Information 67

Table 3. Descriptive Statistics Summaries of Study Variables.....69

Table 4. Pearson Correlation Results of Correlation Between Overall Emotional Intelligence and Project Success of Virtual Teams.....70

Table 5. Hierarchical Regression Results of Linear Relationship of Emotional Intelligence Aspects with Project Success of Virtual Teams while Controlling the Effects of Demographic Information 73

Chapter 1: Introduction

Advancements in technology and communication in the workplace have enabled organizations to build virtual teams (Gilson et al., 2015). Introducing virtual teams in the 21st century was also a response to the increasing popularity of decentralization of work processes in organizations (Lee, 2013). A virtual team is a group composed of people from different geographical settings working together despite the distance by utilizing modern computer-mediated technology as a means for communication (O'Leary, Wilson, & Metiu, 2014). The transition to a more globally competitive corporate setting has caused companies to create virtual teams to spearhead decision-making and problem-solving tasks that are typically intended for management teams (Daim et al., 2012 & Wilkinson, 2017). Companies can handle numerous projects and provide quality service outputs in a shorter cycle time because virtual teams can overcome the limitations of time (Kerzner, 2013). However, the utilization of the virtual team structure poses potential compound challenges to its team members regarding communication (Tannenbaum, Mathieu, Salas, & Cohen, 2012).

To address the communication-related challenges, magnified by distance, time zone differences, and cultural diversity (Sleeman, Lang, & Lemon, 2016), leaders are appointed to successfully guide and retain the work team member's focus on the company's goals (Northouse, 2015). However, leaders of virtual teams face potential challenges, such as enhancing team performance and managing effective team development, because members are geographically distant from each other (Gilson, et.

al., 2015). Virtual teams need leaders with effective leadership behaviors to function successfully (Daim, et. al., 2012).

Among the various leadership styles available, studies have shown that transformational leadership, because of its charismatic and inspirational nature, is important to teams whose communication levels are limited by technology (Braun, Peus, Weisweiler, & Frey, 2013). According to Goleman, Boyatzis, and McKee (2013), effective leaders, especially transformational leaders, often exhibit high levels of *emotional intelligence*, which is the ability to identify and regulate emotions to utilize them in the problem-solving and decision-making process. The importance of emotional intelligence is directly related to the level of position held by an individual. This connection leads to the perception that emotional intelligence is a significant trait of team leaders, since their emotional displays may influence team performance (Goleman et al., 2013).

There have been numerous studies on the relevance of emotional intelligence on leadership and its impact on managerial behavior in the workplace (Druskat, Mount, & Sala, 2013; Jung & Yoon, 2012). Researchers have also conducted studies on leadership practices about emotions, wherein the primary focus has included the traits and effects of transformational, transactional, and charismatic leadership (Avolio & Yammarino, 2013; Kark & Shamir, 2013; McCleskey, 2014; Tyssen, Wald, & Spieth, 2014). However, because previous researchers have focused more on the traits of various leadership styles, there is a lack of research on which aspects of emotional intelligence are most valuable for the project success of virtual teams. Therefore, in the current study, I sought to

identify which emotional intelligence characteristics of a leader are significant to the success of the projects handled by virtual teams.

Background of the Study

Although work teams have been prevalent in the United States since the 1960s, the concept of implementing virtual work teams in companies began only in the mid-1990s (Landy & Conte, 2016). In the interest of becoming globally competitive, organizations in the 21st century have introduced the concept of virtual teams in their structure to bring participants from different locations together to accomplish certain projects (Child, 2015). Virtual teams are able to handle various projects, ranging from simple to complex because they allow organizations to access qualified individuals regardless of location (Van Dijk, 2012). The potential concerns of virtual processes involve communication-related issues, which stem mainly from time zone differences, difficulty in understanding languages, differing cultural ethics, and geographical distance (Babar & Zahedi, 2012). A team head is then necessary for orienting, leading, and guiding the virtual project team in accomplishing their tasks (Wheelan, 2014). According to Mukherjee, Lahiri, Mukherjee, and Billing (2012), leaders must be effective in leading virtual project teams with the absence of face-to-face interaction. Furthermore, due to research claiming its effectiveness in the organizational setting, transformational leadership may be significant to team leaders of virtual teams. Since emotional intelligence is widely studied as an important aspect of leadership and is believed to have a large influence on the company and its employees (Batool, 2013), it is also relevant to the current research. Although researchers have widely discussed the leadership styles'

impact on virtual work teams, few researchers have emphasized the particular characteristics of emotional intelligence of a leader that may contribute to the successful outputs of virtual teams. In this study, I explored the transformational leadership style of virtual team leaders and measured aspects of their emotional intelligence, providing insight into its impact on and relationship to virtual project team success. I conducted this quantitative study involving virtual leaders to examine the relationship between the emotional intelligence aspects of a leader and the project success of virtual teams within the transformational leadership style. The study added knowledge to the understanding of the importance of emotional intelligence to the leadership of the team. I used a survey questionnaire to gather data. I measured emotional intelligence through the Mayer-Salovey-Caruso Emotional Intelligence Test (MSCEIT; Mayer, Salovey, & Caruso, 2002) and project team success through the Information Systems Project success questionnaire developed by Mahaney and Lederer (2006).

Statement of the Problem

Organizations have used virtual teams in the 21st century to cope with technological advancements and the growth of globalization (Tworoger, Ruppel, Gong, & Pohlman, 2013). An effective leader is expected to guide teams through the adaptation process and help them finish the project (Rubin, 2012). Moreover, researchers have already studied the effectiveness of transformational leadership and its impact on traditional work teams (Van Knippenberg & Sitkin, 2013), which makes this leadership style a reliable basis for the current study. Previous researchers have stated that emotional intelligence aids in cognitive and behavioral complexity and flexibility, which are

important characteristics of effective transformational leaders (Day & Antonakis, 2012). However, almost no research exists on the project success of virtual teams and what contributes to that success. No study has addressed whether or not the emotional intelligence of leaders has an impact on virtual teams. Furthermore, in relation to emotional intelligence, there is a gap in the literature on whether or not emotional intelligence plays a role in a virtual project team's success. For this dissertation, I studied emotional intelligence of leaders and its relationship to virtual teams' success on their project.

Purpose of the Study

The purpose of the study was to determine which emotional intelligence aspects of team leaders have a significant impact on the success of virtual teams, within transformational leadership. My aim in conducting this study was to bridge the gap between emotional intelligence, which researchers believe is a significant trait of a leader, and its aspects that positively contribute to the virtual team's success. Last, if there is indeed a relationship between emotional intelligence and the project success of virtual teams, I aimed to determine which specific aspects of emotional intelligence could predict a virtual project team's success.

Research Questions

I raised several questions to determine if virtual team leaders with high emotional intelligence levels affect virtual teams' success. Using a quantitative study design, I addressed the following research questions and tested the hypotheses:

RQ1: Among transformational virtual team leaders, is there a relationship between overall emotional intelligence scores and the success of virtual project teams?

$H_0$1**:** There is no relationship between the overall emotional intelligence score of transformational virtual team leaders and the project success of virtual project teams.

$H_1$1: There is a positive relationship between the overall emotional intelligence score of transformational virtual team leaders and the project success of virtual project teams.

RQ2: To what extent do emotional intelligence and its related aspects predict the project success of virtual project teams among transformational virtual team leaders?

$H_0$2: The emotional intelligence aspects of virtual team leaders, such as their ability to identify their own emotions, express their emotions, use their emotions to improve cognitive processes and decision-making, and manage their emotions measured through the MSCEIT, do not significantly predict the project success of virtual project teams considering virtual team leaders with transformational leadership style.

$H_1$2: The emotional intelligence aspects of virtual team leaders, such as their ability to identify their own emotions, express their emotions, use their emotions to improve cognitive processes and decision-making, and manage their emotions measured through the MSCEIT, can significantly predict the project success of virtual project teams considering virtual team leaders with transformational leadership style.

Theoretical Framework

The theories applied are the emotional intelligence theory, developed by Goleman in 1995, and the transformational leadership theory, developed by Burns in 1978.

Emotionally intelligent leaders manage their own emotions, evaluate their moods, understand the impact of their empathy and understanding of others' feelings, and help others using relationship management concepts (Lee & Ok, 2012). Management of emotions and utilization of moods are the main objective of an emotionally intelligent leader (Lam & O'Higgins, 2012). Additionally, promoting a positive environment by bringing out positive emotions among followers is one of the most important jobs of an emotionally intelligent leader. Moreover, such leaders have the ability to influence their followers' emotions and performance and gear them towards a positive direction. The influence of a leader on the performance of the followers is dependent on the established relationship they have.

Transformational leadership theory is also a cornerstone of this study. Transformational leadership influences organizational performance positively through organizational learning and innovation (Morales, Barrionueno, & Gutierrez, 2012). Cavazotte, Moreno, and Hickman (2012) asserted that "leadership effectiveness, as measured by the achievement of organizational, outcomes, is a direct function of a leaders' transformational behaviors, and is an indirect function of individual transformational behaviors" (p. 443). According to Mathew and Gupta (2015), transformational leaders are smart with their feelings, and they can drive the emotions of those they lead in the right direction. Transformational leadership style is relationship centered, and transformational leaders influence the team to do more than expected.

The objective of the study was to determine which emotional intelligence aspects of a leader greatly influence the virtual team's success in projects. Although there are

many theories that discuss emotional intelligence, transformational leadership theory links emotional intelligence to leadership (Goleman, Boyatzis, & McKee, 2013). Over the past 30 years, transformational leadership has been "the single most studied and debated idea with the field of leadership" (Diaz-Saenz, 2011, p. 299). Published studies link transformational leadership to CEO success (Jung, Wu, & Chow, 2008), middle manager effectiveness (Singh & Krishnan, 2008), military leadership (Eid, Johnsen, Bartone, & Nissestad, 2008), cross-cultural leadership (Kirkman, Chen, Farh, Chen, & Lowe, 2009), virtual teams (Hambley, O'Neill, & Kline, 2007), emotional intelligence (Barbuto & Burbach, 2006), and a variety of other topics (Diaz-Saenz, 2011). I used this specific theoretical framework because it directly relates emotional intelligence to leadership, which was one of the main components of the current study.

Nature of the Study

The nature of the study was non-experimental, with a quantitative multiple regression research design. A multiple regression design focuses on identifying the dependence of one variable on the other. I used the multiple linear regression procedure for this study to determine whether a statistically significant relationship exists between emotional intelligence and the project success of virtual teams. In relation to this definition, the study aimed to identify the dependence of a virtual team's success on the specific emotional intelligence characteristics of a transformational leader. The study did not aim to manipulate the experiences of the participants. The main goal of the research was to determine whether emotional intelligence relates to the success of virtual project teams under the transformational leadership style.

Definition of Terms

Emotion: Emotion is "any agitation or disturbance of mind, feeling, passion; any vehement or excited mental state" (Goleman, 2005, p. 289).

Emotional intelligence: Emotional intelligence is the "ability to perceive, understand, and manage emotions in oneself and others" (Ang & Van Dyne, 2015, p. 294).

Intelligence: Intelligence is an individual's capability to think abstractly, ability to learn, and capacity to adapt (Kolb, 2014).

Leadership: Leadership is an individual's capability to influence people and decisions to ensure organizational goals are achieved (Northouse, 2015).

Leadership style: Leadership style is a leader's method of influencing others' behaviors and attitudes (Gipson, Pfaff, Mendelsohn, Catenacci, & Burke, 2017).

Transformational leadership: Transformational leadership is "the style of leadership that heightens the consciousness of collective interest among the organization's members and helps them to achieve their collective goals" (Morales et. al., 2012, p. 1040).

Team: A team includes a small number of people with compatible abilities that are equally committed to reaching goals through a common purpose for which they hold themselves mutually accountable (Zenun, Loureiro, & Araujo, 2007).

Virtual team: "Virtual teams are teams whose members do not share a common workspace all the time, and must, therefore, collaborate using communication and

collaboration tools such as email, videoconferencing, etc. ” (Schweitzer & Duxbury, 2010, p. 267).

Assumptions

The main point of the study was to clarify whether there are aspects of emotional intelligence that are related to the success of a project handled by virtual teams. I assumed that the multiple regression research provided information that would enable further understanding of whether emotional intelligence, transformational leadership, and virtual project team’s success are all variables that are dependent on one another.

Scope and Delimitations

In this research, I focused on measuring the emotional intelligence characteristics of virtual leaders and their perceptions of the success of their virtual project teams. Team leaders who practice the transformational leadership style in handling their respective teams completed the surveyed. Participants were identified as transformational leaders through their answers to the survey questions Traditional team leaders, as well as other team leaders who practice different leadership styles, were not included in the study. Furthermore, I included virtual team leaders who were willing to participate in the study. The online survey questionnaires were disseminated via Amazon Turk.

Limitations

The primary limitation of the study was that the participants for the study were volunteers. Bias may have been prevalent in the research because the individuals who agreed to participate may only have done so because they have strong emotions and insights about the main topic of the study.

Another limitation is that, although I was able to explore the possibility of the relationship between emotional intelligence and the success of virtual project teams, I was not able to understand and examine the personal perceptions and insights of the virtual leaders on the said topic. I was not able to obtain lived experiences of the virtual leaders in handling their teams. Future research utilizing a qualitative approach could add more information on the topic.

Significance of the Study

The use of virtual teams is already being incorporated in the organizational setting to cope with innovation and change (Cummings & Worley, 2014), the need to determine the factors that contribute to team success in accomplishing projects is necessary. Effective leaders are needed in the industry to lead the virtual team in producing quality output (Kahai, Huang, & Jestice, 2012), and understanding the key components of a leader and their relation to the successful projects of virtual teams is significant as it will add more specific findings on emotional intelligence. Furthermore, this study added depth and substance to the connection between emotional intelligence and leadership. In this dissertation, I focused on relating three variables: emotional intelligence, virtual teams, and transformational leadership, and determining whether they are dependent on one another. This study was important due to the gap in research on how a leader influences the success of a virtual team through emotional intelligence. Last, the study might help globally competitive companies in understanding the relevance of effective and emotionally intelligent leaders to the success of virtual teams. The study will

contribute to the knowledge of current organizations that utilize virtual teams and provide findings that may aid them in the development of their work teams.

Summary

This introductory chapter included brief background on virtual teams, emotional intelligence, and transformational leadership. I explained the emergence of virtual teams and the need for having effective and emotionally intelligent leaders to handle them as background for the problem of the study and the formulation of the research questions. In addition, I outlined the nature, scope, and limitations, as well as the variables and terms. The next chapter will provide a review of literature related to the topic of the study.

Chapter 2: Literature Review

The purpose of this study was to determine which emotional intelligence aspects of a leader are the most valuable for virtual project team success within the leadership style of transformational leadership. This chapter provides a review of the literature on related topics such as virtual teams, virtual team leadership, leadership styles with a special focus on transformational leadership, and the relationship between emotional intelligence and leadership. The focus of this review is on understanding these variables in a business setting, even though research materials on other settings were considered.

Literature Search Strategy

I completed the literature review by examining materials I gathered from electronic databases of peer-reviewed journals such as EBSCO. Keywords were *virtual team, effective leadership for emotional intelligence, emotional intelligence and leadership, leadership styles, leadership style and team effectiveness, successful virtual teams, team effectiveness, transformational leadership, virtual teams, virtual team leadership,* and *virtual team success factors.* Also, because I took into account the historical view on leadership and leadership styles, I reviewed seminal books, starting from 1967. Peer-reviewed journals I consulted started from the year 2000.

Virtual Teams

While the purpose and nature of teams have varied over the years, one constant factor that characterized almost all teams was the need for personal, face-to-face exchanges to achieve the team's goals (Burns, 1978). In the Age of Information, which is "the rise of the information revolution, and of the cyber-sphere" (Taddeo, 2015, p. 1127),

fundamental changes have occurred, and so-called "virtual teams" are becoming increasingly commonplace in industries of all types (Heofling, 2012). Eubanks, Palanski, Olabisi, Joinson, and Dove (2016) reported that "virtual teams have become an integral part of many organizations because of all increase in corporate restructuring, competition, and globalization. A virtual team is one that spans organizational and cultural boundaries" (p. 558). Virtual teams are geographically and organizationally dispersed teams that function across time zones. Due to such physical distance, face-to-face contact in virtual teams is diminished. Team effort supported by electronic means comes with its own opportunities and challenges (Lilian, 2014).

According to Gash (2012), virtual teams can be established the same way ordinary teams are developed or formed. Like regular teams, team members cannot be chosen randomly. Because everything will be computer based, the members should know how to use the tools effectively. Team members should also be willing to use these tools and participate in such settings. Otherwise, no collaboration can happen. Appointing a virtual team facilitator or leader who can help those members with less expertise in using the telecommunications tools can also be useful (Gash, 2012). A virtual team facilitator or leader can also help the newly formed virtual team establish a mutual rapport that will contribute to their productivity. According to Dixon (2017),

> To learn effectively, teams much have developed an agreed upon goal toward which their learning is aimed, have the independence to experiment with actions to reach that goal, and function within an environment of trust, so team members can engage in the necessary learning behaviors to invent new possible actions,

> evaluate the actions they take, and reflect on the outcomes they achieve. To create team learning in a virtual setting, leaders must establish teaming routines that facilitate each of those conditions. (p. 138)

Besides team member selection, there are some other advantages and disadvantages involved in creating and administering virtual teams (West, 2012). Performed properly, though, a virtual team formed from willing and capable members can achieve a great deal of collaboration despite geographic separation.

Not surprisingly, the virtual team format provides some advantages for both small and large companies, particularly those that compete in the globalized marketplace. In this regard, Kerber and Buono (2004) reported that,

> virtual teams allow organizations to bring together critical contributors who might not otherwise be able to work together due to time, travel, and cost restrictions. In addition, virtual teams can enhance the available pool of resources by including people from outside the sponsoring organization, such as supply chain affiliates, members of partner organizations, or external consultants. (p. 5)

In addition, virtual teams provide a means by which companies can recruit, hire, and retain the most qualified employees, who may live long distances away and who might be otherwise unable or unwilling to relocate to take a position with the company. At the same time, virtual times can offer the flexibility companies need to adapt to constantly changing priorities or staff turnover (Kerber & Buono, 2004). According to Kerber and Buono, “just as important, virtual teams facilitate the implementation of

corporate-wide initiatives in global organizations and are especially valuable for companies in which these initiatives must adapt to local cultures" (2004, p. 5).

Virtual Team Leadership

Virtual teams continue to grow and bring together people from diverse cultural backgrounds (Richardson, Casey, Mccaffery, Burton, & Beechman, 2012). Pangil and Moi Chan (2014) noted that the impact of implementing team-building measures on multinational teams is unknown, particularly regarding whether the team becomes more or less effective. Simulations and games as learning-based tools have been on the rise in the 21st century, fueled by the rise in technology and globalization (Binkley et al., 2012; Froyd, Wankat, & Smith, 2012).

In the 21st century, team-building efforts for virtual teams are enabled by existing communication technologies (Kerber & Buono, 2004). Texas Instruments discovered that technological software such as WebEx resulted in time saving and reduced travel expenses (Kerber & Buono, 2004). The use of virtual teams to save significant time and money for organizations (Fleming, 2015).

According to Spicer and Dede (2006), different school systems are establishing initiatives such as the Professional Support Portal (PSP) to involve new instructors in peer coaching and online mentoring. In 2001, in an attempt to reduce teacher turnover, Milwaukee Public Schools created the PSP with assistance from the Harvard Graduate School of Education, Educational Development Center, University of Wisconsin-Milwaukee, and others. The partner organizations worked in a virtual environment as co-designers, mentors, researchers, and evaluators of the project. All partner organizations

took advantage of interactive media such as web-based videoconferencing and groupware to sustain their virtual team. According to Spicer and Dede (2006), representatives from the institutions involved did not meet face-to-face at any point during the 18-month project. The virtual team used collaborative tools suitable for both synchronous and asynchronous discussion, such as TappedIn, a platform allowing people to connect through conference calls and other team communications. Although none of the partner organizations used a single groupware, an array of compatible tools allowed the design team to work virtually. The result of the project was that all of the partner organizations built the front end of the PSP, demonstrating the potentials of collaboration design across distance (Spicer & Dede, 2006).

Virtual Team Development

There are four basic aspects of virtual team development and building. The first among these is that managers should be able to demonstrate a commitment to the virtual team (Kerber & Buono, 2004). Being committed requires the manager or leader to clarify goals, provide the sources, impart important feedback, and develop strong interpersonal relationships with other teammates. Second, team members' communication is vital and should be facilitated by technologies (Roebuck, Brock, & Moodie, 2004). Additionally, collaborative computing ranges from conducting meetings online, using mainstream applications like emails and instant messengers, to more elaborate programs designed to facilitate collaboration in real time to share information and manage projects. Third, a diverse culture within the virtual team design should be celebrated (Roebuck et al., 2004). Community spirit involves being sensitive and respectful of differences. Fourth, an

atmosphere of trust must be created (Roebuck et al., 2004). Constant scrutiny and control are becoming less important as managers increasingly assess employee performance by results and not by day-to-day tasks (Kerber & Buono, 2004). I explore these four ideas more extensively below.

With an emphasis on virtual communications, today's managers should be aware of the new challenges involved in managing such teams. Although virtual teams allow the organization to acquire a competitive advantage, managers should develop different methods of leading teams and employee direction within this virtual environment to increase the effectiveness of the teams (Eissa, Fox, Webster, & Kim, 2012). During the period in which these virtual team members become more autonomous and begin to thrive, the manager's presence is still required. Stronger leadership abilities will become essential for the controlling and monitoring of team productivity (Northouse, 2015). Moreover, the obligations of a manager regarding virtual team leadership are similar to those of a team that is collocated. As a priority, the leader should establish goals for any project undertaken, as these goals will serve as a target and a means to evaluate the team's success (Mahaney & Lederer, 2006). Goals also give a team an identity and a reason to exist. According to Kerber and Buono (2004), the goals should provide a "compelling challenge that energizes the team to overcome the difficulties of spatial distance" (p. 4). Then, the leader must inform the team of what they should accomplish. A fair division of assignments can occur once the team has their objective. When goals are met, appropriate rewards should be provided. Alternatively, when goal attainment fails, the team must be held accountable.

While managing virtual teams, managers should realize the human relationship in many cultures and formulate a strategy to build relationships with teammates. Technology be useful for developing relationships. “Virtual team members use personal touches in their communication, such as an exchange of photos by e-mail.” (Grosse, 2002, p. 26) They may also celebrate birthdays or recognize achievements virtually (Grosse, 2002). Conversely, there is a significant chance of conflict in virtual teams because members operate across cultural, geographical, and time boundaries (Kankanhalli, Tan, & Wei, 2007). Conflicts in virtual teams generally fall into two categories: relationship and task conflicts (Kankanhalli et al., 2007).

Diversity contributes to the creation of conflicts. “Two important types of team diversity are functional (arising from differences in educational background, experience, and expertise among team members) and social category (arising from differences in race, culture, gender and age among team members)” (Kankanhalli et al., 2007, p. 241). Understanding cultural diversity can improve interactions between team members. More businesses are trying to exploit the benefits of diversity. To do this, one must be aware of the dimensions of different cultures and how these dimensions may affect the members’ performance. While working in virtual teams, it is important to understand that individuals from different cultures value things in different ways. It is necessary for team members to take cultural differences into account as they work. In eastern cultures, for example, email is used less often than other types of communication because email is not ideal for seniors (Lee, 2013).

Challenges of Leading Virtual Teams

Many managers may prefer a face-to-face management style that is more difficult (but not impossible as described further below) with the virtual team format, and keeping track of productivity and performance can be particularly difficult when virtual team members enjoy a high degree of autonomy in their operations. The disadvantages of virtual teams can include the possibility of miscommunication, violations of security, and lack of worker productivity (Leonarcl, Brancls, & Eolmonofson, 2011). Moreover, some team members may have more expertise and are therefore more comfortable using various telecommunications media for communication. More importantly, perhaps, even the most sophisticated virtual team arrangements involve some profound communications constraints, and despite the introduction of video conferencing tools and Web cameras, there is still a basic disadvantage involving communication between individual team members and management. Therefore, virtual teams can require specialized technologies, group decisions can take longer than in face-to-face settings, and virtual teams may experience more problems in collaboration (Leonarcl et al., 2011).

Another communication challenge for virtual teams is establishing and maintaining personal relationships between individual team members. In this regard, Roebuck et al. (2004) emphasized that "Successful teams are founded on a relationship of trust, and relationships are easier to build face to face. Virtual teams are confronted with the challenge of establishing trusting working relationships through technological interaction alone" (p. 360). Consequently, it is important for virtual team leaders to

facilitate the establishment of productive relationships between team members from the outset.

A final challenge is taking advantage of the expertise and knowledge that each virtual member brings to the setting. In this regard, Roebuck et al. (2004) point out that,

> while a team is working on a project, usually the project is like a puzzle, and each team member is responsible for working on an assigned piece of the project. The team must develop a system for sharing information so that nothing relevant to solving the problem is lost. (p. 360)

This level of collaboration can be challenging even with traditional teams, but Roebuck et al. emphasized that what may appear irrelevant to one team member may be the key to achieving the team's goals. Therefore, it is important for team members to become accustomed to sharing as much information with each other as possible in order to create a cohesive whole from the disparate pieces. While this level of knowledge sharing may appear to be unnecessary, Roebuck et al. suggest that this is one of the most important elements in creating an effective virtual team.

The challenges are significant, but organizations can resolve them in part using the tools and technology that characterize most virtual teams today. For example, most virtual teams depend on communication and information technologies, including conference calls, emails, and other applications that can facilitate information sharing (Kerber & Buono, 2004). In addition, many virtual team members still meet in person from time to time to help solve any problems they may be experiencing and forge improved relationships and levels of trust (Kerber & Buono, 2004).

Another challenge managers face in global virtual teams is perceptions of time across members' locations. Cameron andGreen (2015) asserted that teams in short-term projects rarely exhibit dysfunctional group dynamics because they do not have enough time to do so. Working in different time zones helps organizations improve their productivity. For example, Indian team members of a global virtual team might have the tasks of processing banking transactions and sending the processed transactions to U.S. team members who become available as the work day in India is ending. Conversely, to complete the same work entirely in the United States would take another day. Therefore, global virtual teams can reduce production time and increases productivity. However, difficulties may arise when coordinating teams work in varying time zones. Traditional working hours may be midnight for one team member, but much earlier for another. (Saunders, Van Slyke, & Vogel, 2004).

It is evident that the use of virtual teams helps businesses to improve productivity and provide opportunities to influence performance (Reeves & Read, 2009). By understanding the benefits of virtual teams, supervisors and team members have the ability to overcome the challenges of cross–cultural communication (Grosse, 2002). Finally, having an effective virtual team can help supervisors in achieving higher performance and avoid delays. For a virtual team to be effective, a cross-cultural understanding is vital, and this understanding would aid in building powerful human relationships across cultures.

Trust is the final critical factor needed in a virtual team for successful implementation (Goodbody, 2005; Hoefling, 2012; Kirkman, Rosen, Gibson, & Tesluk

2002; Malhotra & Majchrzak 2007). According to Mahalingam, Abdollah, and Sahib (2014), "The concept of trust is more essential since it is a complex concept with many different attributes relies on it such as dependability, truthfulness, security, etc." (p. 319). In other words, a team member must have trust in another member in order to complete his or her assigned tasks. When collaborating with team members that may not be in direct physical contact, trust may be more important than in a traditional business setting (Kerzner, 2013). While trust may be hard to quantify or evaluate, it is important to be aware that trust is an issue that affects every aspect of virtual teams. Trust has been referred to as the glue of virtual teams (Kirkman et al., 2002). From interacting with other team members to posting comments on a web-based document, trust is always involved at some level.

According to a great number of consultants and researchers, the most difficult aspect in a virtual team is establishing trust (Kirkman et al., 2002). Trust is built on actions rather than on goodwill. These actions and processes are essential for the virtual teams to achieve success (Welter & Smallbone, 2016).

One reason trust may be difficult to establish is the fact that members may never actually meet face to face (Malhotra et al., 2007). The lack of control a member has regarding overseeing the project being completed is also a cause of trust issues among the team members and the managers (Walker, 2015). Goodbody (2005) of the BOC Group (a worldwide industrial gas, vacuum technologies, and distribution service company) pointed out that there are several factors that aid in the development of trust. First, trust is established by interactions, both social and business related. Another factor that

contributes to trust is the sharing of information. Since virtual team members may never physically meet, they must rely heavily on the exchange of information. Goodbody (2005) pointed out that for the exchange of information to successfully contribute to trust development, the exchange must follow certain criteria. The criteria (e.g., what format, when to submit, how to comment) must be universal for the virtual team (Goodbody, 2005). Research conducted at Sabre, Inc. found that trust may share a link with work ethic. That is to say, if a team member has a strong work ethic, he or she will gain the trust of their colleagues (Kirkman et al., 2002).

Addressing Challenges of Leading Virtual Teams

For the exchange of information between virtual team members to contribute to developing trust, the exchange must "ensure consistency" and "encourage collaboration." Ensuring consistency simply means that members honor their assigned tasks. An example of honoring assigned tasks might be completing a project within a certain period. The suggestion has been made that teams should establish a charter so that the expectations set for its members are always available. Additionally, the charter might outline the consequences a member may face for violating the charter (Goodbody, 2005).

To encourage collaboration, the BOC group suggested devoting time during teleconferencing to discussion that is unrelated to tasks. The intent of this suggestion is to reduce tension and encourage openness in team members' communication with one another. Team leaders should also inform members of the team's goals and current tasks being completed. If a team leader wishes to attract the collaborative participation of members, then the leader should simply involve these members in various aspects of the

team's work. Goodbody (2005) stated that team leaders communicate with all members to avoid having any one of them feeling isolated. The research conducted at Sabre, Inc. found that trust can be established without face-to-face interaction if tasks are completed on time and responses are given promptly (Kirkman et al., 2002).

Celebrating achievements is another factor that can lead to successfully developing trust (Goodbody, 2005). Leaders of virtual teams can develop trusting teams by acknowledging the performance of virtual team members. Celebrating achievements develops relationships among team members, which in turn develops trust among them. Since virtual team members may not all be within proximity of one another, the leader may need to find a different way of celebrating these achievements by having a "get together" for team members. An example of a "get together" would be a "virtual party," where each location has an event or party and each site is linked to web-based cameras (Goodbody, 2005). The issue of trust has hurdles to overcome before becoming well developed. The first problem that many virtual teams face regarding trust is not having a common set of procedures by which tasks are carried out. Since team members often never meet, they are left without a shared set of procedures or norms. Without a strong set of guidelines detailing how to carry out tasks, many members operate under their guidelines. Often team members do not properly exchange information with other members of the group (Malhotra et al., 2007).

Norms should be established that detail when to submit work, when to check for new tasks, that format in which a report should be completed, and other tasks that will help members form a universal approach to the completion of tasks (Malhotra et al.,

2007). These norms can detail everything from technology used for the project to the time at which a member may contact another member by phone.

The level of trust in a virtual team is threatened by breaches of confidentiality, not only of confidential information but opinion-based matters as well. The solution to this problem and others like it is to establish norms and maintain them (Malhotra et al., 2007). Some organizations have implemented guidelines indicating that no negative information or opinions of the virtual team can be exchanged with an outside party. Virtual teams that were observed in research studies accomplished maintaining norms by hosting "virtual get together" (Malhotra et al., 2007), which is the same technique recommended to celebrate achievements (Goodbody, 2005). These "get together" take place in the form of a team-building exercise or annual training. Naturally, the "get together" would take place online, often done with teleconferencing technology (Malhotra et al., 2007).

The last notable problem regarding trust issues is privacy concerns. Virtual team members may fear that management is monitoring them with the technology used to interact with other members. Virtual teams have the best potential of success if the people involved know what to expect and are prepared to deal with any problems and fears associated with the new work culture. Additionally, it is also important that distributed work arrangements are designed in compliance with national labor legislation, which includes privacy regulations. (Pyoria, 2011).

In sum, for virtual teams to be successful, there are certain traits and factors they must possess and develop. The proposed list may not be an absolute list of all traits of successful virtual teams. Through research, these four traits were commonly found in

literature and research based on virtual teams. If a virtual team were to possess an effective management program, adequate technology, understanding and acceptance of cultural diversity, and trust within its members, the team possesses the critical factors for a successful virtual team. The organizations in a large majority of the reviewed articles were successful with virtual teams when their teams considered these factors. According to Northouse (2015), employees who work in close contact with their supervisors or in traditional settings are more likely to have higher levels of communication. However, at the same time, they do not use technologies as much when communicating with their managers, affecting flexibility.

Successful Virtual Teams

According to Swigger, Hoyt, Serce, Lopez, & Alpaslan (2012) team members living in different time zones can sometimes lead to problems between teammates. This can further stress the team's ability to communicate in real time, as is sometimes required. Workers in various locations allow the team to be more distanced in terms of their points of view, and therefore there is a need to have common goals. Virtual team members tend to embrace goals more than they would if they were centrally located. In assembling a team, location can have an important impact on the results produced. If an organization wanted to do business or gain knowledge about a geographical location, then including a team member from or close to that location would seem logical and could prove to be crucial to the team's success (Downs & Adrian, 2012).

When a virtual distance teams' members come from differing social climates, benefits can be realized by members sharing their points of view. A product, idea, or

slogan might be perfectly acceptable in the eyes of one group of people, but that same concept may cause objections or mistrust within a different social group (Wilkinson, 2017). Even if the members of the virtual team know that they are doing the best they can, a negative image can still result.

Team projects may have a limited amount of funding and time to show results. Trust and communication between team members must be built up swiftly for cohesion (Wildman, Schuffler, Lazzara, Fiore, Burke, Salas, & Garven, 2012). When this is achieved, the team can take immediate advantage of the various connections available from the different educational institutions. Universities are always engaged in research and when more than one school background is involved, teams can tap into a wider range of cutting edge information available from this research.

Often, distanced teams not only work in different departments of a company or organization, such as information systems, accounting, marketing, and manufacturing; rather, they may often work for different organizations. Companies, universities, and government organizations in addition to nonprofits are all organizations that utilize distance teams to develop solutions or to create market products. In environmental work, members may come from various disciplines and work-related backgrounds. Teams requiring expertise from multiple backgrounds may have a geologist, sanitation engineer, biologist, and a chemical engineer working together. According to Taher and Krotov (2016), this process is referred to as BPR (Business Process Re-engineering) and is often used by organizations to improve their competitiveness.

One of the common trademarks of effective distance teams is that since distance teams are formed to achieve a goal or certain output, they must change the previous bureaucratic rules (Reason, 2016). Creation of this structure can bring new perspectives that have the potential to help any organization. For a team to function at different sites, one must consider the inherent issues in such a setup. These include time zones, maintaining motivation, which includes dealing with procrastination, upholding morale, and the equal division of the workload. It also involves asynchronous issues and their impact on communication.

Momentum is necessary in team-based environments, and this momentum is required to ensure the team continuously moves forward. To maintain this drive, a team leader can make or break the inner-working functionality and serve to hold the team together when dealing with procrastination, upholding morale, and dividing the workload. Hedman-Phillips and Barge (2017) identify five key interventions that promoted team reflexivity (or the extent that teams collectively reflect upon and adapt their working strategies). These include inquiring into the key issues, role modeling feedback, framing the facilitation, positive storytelling, and reflecting on concrete communication actions. With communication being the common factor linking these standards, Hedman-Phillips and Barge (2017) stated, “reflexivity can be enhanced through positive storytelling and emotion, framing and contextual sensitivity, and addressing interactional challenges within the team (p.260).

Without the benefit of regular face-to-face contact, team members are more likely to fall victim to procrastination due to the lack of in-person meetings and the subsequent

anonymity of the situation (Hadley & MacLeod, 2010). Constant communication in conjunction with a charismatic team leader can help minimize procrastination among team members (Hadley & MacLeod, 2010). A vital role of the team leader is to uphold morale, by keeping communication at the forefront of the team's focus.

In a team environment, the division of assignments and workload is a necessity, not only to maintain a level of "fairness," but also to prevent animosity between members who may be doing a larger quantity of work than another member. This fragmentation of the group leads to a break in morale. Division of workload is one of the factors that can make or break virtual teams, which is an important factor to consider when assessing how emotionally intelligent, transformational leaders can affect virtual teams (Hadley & MacLeod, 2010). The purpose of this research study is to determine which emotional intelligence aspects of a leader are the most valuable for virtual project team success within the leadership style of transformational leadership.

For virtual teams, one of the vital components to maintaining high performance is effective communication. According to Levi (2015), there can often be secondary, unanticipated social and organizational effects to communicating in a collaborative technology setting. Communication plays an important role in maintaining social relationship; because of this, the lack of social information when using online communications may limit the development of social relations in a team and an organization. Both formal and informal social networks play significant roles in the innovation and change management of the organization. Social networking concepts integrated with new and powerful interactive technologies can form peer to peer

computing, which can change how organizations work and deliver value (Rennie & Morrison, 2013).

Across different industries, professionals are increasingly relying on social, collaborative and virtual ways of completing their work (Anders, 2016). Tools to support this work include: audio and video broadcasts, blogs and microblogs, instant messaging (IM), social networking platforms, social tagging and wikis; all of which are known as ESM (enterprise social media) (El Ouirdi, El Ouirdi, Segers, & Henderickx, 2014; Gibbs, Rozaidi & Eisenberg, 2013; Leonardi, Huysman & Steinfield, 2013; Treem & Leonardi, 2012). What ties these media together is support for social interaction and collaboration in virtual environments (Vernuccio, 2014). IM platforms have enabled more social and connected approaches to routine communication, and collaboration for virtual teams Darics, 2014; Gilson, et. al., 2015).

Before IM and email became a staple of business and teams, phone communication was the preferred means of distance communication, beating out the traditional postal service and radio communication (Wright, 2016). Recent research has indicated that social networking platform use is expected to surpass email for internal organizational communication in the next ten years (Cardon & Marshall, 2015). Pazos, Chung and Micari (2012) have suggested that IM may have already become "the primary source for real-time communications" for workers in "leading global organizations (p. 69). While tools such as IM and social networking platforms can provide unique tools to enable collaboration, they can also impede communication strategies across platforms. Lanubile, Ebert, Prikladnicki, and Vizcaino (2010) state, "All engineering tools will

provide collaboration features, but they're implemented differently on different tools and so don't allow data integration across tools" (p. 55). They may also produce communication and knowledge gaps, potentially hindering cross-functional collaboration, innovation, and organizational productivity (Lanubile et al., 2010).

These different types of technology support social collaboration amongst virtual team members. Social networking platforms support sharing of knowledge and social aspects, including networking and cohesion. Instant messaging offers collaboration between members, that focuses on highly synchronous, brief communications. Specialized information and communication technologies offer platforms for complex workflows for virtual teams to communicate. The ideal situation for maximum team performance would be an integrated platform that can incorporate all these tools into one to maximize teamwork and enhance productivity of the team (Anders, 2016).

According to Daim et al., (2012), "collaborative video is a low-cost alternative to "being there" and can help strengthen relationships with global virtual team members" (p. 204). There can be concerns and issues with differing time zones, but ultimately, virtual team members are more likely to use technology that is easy to use and adds value to their work. If an organizational team is comprised of members located in varying time zones, then a concerted effort is necessary to decide on appropriate meeting times. Such meetings cannot be held too early or too late, so as not to inconvenience the more distanced team members (Daim et al., 2012).

Virtual teams are also known as distributed work groups and are distinguished from traditional teams by being separated by space and in many cases time as well.

Although some virtual teams meet on a face-to-face basis from time to time, the vast majority of their work is accomplished through telecommunications technologies. Virtual teams are also becoming increasingly commonplace and more has been learned about how to maximize their effectiveness by addressing the challenges that accrue to this type of teamwork format. Some of the most important challenges involved communications and how best to achieve collaborative outcomes when team members do not have the ability to discern nonverbal clues. Virtual teams are becoming an important part of many organizations' approach to making the most of the human resources they have available for achieving their goals and the supporting technology continues to improve (Cummings & Worley, 2014).

Virtual Teams and Transformational Leadership

Research on virtual team leadership has grown exponentially, with the two most popular topics being leader behavior and traits (Gilson et al., 2015). Team leadership is regarded as a key mechanism for minimizing motivation and coordination losses and maintaining team effectiveness when they are virtual (Hoch & Kozlowski, 2014). Although telework has quickly become commonplace, many managers fall short in knowing how to lead a geographically-dispersed team, and they are not fully equipped to work through the unique challenges that face these groups (Manktelow, 2012). In virtual teams, transformational leadership seems to arise from personality and communication factors (Cogliser, Gardner, Gavin, & Broberg, 2012) and can increase performance, satisfaction, and motivation (Andressen, Konradt, & Neck, 2012). According to Chang and Lee (2013), a transformational leader is an individual capable of using the underlying

motives of those they lead to attaining a higher goal. In fact, the process of transformation is often viewed as a means to harness the full potential of everyone involved.

Chang and Lee (2013) found transformational leadership to be more effective than transactional leadership when dealing with conflict in a virtual setting. Chang and Lee, (2013) asserted that:

> To ensure no one is neglected, the team leader must seek to direct struggles in a positive manner to ensure freedom of expression among all members, even when their views appear contrary to those of their colleagues. Leadership is also central to work team performance; getting team members involved in conflict management appears to stimulate team effectiveness (p. 988).

Technology and contextual factors may moderate the effects of leadership in teams, therefore; it is important for virtual team leaders to understand the importance of continuous feedback (Kahai, Huang, & Jestice, 2012). Kahai, Huang, and Jestice (2012) looked at feedback positivity with the use of instant messaging and found that relative to transactional leadership, transformational leadership led to greater feedback positivity with instant messaging. Additionally, greater feedback positivity was positively associated with social presence, discussion satisfaction, cohesion, group efficacy, and task time.

According to Manktelow (2012) trust is also an important part of building an effective team. Trust within a virtual team is initially built on reliability. “These team members can’t draw upon relationships build during lunch breaks or informal chats

during lunch breaks or informal chats, so, at the onset, the build trust by keeping their promises and submitting good quality work, on time, and on budget" (p. 58). According to Manktelow (2012), Transformational leadership - in which leaders develop and communicate a compelling vision of the future, and then work with team members to deliver it – is also important in helping individuals trust one another.

Theoretical Orientation: Emotional Intelligence Theory

Emotional intelligence refers to an individual's ability to manage his or her own emotions, and being aware of the emotions of others while interacting. Emotional intelligence is defined as having "five characteristics and abilities" which are as follows

1. *Self-awareness,* or being aware of one's' emotions and recognizing ones' feelings as they occur and being as to discriminate them one from another;
2. *Mood-management*, or controlling one's feelings in a manner that is relevant to the situation at hand with appropriate reaction;
3. *Self-motivation*, or directing oneself towards a goal, even if dealing with self-doubt inertia and impulsiveness;
4. *Empathy*, or the ability to recognize the feelings of others, as well as their verbal as well as nonverbal clues;
5. *Managing relationships*, or handling of interpersonal interaction, conflict resolution, and negotiations (Goleman, 2005).

In addition, the traits that are those which are inclusive in the spectrum of factors and traits that comprise the "emotional intelligence" or the "EI" of the individual are confidence, curiosity, intentionality, self-control, relatedness, capacity to communicate as

well as the ability to cooperate (Goleman, 2005, p. 194). The theory of emotional intelligence states that emotional intelligence "is a combination of the intelligence we have that helps us both know and manage ourselves well, and the intelligence that we have that helps us understand, motivate, and relate effectively to other people" (Centre for Applied Emotional Intelligence, 2006). Many individuals had a part in the development of this theory. Goleman (2006) stated that EI basics include understanding one's feelings and using this understanding to make decisions in one's life, managing one's emotions and not being ruled by them, persisting against challenges, focusing on goals, being empathetic, and handling feelings in relationships with skill and harmony, such as having the ability to express and characterize the unspoken pulse of a group.

The emotional intelligence theory has been subsequently used in more studies, especially on its usefulness in the workplace (Zeider, Matthews, & Roberts, 2012). Emotional intelligence is defined by Mayer and Salovey (1993) as the "the ability to perceive emotions, to access and generate emotions to assist thought, to understand emotions and emotional knowledge and to reflectively regulate emotions to promote emotional and intellectual growth" (p. 10). These researchers showed their understanding of the fact that emotional intelligence does qualify as a form of intelligence, in that they perceived that problems are solved by individuals not only using their minds but also by controlling and managing their feelings and emotions, as well as of others. Studies have also debated on whether gender disparities exist on the levels of emotional intelligence. According to a study, the females have higher emotional intelligence than the males (Anari, 2012). Debates on how to measure emotional intelligence also exist (Zeider,

Matthews, & Roberts, 2012). Mayer and Salovey (2007) on the other hand claimed that emotional intelligence could be measured using ability models. For them, emotional intelligence should be considered an individual's capability to process affective information.

Leadership and Team Effectiveness

According to Denis, Langley, and Sergi (2012), leaders play an influencing role in team effectiveness. Also, he asserted that leaders who were unable to empower their followers and too intent on achieving only the goals set by them would have unsatisfied team members. On the other hand, leaders who were more relaxed in their approach to achieve the goals and take into consideration their followers' feelings can more efficiently and effectively achieve their goals. Furnham (2012) found that leaders who were dominating and calculating are less likely to resolve stress in the workplace. According to Hargreaves and Fink (2012), for leaders to facilitate effective teams, they have to recognize that their followers are also powerful because they have the ability to disbelieve them and undermine their legitimacy. Hackman and Johnson (2013) believed that followers are important for team leaders' success. Without dedicated followers, leaders are unlikely to become effective. As a result, an effective team is highly unlikely. I was able to conclude that a leader who has legitimacy and capabilities can establish an effective team. However, the leader had to encourage their followers to believe in them and their legitimacy.

Klein, Knight, Ziegert, Lim, and Saltz (2011) asserted that team leaders are influential in team processes and outcomes. Specifically, leaders who are task-focused

leaders are the ones most effective in organizing, identifying and coordinating activities being carried out by the team. Task-focused leaders are the ones who establish the tasks necessary to achieve goals, and therefore, the ones who establish what tasks and roles that each remember have to assume. These leaders are also the ones to maintain the formal standards and clear deadlines. An effective team can only happen if members plan. Task-focused leaders initiate the planning (Klein et al., 2011).

Andrews (2012) claimed that an effective team is one that can work well as a unit. Team effectiveness can be affected by both internal and external factors. Desired outcomes from teamwork can be affected by the group dynamics and leader interactions. In addition, Andrews found that the operating environment facilitated by the organization can affect the performance of the teamwork. As such, Andrews established that organizations should not only make sure there are effective leaders, they should also be making sure that there are enabling conditions that will encourage and sustain team effectiveness. The researchers found that successful team leaders are those who deviated from traditional command and control functions. Rather, a shared leadership structure can lead to higher levels of work team empowerment and effectiveness. In addition, Andrews also claimed that task-focused leaders can help team members who have different values understand each other and coordinate effectively. Leaders can help the team members, despite their differences from each other, anticipate the actions of their fellow members (Andrews, 2012).

An effective team leader is one who can integrate the aims and objectives of the group members on a larger scale and ensure that the employees are not only satisfied with

their work, but feel valued on a personal level as well. Belbin (2012) pointed out that this can only occur when leaders exhibit the following four dimensions: "people agility (self-awareness, treating others well, resilience under pressure), results in agility (getting results in tough conditions, inspiring others, and self-confidence), mental agility (problem-solving ability, comfort with ambiguity) and change agility (curiosity, openness to experimentation)", (p. 190). According to Daft (2014), transformational leaders, on the other hand, do seek to inspire followers not only on an intellectual level, but on an emotional one as well. That is, they try to maintain a positive attitude regarding the work being performed. Joshi, Kaur, and Jain 2016) found that "the presence of emotional intelligence strengthens the relationship between leadership behavior of supervisor and job satisfaction of subordinates" (p. 19).

Transformational Leadership and Team Effectiveness

Transformational leadership is the process where leaders have the ability to transform their own goals into the goals of the organization, so that the organization and the people within it can all benefit. Transformational leaders through their compelling vision and moral guidance arrest their follower's commitment and motivate them to exert more effort. (Pradhan and Pradhan, 2015) According to Weiherl and Masal (2016), transformational leaders positively influence the commitment of followers to mission changes. Their influence is mediated by the capacity of leaders to build perceived organizational support and motivate subordinates to engage in change behavior. Transformational and transactional leadership are often contrasted with each other. Opposite the traits of transformational leaders, transactional leaders are autocratic.

Transactional leaders operate under a bureaucratic organizational structure. According to Zwingmann, Wegge, Wolf, Rudolf, Schmidt and Richter (2014), unlike the transformational leaders, transactional leaders often dictate rules onto their followers by managing with a rewards and punishment process to reach goal attainment.

On the other hand, transformational leaders go beyond such task-oriented rewards system that transactional leaders espouse. Bass and Riggio (2012) claimed that transformational leaders work more with their colleagues and followers. Transformational leaders do not just assign or arrange a set of rewards so that tasks can be done. They inspire their followers to want to complete the tasks themselves, even without the rewards. Transformational leaders inspire their followers by presenting them the challenges that need to be addressed and by persuading the followers to complete their tasks by making them see the meaning of these tasks. Compared to the transactional leaders, transformational leaders are intellectually stimulating. As such, they have the ability to expand the extent of followers' capabilities. This type of leadership focuses on supporting, mentoring and coaching the followers (Bass & Riggio, 2012).

Transformational leaders can also exert much passion and energy into their work to inspire others with their development of a vision and a view of the future that will inspire their numerous followers as well. They must be able to develop trust in their followers, and this will inspire those followers to follow the leader. They should be leaders who seek to transform their organizations. They are leaders who can recognize as well as exploit a certain need in their followers, analyze their various motives, and completely engage the followers. Some examples of transformational leaders from

throughout the years are Rousseau, Madison, reformers like Alexander and Grey, revolutionaries like Lenin, Castro, Luther, and Mao, and heroes like Kennedy, Joan of Arc, and Muhammad (Boje, 2000).

According to Zhu, Sosik, Riggio, and Yang, (2012), transformational leaders emphasize the critical nature of empowering their followers. As such, transformational leaders are effective in carrying out organizational changes. Transformational leaders recognize the need for organizations to be less bureaucratic and hierarchical and then more participative, team-oriented as well as flexible (Umer, Muqaddas, & Taimoor, 2017).

Transformational leadership is not without criticisms. According to Baskarada, Watson, and Cromarty, 2017:

> "Transactional leaders can have a positive impact on both feed-forward and feedback learning that reinforces institutional learning. Such leaders tend to prefer closed cultures, mechanistic structures, a rigid systems and procedures. For instance, transactional leadership has been associated with bureaucratic learning systems that comprise sophisticated procedures and rules for controlling the flow of information" (p. 780).

According to Chou, Lin, Chang, and Chuang (2013), the team leader plays a critical role in determining group performance. According to Von Krogh, Nonaka, Rechsteiner, (2012), the leadership style of the leader, therefore, is the central factor behind project team performance. Transformational leaders are known to create valuable

and positive changes among its followers. They are also particularly effective in motivating their followers.

In their study, Katsva and Condrey (2005) pointed out that:

> Motivation is an inducement to action or effort expenditure. Employees exerting large amounts of effort are said to be highly motivated. High effort expenditure is associated with high-performance levels. The central question of motivation in the workplace is how to encourage people to accomplish more in less time and to be satisfied with this effort. Incentives for motivating people to work include material incentives (money, physical conditions), personal inducements (distinction, prestige, personal power), and associational rewards (stability). (pp. 346-347)

According to Grant (2012), transformational leaders are effective in developing their followers' performance. However, even though there is an abundance of studies that showed the underlying process to which transformational leaders affect their followers' growth and performance (Grant, 2012; Kovjanic, Schuh, Jonas, Quaquebeke, & Dick, 2012; Wang & Howell, 2012), there is still limited number of studies that looked at the effects of transformational leaders on followers' performance under a team context.

Among the process variables linked with the transformational leadership process, trust is one of the most well-known variables that has been recognized as critical factor that allows transformational leaders to influence group outcomes (Braun, et. al., 2013; Jung & Avolio, 2000; Zhu, Newman, Miao, & Hooke, 2013). Another factor that can help transformational leaders influence group outcomes is collective efficacy (Mittal

& Dhar, 2015). Various studies have found that transformational leaders are particularly effective in fostering collective efficacy (Engelen, Gupta, Strenger, & Brettel, 2015) and trust (Braun, Peus, Weisweiler, & Frey, 2013). Ultimately, this ability allows the transformational leaders to affect team performance (Carter, Armenakis, Field, & Mossholder, 2013).

Collective efficacy refers to the shared beliefs of team members regarding the whole team's ability to complete certain tasks and achieve the goals of the team. With collective efficacy, cognitive trust can be built within the team. According to Jung and Avolio (2000), transformational leaders, by displaying idealized influence, intellectual stimulation, inspirational motivation as well as individualized consideration can make sure employees, or the followers will trust them. Aside from trusting them as the leaders, transformational leaders can also help the team members trust each other (Zhu et al., 2013).

Zhu et al. (2013) claimed that transformational leaders are effective in establishing team cognitive trust. When the team leader is transformational, team members will have a high level of cognitive trust. This means that the team members will be able to easily perceive other's capabilities and reliability to complete a given task (Lorinkova, Pearsall, & Sims, 2013). According to Chou et al. (2013), high levels of team cognitive trust is related to high levels of collective efficacy.

Chou et al. (2013) suggested that transformational leaders can foster team cognitive trust and this, in turn, can improve collective efficacy. Team cognitive trust is found to have a mediating role in the relationship between transformational leadership

and collective efficacy. Team leaders who are transformational are likely to influence team members' work performance positively if they can foster cognitive trust and improve collective efficacy.

Emotional Intelligence and Leadership

According to Zhou and George (2003), emotional intelligence enables a person to properly determine what he or she is feeling and at the same time, be sympathetic towards the feelings of others. Because they can identify what they are truly feeling and express these emotions, they are also more receptive towards the emotions of others (Zhou & George, 2003).

According to Sy, Tram, and O'Hara (2006), positive job performance is linked with highly emotionally intelligent team members. Sy et al. found that team members with high emotional intelligence are proficient in knowing what they about certain tasks and decisions, and are also more receptive of what others will feel on certain tasks and decisions. Members who can easily identify their own emotions and regulate these can lead to higher level of faith and confidence in themselves. They can make realistic actions leading to positive performance even with minimal supervision. Team members who have low levels of EI, on the other hand, cannot recognize what they are feeling and controlling their emotions; so, they need more supervisory interference in order for them to work well with others, be more creative and adapt better with their teammates (Sy et al., 2006).

According to Zhou and George (2003), highly intelligent team members can also use their emotions to improve their cognition. Members with high emotional intelligence

can effectively process information. They can use their emotions to gauge which options are more important, especially if the options are competing and similar. They can also use their emotions to increase the flexibility of information processing and become involved in different types of information processing. As such, emotions can be used to ensure and enhance effective functioning. Zhou and George (2003) also emphasized that emotions can be critical in changing situations. Highly emotionally intelligent people can be good at coordinating how they feel and share what they are doing.

People with high emotional intelligence can regulate their emotions better. They are not only perceptive of the emotions of others, but also make an effort to manage these emotions. According to Zhou and George, unmanaged emotions can affect information processing negatively. If the emotions of others can be regulated easily, highly emotionally intelligent individuals can gather insights from the emotions of others and see where interest their interests are focused on (Zhou & George, 2013).

People who have high emotional intelligence, being able to manage their own and others' emotions, can join or withdraw from an emotion depending on what their situations called for. Because of this ability to control his or her immediate reactions, a person with high emotional intelligence can postpone his or her judgment on a specific situation and communicate this judgment in an informed and careful manner. Emotionally intelligent people are those who can think first before they act and communicate properly. All these capabilities allow individuals with high emotional intelligence to play a major role in improving their performance in the workplace.

Goleman, Boyatzis, and McKee (2013) believed that most leaders today attained their positions because of their emotional intelligence, rather than cognitive intelligence.

Most leaders are associated with having high intellectual capabilities. Earlier studies suggested that to be a leader; one only has to have higher levels of intelligence so that they can make informed decisions. However, the more recent studies abandon this idea and believe that leaders have to have more than intellect. According to Evans and Barone (2016), "just because individuals score high on IQ tests, does not necessarily mean they are qualified to lead subordinates. The skills required to manage people certainly can be linked to intelligence to some degree, but the comprehension of what it means to be emotionally intelligent far surpasses just being knowledgeable enough to be a leader" (p. 3). This broader conceptualization includes emotional intelligence; Evans and Barone (2016) stated: "The ability to test emotional intelligence is finally being acknowledged by employers. As a result, innovation organizations are now starting to understand the need to lead with empathy, compassion, and humanity" (p. 3).

A contemporary view of studying leadership traits has taken a somewhat different approach. For instance, Penney, Kelloway, and O'Keefe (2015) pointed out in their study that:

> A person's behavior is related to the traits they possess and traits explain why people act similarly across situations. Individuals that have traits that are associated with indices of leadership may be more likely to emerge as a leader, and accordingly be an effective leader in comparison to individuals lacking such traits (p. 21)

To know whether a leader is effective or not can be gauged by their ability to also be team players (Goleman, Boyatzis, & McKee, 2013). According to Anari (2012), leaders who work well in teams and empower the members can reflect their ability to get along at work. When successful as a team player, they can also be effective as team leaders. Effective team leaders are also those that have visions, communicate these visions, and implement these visions by delegating the tasks and rewarding their followers (Kirkpartrick & Locke, 1996). Wheelan (2014) stated that effective team leaders are those who can achieve results, provide leadership, communicate with the members regarding their visions, motivating the members and influencing the team.

Various studies have already established that emotional intelligence can affect teamwork and interpersonal relationships fostered in the workplace (Malouff, Schutte, & Thorsteinsson, 2013; Wolff, Pescosolido, & Druskat, et al., 2013). A person with the ability to understand and regulate his or her emotions can also have the ability to work with others effectively and cooperatively (Northouse, 2015). Being emotionally intelligence also allows individuals to share their positive feeling with others (Nagler, Reiter, Furtner, & Rauthmann, 2014). In the workplace, individuals with such ability can foster bonds with others more easily. People with high levels of emotional intelligence are also socially receptive. By being receptive, they can easily recognize and understand what the other employees or team members are feeling. This makes collaborating and working with each other within the team easier (Bar-on, Handley, & Fund, 2013). By being receptive as well, Chang, Sy, and Choi (2012) suggested that team members will have the ability to induce positive emotions among their other teammates. Because

emotional intelligence can lead to effective and tight interpersonal relationships at work, this has been established as a prerequisite to group task coordination as well as leadership emergence (Wolff et al., 2002).

According to Law, Wong, and Song (2004), an individual with high levels of emotional intelligence understand his or her moods and is equally understanding and perceptive of the moods of others. With this, the individual becomes good with forming effective relationships as well as earning social support in general (Law et al., 2004).

Summary

This chapter discussed the essential variables in this study, virtual teams, virtual team leadership, leadership styles, transformational leadership, and emotional intelligence. Although virtual teams are still considered a relatively new organization form in the 21st century, team members span the world (Zaccaro, Ardison, & Orvis, 2004). Between 1992 and 2002, the use of virtual teams increased in response to the need to increase the speed and efficiency of productivity (Lu, Li, Skibniewski, Wu, Wang, Le, 2014). In defining virtual teams, several authors addressed the teams' geographical and temporal dispersion, the technological enablement, team duration, and percentage of time spent working together (Schermann, Dongus, Yetton, & Krcmar, 2016; Zaccaro et al., 2004).

According to Goleman (2006), because emotional intelligence leads to better performance, a person with high levels of emotional intelligence can stay encouraged under stressful situations and encourage others better. A highly emotionally intelligent person can also manage complicated interpersonal relationships better as well as build teams that can be critical for achieving better results. Cheruvelil, Soranno, Weathers, Hanson, Goring, Filstrup, and Read, 2014 claimed that emotional intelligence is highly linked to team behavior and team performance. Team performance can always improve if the team members can be perceptive and aware of the emotions of each other.

However, even though there is an abundant number of studies on these constructs, limited studies assessed which emotional intelligence aspects of a leader are the most valuable for virtual project team success within the leadership style of transformational leadership. Such is the purpose of the current study.

Chapter 3: Research Methodology

The purpose of this study was to determine which emotional intelligence aspects of a leader are the most valuable for virtual project team success, within the leadership style of transformational leadership. Virtual team members and leaders participated in this study by responding to survey instruments that I used to measure the variables of leadership style, emotional intelligence, and project success. I used survey questionnaires to operationalize the variables considered in the analysis of this study.

I used the Multifactor Leadership Questionnaire (MLQ; Avolio & Bass, 2007) to measure the transformational leadership style of virtual team leaders. To measure the emotional intelligence of virtual team leaders, I used the Mayer-Salovey-Caruso Emotional Intelligence Test (MSCEIT; Mayer, Salovey, & Caruso, 2002). Lastly, I used the Information Systems Project Success Questionnaire (Mahaney & Lederer, 2006) to measure project success.

Restatement of Research Questions and Hypotheses

A quantitative multiple regression study was used to address the following research questions and to test the following hypotheses:

RQ1: Among transformational virtual team leaders, is there a relationship between overall emotional intelligence scores and the success of virtual project teams?

$H_0$1: There is no relationship between the overall emotional intelligence score of transformational virtual team leaders and the project success of virtual project teams.

$H_0$1**:** There is a positive relationship between the overall emotional intelligence score of transformational virtual team leaders and the project success of virtual project teams.

RQ2: To what extent do emotional intelligence and its related aspects predict the project success of virtual project teams among transformational virtual team leaders?

$H_0$2: The emotional intelligence aspects of virtual team leaders, such as their ability to identify their own emotions, express their emotions, use their emotions to improve cognitive processes and decision-making, and manage their emotions measured through the MSCEIT, do not significantly predict the project success of virtual project teams considering virtual team leaders with transformational leadership style.

$H_1$2**:** The emotional intelligence aspects of virtual team leaders, such as their ability to identify their own emotions, express their emotions, use their emotions to improve cognitive processes and decision-making, and manage their emotions measured through the MSCEIT, can significantly predict the project success of virtual project teams considering virtual team leaders with transformational leadership style.

In this chapter, I describe details of the methods used to conduct the study, starting with the research method and design, followed by the participants and sample size. I also present the reasoning for the selected instrumentation, along with the data collection methods, validity and reliability, the operational definition of the variables, data analysis methods, and ethical assurances.

Research Design

I used a quantitative multiple regression research design to examine the relationship between the emotional intelligence aspects of a leader and the project success of virtual project teams within the transformational leadership style (Babbie, 2012). Additionally, I used a multiple linear regression to determine whether a statistically significant relationship exists between emotional intelligence and the project success of virtual teams. This research design is best for analyzing the relationship between two or more variables.

For the purpose of this study, I used a survey methodology to gather responses from participants (Fink, 2012) and measure the variables of emotional intelligence aspects, project success of virtual teams, and the transformational leadership style of participants.

The variables I considered were the emotional intelligence aspects of a leader and the project success of virtual teams. The independent variables were the emotional intelligence aspects concerning the subscales of emotional intelligence, which include perceiving emotions, facilitating thought, understanding emotions, and managing emotions (Goleman, 2005). The dependent variable was the project success of virtual teams. The categorical variables, where the output is not a number or where the number used in the analysis does not align with a value of the variables, involved other demographic characteristics such as gender and ethnicity and were collected to expand future research. Given that there was one dependent variable, one independent variable, and control variables, I used the multiple linear regression procedure for this study to

determine whether a statistically significant relationship exists between emotional intelligence and the project success of virtual teams. I considered demographic characteristics to be control variables to ensure that the impact of these variables on the dependent variable was not considered in the analyses. Instead, relationships were deemed as significant between the independent and the dependent variables. Because the focus of this study was to examine the relationship between the independent and the dependent variable while considering the demographic characteristics as control variables, a multiple regression research design was most appropriate (Bryman, 2012).

Target Population and Sampling

The target population for this study included virtual team leaders such as project or team managers who embody a transformational leadership style. I gathered the samples specifically from Amazon Turk, which recruits virtual team leaders to complete online surveys and assessments, based on their specific qualifications to do so. The participants involved at least 84 virtual project team leaders or managers who practice the transformational leadership style in managing the team. I used the MLQ to screen prospective participants on whether they employed transformational leadership as their dominant leadership style. For this study, I included only participants with transformational leadership style. Additionally, I used a survey questionnaire containing items on emotional intelligence aspects as measured through the MSCEIT (Mayer, Salovey, & Caruso, 2002) and project team success as measured through the Information Systems Project Success Questionnaire (Mahaney & Lederer, 2006).

To recruit participants for the study, I employed convenience sampling, a non-probability sampling method based on the willingness and availability of the potential participants to participate in the study (Leedy & Ormrod, 2010). All prospective participants were provided with an invitation to participate in the study. However, only those who agreed to participate in the study were considered in the data collection phase (Leedy & Ormrod, 2010).

Based on the calculation using G*Power, I needed to gather at least 84 virtual team leader participants who qualified according to the inclusion criterion of using the transformational leadership style as the dominant leadership style (Faul, Erdfelder, Buchner, & Lang, 2009). I based the calculation on several factors, including the type of analysis used for the study. For the purpose of this study, I employed a multiple regression analysis to examine the relationship between the emotional intelligence aspects of a leader and the project success of virtual project teams within the transformational leadership style.

Another factor considered for sample size calculation was the power of the statistical analysis. The power provides a measure of the probability of rejecting a false null hypothesis. Based on standards, the minimum power that should be employed is at 80% (Cozby, 2009).

Another important factor in calculating the minimum sample is the effect size. The effect size provides a measure of the strength of relationship between the independent and the dependent variables (Lakens, 2013). I used a medium effect size to ensure that the analysis was neither too strict nor too lenient in assessing relationships

between the variables. Based on existing studies investigating EI, this medium effect size required 84 participants (Mayer et al., 2002; Stough & DeGuara, 2003).

I calculated the sample size based on the significance level used in the statistical procedure. As a standard, the level of significance is set at .05. Therefore, I employed a .05 significance level for all statistical tests considered in this study (Cozby, 2009). G*Power determined that at least 84 participants should be collected to ensure an 80% power to detect a medium sized correlation (r = .3) for the study. Thus, I invited 200 virtual team leaders to participate in the study to ensure that at least 84 qualified participants completed the survey questionnaire.

Instrumentation

To measure the transformational leadership behavior of participants, I used the MLQ (Avolio & Bass, 2007). According to Avolio and Bass (2007), the reliability of the transformational leadership scale is at a Cronbach's alpha level of .94. Therefore, it is considered reliable in measuring the construct of transformational leadership. Researchers have used the MLQ in exploratory, peer-reviewed research since its development in 1995. Numerous studies conducted in the United States and worldwide in diverse organizational settings revealed the validity of the MLQ. Researchers have used the instrument in several studies (Sadeghi & Pihie, 2012; MacKie, 2014; Muenjohn & Armstrong, 2015, Dumdum, Lowe, & Avolio, 2013), and the results showed that the MLQ is a strong predictor of leader performance across a broad range of organizations at different levels and in different national cultures. Since the focus of this study is on transformational leadership, the purpose of employing the MLQ was to determine

whether the prospective participant uses transformational leadership style as the dominant leadership style. Therefore, I was able to consider only the data of participants who had transformational leadership as a dominant leadership style in this study.

To gather responses of participants and capture the emotional intelligence aspects of the virtual team leader, I employed the MSCEIT, which is a questionnaire that can measure aspects of emotional intelligence such as perceiving emotions, facilitating thought, understanding emotions, and managing emotions. The instrument consists of 141 items and usually takes a participant around 30 to 45 minutes to complete. The MSCEIT has an overall reliability score of $r = .93$ for general, and .91 for expert scoring, respectively. The reliability of the Perceiving Emotion branch scores are $r = .91$ and .90, for general and expert scoring, respectively. The reliability of the Facilitating Emotion branch scores are $r = .79$ and .76, for general and expert scoring, respectively. The reliability of the Understanding Emotion branch scores are $r = .80$ and .77, for general and expert scoring, respectively. The reliability of the Managing Emotion branch scores are $r = .83$ and .81, for general and expert scoring, respectively (The University of New Hampshire, n.d.).

I measured the variable for project success of virtual teams through the comprehensive instrument developed by Mahaney and Lederer (2006) in measuring Information Systems project success. The questionnaire captured the perceptions of leaders on their virtual team's project success. The participants were asked to self-rate their project success by selecting *Successful* or *Not Successful* for the last three completed projects. Project success was assessed using the following criteria: budget, schedule, and

scope. *Schedule* refers to the length of time for project completion. *Budget* refers to the budget allocated to the project. *Project scope* refers to whether the project accomplished the project objectives and met the customer's expectations (Project Management Institute, 2004; Schwalbe, 2004).

Threats to Validity

Internal validity can be threatened in two ways. First, participants could have different understandings of items in the questionnaire. Second, it may be supposed that the selection of participants was biased, but they were not. I incorporated measures in the research to protect against potential internal threats to validity. The leadership style of participants was assessed using a reliable and valid questionnaire that has been used in numerous studies on leadership styles. This ensures that the participants considered in the study possessed transformational leadership styles. I measured the questionnaire for reliability to ensure that it can measure the constructs considered in the study.

I conducted the research in a timely fashion to obviate any threats to data becoming irrelevant (Bryman, 2012). The collections of data through the survey questionnaires were anonymous and confidential, thus preventing the potential for any unjust influence by any one research participant. The confidential and anonymous collection of data assisted in establishing trust with each research participant while enhancing the dependability of the data. Informed consent, confidentiality, and the protection of all data gathered ensured that participants would not be affected by biases in rating responses. This provided the means to maintain internal validity and establish credibility based upon integrity (Babbie, 2012).

Threats to external validity relate to applying the research findings to other contexts and situation. The use of virtual team leaders in a naturalistic setting assisted in promoting external validity. Collection of data from participants in the chosen setting assisted in establishing external validity of the research findings for this study because the participants were already comfortable with this environment (Babbie, 2012). However, the use of a convenience sampling technique could have affected the validity of generalizing the findings to the target population. Therefore, I calculated descriptive statistics to verify that the samples represented the target population regarding age, gender, and ethnicity.

Data Collection Procedures

The initial priority was to obtain approval from Walden University's Institutional Review Board (IRB- 11-03-14-0071745). After obtaining approval from the IRB, I set up an Amazon Turk account for collecting my data from participants identified as project managers through Amazon Turk's vetting strategy. They were invited to participate based on their qualifications as being a project manager. They received an automated email from Amazon Turk and were directed to the link to my survey, if interested. The correspondence and prompt they were given before taking the survey is in Appendix E. Via Amazon Turk, the participants clicked on their consent policy and then gained access to the survey. Upon completion of each survey, I was notified and given the survey results. Amazon Turk then provided participants with their $5 incentive, as indicated in the consent form.

The first part of the survey questionnaire consisted of demographic questions. The second part contained questions regarding emotional intelligence aspects while the third part was on perceived project success. The purpose of the last part of the questionnaire was measure leadership styles. After completing the survey questionnaire, participants were thanked for their participation in the study.

After 84 participants who use transformational leadership as the dominant leadership style completed the questionnaire, I downloaded and prepared the data for analysis. I saved the data in a password-protected computer to ensure the confidentiality of participants. Moreover, to ensure anonymity of participants, there was no identifiable information collected.

Before completing the final data collection strategy described above, there were many obstacles to completing the data collection. Initially a contact at Accenture gave permission to conduct this study; however, when I contacted Accenture after IRB approval, they declined to participate. This led to another method of data collection and IRB approval to reach out to a contact at TransAmerica, who was willing to share the survey with appropriate participants; however, in the final stages of communication and planning, the organization declined to participate. The third attempt approved by the IRB was to reach out to participants via Linkedin. This required cold emails to be sent out, which did not generate enough completed surveys. Next, IRB approved my contact with the Project Management Institute and I was able to speak at a local meeting to ask if anyone was interested in participating in this study. This garnered five more completed surveys. Last, the IRB approved use of Amazon Turk, a survey site that allows users to

participate in research based on their specific qualifications. This was the avenue that garnered most of the participants and enabled final data collection.

Data Analysis Procedures

After collecting the data using the surveys, I input the responses electronically using the SPSS 10.0. I analyzed data using both descriptive and inferential statistics. I recorded and coded categorical data by using numerical representations to make sure that I would be able to examine them using statistical analyses. I used descriptive statistics to provide the characteristics of the participants considered in this study.

I assessed the first research question through a correlation analysis to examine the relationship between the overall emotional intelligence score and project success of virtual teams. I tested the measure for overall emotional intelligence for its relationship with the perception of virtual team leaders of their project success. If the results showed a negative relationship, this meant that virtual team leaders who have low emotional intelligence have high project success, and vice versa. On the other hand, a positive relationship means that transformational virtual team leaders who have high levels of emotional intelligence can facilitate high project success.

For the second research question, I conducted a hierarchical regression analysis to assess which of the emotional intelligence aspects could significantly predict the project success as perceived by virtual team leaders. The emotional intelligence aspects included perceiving emotions, facilitating thought, understanding emotions, and managing emotions. A hierarchical regression analysis also allowed me to examine the linear

relationship between variables while measuring the impact of each independent variable on the dependent variable.

I used a two-stage hierarchical model to control for variation in the dependent variable potential due to differences in demographics and isolate the effects of the independent variables. In the first model, I entered the demographic variables to gather data to determine if there was an effect. In the second model, I entered the four independent variables of interest. The effects of these independent variables represented the relationship between the variables and the dependent variable, controlling for variation in the demographic variables.

The regression coefficient dictates the direction of the relationship between the predictor and the outcome variable. Moreover, a regression model could be developed to describe the outcome variable considering different values for the predictor variable. The predictor variables included the subscales of emotional intelligence aspects. Through this analysis, the predictor variables, which could significantly predict the outcome variable of project success, were identified. A significance level of .05 was utilized for all statistical analyses.

Ethical Considerations

Because the study utilized humans as participants, it was necessary to consider ethical assurances. It was critical to ensure that human participants were protected throughout the study. For this study, participants were protected through an informed consent form and confidentiality. An informed consent form was utilized to ensure that participants were aware of the conditions of the study. The informed consent letter

included a discussion of the purpose of the study, the premises of the study and what was needed from the participants who were willing to participate. From the form, the participants were able to understand that they could withdraw anytime they wished to without consequences. They were also informed that the study would not pose foreseeable risks to the participants.

To make sure ethical rights of the clients were protected, I made sure that both confidentiality and anonymity of the participants were observed throughout the study. One method to do this was to make sure all soft copies of the data are secured under password protection. Assuring participants of their confidentiality encourages participants to be honest when responding to survey questions (Stephens, 2007).

Participants in the study were asked to omit any personal information such as the name and address or other pertinent information that could have been used to identify and locate the participant. I will keep the hard copies of the surveys and other documentation. Participants will be given the aggregate and statistical data from the study if they request to do so.

Summary of the Chapter

This study considered the use of a non-experimental quantitative multiple regression research design. The purpose of this study was to examine the relationship of emotional intelligence aspects of a leader to the virtual project team success, within the leadership style of transformational leadership. The target population was virtual team leaders who employ transformational leadership style as the dominant leadership style. A

convenience sampling technique was utilized for the study. All potential participants were invited to participate in the study.

Eighty-four participants who use the transformational leadership style as the dominant leadership style were collected to ensure at least 80% power for the results of the statistical analyses. Amazon Turk was employed to assist in collecting the responses of the participants. The questionnaires considered for this study included a demographic questionnaire, the MSCEIT, the Information Systems Project Success Questionnaire, and the MLQ focusing on identifying the transformational leadership style as the dominant leadership style.

Correlational analysis and regression analysis were utilized to analyze the data collected in this study. The results of the analyses determined which of the emotional intelligence aspects of a leader is the most valuable for virtual project team success, within the leadership style of transformational leadership. A significance level of .05 was utilized for all statistical analyses.

Chapter 4 provides a discussion on the description of participants gathered for the study. Chapter 4 also provides a presentation of data collected and the results of the data analysis. An analysis of the results based on statistical terms is also provided in Chapter 4. Chapter 5 provides a discussion of conclusions and recommendations drawn from the study.

Chapter 4: Results

Introduction

The purpose of this quantitative multiple regression study was to determine if certain emotional intelligence aspects of team leaders had a significant relationship with the success of virtual teams within the leadership style of transformational leadership. Specifically, the study explored whether a relationship existed between emotional intelligence aspects of a leader and the project success of virtual project teams within the leadership style of transformational leadership. Lastly, if there was indeed a relationship between emotional intelligence and the project success of virtual teams, the study aimed to identify the specific aspects of emotional intelligence that could predict the virtual project team's success. This chapter contains the result and analysis, conducted by using Pearson correlation analysis and hierarchical regression analysis, to address the research objectives of the study. The following research question and hypotheses guided the analysis for this study:

RQ1: Among transformational virtual team leaders, is there a relationship between overall emotional intelligence scores and the success of virtual project teams?

$H_0$1**:** There is no relationship between the overall emotional intelligence score of transformational virtual team leaders and the project success of virtual project teams.

$H_1$1$_1$**:** There is a positive relationship between the overall emotional intelligence score of transformational virtual team leaders and the project success of virtual project teams.

RQ2**:** To what extent do emotional intelligence and its related aspects predict the project success of virtual project teams among transformational virtual team leaders?

$H_0$2**:** The emotional intelligence aspects of virtual team leaders, such as their ability to identify their own emotions, express their emotions, use their emotions to improve cognitive processes and decision-making, and manage their emotions measured through the MSCEIT, do not significantly predict the project success of virtual project teams considering virtual team leaders with transformational leadership style.

$H_1$2**:** The emotional intelligence aspects of virtual team leaders, such as their ability to identify their own emotions, express their emotions, use their emotions to improve cognitive processes and decision-making, and manage their emotions measured through the MSCEIT, can significantly predict the project success of virtual project teams considering virtual team leaders with transformational leadership style.

The purpose of this chapter is to present the results of the analysis using Pearson correlation analysis and hierarchical regression to address the purpose of the study. I used IBM©SPSS® Statistics Version 22 to conduct the data analysis. In the conclusion of this chapter, I will summarize the results of the analysis to address the objective of the study.

Data Collection

Regarding data collection, the initial number of data collected derived from 84 participants. However, after screening the data based on the inclusion criterion of team managers who embody a transformational leadership style, the final number of eligible participants was 63. This equated to 75% of the gathered information being usable. The screening derived from the MLQ scoring to determine the participants who were

transformational leaders. I did this by investigating each of the participants' scores in the three leadership styles of transformational, transactional, and nontransactional. The highest score determines their leadership style. Participant data with more than 50% of the survey questions missing (not including optional demographic information) were removed from the data set. Originally, 69 participants exhibited transformational leadership, but six samples were removed because there were no data in any measures of emotional intelligence. This equated to a final number of 63 participants, which was less than the minimum sample size required of at least 84 virtual project team leaders or managers who practiced the transformational leadership style in managing the team. Given that I used a nonprobability convenience sampling technique to recruit participants, the sample of team managers in this study was not truly representative of the virtual team leaders. The validity of nonprobability samples was increased by trying to approximate random selection in the data collected.

Tables 1 and 2 summarize the demographic information of the 63 team managers who embodied a transformational leadership style. The highest level of education for more than half of the 63 team managers was a Bachelor's degree (22; 34.9%) or Master/s degree (14; 22.2%). As for gender, there were slightly more male participants (34; 54%) than female participants (29; 46%). The majority, or 50 out of the 63 (79.9%), team mangers identified as White. The mean age of the team managers equated to 37.51 years old (SD = 10.57). The oldest person among the 63 participants was 60 years old, and the youngest was 20 years old. The mean years of experience of the sample working for their current employer equated to 5.43 years (SD = 5.28), with a range of experience working

with their current employer between 1 and 33 years. The mean years of experience of the sample working in information systems equated to 10.56 years (*SD* = 9.57), with a range of experience working in information systems between 1 and 36 years.

Table 1

Frequency and Percentage Summaries of Categorically Measured Demographic Information

	f	%
Highest level of education		
High school	6	9.5
1-2 years of college	10	15.9
2-4 years of college	7	11.1
Bachelor's degree	22	34.9
Master's degree	14	22.2
Post-graduate work	4	6.3
Gender		
Male	34	54
Female	29	46
Race		
White	50	79.4
Black, African American, or Negro,	6	9.5
Asian Indian	3	4.8
Japanese	1	1.6
Some other race	3	4.8

Table 2

Descriptive Statistics Summaries of Continuous Measured Demographic Information

	N	Minimum	Maximum	*M*	*SD*
Age	61	20	60	37.51	10.57
Years of experience working at current employer	63	.0	33.0	5.43	5.28
Years of experience working in information systems	63	.0	36.0	10.56	9.57

Results

Descriptive Statistics Analysis of Study Variables

Table 3 summarizes the descriptive statistics of the scores on the study variables of the independent variables of the emotional intelligence measures of perceived emotions, using emotions, understanding emotions, and managing emotions and the dependent variable of project success. The dependent variable of project success consists of four measures, which include the individual project success in the areas of client satisfaction, perceived quality, and implementation process, and the overall project success measure. The descriptive statistics include the mean and standard deviation.

For the dependent variable of project success, high ratings in each of the three areas of client satisfaction (M = 4.10; SD = 0.69), perceived quality (M = 4.04; SD = 0.77), and implementation process (M = 3.77; SD = 1.06) occurred. The overall project success (M = 4.00; SD = 0.69) also has a very high rating. This occurred because the mean values were near the highest possible rating of 5, which indicated success.

The comparison of the mean scores for emotional intelligence, derived from whether the virtual team leaders demonstrated emotional intelligence, showed that the virtual mangers have the highest emotional intelligence aspects of perceiving emotions (M = 0.50; SD = 0.13) and understanding emotions (M = 0.51; SD = 0.10). The virtual team leaders also had the lowest emotional intelligence aspect of managing emotions (M = 0.37; SD = 0.10). The mean score of the overall emotional intelligence equated to 0.46 (SD = 0.09).

Table 3

Descriptive Statistics Summaries of Study Variables

	N	Minimum	Maximum	*M*	*SD*
Perceiving emotions	63	0.14	0.65	0.50	0.13
Using emotions	63	0.12	0.60	0.45	0.11
Understanding emotions	63	0.22	0.63	0.51	0.10
Managing emotions	63	0.15	0.51	0.37	0.10
Overall emotional intelligence	63	0.19	0.58	0.46	0.09

Results of Pearson Correlation Analysis for Research Question 1

I addressed the first research question by conducting a Pearson correlation analysis to examine the relationship between the overall emotional intelligence score and project success of virtual teams. I used a level of significance of 0.05 was used in the correlation analysis. There was a significant correlation between variables if the *p* value was less than or equal to the level of significance value of 0.05. The correlation results are presented in Table 4.

The results of the correlation analysis revealed that the overall emotional intelligence score was significantly correlated with a weak positive correlation with the area of implementation process, r (60) = 0.14, p = 0.029. However, the overall emotional intelligence score was significantly and positively correlated with the project success of virtual teams in the two areas of client satisfaction, $r(60) = 0.38$, $p = 0.002$; the perceived quality, $r(60) = 0.42$, $p = 0.001$; and the overall project success measure of virtual teams, $r(60) = 0.37$, $p = 0.003$. The moderate positive correlation meant that the project success of virtual teams in the areas of client satisfaction, perceived quality, and the overall

project success would heighten or show more success if the team managers, who embodied a transformational leadership style, had higher levels of emotional intelligence.

Given the positive correlation between emotional intelligence and client satisfaction, perceived quality, and overall project success measure of virtual teams, the null hypothesis for Research Question 1 that was rejected.

Table 4

Pearson Correlation Results of Correlation Between Overall Emotional Intelligence and Project Success of Virtual Teams

		Overall Emotional Intelligence
Project success - client satisfaction	Pearson Correlation	0.38[a]
	Sig. (2-tailed)	0.002
	N	63
Project success - perceived quality	Pearson Correlation	0.42*
	Sig. (2-tailed)	0.001
	N	63
Project success - implementation process	Pearson Correlation	0.14
	Sig. (2-tailed)	0.29
	N	63
Overall project success - (client satisfaction, perceived quality, implementation process)	Pearson Correlation	0.37*
	Sig. (2-tailed)	0.003
	N	63

Note. [a]Correlation is significant at the 0.05 level (2-tailed).

Results of Hierarchical Regression Analysis for Research Question 2

I addressed Research Question 2 by conducting a hierarchical regression analysis to assess which of the emotional intelligence aspects could significantly predict the project success, as perceived by virtual team leaders while controlling the effects of the demographic characteristics of the team managers. The emotional intelligence aspects

included perceiving emotions, facilitating thought, understanding emotions, and managing emotions. I used a level of significance of 0.05 in the regression analysis. There was a significant prediction by the independent variables to the dependent variable if the *p* value was less than or equal to the level of significance value of 0.05. The hierarchical regression results are presented in Table 5.

The regression analysis did not reveal statistical significance, $F(10, 50) = 1.14$, $p = 0.35$, for the relationship between the independent variables of emotional intelligence aspects of perceiving emotions, facilitating thought, understanding emotions, and managing emotions and the dependent variable of overall project success, as perceived by virtual team leaders, while controlling for the impact of the demographic variables of age, gender, race, years of experience working in current employer, and years of experience working in information systems. This indicated that the combined effects of the emotional intelligence aspects, which derived from perceiving emotions, facilitating thought, understanding emotions, and managing emotions on the dependent variable, from the overall project success were nonsignificant. The *R*-squared value, $R^2 = 0.19$, equated to a moderate level, indicating a moderate combined effect size from the independent variables on the dependent variable. Investigation of the individual effects of the emotional intelligence aspects showed that all of the aspects of perceiving emotions ($B = 0.07$, $t\ [60] = 0.07$, $p = 0.94$), facilitating thought ($B = 1.47$, $t\ [60] = 1.16$, $p = 0.25$), understanding emotions ($B = -0.71$, $t\ [60] = -0.44$, $p = 0.66$), and managing emotions ($B = 2.45$, $t\ [60] = 1.65$, $p = 0.11$) of the team managers did not have a significant impact on the overall project success, as perceived by virtual team leaders. These outcomes

occurred because the *p* values were all greater than the level of significance value of 0.05. With these results, the null hypothesis for Research Question 2 that "the emotional intelligence aspects of virtual team leaders, such as their ability to identify their own emotions, express their emotions, use their emotions to improve cognitive processes and decision-making, and manage their emotions measured through the MSCEIT, do not significantly predict the project success of virtual project teams considering virtual team leaders with transformational leadership style" was not rejected.

Table 5

Hierarchical Regression Results of Linear Relationship of Emotional Intelligence Aspects with Project Success of Virtual Teams while Controlling the Effects of Demographic Information

Model		Unstandardized Coefficients		Standardized Coefficients	*t*	Sig.
		B	Std.	Beta		
1	(Constant)	4.41	0.48		9.29	0.00*
	Highest level of education	-0.04	0.07	-0.09	-0.58	0.56
	Age	-0.01	0.01	-0.16	-0.77	0.44
	Gender	0.14	0.21	0.10	0.66	0.51
	Race	0.00	0.03	-0.01	-0.08	0.94
	Years of experience working in current employer	-0.02	0.02	-0.16	-1.12	0.27
	Years of experience working in information systems	0.01	0.01	0.14	0.72	0.47
2	(Constant)	3.54	0.70		5.03	0.00*
	Highest level of education	-0.03	0.07	-0.06	-0.40	0.69
	Age	-0.02	0.01	-0.34	-1.58	0.12
	Gender	0.15	0.21	0.11	0.74	0.46
	Race	0.00	0.03	-0.01	-0.08	0.94
	Years of experience working in current employer	-0.02	0.02	-0.13	-0.92	0.36
	Years of experience working in information systems	0.01	0.01	0.10	0.57	0.57
	Perceiving emotions	0.07	0.95	0.01	0.07	0.94
	Using emotions	1.47	1.26	0.22	1.16	0.25
	Understanding emotions	-0.71	1.61	-0.10	-0.44	0.66
	Managing emotions	2.45	1.49	0.35	1.65	0.11

Note. $F(10, 50) = 1.14$, $p = 0.35$, R Squared (R^2) = 0.19, N = 60

a. Dependent Variable: Overall Project Success - (Client Satisfaction, Perceived Quality, Implementation Process)

b. Predictors: (Constant), Years of experience working in information systems, Years of experience working in current employer, Race, Gender, Highest level of education, Age, Perceiving Emotions, Managing Emotions, Using Emotions, Understanding Emotions

*Significant at level of significance of 0.05

Summary

The purpose of this quantitative multiple regression research study was to determine whether emotional intelligence aspects of team leaders had a significant impact on the success of virtual teams, particularly within the leadership style of transformational leadership. In this chapter, I presented the results and statistical analysis to address the research questions of the study. The results of the Pearson correlation analysis showed that there was a positive relationship between the overall emotional intelligence score of transformational virtual team leaders and the project success of virtual project teams. The results of the hierarchical regression analysis showed that the emotional intelligence aspects of virtual team leaders (e.g., their ability to identify their own emotions, express their emotions, use their emotions to improve cognitive processes and decision-making, and manage their emotions measured through the MSCEIT) did not significantly predict the project success of virtual project teams, especially considering virtual team leaders with transformational leadership style.

Chapter 5 includes further discussion of the results presented in this chapter. I will review each of the five hypotheses, and the potential implications for each of the results of the analysis. The chapter shall conclude with a summary of the study.

Chapter 5: Discussion, Conclusions, and Recommendations

Introduction and Summary of the Findings

For the current study, I used a quantitative multiple regression approach to identify if emotional intelligence characteristics of transformational leaders were significant to the success of projects handled by virtual teams. To remain globally competitive, many organizations in the 21st century have introduced the concept of virtual teams in their structure to bring participants from different locations together to accomplish certain projects (Brahm & Kunze, 2012). Team leaders are vital to the success of each virtual team (Purvanova & Bono, 2009). Specifically, transformational leadership may be a significant style of leadership that promotes team success (Purvanova & Bono, 2009).

Within transformational leadership, emotional intelligence is an important aspect; moreover, researchers have posited that this type of leadership influences overall project outcomes (Suciu et al., 2010). Therefore, the emotional aspects of transformational research represented the focus of this study. Although researchers have widely discussed leadership styles' influence on virtual work teams, little research has emphasized the certain characteristics of emotional intelligence of a leader who might contribute to the successful outputs of virtual teams (Suciu et al., 2010).

I conducted a quantitative study of virtual leaders to examine the relationship between the emotional intelligence aspects of a leader and the project success of virtual teams within the transformational leadership style. The study aimed to add depth and understanding to the possible connections between emotional intelligence,

transformational leadership, and virtual teams. I used a survey questionnaire in the data gathering process to meet this goal. Specifically, the research measured emotional intelligence through the MSCEIT (Mayer, Salovey, & Caruso, 2002), while project team success was measured through the Information Systems Project success questionnaire (Mahaney & Lederer, 2006).

The effectiveness of transformational leadership and its influence on traditional work teams has already been studied (Kark & Shamir, 2013). Previous studies have indicated that emotional intelligence could aid in cognitive and behavioral complexity and flexibility, which represented important characteristics of effective transformational leaders (Dumdum, et al., 2013). However, almost no research exists on the project success of virtual teams. Specifically, this includes what aspects of emotional intelligence, if any, contribute to virtual team success. Learning more about the influence of emotional intelligence of leaders can add valuable information that could serve virtual teams globally. Therefore, this study aimed to address the gap in the literature about how emotional intelligence plays a role in a virtual project team's success.

I raised two questions to determine if having virtual team leaders with high emotional intelligence levels related to the virtual teams' success. I used a quantitative study design to address the following research questions and test the hypotheses:

RQ1: Among transformational virtual team leaders, is there a relationship between overall emotional intelligence scores and the success of virtual project teams?

$H_0$1**:** There is no relationship between the overall emotional intelligence score of transformational virtual team leaders and the project success of virtual project teams.

$H_1$1**:** There is a positive relationship between the overall emotional intelligence score of transformational virtual team leaders and the project success of virtual project teams.

RQ2**:** To what extent do emotional intelligence and its related aspects predict the project success of virtual project teams among transformational virtual team leaders?

$H_0$2**:** The emotional intelligence aspects of virtual team leaders, such as their ability to identify their own emotions, express their emotions, use their emotions to improve cognitive processes and decision-making, and manage their emotions measured through the MSCEIT, do not significantly predict the project success of virtual project teams considering virtual team leaders with transformational leadership style.

$H_1$2**:** The emotional intelligence aspects of virtual team leaders, such as their ability to identify their own emotions, express their emotions, use their emotions to improve cognitive processes and decision-making, and manage their emotions measured through the MSCEIT, can significantly predict the project success of virtual project teams considering virtual team leaders with transformational leadership style.

Results of Pearson Correlation Analysis for Research Question 1

For the first research question, I asked, "among transformational virtual team leaders, is there a relationship between overall emotional intelligence scores and the success of virtual project teams?" I addressed this question by conducting a Pearson correlation analysis to examine the relationship between the overall emotional intelligence score and project success of virtual teams. The results of the correlation analysis showed that the overall emotional intelligence score significantly and positively

correlated with the project success of virtual teams in the two areas of client satisfaction, r (60) = 0.38, p = 0.002; perceived quality, r (60) = 0.42, p = 0.001; and with the overall project success measure of virtual teams, r (60) = 0.37, p = 0.003. The positive correlation meant that the project success of virtual teams in the areas of client satisfaction, perceived quality, and the overall project success would heighten or show more success if the team managers, who embodied a transformational leadership style, had higher levels of emotional intelligence. Thus, one could conclude that there was a positive relationship between the overall emotional intelligence score of transformational virtual team leaders and the project success of virtual project teams. The results of the correlation analysis also showed that the overall emotional intelligence score was not significantly or positively correlated with the area of implementation process, r (60) = 0.14, p = 0.029.

Results of Hierarchical Regression Analysis for Research Question Two

My second research question was "to what extent do emotional intelligence and its related aspects predict the project success of virtual project teams among transformational virtual team leaders?" I addressed this question by conducting a hierarchical regression analysis to assess which of the emotional intelligence aspects could significantly predict the project success as perceived by virtual team leaders, while controlling the effects of the demographic characteristics of the team managers. The emotional intelligence aspects included perceiving emotions, facilitating thought, understanding emotions, and managing emotions. I used a level of significance of 0.05 in the regression analysis. There would be a significant prediction, which derived from the

independent variables to the dependent variable, if the *p* value was less than or equal to the level of significance value of 0.05.

The regression analysis was nonsignificant, F (10, 50) = 1.14, p = 0.35, for the influence of the independent variables of emotional intelligence aspects of perceiving emotions, facilitating thought, understanding emotions, and managing emotions on the dependent variable of overall project success, as perceived by virtual team leaders, while controlling for the impact of the demographic variables of age, gender, race, years of experience working in current employer, and years of experience working in information systems. This outcome showed that the combined effects of emotional intelligence aspects of perceiving emotions, facilitating thought, understanding emotions, and managing emotions on the dependent variable of overall project success were nonsignificant.

The *R*-squared value, R^2 = 0.19, was at a moderate level, indicating a moderate combined effect size occurred from the independent variables on the dependent variable. The investigation of the individual effects, which derived from the studied emotional intelligence aspects, showed that none of the aspects of perceiving emotions, B = 0.07, t(60) = 0.07, p = 0.94; facilitating thought, B = 1.47, t(60) = 1.16, p = 0.25; understanding emotions, B = -0.71, t (60) = -0.44, p = 0.66; and managing emotions, B = 2.45, t (60) = 1.65, p = 0.11, of the team managers had a significant impact on the overall project success as perceived by virtual team leaders. This occurred because the *p* values were all greater than the level of significance value of 0.05. With these results, the null hypothesis for Research Question 2, “the emotional intelligence aspects of virtual team leaders, such

as their ability to identify their own emotions, express their emotions, use their emotions to improve cognitive processes and decision-making, and manage their emotions measured through the MSCEIT, do not significantly predict the project success of virtual project teams considering virtual team leaders with transformational leadership style," was not rejected.

The results of the Pearson correlation analysis showed that there was a positive relationship between the overall emotional intelligence score of transformational virtual team leaders and the project success of virtual project teams. The results of the hierarchical regression analysis showed that the emotional intelligence aspects of virtual team leaders (e.g., their ability to identify their own emotions, express their emotions, use their emotions to improve cognitive processes and decision-making, and manage their emotions as measured through the MSCEIT) did not significantly predict the project success of virtual project teams, especially when one considered virtual team leaders with transformational leadership style.

Interpretations of the Findings

The purpose of this research study was to determine which emotional intelligence aspects of a leader were the most valuable for virtual project team success within the leadership style of transformational leadership. The target population for this study included virtual team leaders, such as the project or team managers. The participants in this study consisted of leaders or managers who practiced the transformational leadership style in managing the team.

While the purpose and nature of teams have varied over the years, in the Age of Information, virtual teams have become increasingly commonplace in industries of all types. To best understand and contextualize the two research questions covered in this study, I focused on three variables: emotional intelligence, virtual teams, and transformational leadership to see if these affected one another. Also, I confirmed that there was a positive relationship and statistical significance between the overall emotional intelligence score of transformational virtual team leaders and the project success of virtual project teams. However, the results of the hierarchical regression analysis showed that the emotional intelligence aspects of virtual team leaders with transformational leadership style did not significantly predict the project success of virtual project teams. This indicated that the combined effects of the emotional intelligence aspects, which derived from perceiving emotions, facilitating thought, understanding emotions, and managing emotions on the dependent variable, from the overall project success was not significant.

The *R*-squared value, $R^2 = 0.19$, equated to a moderate level, indicating a moderate combined effect size from the independent variables on the dependent variable. Investigation of the individual effects of the emotional intelligence aspects showed that all of the aspects of perceiving emotions $B = 0.07$, $t(60) = 0.07$, $p = 0.94$; facilitating thought, $B = 1.47$, $t(60) = 1.16$, $p = 0.25$; understanding emotions, $B = -0.71$, $t\ (60) = -0.44$, $p = 0.66$; and managing emotions, $B = 2.45$, $t\ (60) = 1.65$, $p = 0.11$ of the team mangers did not have a significant impact on the overall project success, as perceived by

virtual team leaders. These outcomes occurred because the *p* values were all greater than the level of significance value of 0.05.

I had planned to collect 84 participants to ensure 80% power to detect a medium sized correlation; however, despite the various attempts and avenues to secure a larger sample size, the response rate was lower than I had anticipated, resulting in a final sample size of 63. Though this resulted in only achieving 67.6% power for the correlational analyses, the power to detect a medium-sized effect on individual regression coefficients is 85.4% given the sample size. The previous literature on this topic from which to draw an a priori estimate was small. It may be that these effects are smaller than the previous literature had indicated. Studies by future researchers could investigate the concepts of emotional intelligence and how they relate to project success more broadly or combine evidence meta-analytically to gain more insight into the size of the effects.

I used the screening derived from the MLQ scoring to determine which participants were transformational leaders. I accomplished this by investigating each of the participants' scores in the three leadership styles of transformational, transactional, and nontransactional. The highest score determined their leadership style. In addition, I removed many samples of participant data with missing data from the data set. Therefore, given that I used a nonprobability convenience sampling technique to recruit samples, the sample of team managers in this study was not truly representative of all virtual team leaders. Many factors might have influenced these outcomes, especially considering the numerous issues I uncovered in the literature review that were associated with leading virtual teams, including the possibility of miscommunication, violations of security, and

lack of worker productivity (Leonarcl et al., 2011). All of these issues could occur due to a lack of trust associated with not meeting face-to-face. In this regard, Roebuck et al. (2004) stated,

> While a team is working on a project, usually the project is like a puzzle, and each team member is responsible for working on an assigned piece of the project. The team must develop a system for sharing information so that nothing relevant to solving the problem is lost. (p. 360)

While collaboration at that level is challenging even with traditional teams, it is important to note that information seemingly irrelevant to one team member might be the missing piece for achieving the overall team goal (Roebuck et al., 2004). Continuous information sharing between team members is vital to ensure that no information is lost that could bring a project to completion. Roebuck et al. (2004) suggested this level of communication was one of the most important factors in creating an effective virtual team.

Based on the literature review, it is possible that factors, not studied in this research project, affected the outcome. In addition, the small sample size ($N = 63$), lack of input from team members, self-selection process, and lack of gender or race analysis from additional research might have further affected the outcome. Despite these issues, this research should still add to the understanding of how perceiving emotions, facilitating thought, understanding emotions, and managing emotions intersect. Hence, this study did add to the existing literature on virtual teams, emotional intelligence, and transformational leadership.

Virtual Teams

Developed in the 21st century, virtual teams are a relatively new concept to organizations, with team members spanning the globe (Zaccaro et al., 2004). Due to the demand to increase speed and efficiency, the use of virtual teams increased between 1992-2002 (Hearmes & Harvey, 2006). The key elements that define a virtual team include geographical dispersion, technologically connected, team duration, and percentage of time spent working together (Zaccaro et al., 2004; Zimmer, 2015). This study continued beyond the understanding that virtual teams were already being incorporated in organizational settings (Brahm & Kunze, 2012), and it sought to determine the factors that contributed to team success in accomplishing projects.

Aspects that make these teams successful, and thus efficient and productive, are often the team leaders. Specifically, traits that the leaders have, such as emotional intelligence, can influence a leader's success rate in leading virtual teams. Thus, this study sought to add to the existing literature by exploring the relationship between a leader's emotional intelligence and the success of virtual project teams. This study showed that the emotional intelligence of transformational leaders could have a positive impact on virtual team success.

Emotional Intelligence

Many researchers have agreed that high levels of emotional intelligence could help individuals, specifically leaders, perform better in their jobs (Goleman, 2005; Jung & Yoon, 2012). This study sought to add to the existing literature by testing how and if emotional intelligence and transformational leadership intersected and influenced virtual

project team outcomes. Goleman (2006) stated that a person with high levels of emotional intelligence might stay encouraged under stressful situations and encourage others better if the person is led by someone who has emotional intelligence. Moreover, Goleman (2006) found that emotional intelligence did lead to better performance levels.

Building teams is critical for achieving desired outcomes. Emotionally intelligent individuals can manage complicated interpersonal relationships, which can foster these outcomes. Because EI is highly linked to team behavior and performance, if team members can perceive and be aware of emotions of their team members, performance and productivity can improve (Levi, 2015).

This study confirmed that there was a relationship between the overall emotional intelligence score of transformational virtual leaders and the project success of virtual teams. Nonetheless, in trying to understand the emotional intelligence aspects of virtual team leaders (e.g., their ability to identify their own emotions), these aspects did not significantly predict the project success of virtual project teams. Due to the small sample size of this study, as well as possible bias selection, a qualitative approach may best to uncover what aspects of EI have a relationship with overall virtual team success.

As previously mentioned, the concept of emotional intelligence was first coined by Mayer and Salovey (1993) and then made popular by Goleman (2006). Emotional intelligence enhances a person's ability to determine what he or she is feeling, while still being mindful of others' feelings. People who cannot identify their feelings are naturally unable to express these as well (Zhou & George, 2003).

Emotional intelligence refers to individuals' abilities to manage their own emotions and be aware of the emotions of others. Emotional intelligence is defined as having "five characteristics and abilities," which include self-awareness, mood-management, self-motivation, empathy, and managing relationships (Goleman, 2005, p. 194).

Based on this research, I assumed that the leaders studied would align with these definitions of EI; however, a qualitative approach should help get a better picture of the aspects of EI that impact virtual project success. Lived experiences from both the perspective of the leaders and employees would also add to the literature by expanding on specific emotional intelligence aspects and their relationship to virtual team success.

Various studies have already established that emotional intelligence could affect teamwork and interpersonal relationships fostered in the workplace (Zeider, et. al., 2012; Wolff, Pescosolido, & Druskat, et. al., 2013). This study demonstrated similarities to these findings.

The ability to understand and regulate one's emotions can cultivate the ability to work with others effectively (Northouse, 2015). Individuals who are emotionally intelligent can share their positive outlook with others in the workplace, which can help create stronger rapport (Mesmer-Magnus, Glew, & Viswesvaran, 2012). Being socially receptive, emotionally intelligent individuals can recognize and understand what their team members are feeling, which makes collaborating and working within a team easier (Druskat, et. al., 2013). By being receptive, emotionally intelligent team members have the ability to induce positive emotions in their teammates (Chang, Sy, & Choi, 2013).

Emotional intelligence enhances relationships at work; therefore, it should be used before coordinating group tasks and identifying leaders (Wolff et al., 2002).

An emotionally intelligent individual is not only able to understand his or her emotions, but also understand and perceive the moods and feelings of others (Law, Wong, & Song (2004). What comes with this ability is a high level of competency to form effective relationships and earn social support (Law et al., 2004). While this study did find a relationship between overall EI and the success of virtual teams, it could not add as to which aspect of EI had an impact.

The EI theory is gaining more attention and being used in more studies, especially on its usefulness in the workplace (Lee & Ok, 2012). Mayer and Salovey (1997) defined EI to include the ability to perceive emotions, access and generate emotions to assist thought, understand emotions, and regulate emotions. These researchers were able to demonstrate EI not as a form of intelligence, but as a unique way to solve problems by using the ability to control and manage their feelings and emotions, as well as others' feelings and emotions.

Some researchers have also debated whether gender disparities existed on the levels of emotional intelligence. According to a study, the females have higher emotional intelligence compared to the males (Anari, 2012). Hence, more research is needed to understand gender differences in this area better. While there were an abundant number of studies on these constructs, limited studies assessed which specific aspects of emotional intelligence were the most valuable for virtual project team success within the leadership style of transformational leadership. This study aimed to add to the existing

emotional intelligence literature and confirmed a relationship between overall emotional intelligence scores and the success of virtual project teams. However, further analysis is required to determine what extent emotional intelligence and its related aspects predicted the project success of virtual project teams among transformational virtual team leaders.

Transformational Leadership

Transformational leaders are thought to have high EI. Some examples of such leaders included Rousseau, Madison, Castro, Kennedy, Joan of Arc, and others (Boje, 2000). This type of leadership focuses on supporting, mentoring, and coaching others (Bass & Riggio, 2012). According to Cavazotte, Moreno, and Hickman (2012), transformational leaders are effective in developing their followers' performance. However, even though several studies showed the underlying process to which transformational leaders affected their followers' growth and performance (Cavazotte, et. al., 2012; Wang & Howell, 2012), there remained a limited number of studies that looked at the effects of transformational leaders on followers' performance under a team context. Hence, this study aimed to add to existing transformational leadership research. This study suggested that there was a relationship between transformational leaders with higher EI scores the success of virtual project teams.

Leaders can play an influencing role in team effectiveness. If leaders are unable to empower their followers and are not focused on team goals, unhappy team members would be the outcome (Rowitz, 2013). Leaders who are more relaxed in their goal achievement approach, including taking their followers' feelings into account, are more successful**.** A leader who had legitimacy and capabilities could establish an effective

team. However, leaders have to encourage their followers to believe in them and their legitimacy (Antonakis, & House, 2013). More analysis to understand the relationship between EI among transformational leaders and the success of virtual teams would enrich this area of study.

Team leaders are influential in team processes and outcomes (Klein et al., 2011). Task-focused leaders were most effective in organizing, identifying, and coordinating team activities. Task-focused leaders were the leaders most likely to assign members their tasks and roles necessary to achieve goals. The most likely pathway for an effective team was planning, which these task-focused leaders initiated (Klein et al., 2011).

Teams that work well as a unit proved to be the most effective. Team effectiveness can be influenced by internal and external factors, including group dynamics, team lead interactions, and the operating environment facilitated by the organization (Andrews, 2012). As such, organizations should work to ensure there are effective leaders and that they are fostering an environment favorable to sustain team effectiveness. Andrews (2012) also claimed that task-focused leaders could help team members who had different values to understand each other and coordinate effectively. Andrews claimed that leaders could help the team members, despite their differences from each other, and anticipate the actions of their fellow members. To help expand on Andrews's (2012) findings, a qualitative approach focusing on leaders, as well as team members, may help uncover what makes virtual teams successful and effective.

Transformational leaders generate high commitment levels among their followers, through empowerment and sharing of knowledge, which generates trust and loyalty

(Bello, 2012). Transformational leaders understand the importance of consulting their followers when decision making and tasks delegation come into the equation (Shelton, 2012). It was Burns (1978) who introduced the ideas of leadership styles being either transformational or transactional: styles that can often be contradictory of one another. Transactional leaders often tell their followers what to do and enforce rules through a rewards and punishment system that leads to goal achievement (Dinh, Lord, Gardner, Meuser, & Liden, 2014).

On the other hand, transformational leaders were found to work more with their colleagues, and they worked to inspire their followers to want to effectively complete a task, even without the draw of a reward (Bass & Riggio, 2012). It is evident that this leadership style has many advantages; however, by further investigating to what extent EI and its related aspects predict the success of virtual project teams among transformational leaders, a better understanding of this type of leadership style shall prevail. This study calls for further research to add to this body of knowledge.

Transformational leaders articulate the importance of empowering followers and are therefore effective at carrying out changes in an organization (Zhu, et. a., 2012). Transformational leaders are able to identify the need for a more team-oriented and flexible work environment, versus a more bureaucratic and hierarchical structure. According to Sy et al. (2006), highly emotionally intelligent team members are linked to positive job performance. In general, team members with high EI were more responsive to what others felt when it came to tasks and decision making (Sy et al., 2006).

Group performance is highly influenced by the role the team leader plays (Chou, Lin, Chang, & Chuang, 2003). Therefore, the leadership style of the leader is the biggest factor behind team performance (Von Krough, et al., 2012). Among the different leadership styles, transformational leadership style has been the most cited (Nixon, Harrington, & Parker, 2012). Transformational leaders are known to create valuable and positive changes among their followers. They are also particularly effective in motivating their followers.

It is assumed that most leaders only have high intellect, as indicated by earlier studies on the topic; however, more recent studies have debunked this assumption and hypothesized that leaders need more than intellect (Zhou & George, 2013). Individuals with high emotional intelligence can regulate their emotions, are aware of the emotions of others, and make a continuous effort to manage these emotions (Zhou & George, 2013). If emotions are unmanaged, it can negatively affect the way information is processed (Zhou & George, 2013).

Transformational leaders manage their own and others' emotions. Because of this, they are able to withhold their judgments and communicate their feelings using an informed approach. This ability to think before acting makes individuals with emotional intelligence a vital asset to any workplace (Goleman, et. al., 2013). Goleman et al. (2013) claimed that most leaders reached a leadership position due to their emotional intelligence, rather than their cognitive intelligence. This study confirmed that, among transformational virtual team leaders, there was a relationship between overall EI scores and the success of virtual project teams.

Thus, I concluded that both being a transformational leader and being a transformational leader with high EI was advantageous for any company. Such leaders could motivate, inspire, encourage, and set a positive example, while also creating trust and teamwork. However, when it comes to best understanding virtual project success, further analysis is needed to uncover the extent that EI and its related aspects predict project success of virtual project teams among transformational virtual team leaders. While this study did find a positive relationship between the overall emotional intelligence score of transformational virtual team leaders and the project success of virtual project teams, more research remained necessary due to small sampling and a heterogeneous population. Furthermore, a qualitative design may uncover more information about specific EI aspects that affect virtual project success among both leaders and team members.

The theoretical foundations that were applied for the study were the transformational leadership theory and the emotional intelligence theory. The theory of EI states that EI is a combination of the intelligence people have that helps them identify and manage their emotions well, and understand, motivate, and relate well to others (Goleman, 2006). An emotionally intelligent leader's main objective is the management of emotions and moods (Dumdum, et. al.,2013). Leaders have an ability to positively influence their team's performance, through influencing their emotions. The objective of the study was to determine which aspects of emotional intelligence in a leader influence the virtual team's success in projects. The use of the above-mentioned theories was found to be appropriate for this study, as emotional intelligence and transformational leadership

theories directly relate emotional intelligence to leadership, which was one of the main components of the current study at hand.

Implications of the Findings

The need to determine factors that contribute to organizational success in completing projects successfully is becoming increasingly important, as organizations start to adopt virtual teams to account for innovation and change (Brahm & Kunze, 2012). The industry needs effective leaders to lead these virtual teams to success (Purvanona & Bono, 2009). Understanding what constitutes a successful project in a virtual team and how this connects to the traits of a leader is vital, as it will add information to the current body of literature on emotional intelligence. This may add depth and breadth to the relationship between leadership and emotional intelligence.

The study focused on three variables: emotional intelligence, virtual teams, and transformational leadership, with the goal of determining how transformational project leaders affected virtual team outcomes, specifically seeing if the emotional intelligence of the leader played a role in producing favorable team results. Furthermore, the study might help globally competitive companies in understanding the relevance of effective and emotionally intelligent leaders to the success of virtual teams. The study contributed to the knowledge of current organizations that utilized virtual teams and provided findings that might aid them in developing their work teams.

The literature confirms the increase in virtual teams around the globe (Zaccaro et al., 2004), better understanding of what factors affect team success can help companies be more efficient and productive. Virtual teams provide a lot of benefits for a company,

including being able to recruit, hire, and retain the most qualified employee, regardless of geographic location. This offers the flexibility not only for the company but also for each employee, who may otherwise be unable to move to take a position (Kerber & Buono, 2004).

Transformational leadership has been shown to be extremely important for teams who communicate virtually (Puranova & Bono, 2009). Effective, transformational leaders display high EI levels (Cogliser, Gardner, Gavin, & Broberg, 2012; Sadri, 2012; Lam & O'Higgins, 2012). Because EI is comparative to the level of position held by an individual in an organization, it may be that EI is a vital trait in team leaders, given their emotional knowledge can influence team performance (Suciu, Petcu, & Gherhes, 2010; Northouse, 2015). This study confirmed that leader with high EI positively influenced virtual team success.

Multiple studies relate EI to leadership and its effects on management behavior in the workplace (Fisk & Friesen, 2012; Castro, Gomes, & de Sousa, 2012). Though previous literature has focused more on traits of different leadership styles, there is a lack of research that focuses specifically on EI aspects that prove to be more valuable for the virtual team project success.

The current study sought to identify which emotional intelligence characteristics of a leader were significant to the success of the projects handled by virtual teams. Nevertheless, the emotional intelligence aspects of virtual team leaders (e.g., their ability to identify their own emotions, express their emotions, use their emotions to improve cognitive processes and decision-making, and manage their emotions measured through

the MSCEIT) did not significantly predict the project success of virtual project teams considering virtual team leaders with transformational leadership style. However, the leaders of virtual teams might find the results of this study highly beneficial, and might use it to change their approach to leadership. Should the leaders of virtual offices apply more transformational leadership traits, accompanied with a higher sense of EI, it might have a valuable effect on their employees and their productivity.

The effectiveness of transformational leadership and its impact toward traditional work teams has already been studied (Kark & Shamir, 2013), which makes it a reliable basis for a leadership style in the current study. No research exists that examines what contributes to project success of a virtual team. There is also a gap in the literature on the connection between virtual team project success and EI. Further studies on EI and its effect on leadership would be able to assist all leaders of companies and organizations to follow an improved approach of leadership. Leadership will always have an impact on profit globally, and thus more research might be able to globally improve leadership and productivity.

Thus, this study confirms previous findings that there is a positive relationship between higher emotional intelligence and positive outcomes. Specifically, this study found the overall emotional intelligence score of transformational virtual team leaders and the project success of virtual project teams. This finding encourages companies to ascertain hiring leaders that have high emotional intelligence. Doing so can result in favorable outcomes. One could implement using a reliable emotional intelligence test to screen potential candidates. However, when it comes to knowing specific aspects of

emotional intelligence and how these affect virtual team success, more research is needed.

Limitations of the Study

The study aimed to bridge the gap between emotional intelligence, which was assumed to represent a significant trait of a leader, and its aspects that positively contributed to the virtual team's success. Specifically, the study explored whether there was a relationship between emotional intelligence aspects of a leader and the project success of virtual project teams within the leadership style of transformational leadership. While the study did find a relationship between emotional intelligence and the project success of virtual teams, the study could not specify which specific aspects of emotional intelligence could predict the virtual project team's success or whether the results were statistically significant.

The primary limitation of the study was that the target sample size was not met. As previously discussed, this means that the correlational analysis was slightly under powered, though the regression analyses were still appropriately powered, given a medium-sized effect. However, because there was not a large body of literature on this topic, it was difficult to determine the likely effect size with a high degree of certainty. A second limitation is that the participants for the study were volunteers; however; they were compensated for their participation. Bias might be prevalent in the research because the individuals who agreed to participate might only have done so because they had strong emotions and insights on the main topic of the study. The third limitation was that the study explored the possibility of the relationship between emotional intelligence and

success of virtual project teams; however, the personal perceptions and insights of the virtual leaders on the said topic could not be understood or examined through this study. I could not obtain lived experiences of the virtual leaders in handling their teams, nor did the study offer insight from the side of the team members and their experience of the leader. It is possible that future research may utilize a qualitative approach to add more information on the topic.

Internal validity might have been threatened as participants could have different understandings on items in the questionnaire. While I took measures to prevent such internal validity threats, these might remain.

Issues that affect the ability to draw correct inference from the sample data to other persons and settings can threaten external validity. Due to the use of a convenience sampling technique, the validity of generalizing the findings to the target population is impacted. The sample was skewed to be predominately White participants and thus lacks racial variance. This could be representative of the race differences in project management, but that was not determined in the literature for this study.

Recommendations for Future Research

Although there have been many studies to explore leadership styles' influence on virtual work teams, little research has placed emphasized the certain characteristics of emotional intelligence of a leader that might contribute to the successful outputs of virtual teams. This study was used to explore the transformational leadership style of virtual team leaders and measure the aspects of their emotional intelligence, providing insight into the impact of emotional intelligence and relationship to virtual project team

success. Nevertheless, due to some limitations, such as sample size and unclear findings, further research is recommended.

According to the 63 participants surveyed in this study, there was a positive relationship between overall emotional intelligence score of transformational leaders and project success of virtual project teams. A larger sample size would help to test the validity, as well as the reliability of the findings to strengthen this finding. In addition, since the emotional intelligence aspects of virtual team leaders (e.g., their ability to identify their own emotions, express their emotions, use their emotions to improve cognitive processes and decision-making, and manage their emotions measured through the MSCEIT) did not significantly predict the project success of virtual project teams, considering virtual team leaders with transformational leadership style, further research is needed.

Several factors could strengthen retesting to what extent does emotional intelligence, and its related aspects predict the project success of virtual project team among transformational virtual team leaders. For example, a larger, more representative sample may reveal what aspects are important. Also, a qualitative study, which also studies each emotional intelligence aspect as a dependent variable, may help explain what individual aspects of emotional intelligence are most crucial to influencing the success of virtual teams. Finally, by comparing gender, racial, and ethnic norms, one may receive a more representative and more holistic picture, concerning gender and racial similarities and differences, especially concerning the relationship between emotional intelligence and the success of virtual team leaders. Almost no research exists on the project success

of virtual teams to demonstrate what contributes to the success. While this study did find a relationship between emotional intelligence of leaders and virtual team success, more insight remains necessary.

Summary and Conclusions

This quantitative study explored emotional intelligence aspects of team leaders, which might have an impact on the success of virtual leaders, particularly within the leadership style of transformational leadership. The theoretical framework proposed that emotional intelligence was a significant trait of a leader and its aspects could positively contribute to the virtual team success. The literature implied that, given the emotional intelligence and transformational leadership theories, an emotionally intelligent leader could promote a positive environment by bringing out positive emotions among followers, which could influence followers' performance in a positive direction. According to the 63 participants surveyed in this study, there was a positive relationship between overall emotional intelligence score of transformational leaders and project success of virtual project teams. Nevertheless, the emotional intelligence aspects of virtual team leaders (e.g., their ability to identify their own emotions, express their emotions, use their emotions to improve cognitive processes and decision-making, and manage their emotions measured through the MSCEIT) did not significantly predict the project success of virtual project teams, especially when considering virtual team leaders with transformational leadership style. The underlying conclusion of the survey data in this research study was among transformational virtual team leaders; there was a

relationship between overall emotional intelligence scores and the success of virtual project teams. However, to what extent remains uncertain.

References

Anari, N. N. (2012). Teachers: Emotional intelligence, job satisfaction, and organizational commitment. *Journal of Workplace Learning 24*, 256-268.

Anders, A. (2016). Team communication platforms and emergent social collaboration practices. *International Journal of Business Communication, 53*, 224-261.

Andrews, D. S. (2012). *Leadership and team effectiveness*. Available from Proquest Dissertation and Theses Database. (UMI No: AAI3530069).

Andressen, P., Konradt, U., & Neck, C. P. (2012). The relationship between self-leadership and transformational leadership: Competing models and the moderating role of virtuality. *Journal of Leadership and Organizational Studies, 19*, 68-82.

Ang, S., & Van Dyne, L. (2015). *Handbook of cultural intelligence.* London, England: Routledge.

Antonakis, J., & House, R. J. (2013). The full-range leadership theory: The way forward. In B. J. Avolio & F. J. Yammarion (Eds.), *Transformational and Charismatic Leadership: The Road Ahead 10th Anniversary Edition* (pp. 3-33). Bingley, England: Emerald Group Publishing Limited.

Avolio, B. J., & Bass, B. M. (2007). *Multifactor leadership questionnaire, manual and sampler* (3rd ed.). Redwood City, CA: Mind Garden.

Avolio, B. J., & Yammarino, F. J. (Eds.). (2013). Introduction to, and overview of, transformational and charismatic leadership. In *Transformational and*

Charismatic Leadership: The road head 10th Anniversary Edition (pp. xxvii-xxxiii). Bingley, England: Emerald Publishing Group Limited.

Babar, M. A., & Zahedi, M. (2012). Global software development: A review of the state-of-the-art (2007-2011). *IT University Technical Report Series, 1,* 1-75.

Babbie, E. R. (2012). *The practice of social research*. Belmont, CA: Wadsworth.

Bar-On, R., Handley, R., & Fund, S. (2013). The impact of emotional intelligence on performance. In V. U. Druskat, F. Sala, & G. Mount (Eds.), *Linking emotional intelligence and performance at work: Current research evidence with individuals and groups* (pp. 3-20). Mahwah, NJ: Lawrence Erlbaum.

Baskarada, S., Watson, J., & Cromarty, J. (2017). Leadership and organizational ambidexterity. *Journal of Management Development, 35,* 778-788.

Bass, B. M. (1985). *Leadership and performance beyond expectations*. New York, NY: Collier Macmillan.

Bass, B. M., & Riggio, R. E. (2012). *Transformational leadership*. Hove, UK: United Kingdom Psychology Press.

Batool, B. F. (2013). Emotional intelligence and effective leadership. *Journal of Business Studies Quarterly, 4,* 84-88.

Belbin, R. M. (2012). *Team roles at work.* London, England: Routledge.

Bello, S. M. (2012). Impact of ethical leadership on employee job performance. *International Journal of Business and Social Science, 3.*

Binkley, M., Erstad, O., Herman, J., Raizen, S., Ripley, M., Miller-Ricci, M., & Rumble,

M. (2012). Defining twenty-first century skills. *In Assessment and teaching of 21st century skills (pp. 17-66)*. Netherlands: Springer.

Boje, D. M. (2000). *Transform into super leaders: Transformational leadership*. Retrieved from https://business.nmsu.edu/~dboje/teaching/338 /transformational_leadership.htm

Brahm, T., & Kunze, F. (2012). The role of trust climate in virtual teams. *Journal of Managerial Psychology, 27,* 595-614.

Braun, S., Peus, C., Weisweiler, S., & Frey, D. (2013). Transformational leadership, job satisfaction, and team performance: A multilevel mediation model of trust. *The Leadership Quarterly, 24*, 20-283. doi:10.1016/j.leaqua.2012.11.006

Bryman, A. (2012). *Social research methods* (4th ed.). Oxford, England: Oxford University Press.

Burns, J. M. (1978). *Leadership*. New York, NY: Harper & Row.

Cameron, E., & Green, M. (2015). *Making sense of change management: A complete guide to the models, tools, and techniques of organizational change.* London, UK: Kogan Page Publishers.

Cardon, P. W., & Marshall, B. (2015). The hype and reality of social media use for work collaboration and team communication. *International Journal of Business Communication, 52,* 273-293. doi:10.1177/2329488414525446

Carter, M. Z., Armensakis, A. A., Field, H. S., & Mossholder, K. W. (2013). Transformational leadership, relationship quality, and employee performance during continuous incremental organizational change. *Journal of Organizational*

Behavior, 34, 942-958.

Castro, F., Gomes, J., & de Sousa, F. C. (2012). Do intelligent leaders make a difference? The effect of a leader's emotional intelligence on followers' creativity. *Creativity and Innovation Management, 21,* 171-182.

Cavazotte, F., Moreno, V., & Hickman, M. (2012). Effects of leader intelligence, personality, and emotional intelligence on transformational leadership and managerial performance. *The Leadership Quarterly, 23,* 443-455.

Chang, W., & Lee, C. (2013). Virtual team e-leadership: The effects of leadership style and conflict management mode on the online learning performance of students in a business-planning course. *British Journal of Educational Technology, 44*, 986-999.

Chang, J. W., Sy, T., & Choi, J. N. (2012). Team emotional intelligence and performance: Interactive dynamics between leaders and members. *Small Group Research, 43,* 75-104.

Cheruvelil, K. S., Soranno, P. A., Weather, K. C., Hanson, P. C., Goring, S. J., Filstrup, C. T., & Read, E. K. (2014). Creating and maintaining high-performance collaborative research teams: The importance of diversity and interpersonal skills. *Frontiers in Ecology and the Environment, 12,* 31-38.

Child, J. (2015). *Organization: Contemporary principles and practice.* Hoboken, NJ: John Wiley and Sons.

Chou, H. W., Lin, Y. H., Chang, H. H., & Chuang, W. W. (2013). Transformational

leadership and team performance: The mediating roles of cognitive trust and collective efficacy. *SAGE Open, 3.* doi:2158244013497027

Cogliser, C. C., Gardner, W. L., Gavin, M. B., Broberg, J. C. (2012). Big give personality factors and leader emergence in virtual teams: Relationships with team trustworthiness, member performance contributions, and team performance. *Group and Organization Management, 37*, 752-784.

Cozby, P. C. (2009). *Methods in behavioral research.* (10th ed.). New York, NY: McGraw Hill.

Cummings, T. J., & Worley, C. G. (2014). *Organization development and change.* Boston, MA: Cengage Learning.

Daft, R. L. (2014). *The leadership experience.* Boston, MA: Cengage Learning.

Daim, T., Ha, A., Reutiman, S., Hughes, B., Pathak, U., Bynum, W., & Shatla, A. (2012). Exploring the communication breakdown in global virtual teams. *International Journal of Project Management, 30,* 199-212.

Darics, E. (2014). The blurring boundaries between synchronicity and asynchronicity: New communicative situations in work-related instant messaging. *International Journal of Business Communication, 51*, 337-358. doi:10.1177/2329488414525440

Day, D. V., & Antonakis, J. (Eds.). (2012). *The nature of leadership.* Los Angeles, CA: Sage.

Denis, J. L., Langley, A., & Sergi, V. (2012). Leadership in the plural. *Academy of*

Management Annals, 6, 211-283.

Diaz-Saenz, H. R. (2011). Transformational leadership. *In A. Bryman, D. Collinson, K. Grint, B. Jackson & M. Uhl-Bien (Eds.), The SAGE handbook of leadership (pp. 299-310).* Thousand Oaks, CA: Sage.

Dinh, J. E., Lord, R. G., Gardner, W. L., Meuser, J. D., Liden, R. C., & Hu, J. (2014). Leadership theory and research in the new millennium: Current theoretical treads and changing perspectives. *The Leadership Quarterly, 25*, 36-62.

Dixon, N. (2017). Learning together and working apart: Routines for organizational learning in virtual teams. *The Learning Organization, 24*, 138-149.

Downs, C. W., & Adrian, A. D. (2012). *Assessing organizational communication: Strategic communication audits.* New York City: Guilford Press.

Druskat, V. U., Mount, G., & Sala, F. (Eds.). (2013). *Linking emotional intelligence and performance at work: Current research evidence with individuals and groups*. University Park, PA: Psychology Press.

Dumdum, U., Lowe, K., & Avolio, B. (2013). A meta-analysis of transformational and transactional leadership correlates of effectiveness and satisfaction: An update and extension. In *Transformational and charismatic leadership: The road ahead 10th anniversary edition* (pp. 39-70). Bingley, West Yorkshire, England: Emerald Group Publishing Limited.

Eid, J., Johnsen, B. H., Bartone, P. T., & Nissestad, O. A. (2008). Growing

transformational leaders: Exploring the role of personality hardiness. *Leadership & Organization Development Journal, 29*, 4-23. Retrieved from http://dx.doi.org.library.capella.edu/10.1108/01437730810845270.

Eissa, G., Fox, C., Webster, B. D., & Kim, J. (2012). A framework for leader effectiveness in virtual teams. *Journal of Leadership, Accountability, and Ethics, 9,* 11.

El Ouirdi, M., El Ouirdi, A., Segers, J., Henderickx, E. (2014). Social media conceptualization and taxonomy: A Lasswellian framework. *Journal of Create Communications, 9,* 107-126. doi: 10.1177/0973258614528608

Engelen, A., Gupta, V., Stenger, L., & Brettel, M. (2015). Entrepreneurial orientation, first performance, and the moderating role of transformational leadership behaviors. *Journal of Management, 41*, 1069-1097.

Eubanks, D., Palanski, M., Olabisi, J., Joinson, A., & Dove, J. (2016). Team dynamics in virtual, partially distributed teams: Optimal role fulfillment. *Computers in Human Behavior, 61,* 556-568.

Evans, N., & Barone, M. (2016). Innovative leadership: why eq is an important as iq. *Supervision,* 3-5.

Faul, F., Erdfelder, E., Buchner, A., & Lang, A. G. (2009). Statistical power analyses using G*Power 3.1: Tests for correlation and regression analyses. *Behavior Research Methods, 41*, 1149-1160.

Fink, A. (2012). How to conduct surveys: A step-by-step guide. Los Angeles, CA: Sage Publications.

Fisk, G. M., Friesen, J. P. (2012). Perceptions of leader emotional regulation and LMX as predictors of followers' job satisfaction and organizational citizenship behavior. *The Leadership Quarterly, 23,* 1-12.

Fleming, I. (2015). *Virtual Teams Pocketbook.* Management Pocketbooks.

Froyd, J. E., Wankat, P. C., & Smith, K. A. (2012). Five major shifts in 100 years of engineering education. *Proceedings of the IEEE, 100 (Special Centennial Issue), 1344-1360.*

Furnham, A. (2012). Introduction. In *The Talented Manager* (pp.1-36). UK.: Palgrave

Macmillan.

Gash, D. (2012). E-moderating: the key to teaching and learning online. *Innovations in Education and Teaching International*, *49*, 233-234.

Gibbs, J. L., Rozaidi, N. A., Eisenberg, J. (2013). Overcoming the "ideology of openness": Probing the affordances of social media for organizational knowledge sharing. *Journal of Computer-Medicated Communication, 19*, 102-120. doi: :10.1111/jcc4.12034

Gilson, L. L., Maynard, M. T., Jones Young, N. C., Vartiainen, M., & Hakonen, M. (2015). Virtual teams research: 10 years, 10 themes, and 10 opportunities. *Journal of Management, 14,* 1313-1337. doi:10.1177/0149206314559946

Gipson, A., Pfaff, D., Mendelsohn, D., Catenacci, L, & Burke, W. (2017). Women and leadership: Selection, development, leadership style, and performance. *The Journal of Applied Behavioral Science, 53,* 32-65.

Goleman, D., Boyatzis, R. E., & McKee, A. (2013). *Primal leadership: Unleashing the power of emotional intelligence*. Brighton, MA: Harvard Business Press.

Goleman, D. (2005). *Emotional intelligence.* New York: Bantum.

Goleman, D. (2006). *The socially intelligent.* Educational Leadership, 64, 76-81.

Goodbody, J. (2005). Critical success factors for global virtual teams. *Strategic Communication Management, 9*, 18-21. Retrieved from https://www.melcrum.com/SCM

Grant, A. M. (2012). Leading with meaning: Beneficiary contact, prosocial impact, and the performance effects of transformational leadership. *Academy of Management Journal, 55,* 458-476.

Grosse, C. U. (2002). Managing communication within virtual intercultural teams. *Business Communication Quarterly, 65*, 22-38. doi:10.1177/108056990206500404

Hackman, M. Z., & Johnson, C. E. (2013). *Leadership: A communication perspective.* Long Grove, IL: Waveland Press.

Hadley, S. A., & MacLeod, A. K. (2010). Conditional goal-setting, personal goals and hopelessness about the future. *Cognition and Emotion, 24,* 1191-1198.

Hambley, L. A., O'Neill, T. A., & Kline, T. J. B. (2007). Virtual team leadership: The effects of leadership style and communication medium on team interaction styles and outcomes. *Organizational Behavior and Human Decision Processes, 103*, 1-20. doi:10.1016/j.obhdp.2006.09.004

Hargreaves, A., & Fink, D. (2012). *Sustainable leadership (Vol 6).* Hoboken, NJ: John

Wiley & Sons.

Hedman-Phillips, E., & Barge, K. (2017). Facilitating team reflexivity about communication. *Small Group Research, 48*, 255-287.

Hoch, J., & Kozlowski, S. (2014). Leading virtual teams: Hierarchical leadership, structural support, and shared team leadership. *Journal of Applied Psychology, 99,* 390-403.

Hoefling, T. (2012). *Working virtually: Managing people for successful virtual teams and organizations*. Sterling, VA: Stylus Publishing, LLC.

Hunsaker, P. L., & Hunsaker, J. S. (2008). Virtual teams: A leader's guide. *Team Performance Management: An International Journal, 14,* 86-101.

Joshi, P., Kaur, H., & Jain, A. (2016). Leadership behavior of manager: An antecedent of job satisfaction on subordinates. *SCMS Journal of Indian Management,* 19-31.

Jung, D. I., & Avolio, B. J. (2000). Opening the black box: An experimental investigation of the mediating effects of trust and value congruence on transformational and transactional leadership. *Journal of Organizational Behavior, 21,* 949-964.

Jung, D., Wu, A., & Chow, C. W. (2008). Towards understanding the direct and indirect effects of CEOs' transformational leadership on firm innovation. *The Leadership Quarterly, 19,* 582-594. doi:10.1016/j.leaqua.2008.07.007

Jung, H. S., Yoon, H. H. (2012) "The effects of emotional intelligence on counterproductive work behaviors and organizational citizen behaviors among good and beverage employees in a deluxe hotel. *International Journal of Hospitality Management, 2*, 369-378.

Kahai, S. S., Hunag, R., & Jestice, R. J. (2012) Interaction effect of leadership and communication media on feedback positivity in virtual teams. *Group and Organization Management, 37,* 716-751.

Kankanhalli, A., Tan, B. C. Y., & Wei, K. K. (2007). Conflict and performance in global virtual teams. *Journal of Management Information Systems, 23*, 237-274. doi:10.2753/NUS0742-1222230309

Kark, R., & Shamir, B. (2013). The dual effect of transformational leadership: Priming relational and collective selves and further effects on followers. In *Transformational and charismatic leadership: The road ahead 10th Anniversary edition* (pp. 77-101). Bingley, West Yorkshire, England: Emerald Group Publishing Limited.

Katsva, M., & Condrey, S. E. (2005). Motivating personnel at Russian nuclear power plants: A case-study of motivation theory application. *Public Personnel Management*, *34*, 343. Retrieved from http://ppm.sagepub.com/

Kerber, K. W., & Buono, A. F. (2004). Leadership challenges in global virtual teams: Lessons from the field. *SAM Advanced Management Journal*, *69*, 4-10. Retrieved from http://www.cob.tamucc.edu/sam/amj/Default.htm

Kerzner, H. (2013). *Project management: a systems approach to planning, scheduling, and controlling.* Hoboken, NJ: John Wiley & Sons.

Kirkman, B. L., Chen, G., Farh, J.-L., Chen, Z., & Lowe, K. B. (2009). Individual power

distance orientation and follower reactions to transformational leaders: A cross-level, cross-cultural examination. *Academy of Management Journal, 52*, 744-764. doi:10.5465/AMJ.2009.43669971

Kirkman, B. L., Rosen, B., Gibson, C. B., Tesluk, P. E., & McPherson, S. O. (2002). Five challenges to virtual team success: Lessons From Sabre, Inc. *Academy of Management Executive, 16*, 67-79. doi:10.5465/AME.2002.8540322

Klein, K. J., Knight, A. P., Ziegert, J. C., Lim, B. C., & Saltz, J. L. (2011). When team members' values differ: The moderating role of team leadership. *Organizational Behavior and Human Decision Processes, 114,* 25-36.

Kolb, D. A. (2014). *Experiential learning: Experience as the source of learning and development*. Upper Saddle River, NJ: FT Press.

Kovjanic, S., Schuh, S. C., Jonas, K., Quaquebeke, N. V., & Dick, R. (2012). How do transformational leaders foster positive employee outcomes? A self-determination based analysis of employees' needs as mediating links. *Journal or Organizational Behavior, 33*, 1031-1052.

Lakens, D. (2013). Calculating and reporting effect sizes to facilitate cumulative science: A practical primer for t-tests and ANOVAs. *Frontiers in Psychology,* 4.

Lam, C. S., & O'Higgins, E. R. (2012). Enhancing employee outcomes: The interrelated influences of managers' emotional intelligence and leadership style. *Leadership and Organization Development Journal, 33*, 149-174.

Landy, F. J., & Conte, J. M. (2016). *Work in the 21st century, Binder ready version: An*

introduction to Industrial and Organizational Psychology. Hoboken, NJ: . John Wiley and Sons.

Lanubile, F., Ebert, C., Prikladnicki, R., & Vizcaino, A., (2010). Collaborative tools for global software engineering. *Software, IEEE, 27*,52-55.

Law, K. S., Wong, C. S., & Song, L. J. (2004). The construct and criterion validity of emotional intelligence and its potential utility for management studies. *Journal of Applied Psychology, 89,* 483.

Leedy, O., & Ormrod, J. (2010). *Practical Research Planning and Design.* Boston, Massachusetts: Pearson.

Lee, J. J., & Ok, C., (2012). Reducing burnout and enhancing job satisfaction: Critical role of hotel employees' emotional intelligence and emotional labor. *International Journal of Hospitality Management, 31*, 1101-1112.

Lee, M. R. (2013). *Leading virtual project teams: Adapting leadership theories and communications techniques to 21st century organizations.* Boca Raton, FL: CRC Press.

Leonarcl, D. A., Brancls, P., & Eolmonofson, A. (2011). Virtual teams: Using communications technology to manage geographically dispersed development groups. *Managing Knowledge Assets, Creativity and Innovation*, 325.

Leonardi, P. M., Huysman, M., & Steinfield, C. (2013). Enterprise social media: Definition, history, and prospects for the study of social technologies in organizations. *Journal of Computer-Mediated Communication, 19*, 1-19. doi:10.1111/jcc4.12029

Levi, D. (2015). *Group dynamics for teams.* Sage Publications: Los Angeles, CA

Lilian, S. C. (2014). Virtual teams: Opportunities and challenges for e-leaders. *Procedia-Social and Behavioral Sciences, 110,* 1251-1261.

Lorinkova, N. M., Pearsall, M. J., & Sims, H. P. (2013). Examining the differential longitudinal performance of directive versus empowering leadership in teams. *Academy of Management Journal. 56,* 573-596.

Lu, Y., Li. Y., Skibniewski, M., Wu, Z., Wang, R., & Le, Y. (2014). Information and communication technology applications in architecture, engineering, and construction organizations: A 15-year review. *Journal of Management in Engineering, 31*, 401-410.

MacKie, D. (2014). The effectiveness of strength-based executive coaching in enhancing full range leadership development: A controlled study. *Consulting Psychology Journal: Practice and Research, 66*, 118.

Mahalingam, S., Abdollah, M., & Shahrin, S. (2014). Learner-centric in M-learning: Integration of security, dependability, and trust. *International Association for Development of the Information Society,* 318-322.

Mahaney, R., & Lederer, A. (2006). The Effect of Intrinsic and Extrinsic Rewards for Developers on Information Systems Project Success. *Project Management Journal*, 42-54.

Malhotra, A., Majchrzak, A., & Rosen B. (2007). Leading virtual teams. *Academy of Management Perspectives, 21*, 60-70. doi:10.5465/AMP.2007.24286164

Malouff, J., Schutte, N., & Thorsteinsson, E. (2014), Trait emotional intelligence and

romantic relationship satisfaction: A meta-analysis. *American Journal of Family Therapy, 42,* 53-66.

Manktelow, J. (2012). Working together, apart. *Training Journal,* 57-60.

Mathew, M., & Gupta, K. (2015). Transformational leadership: emotional intelligence. *SCMS Journal of Indian Management,* 75.

Mayer, J. D., & Salovey, P. (1993). The intelligence of emotional intelligence. *Intelligence, 17*, 433-442

Mayer, J. D., Salovey, P., & Caruso, D. R. (2002). Relation of an ability measure of emotional intelligence to personality. *Journal of Personality Assessment*, *79*, 306-320. doi:10.1207/S15327752JPA7902_12

McCleskey, J. A., (2014). Situational, transformational, and transactional leadership and leadership development. *Journal of Business Studies Quarterly, 5,* 117.

Morales, V., Barrionuevo, M., & Gutierrez, L. (2012). Transformational leadership influence on organizational performance through organizational learning and innovation. *Journal of Business Research, 65,* 1040-1050.

Mittal, S., & Dhar, R. L. (2015). Transformational leadership and employee creativity: Mediating role of creative self-efficacy and moderating role of knowledge sharing. *Management Decision, 53*, 894-910.

Muenjohn, N., & Armstrong, A. (2015). Transformational leadership: The influence of culture on the leadership behaviors of expatriate managers. *International* Journal of Business and information, 2.

Mukherjee, D., Lahiri, S., Mukherjee, D., & Billings, T. K. (2012). Leading virtual

teams: How do social, cognitive, and behavioral capabilities matter? *Management Decision, 50*, 273-290.

Nagler, U., Reiter, K., Furtner, M., & Rauthmann, J. (2014). Is there a "dark intelligence"? Emotional intelligence is used by dark personalities to emotionally manipulate others. *Personality and Individual Differences, 65*, 47-52.

Nixon, P., Harrington, M., & Parker, D. (2012). Leadership performance is significant to project success or failure: A critical analysis. *International Journal of Productivity and Performance Management, 61,* 204-216.

Northouse, P. G. (2015). Leadership: *Theory and practice*. Thousand Oaks, CA: Sage Publishing.

O'Leary, M., Wilson, J., & Metiu, A. (2014). Beyond being there: The symbolic role of communication and identification in perceptions of proximity to geographically dispersed colleagues, *MIS Quarterly, 34,* 1219-1243.

Pangil, F., & Chan, J. M. (2014). The mediating effect of knowledge sharing on the relationship between trust and virtual team effectiveness. *Journal of Knowledge Management, 18*, 92-106.

Pazos, P., Chang, J. M., & Micari, M. (2012). Instant messaging as a task-support tool in information technology organizations. *Journal of Business Communication, 50*,68-86. doi:10.1177/0021943612465181

Penney, S. A., Kelloway, E. K., & O'Keefe, D. (2015). Trait theories of leadership. Leadership in Sports, 19-21.

Pradhan, S., & Pradhan, R. (2015). An empirical investigation of relationship among

transformational leadership, affective organizational commitment and contextual performance. *Vision, 3,* 227-235.

Purvanova, R. K., & Bono, J. E. (2009). Transformational leadership in context: Face-to-face and virtual teams. *The Leadership Quarterly, 20*, 343-357. doi:10.1016/j.leaqua.2009.03.004

Pyoria, P. (2011). Managing telework: risks, fears, and rules. *Management Research Review, 34,* 386-399.

Reason, J. (2016). *Managing the risk of organizational accident.* London, England: Routledge.

Reeves, B., & Read, J. L. (2009). *Total engagement: How game and virtual worlds are changing the way people work and businesses compete.* Brighton, MA: Harvard Business Press.

Rennie, F., & Morrison, T. (2013). *E-learning and social networking handbook: Resources for higher education.* London, England: Routledge.

Richardson, I., Casey, V., Mccaffery F., Burton, J., & Beecham, S. (2012). A process framework for global software engineering teams. *Information and Software Technology, 54,* 1175-1191.

Roebuck, D., Brock S., & Moodie, D. (2004). "Using a Simulation to Explore the Challenges of Communicating in a Virtual Team."*Business Communication Quarterly 67*, 359-367.

Rowitz, L. (2013). *Public health leadership*. Burlington, MA: Jones & Bartlett Publishers.

Rubin, K. S. (2012). *Essential scrum: A practical guide to the most popular agile process*. Boston, MA: Addison-Wesley.

Sadeghi, A., & Pihie, Z. A. L. (2012). Transformational leadership and its predictive effects on leadership effectiveness. *International Journal of Business and Social Science, 3*-19.

Sadri, G. (2012). Emotional intelligence and leadership development. *Public Personnel Management, 41,* 535-548.

Saunders, C., Van Slyke, C., & Vogel, D. R. (2004). My time or yours? Managing time visions in global virtual teams. *Academy of Management Executive, 18*, 19-31. doi:10.5465/AME.2004.12691177

Schermann, M., Dongus, K., Yetton, P., & Krcmar, H. (2016). The role of transaction cost economics in information technology outsourcing research: A meta-analysis of the choice of contract type. *The Journal of Strategic Information Systems, 25,* 32-48.

Schwalbe, K. (2015). *Information technology project management.* Cengage Learning.

Schweitzer, L., & Duxburt, L. (2010). Conceptualizing and measuring the virtuality of teams. *Information Systems Journal, 20,* 267-295.

Serrat, O. (2017). Understanding and developing emotional intelligence. *In Knowledge Solutions* (pp. 329-339). Singapore: Springer.

Shelton, E. J. (2012). *Transformational leadership: Trust, motivation and engagement.* Bloomington, IN: Trafford Publishing.

Singh, N., & Krishnan, V. R. (2008). Self-sacrifice and transformational

leadership:

Mediating role of altruism. *Leadership & Organization Development Journal, 29*, 261-274. Retrieved from http://dx.doi.org.library.capella.edu/10.1108/01437730810861317.

Sleeman, J., Lang, C., & Lemon, N. (2016). Social media challenges and affordances for international students: Bridges, boundaries, and hybrid spaces. *Journal of Studies in International Education, 20,* 391-415.

Spicer, D. E., & Dede, C. (2006). Collaborative design of online professional development: Building the Milwaukee professional support portal. *Journal of Technology and Teacher Education*, *14*, 679-700. Retrieved from http://www.thefreelibrary.com/Collaborative+design+of+online+professional+development%3A+building+the...-a0151387498

Stough, C., & DeGuara, D. (2003). Examining the relationship between emotional intelligence and job performance. *Australian Journal of Psychology, 55,* 145.

Suciu, S., Petcu, D., & Gherhes. (2010). Emotional Intelligence in Leadership. *Polytechnic University of Timisoara,* 549-554.

Swigger, J., Hoyt, M., Serce, F. C., Lopez, V., & Alpasian, F. N. (2012). The temporal communication behaviors of global software development student teams. *Computers in Human Behavior, 28,* 382-392.

Sy, T., Tram, S., & O'Hara, L. A. (2006). Relation of employee and manager emotional intelligence to job satisfaction and performance. *Journal of Vocational Behavior, 68,* 461-473.

Taddeo, M. (2015). The struggle between liberties and authorities in the information age. *Science and Engineering Ethics, 21*, 1125-1138.

Taher, N., & Krotov, V. (2016). Business process reengineering: Addressing sources of resistance and sabotage tactics. *Journal of Competitiveness Studies, 24,* 145-163.

Tannenbaum, S. I., Mathieu, J., Salas, E., & Cohen, D. (2012). Teams are changing: Are research and practice evolving fast enough? *Industrial and Organizational Psychology, 5,* 2-24.

Treem, J. W., & Leonardi, P. M. (2012). Social media use in organizations: Exploring the affordances of visibility, editabiltiy, persistence, and association. *Communication Yearbook, 36,* 143-189. doi:10.2139/ssrn.2129853

Tworoger, L. C., Ruppel, C. P., Gong, B., & Pohlman, R. A. (2013). Leadership constraints: leading global virtual teams through environmental complexity. *International Journal of e-Collaboration (IJeC)*, *9*, 34-60. doi:10.4018/jec.2013040102

Tyssen, A. K., Wald, A., $ Spieth, P. (2014). The challenge of transactional and transformational leadership in projects. *International Journal of Project Management, 32,* 365-375.

Umer, M., Muqaddas, J., & Taimoor, H. (2017). Influence and transformational leaders components on job satisfaction and organizational commitment. *Pakistan Journal of Commerce and Social Sciences, 1,* 146-165.

University of Hampshire. *About the Mayer-Salovey-Caruso emotional intelligence tests*

(MSCEIT's). Retrieved from http://www.unh.edu/emotional_intelligence/ei%20About%20the%20MSCEIT/eMSCEIT%20Reliabilty.htm

Van Dijk, J. (2012). *The network society.* Los Angeles, CA: Sage Publishing.

Van Knippenberg, D., & Sitkin, S. B. (2013). A critical assessment of charismatic-Transformational leadership research: Back to the drawing board? *Academy of Management Annals, 7,* 1-60.

Vernuccio, M. (2014). Communicating corporate brands through social media: An exploratory study. *International Journal of Business Communication, 51*, 211-233. doi:10.1177/2329488414525400

Von Krogh, G., Nonaka, I., & Rechsteiner, L. (2012). Leadership in organizational knowledge creation: A review and framework. *Journal of Management Studies, 49,* 240-277.

Walker, A. (2015). *Project management in construction*. Hoboken, NJ: John Wiley and Sons.

Wang, X. H. F., & Howell, J. M. (2012). A multilevel study of transformational leadership, identification, and follower outcomes. *The Leadership Quarterly, 23*, 775-790.

Weiherl, J., & Masal, D. (2016). Transformational leadership and followers' commitment to mission changes. *International Journal of Public Administration, 39,* 861-871.

Welter, F., Smallbone, D. (2016). Exploring the role of trust in entrepreneurial activity.

Entrepreneurship Theory and Practice, 30, 465-475.

West, M. A. (2012). *Effective teamwork: Practice lessons from organizational research.* Hoboken, NJ: John Wiley and Sons.

Wheelan, S. A. (2014). *Creating effective teams: A guide for members and leadership.* Los Angeles, CA: Sage Publications.

Wildman, J. L., Shuffler, M. L., Lazzara, E. H., Fiore, S. M., Burke, C. S., Salas, E., & Garven, S. (2012). Trust development in swift starting actions teams: A multilevel framework. *Group and Organizational Management, 37*, 137-170.

Wilkinson, J. E. (2017). *Credit strategies for small and medium-sized enterprises within a changing environment.* Available from ProQuest Dissertations and Theses Global. (UMI No: 1834008878).

Wright, M. (Ed.). (2016). *Gower handbook of internal communication*. Boca Raton, FL: CRC Press.

Zaccaro, S. J., Ardison, S. D., & Orvis, K. L. (2004). Leadership in virtual teams. In D. V. Day, S. J. Zaccaro, and S. M. Halpin (Eds.), *Leader development for transforming organizations: Growing leaders for tomorrow* (pp. 267-289). Mahwah, NJ: Lawrence Erlbaum Associates.

Zeider, M., Matthews, G., Roberts, R. D. (2012). *What we know about emotional intelligence: How it affects learning, work, relationships, and our mental health*. Cambridge, MA: MIT Press.

Zenun, M., Loureiro, G., & Araujo, C. (2007). The effects of teams' location on project performance. *Complex Systems Concurrent Engineering,* 717-726.

Zhou, J., & George, J. M. (2013). Awakening employee creativity: The role of leader emotional intelligence. *The Leadership Quarterly, 14*, 545-568.

Zhu, W., Newman, A., Miao, Q., & Hooke, A. (2013). Revisiting the mediating role of trust in transformational leadership effects: Do different types of trust make a difference? The *Leadership Quarterly, 24,* 94-105.

Zimmer, C. (2015). *Virtual Teams: A qualitative and quantitative review of best practices* Available from Rice University Electronic Theses and Dissertations. (UMI No: 10740).

Zhu, W., Sosik, J. J., Riggio, R. E., & Yang, B. (2012). Relationships between transformational and the active transactional leadership and followers' organizational identification: The role of psychological empowerment. *Journal of Behavioral and Applied Management, 13,* 186.

Zwing, I., Wegge, J., Wolf, S., Rudolf, M., Schmidt, M., & Richter, P. (2014). Is transformational leadership healthy for employees? A multilevel analysis in 16 nations. *Magazine for Psychology, 28*, 24-51.

Appendix A: Approval to Use Measure: Information Systems Project Success Tool

Hello Dr. Lederer and Dr. Mahaney,

My name is Betsy Ferronato and I am a student at Walden University. I am currently working on my dissertation, which is Emotional Intelligence in Transformational Leadership and its Effect on Project Success in Virtual Teams. I am employing the MLQ (Multifactor Leadership Questionnaire) and the MSCEIT (Meyer-Salovey-Caruso Emotional Intelligence Test) as my first two instruments to measure emotional intelligence and transformational leadership. I am writing to ask permission to use the tool you developed to measure information systems project success. I apologize if it is already for public use or purchase; I could not find that information. This is the best tool that I have found to measure project success in virtual teams. I would appreciate your consideration to use your tool for my study/research. Please feel free to contact me via e-mail or phone; I can also provide you more detail into my study if you prefer. I look forward to hearing from you. Thank you for your consideration

Sincerely,

Betsy Ferronato

Betsy,

Congratulations on your progress toward your PhD. Exactly what do you need our instrument to measure? You should be able to construct those parts from what you see in print in our articles. Assuming that's the case, then you have our permission to use the instrument. If you can't construct it from what you see in print, please let us know what else you might need and why.

Good luck with your research,

Bob Mahaney

Appendix B: MLQ Permission to use Measure

mind garden

www.mindgarden.com

To whom it may concern,

This letter is to grant permission for the above named person to use the following copyright material for his/her research:

Instrument: ***Multifactor Leadership Questionnaire***

Authors: ***Bruce Avolio and Bernard Bass***

Copyright: ***1995 by Bruce Avolio and Bernard Bass***

Five sample items from this instrument may be reproduced for inclusion in a proposal, thesis, or dissertation.

The entire instrument may not be included or reproduced at any time in any published material.

Sincerely,

Robert Most
Mind Garden, Inc.
www.mindgarden.com

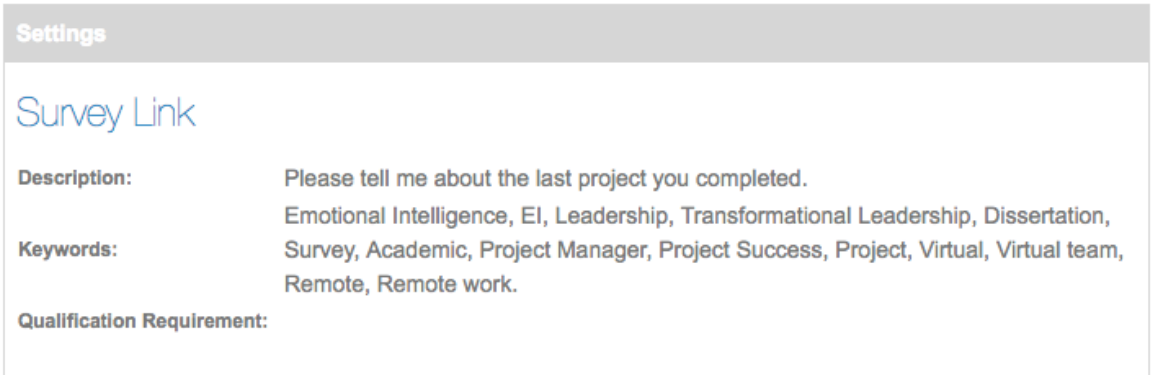
Appendix C: MLQ Questions Sample

Use the following rating scale:

Not at all	Once in a while	Sometimes	Fairly often	Frequently, if not always
0	1	2	3	4

1.	I provide others with assistance in exchange for their efforts	0	1	2	3	4
2.	I re-examine critical assumptions to question whether they are appropriate	0	1	2	3	4
3.	I fail to interfere until problems become serious	0	1	2	3	4
4.	I focus attention on irregularities, mistakes, exceptions, and deviations from standards	0	1	2	3	4
5.	I avoid getting involved when important issues arise	0	1	2	3	4

Appendix D: Invitation to participate statement- Amazon Turk:



Appendix E: MSCEIT Sample Questions

Item 2

What mood (s) might be helpful to feel when composing an inspiring military march?

	Not Useful				Useful
a. anger	1	2	3	4	5
b. excitement	1	2	3	4	5
c. frustration	1	2	3	4	5

Item 3

Rashad is usually quite happy at work and things also go well for him at home. He thought that he and his coworkers were generally fairly paid and treated well. Today, everyone in his unit received a modest across-the-board pay increase as part of corporate wide adjustments in salary. Rashad felt_____.

a. surprised and shocked
b. peaceful and quiet
c. content and elated
d. humbled and guilty
e. proud and dominant

Item 4

Mara woke up feeling pretty well. She had slept well, felt well rested, and had no particular cares or concerns. How well each action help her preserve her mood?

Action 1: She got up and enjoyed the rest of the day.
a. Very ineffective b. Somewhat ineffective c. Neutral d. Somewhat effective e. Very effective

Action 2: Mara enjoyed the feeling and decided to think about and appreciate all the things that were going well for her.
a. Very ineffective b. Somewhat ineffective c. Neutral d. Somewhat effective e. Very effective

Action 3: She decided it was best to ignore the feeling since it wouldn't last anyway.
a. Very ineffective b. Somewhat ineffective c. Neutral d. Somewhat effective e. Very effective

Action 4: She used the positive feeling to call her mother, who had been depredded and tried to cheer her up.
a. Very ineffective b. Somewhat ineffective c. Neutral d. Somewhat effective e. Very effective

Appendix F: LinkedIn Invitation Wording

Hello,

I am asking for your participation in my dissertation surveys, as you've been identified as a project manager via LinkedIn. Please contact me if you're interested in helping me complete my research; I am offering a $5 Starbucks giftcard for full participation.

Thanks,

Betsy Ferronato

Appendix G: Information Systems Project Success Questionnaire

Rewards	
To what extent do IS developers in your organization receive the following for successfully completing large IS projects?	
Scale Range: 1 = very little extent; 5 = very great extent	
R01.	Choice of future assignment
R02.	Favorable annual performance appraisals
R03.	Financial bonus
R04.	Flexible work schedule
R05.	Job promotion
R06.	Job security
R07.	Newer technology (i.e., PC or laptop)
R08.	Opportunity to work at home
R09.	Pride
R10.	Private office space
R11.	Project completion celebration
R12.	Public praise
R13.	Sense of contribution to organization
R14.	Technical training
R15.	Time off
Project Success	
To what extent do you agree with the following statements?	
Scale Range: 1 = strongly disagree; 5 = strongly agree	
PS01.	The project came in within its original schedule
PS02.	The project came in within its original budget
PS03.	The project that has been developed works
PS04.	The project is used by its intended users
PS05.	This project has directly benefited the intended users either through increasing efficiency or employee effectiveness
PS06.	Given the problem for which it was developed, this project seems to do the best job of solving that problem, i.e., it was the best choice among the set of alternatives
PS07.	Important clients, directly affected by this project, will make use of it
PS08.	I was satisfied with the process by which this project was completed
PS09.	We are confident that non-technical start-up problems will be minimal, because the project will be readily accepted by its intended users
PS10.	Use of this project has directly led to improved or more effective decision making or performance for the clients
PS11.	This project will have a positive impact on those who make use of it
PS12.	The results of this project represent a definite improvement over the way the clients used to perform these activities
Demographics	
1.	How many years have you worked for your current employer?
2.	How many years have you worked in information systems?
3.	How many total employees report to you directly?
4.	How many total employees report to you indirectly?
5.	Approximately how many IS professionals work for your entire organization?
6.	Approximately how many total employees work for your entire organization?
7.	Approximately what is the annual gross revenue of your organization?
8.	Approximately how much was the initial budget of the project?
9.	About how long was the initial, estimated project duration?
10.	About how many different full-and part-time developers in total worked on the project?

Appendix H: Correspondence with Accenture and Transamerica Contacts

Accenture was identified as an organization with virtual teams that might be a good source to collect survey data. Via LinkedIn, I found a connection I knew who worked there. I called this contact via phone to outline my study and ask if project managers at Accenture could be asked to participate. I was told it would not be a problem and they'd be more than happy to help. In a follow up email to establish the grounds for data collection, my contact informed me the company was no longer willing to participate in the study.

Email correspondence:

Hello Andrew,

This is Betsy Ferronato. I am waiting on my research proposal to be accepted; once that is done and the IRB application is filled out, I'll start setting up my research. I will let you know when that time comes and what information I'll need. I just wanted to make sure we're still on? Will you be the main contact person for the company as well? I appreciate the help.

Thanks,

Betsy

Hi Betsy,

Thank you for the update. I think I was a tad confused when you asked for participation- my next project is starting soon and I'd be willing to take the survey, but it won't be a company-wide distribution. I hope this doesn't mess up your data collection too badly. Please let me know if there is anything else I can help with.

Best,

Andy-

A similar thing happened with my contact from Transamerica. In the call to establish if the company was a fit, it was determined that project managers were available to help with the study. When a follow-up email to establish the groups for data collection, my contact informed me the company was no longer on board.

Email Correspondence:

Hello Jeff,

I hope you're doing well. I was just following up with you to see if you've heard anything back from the Executive Board about distributing my survey at Transamerica?

Best,

Betsy

Hi Betsy,

I apologize for the delay. I contacted Kelly Wright at the Corporate Executive Board for you on 2/27 but apparently she's not willing to take this to the rest of the Aegon/Transamerica PMO groups; sorry. I hope you can find a new avenue to pursue.

Best,

Jeff Gleason

Lead Information Architect

Aegon/Transamerica Global Technology