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# Virtual Simulation in Leadership Development Training;the Impact of Learning Styles and Conflict Management Tactics on Adult Learner Performance

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VIRTUAL SIMULATION IN LEADERSHIP DEVELOPMENT TRAINING:  
THE IMPACT OF LEARNING STYLES AND CONFLICT MANAGEMENT TACTICS  
ON ADULT LEARNER PERFORMANCE

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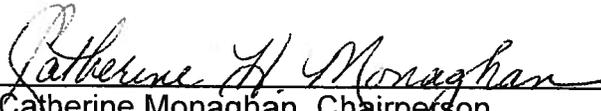
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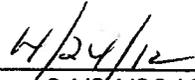
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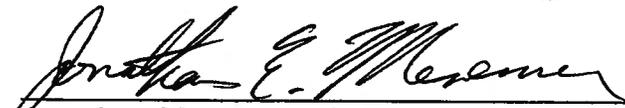
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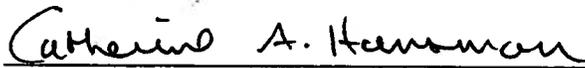
  
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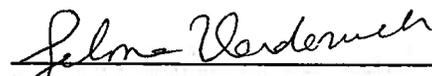
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## **Dedication**

This work is dedicated to my parents and grandparents  
who provided inspiration and support to help me arrive at this place of inquiry and study,

and to Eric,

for his tireless support and for patiently enduring the dissertation process.

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VIRTUAL SIMULATION IN LEADERSHIP DEVELOPMENT TRAINING:  
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PAUL G. PUTMAN

**ABSTRACT**

Adult learners can develop leadership skills and competencies such as conflict management and negotiation skills. Virtual simulations are among the emerging new technologies available to adult educators and trainers to help adults develop various leadership competencies. This study explored the impact of conflict management tactics as well as learning styles on the efficacy of virtual leadership development training.

In this quantitative study, participants (n=349) completed electronic versions of both the Power and Influence Tactics Scale (POINTS) and the Kolb Learning Styles Instrument (KLSI). Results of participant scores for both instruments were compared with scores from a virtual leadership simulation.

Performance within a virtual leadership simulation was not found to be significantly impacted by diverse learning styles, indicating that virtual simulations can be effective for adult learners with any learning style. Statistically significant correlations were found between all seven conflict management tactics and key virtual leadership simulation scores, indicating that virtual leadership simulations can be effective tools for practicing multiple conflict management tactics.

Experiential learning techniques are becoming commonplace and the use of technology is growing within the field of adult and leadership education. This study elucidates the effectiveness of new technologies such as virtual simulations as tools for

leadership development. This study contributes to leadership education best practices by exploring the effectiveness of virtual simulations as a method for training leaders that will allow educators to incorporate emerging best practices into their repertoire of methodologies.

## TABLE OF CONTENTS

ABSTRACT.....	vii
TABLE OF CONTENTS.....	ix
LIST OF TABLES.....	xv
LIST OF FIGURES.....	xviii
CHAPTER I. INTRODUCTION AND STATEMENT OF PROBLEM .....	1
Background .....	3
Statement of Problem.....	8
Purpose and Research Questions.....	8
Significance of Study .....	9
Definition of Terms.....	11
CHAPTER II. REVIEW OF THE LITERATURE .....	13
Leadership .....	13
The Importance of Leadership.....	13
The Challenge of Defining Leadership. ....	14
Theoretical Approaches to Leadership.....	16
<i>Trait approach</i> .....	17
<i>Leadership competencies</i> .....	19
<i>Behavior or Style Approach</i> .....	26
<i>Transactional or Leader-Member Exchange (LMX) Approach</i> .....	28
<i>Situational Approach</i> .....	29
<i>Transformational Approach</i> .....	31
<i>Integrative or Complexity Leadership Approach</i> .....	35

Critiques of Leadership Studies .....	36
Leader Development .....	38
Underlying Adult Education Theories.....	40
Self-Directed Learning .....	41
Experiential Learning .....	41
<i>Context based learning</i> .....	43
Authentic learning .....	43
The Debate over Leadership Development .....	45
Communication as a Core Leadership Competency .....	48
Conflict Management and Negotiation.....	49
Power and Influence .....	50
Power and Influence Tactics Scale (POINTS) Instrument.....	53
Personality Types and Learning Styles .....	54
Kolb’s Learning Style Inventory .....	55
Approaches to Leadership Training/Education.....	58
Games .....	58
Simulation Games.....	59
Virtual Simulations.....	63
vLeader .....	66
Conclusion.....	69
<b>CHAPTER III. METHODOLOGY .....</b>	<b>71</b>
Conceptual Framework .....	72
Instrumentation.....	74

P.O.I.N.T.S. Power and Influence Tactics Scale (POINTS) .....	75
<i>POINTS Reliability and Validity</i> .....	80
Kolb Learning Style Inventory (KLSI) .....	82
<i>KLSI Reliability and Validity</i> .....	86
vLeader Virtual Leadership Simulation .....	87
Data Collection.....	90
Missing Data .....	93
Sample.....	95
Pilot Study. ....	96
Sample Size .....	96
Demographics.....	98
Reliability and Validity .....	99
Data Analysis .....	103
First Research Question.....	104
Second Research Question .....	105
Third Research Question .....	105
Fourth Research Question .....	106
Summary .....	106
CHAPTER IV. FINDINGS .....	107
Research Question 1: Conflict management tactics and the prediction of virtual leadership simulation scores.....	108
<i>Conflict management tactics and the prediction of virtual leadership simulation</i>	
<i>Power scores</i> .....	109

<i>Conflict management tactics and the prediction of virtual leadership simulation</i>	
<i>Ideas scores</i> .....	109
<i>Conflict management tactics and the prediction of virtual leadership simulation</i>	
<i>Leadership and Overall scores</i> .....	110
Descriptive mean scores for simulation scores and conflict management tactics...	112
<i>Virtual Simulation Scores and the Conflict Management Tactic Reasoning</i> .....	112
<i>Virtual Simulation Scores and the Conflict Management Tactic Consulting</i> .....	113
<i>Virtual Simulation Scores and the Conflict Management Tactic Appealing</i> .....	113
<i>Virtual Simulation Scores and the Conflict Management Tactic Networking</i> .....	114
<i>Virtual Simulation Scores and the Conflict Management Tactic Bargaining</i> .....	115
<i>Virtual Simulation Scores and the Conflict Management Tactic Pressuring</i> .....	116
<i>Virtual Simulation Scores and the Conflict Management Tactic Counteracting</i>	117
Individual items comprising conflict management tactics .....	118
<i>Correlation between the conflict management tactic Reasoning and simulation</i>	
<i>scores</i> .....	118
<i>Correlation between the conflict management tactic Consulting and simulation</i>	
<i>scores</i> .....	120
<i>Correlation between the conflict management tactic Appealing and simulation</i>	
<i>scores</i> .....	121
<i>Correlation between the conflict management tactic Networking and simulation</i>	
<i>scores</i> .....	123
<i>Correlation between the conflict management tactic Bargaining and simulation</i>	
<i>scores</i> .....	124

<i>Correlation between the conflict management tactic Pressuring and simulation scores</i> .....	125
<i>Correlation between the conflict management tactic Counteracting and simulation scores</i> .....	127
Summary of Research Question 1 findings .....	128
Research Question 2: The impact of completion of a virtual leadership simulation on adult learner conflict management tactics .....	129
Summary of Research Question 2 findings .....	131
Research Question 3: Predicting conflict management tactics with learning styles ...	133
Summary of Research Question 3 findings .....	134
<i>Correlation between the conflict management tactic Appealing and the learning style Initiating</i> .....	134
<i>Correlation between the conflict management tactic Reasoning and the learning style Analyzing</i> .....	135
<i>Correlation between the conflict management tactic Counteracting and the learning style Deciding</i> .....	136
Research Question 4: Predicting virtual leadership simulation scores with learning styles .....	138
Summary of Research Question 4 findings .....	140
Limitations .....	140
Research design .....	142
Instrumentation .....	144
CHAPTER V. SUMMARY, DISCUSSION, AND IMPLICATIONS .....	147

Research Question 4: Predicting virtual leadership simulation scores with learning styles.....	138
Summary of Research Question 4 findings .....	138
Limitations .....	140
Research design .....	140
Instrumentation.....	142
CHAPTER V .....	145
SUMMARY, DISCUSSION, AND IMPLICATIONS.....	145
Summary of the Study.....	146
Conclusions .....	148
Virtual Simulations.....	149
Approach to conflict management and performance within the vLeader virtual simulation .....	152
Implications .....	154
Future Research.....	155
Final Thoughts .....	157
REFERENCES .....	160
Appendix A.....	186
Appendix B.....	192
Appendix C.....	200
Appendix D.....	201

## LIST OF TABLES

Table 1. Desired Sample Sizes .....	98
Table 2. Table of Alpha Coefficients for POINTS Instrument.....	100
Table 3. Strength of relationship between pre-simulation POINTS conflict management tactics and simulation scores (n=301).....	111
Table 4. Rank order of the five-item scale measuring the POINTS Conflict Management Tactic “Reasoning” Means (n=345) .....	112
Table 5. Rank order of the four-item scale measuring the POINTS Conflict Management Tactic “Consulting” Means (n=336).....	113
Table 6. Rank order of the five-item scale measuring the POINTS Conflict Management Tactic “Appealing” Means (n=341).....	114
Table 7. Rank order of the four-item scale measuring the POINTS Conflict Management Tactic “Networking” Means (n=338) .....	115
Table 8. Rank order of the four-item scale measuring the POINTS Conflict Management Tactic “Bargaining” Means (n=343) .....	116
Table 9. Rank order of the five-item scale measuring the POINTS Conflict Management Tactic “Pressuring” Means (n=341).....	117
Table 10. Rank order of the four-item scale measuring the POINTS Conflict Management Tactic “Counteracting” Means (n=345).....	118
Table 11. Strength of relationship between the conflict management tactic “Reasoning” and simulation scores (n=302) .....	120

Table 12. Strength of relationship between the conflict management tactic	
“Consulting” and simulation scores (n=302).....	121
Table 13. Strength of relationship between the conflict management tactic	
“Appealing” and simulation scores (n=301).....	123
Table 14. Strength of relationship between the conflict management tactic	
“Networking” and simulation scores (n=302).....	124
Table 15. Strength of relationship between the conflict management tactic	
“Bargaining” and simulation scores (n=302).....	125
Table 16. Strength of relationship between the conflict management tactic	
“Pressuring” and simulation scores (n=301).....	126
Table 17. Strength of relationship between the conflict management tactic	
“Counteracting” and simulation scores (n=302).....	128
Table 18. POINTS conflict management tactics one-tailed t-test paired sample	
statistics for pre- and post-simulation instruments.....	130
Table 19. Strength of relationship between POINTS conflict management tactics and	
KLSI Learning Styles (n=177).....	133
Table 20. Strength of relationship between the conflict management tactic	
“Appealing” and the learning style “Initiating” (n=177).....	135
Table 21. Strength of relationship between the conflict management tactic	
“Reasoning” and the learning style “Analyzing” (n=177).....	136
Table 22. Strength of relationship between the conflict management tactic	
“Counteracting” and the learning style “Deciding” (n=177).....	137

**Table 23. Strength of relationship between KLSI learning styles and simulation**

**scores (n=177)..... 138**

## LIST OF FIGURES

Figure 1. Screen capture of vLeader module one showing simulated employee Oli.	67
Figure 2. Conceptual model .....	73

## **CHAPTER I**

### **INTRODUCTION AND STATEMENT OF PROBLEM**

The topic of leaders and leadership has been studied extensively for the past century, yet little consensus exists in terms of exact definitions, or how to best approach effective leadership development (Allio, 2005; Belasen & Frank, 2008; Kellerman, 2012; Rost, 1991; Terman, 1904; Yukl, 2010). The concept of leadership remains so broad as to encompass myriad definitions and approaches to its development. This study used Yukl's (2010) definition of leadership, which summarizes many definitions by stating that leadership "involves a process whereby intentional influence is exerted by one person over other people to guide, structure, and facilitate activities and relationships in a group or organization" (p. 3). Leadership may also be used interchangeably with the term leader. For those individuals trying to become better leaders or those educators striving to develop leaders, attempting to take a comprehensive approach including all definitions and components of leadership is overwhelming and impossible in practice. However, the trait theories of leadership offer promise in solving this problem by narrowing down the broad concept of leadership into more manageable parts referred to as skills or competencies.

Although no clear consensus exists as to the exact combination of competencies that equates to leadership effectiveness, many researchers agree that communication is a key leadership competency (Bambacas & Patrickson, 2009; Flauto, 1999; Northouse, 2010; Quinn & Baltes, 2007). Since leadership is a process involving more than one person, managing conflict is often involved as another competency that leaders need to exercise (Appelbaum, Abdallah, & Shapiro, 1999). Within the broader category of communication competency, negotiation (at the intersection of conflict management/problem-solving and interpersonal communication competencies) is a key competency utilized by leaders (Allio, 2005; Mumford, Zaccaro, Harding, Jacobs, & Fleishman, 2000; Northouse, 2010) and can be considered a “sub-competency” of communication. Leadership educators have employed a variety of experiential learning techniques in an effort to develop various leader competencies, including negotiation.

Opportunities exist to explore what factors impact negotiation competence as it relates to leadership. In addition, technology has opened the door to new possibilities concerning leadership education. Quite promising among these new technologies is the use of virtual simulations to help leaders explore and practice various competencies, including aspects of communication. While simulations can be described as a type of experiential education in which the learning mode simulates an environment or interaction, virtual simulations are simply simulations that take place in virtual environments. In the virtual simulation used in this study, adult learners strive to complete tasks within a virtual environment to practice negotiation, power, and influence tactics. It is a premise of this study that learning more about factors that impact

negotiation competence, specifically within a virtual simulation leads to improved techniques for educators and improved competence for leaders.

## **Background**

Leadership scholars have cited numerous reasons why leaders are important, from organizational effectiveness to national and global concerns (Bennis, 1989; Knox, 1994). Defining what exactly is meant by the terms “leadership” and “leaders” has been a difficult task that has resulted over the years in no single, agreed upon definition; but rather, several hundred definitions that often utilize the words “leadership,” “leader,” and “manager” interchangeably (Bennis, 1975; Burns, 1978; Martin & Ernst, 2005; Monaghan, 2010; Rost, 1991; Terman, 1904). For this study, the work of Yukl (2010) was used; he notes that “most definitions of leadership reflect the assumption that it involves a process whereby intentional influence is exerted by one person over other people to guide, structure, and facilitate activities and relationships in a group or organization”(p. 3). While there are numerous theoretical approaches to studying leadership (trait, style, situational, transactional, transformational, etc.), Trait theory provides a quantifiable lens through which leadership development might be measured in the form of skills or competencies (Conger & Ready, 2004; Evers, Rush, & Berdrow, 1998; Lombardo & Eichinger, 2002).

In addition to the challenge of defining a common language of leadership, the issue of teaching or developing leadership has generated some healthy academic debate. Scholars have recently begun the work of discovering how leadership can be developed in a measurable way, and that leadership development programs can be successful if the

focus remains on building skills (Allio, 2005; Cress, Astin, Zimmerman-Oster, & Burkhardt, 2001; Itzhaky & York, 2003).

Allio (2005) calls for educators to acknowledge that leadership programs can “teach about leading, but not how to lead” (p. 1075). He continues by stating, “the best leadership programs will focus on building skills” (p. 1076). Martin and Ernst (2005) agree that “for organizations to begin examining organizational capacity for leadership, individual leader development is a necessary starting point” (p. 93). Allio (2005) suggests rhetoric (critical thinking, communications, and negotiation) as important skills and calls for researchers to “design experiments that verify a causal (or statistically significant) relationship between educational and training initiatives and the development of leaders” (p. 1075). Martin and Ernst (2005), in their study of 157 managers, call for researchers to broaden “our understanding of how to develop leadership,” examining individual competencies as an alternative to approaches to developing leadership that focus on qualities of leaders (p. 93).

Numerous researchers have found that leadership development education or training can make a difference. In their study of community activists, Itzhaky and York (2003) conducted a study that “adds to the literature that shows that leadership can be acquired or, at least, developed among community activists who have the potential and the inclination for involvement in their neighborhoods” (p. 377). Cress et al. (2001) in their longitudinal study of 875 college students noted, “the findings reported here provide clear evidence of student gains from participation in leadership development programs” (p. 23).

Experiential and self-directed learning has been a mainstay of adult learning research and practice (Merriam, 2001; Merriam, Caffarella, & Baumgartner, 2007). Simulations, which are a type of experiential education in which the learning mode simulates an environment or interaction, have been used in efforts to enhance communication skills in adult learners (Yilmaz, Oren, & Aghaee, 2006). New technologies are providing emerging possibilities in terms of leadership education and development. Computer-mediated virtual reality environments are the most recent manifestations of simulations and experiential learning; yet research has not yet caught up with advances in technology and leadership development practices (Aldrich, 2005). In summary, “more research is needed on leadership development on a more empirical basis so that we can understand the suite of tools that may be used in order to address this most critical issue of leadership development” (Richards, 2008, p. 142).

So much time and money has been spent on leadership and leadership development, yet we know so little. A quick perusal of the management section at a bookstore or library will yield dozens of books on either management or leadership filled with theories and anecdotes. However, much less has been written related to learning how to lead which can also be referred to as leadership learning. “There are some very good texts that explore management learning as a broad inclusive topic; but few that seek to unearth the difficult to reach almost imperceptible phenomenon that is leadership learning” (Kempster, 2009, p. xv). Several problems need to be addressed. First, factors (conflict management and learning styles) impacting a specific leadership competency such as negotiation need to be examined closely, along with the interplay between those factors. Second, few management studies have explored simulation as an experiential

learning technique (Ahmad, Piccoli, & Ives, 1998). Finally, no research was discovered that has explored leadership competencies following completion of leadership development through a virtual simulation experience.

A competency is a measurable characteristic of a person that is related to success at work. It may be a behavioral skill, a technical skill, an attribute (such as intelligence), or an attitude (such as optimism). Leadership competencies can be viewed in terms of workplace success as fixed personality traits (Hiebert, 2001) or skills that can be developed (Lombardo & Eichinger, 2002; Northouse, 2010). This study approached leadership competencies as skills or abilities that can be developed. Leadership competencies approach the content of leadership not as specific ideas or information but as the process or the way in which ideas and information are communicated and utilized.

Leadership researchers agree that communication is a key competency upon which to focus (Bambacas & Patrickson, 2009; Flauto, 1999; Northouse, 2010; Quinn & Baltes, 2007). "At the individual level, the skills that practicing leaders believe will be the most important to effective leadership in the future fall generally in the category of relationships and collaboration" (Martin & Ernst, 2005, p. 91). Key to the development and maintenance of effective relationships and collaborations is communication competence. For this reason, communication was the most important competency upon which this research was focused.

Within the broader category of communication competencies, negotiation has been highlighted as a key competency for effective leaders (Allio, 2005; Mumford et al., 2000; Northouse, 2010). Leaders are expected to navigate interpersonal relationships through effective communication and negotiate solutions to problems and conflict

situations that may arise. More research is needed that examines factors impacting effective negotiation by leaders and how negotiation competency can be enhanced through leadership training. Research needs to extend to individual leader styles and preferences (in this study, conflict-management and learning styles) as well as leadership training programs. Few studies (Whitworth, 2008) have looked at the relationship between learning style and preferred conflict management style, and no studies were identified that specifically looked at the P.O.I.N.T.S. Power and Influence Tactics Scale (POINTS instrument) and the Kolb Learning Styles Inventory (KLSI). Allio (2005) notes that “participants in leadership programs often do polish certain skills, particularly in communications, and they may develop greater awareness of how they present themselves to others” (p. 1072).

The ability of training simulation games to improve specific leadership competencies has been explored to some extent. However more research is needed to provide insight into the real impact of these games (Wilson et al., 2009). It has been noted that “training simulation games are used to enhance decision making and/or communication skills of players in complex environments that can be competitive, cooperative, or cooepetitive” (cooepetition is “focused on limited cooperation of otherwise competitive parties”) (Yilmaz et al., 2006). In those types of complex environments, negotiation is a key leadership competency. While the use of technology in higher education has blossomed in recent years (Luna & Cullen, 2011), not much research has been done that explores more recent advances in technology such as virtual simulations. A need has been expressed for research examining learning styles in relationship to virtual worlds education in particular (Halvorson, Ewing, & Windisch, 2011).

In summary, leadership researchers note that “there has been no effort in literature research to examine the relationship between conflict management behaviours and cognitive styles” (Liu, Magjuka, & Lee, 2008, p. 834). This study sought to address that gap in the research while also investigating several questions related to performance within a virtual leadership simulation.

### **Statement of Problem**

Prior research has not adequately answered the question of how best to develop leaders or measure leadership development. A competency based approach breaks down the broad concept of leadership development into more manageable components such as conflict management and negotiation competencies which may help address that problem. Prior research has also not adequately explored the interaction of preferred conflict management tactics and learning styles on each other or the impact of those tactics and styles on performance during leadership development. There is also no identified research exploring how those tactics and styles may impact performance within virtual leadership simulations.

### **Purpose and Research Questions**

The purpose of this study was to explore the impact of conflict management tactics as well as learning styles on the efficacy of virtual leadership development training. Four research questions were addressed in this study:

1. To what extent did conflict management tactics based on the POINTS instrument predict the adult learners’ virtual leadership simulation scores?
2. To what extent did completion of a virtual leadership simulation change adult learners’ conflict management tactics?

3. To what extent did learning styles predict the adult learners' conflict management tactics?
4. To what extent did learning styles predict the adult learners' virtual leadership simulation scores?

Conflict management styles were measured using the P.O.I.N.T.S. Power and Influence Tactics Scale (POINTS), which was originally developed by Yang (1996). The POINTS instrument (see Appendix A) measures the seven conflict management tactics leaders use with respect to power and influence. The seven tactics include: Reasoning, Consulting, Appealing, Networking, Bargaining, Pressuring, and Counteracting. Learning styles were measured utilizing the Kolb Learning Styles Inventory (KLSI) (The company that owns the KLSI instrument does not allow it to be reproduced in research papers – please refer to Appendix C for further information.) The KLSI measures nine different styles of learning: experiencing, reflecting, thinking, acting, creating, analyzing, deciding, initiating, balancing (A. Y. Kolb & Kolb, 2008). Negotiation performance was measured using the vLeader virtual leadership simulation scores. Clark Aldrich (2004, 2005) was the lead developer of the vLeader simulation software.

### **Significance of Study**

This study contributes to the field of leadership development by exploring specific factors that impact negotiation competency, a sub-competency of communication. It explored the effectiveness of virtual simulations; the relationship between conflict management style and personality type; and what type of adult learner might perform best within a virtual leadership simulation.

This study contributes first to leadership education best practices by exploring the effectiveness of virtual simulations as a method for training and educating leaders. Adult education researchers and practitioners need to explore alternative methodologies for leadership development because past methodologies are “no longer sufficient” (Martin & Ernst, 2005, p. 94). In addition, the use of technology is growing in the field of adult education and leadership education. Since the use of technology can be expensive, it is also important to understand its effectiveness. While many adult educators have adapted experiential learning techniques, fewer have fully embraced technology as an effective technique (Conceição, 2007). Virtual simulations are an emerging experiential technology. This study explored negotiation competence within a virtual simulation, allowing educators to incorporate emerging best practices into their repertoire of methodologies as appropriate. The results of this study can enhance current or future virtual leadership courses.

This study also builds on the existing literature examining correlations between learning/learning styles and conflict-management styles by examining two previously unmatched instruments, the POINTS and the KLSI. Learning styles and personal characteristics may impact conflict management tactics, which would add to the understanding of conflict management techniques and the many factors and influences impacting effective deployment of those techniques.

Finally, this study explores what type of adult learner might perform best within a virtual leadership simulation. Understanding factors impacting adult learners’ performance can assist future educators and trainers in preparing meaningful experiential learning within a virtual leadership simulation. It can also assist adult learners in

understanding preferred techniques, and how to maximize learning within a virtual leadership simulation.

### **Definition of Terms**

**Competency:** Sometimes used interchangeably with the word skill, this study utilized Northouse's (2010) conceptualization of leadership competencies as capabilities that can be "developed over time through education and experience" (p. 43).

**Leadership:** This study used Yukl's (2010) definition of leadership, which summarizes many definitions by stating that leadership "involves a process whereby intentional influence is exerted by one person over other people to guide, structure, and facilitate activities and relationships in a group or organization" (p. 3). Leadership may also be used interchangeably with the term leader. While some researchers and theorists differentiate between the terms "leadership" and "management," this study used the term leadership as inclusive of management.

**Leadership Development/Training:** The process by which individual learners explore and advance their leadership competencies. This process can also be viewed from the group or organizational level of system.

**Simulations:** A type of experiential education in which the learning mode simulates an environment or interaction. There are several types of simulations and they are often used in situations where real-life practice of specific competencies in a "real" situation is impractical, such as teaching neurosurgical anatomy and operative strategies (Kockro et al., 2007).

**Virtual Reality:** This study utilized Steuer's (1992) conceptualization of virtual reality, which focuses on experiential, rather than technological aspects and is based on

concepts of “presence” and “telepresence.” These terms “refer to the sense of being in an environment, generated by natural or mediated means, respectively” (p. 3). A virtual reality, is therefore defined as “a real or simulated environment in which a perceiver experiences telepresence” (Steuer, 1992, p. 7).

**Virtual Simulations:** Simulations that take place in virtual environments. In the virtual simulation used in this study, adult learners completed tasks within a virtual environment to practice negotiation, power, and influence tactics.

## **CHAPTER II**

### **REVIEW OF THE LITERATURE**

The purpose of this study was to explore the impact of conflict management tactics as well as learning styles on the efficacy of virtual leadership development training. This review contains five major sections. Following an exploration of the challenge related to defining the concept of leadership, the first section provides background information regarding major theoretical lenses related to leadership and leadership studies. The next section examines leader development, grounding it in adult education theory, including self-directed, experiential learning, and authentic learning. The third section explores Communication as a core leadership competency, focusing specifically on conflict management and negotiation. A discussion of learning styles follows. Finally, the review will focus on approaches to training and education, specifically centering on games and simulations. The review will conclude with the use of simulations in virtual environments.

#### **Leadership**

**The Importance of Leadership.** Noted leadership scholar Warren Bennis (1989) lists three reasons why leaders are important. “first, because they are responsible for the effectiveness of organizations... second, the change and upheaval of the past years has left us with no place to hide... and third, there is a pervasive, national concern about the integrity of our institutions” (p. 15). Although Bennis wrote about the need for leaders

twenty years ago, his reasons still apply to modern American society. Monaghan (2010) cites the recent collapse of corporations as well as other financial and environmental crises as reasons for new thinking about leadership. Others also note the rapidly changing environment of today's organizations (Fairholm, 2004). It should be noted that much of the literature toggles between the terms "leaders" meaning the people doing and "leadership" meaning the process itself, and individual researchers have also toggled between the terms (Mascall, 2007). Part of this stems from the fact that "leadership has been traditionally conceptualized as an individual-level skill" (Day, 2001, p. 583).

**The Challenge of Defining Leadership.** It is not easy to define "leadership." Over the past century, leadership has been defined and classified in many different ways. Early leadership scholar Terman (1904) noted that "the term leadership has such a broad application and is described by so many general and indefinite adjectives that it is impossible to judge the real significance of all the cases given" (p. 442). Leadership Scholar James MacGregor Burns (1978) states in his Pulitzer Prize-winning text that "leadership is one of the most observed and least understood phenomena on earth" (p. 2). Metaphors to characterize leadership have included that of a machine and that of a living organism (Knox, 1994). Leadership has been explored through the lenses of a wide variety of leaders including Abraham Lincoln, Genghis Khan, and Eleanor Roosevelt. Leadership has often been characterized not as an exact science, but rather as an art. In spite of these widely divergent characterizations, leaders and leadership have been widely studied and researched. Several main strategies for categorizing or conceptualizing leadership were used in the research: leadership as a set of traits possessed by a leader, a set of actions or behaviors, or as a process operating within a group.

Rost (1991) reviewed several hundred definitions of leadership from sources dated between 1900 and 1990. In his review, he notes that ninety-nine authors did not even provide a definition of leadership. He presents two significant impressions. The first, is that “scholars found it increasingly difficult to define leadership, so they deliberately chose not to give a definition” (Rost, 1991, p. 57) and the second is that these leadership scholars “were increasingly sloppy in their use of the words *leadership* and *leader*” (p. 58). Rost (1991) offers that as a result, “it should be no surprise that scholars and practitioners have not been able to clarify what leadership is” (p. 5).

Some of the major definitions of leadership often cited include the following: Rost (1991), “leadership is an influence relationship among leaders and followers who intend real changes that reflect their mutual purposes” (p. 102). Bennis (1989) believes that “leadership is first being, then doing” (p. 141). Burns (1978) stated that “leadership over human beings is exercised when persons with certain motives and purposes mobilize, in competition or conflict with others, institutional, political, psychological, and other resources so as to arouse, engage, and satisfy the motives of followers” (p. 18). He further defines leadership as “leaders inducing followers to act for certain goals that represent the values and the motivations – the wants and needs, the aspirations and expectations – *of both leaders and followers*” [italics original] (p. 19). Kort (2008) states simply that “leadership is about one person (the leader) getting other people (the followers) to do something” (p. 409). Kort posits that definitions only differ in terms of roles or settings. Martin and Ernst (2005) state that “in response to complex challenges, leadership is being forced to react, to learn, and to approach work in innovative ways” (p. 91). Goffee and Jones (2012) define it simply as “a relationship between the leaders and

the led” (p. 153). Yukl (2010), whose definition was used for this study, notes that “most definitions of leadership reflect the assumption that it involves a process whereby intentional influence is exerted by one person over other people to guide, structure, and facilitate activities and relationships in a group or organization”(p. 3).

For many years, leadership and management have sometimes been considered the same phenomenon, and the terms have been used interchangeably. At other times, their definitions diverged. Monaghan (2010) clarifies by stating, “management is concerned with achieving objectives. Leadership involves developing objectives while creating relationships among stakeholders to turn visions into reality” (p. 177). This ongoing area of debate surrounds the concept that a person can be a leader without being a manager or a manager without being a leader. Yukl (2010) summarizes the debate by stating “nobody has proposed that managing and leading are equivalent, but the degree of overlap is a point of sharp disagreement” (p. 6). Other researchers have also noted differences between leaders and managers (Bennis, 1989; Knox, 1994). However, more recently, researchers have focused less on worrying about differentiations between leadership and management, and more on the importance of both in the workplace (Knights & Wilmott, 2007; Monaghan, 2010; Silbergh & Lennon, 2006).

**Theoretical Approaches to Leadership.** To organize the various theoretical approaches to leadership, I used the framework presented by Yukl (2010) who classified theory and research according to the type of variable that is emphasized most. Noting that a common practice is “to limit the focus to one type of leader characteristic, namely traits, behavior, or power,” Yukl classifies theory and research on leadership into five approaches: “(1) the trait approach, (2) the behavior (or style) approach, (3) the power-

influence (or transactional) approach, (4) the situational approach, and (5) the integrative approach” (p. 13). Another way to conceptualize leadership would be to think of the various approaches as clues to solving a mystery. The trait approach helps answer the “what” of leadership; the style/behavior approach the “why”; the transactional approach focuses on the “who”; the situational approach focuses on the “where” while the integrative approach seeks to tie things together.

***Trait approach.*** A major debate in leadership education/training focuses on whether leaders are born or whether they can be developed. Early conceptualizations of leadership focused on the traits of a leader, who was often believed to have been born with the innate ability to lead. This Trait Theory of leadership was one of the first ways that leadership was studied. Thurstone (1934) factored his list of 60 adjectives into five independent common factors that became known as the “Big Five Personality Traits” (p. 8). These five trait dimensions are Neuroticism, Extraversion, Openness to Experience, Agreeableness, and Conscientiousness (Judge, Bono, Ilies, & Gerhardt, 2002). While trait theory has been criticized for over-simplifying personality, within the complex concept of leadership, breaking it down into more digestible morsels is a helpful approach.

According to leadership scholar Peter Northouse (2010):

In the early 20<sup>th</sup> century, leadership traits were studied to determine what made certain people great leaders. The theories that were developed were called ‘great man’ theories because they focused on identifying the innate qualities and characteristics possessed by great social, political, and military leaders. (p. 15)

Trait theorists work to identify a set of traits related to leadership such as intelligence, initiative, and persistence. In one of the earliest studies, Terman (1904) divided various “qualities” of leadership into 13 groups. These groups included items ranging from good looks, neatness, and dress to tact, honesty, and originality – they even included surprising traits such as musical ability, use of slang, and wit (Terman, 1904). Stogdill, another early leadership researcher, in 1948 “analyzed and synthesized more than 124 trait studies conducted between 1904 and 1947” (Northouse, 2010, p. 16). In a second study, he looked at 163 more studies conducted between 1948 and 1970. More recently, Bennis (1989) posited that vision, passion, integrity, maturity, trust, curiosity, and daring are all traits valuable to leadership while Martin and Ernst (2005) point to collaboration, relationships, change management and resourcefulness. Although other ways to conceptualize leadership have been put forth by various theorists and researchers, trait theory is still being researched today. In their qualitative review and meta-analysis of the trait perspective of leadership research, Judge et al. (2002) uncovered a relatively strong multiple correlation between the Big Five traits and the leadership criteria used. This correlation suggests that “the Big Five typology is a fruitful basis for examining the dispositional predictors of leadership” (Judge et al., 2002, p. 773).

While the study of traits is appealing in that it helps differentiate between leaders and followers, researchers have not been able to come to consensus on a single list of traits, and this approach does not take into account the leadership context. Stogdill (1948) was one of the first to question the trait approach, stating that leadership is not “a mere possession of some combination of traits” (p. 66). Mann (1959) also completed a significant review of trait studies. Researchers in the 1980s questioned the work of

Stogdill and others, stating that “these reviews have often been misinterpreted” and “there are both theoretical and methodological reasons for reconsidering the relations between traits of potential leaders and their tendency to be perceived as leaders by others” (Lord, De Vader, & Alliger, 1986, p. 402). Of Mann’s review, more recent research has noted both a “significant trend indicating that leadership and intelligence were associated” and trends that were “strongly supportive of relationships between personality variables and leadership perceptions” (Lord et al., 1986, p. 404).

Limitations to the trait approach include the lack of a single, agreed-upon list of leadership traits and the lack of accounting for the timing or setting of leadership. However, trait theory does help differentiate between leaders and followers, and more recently has seen a resurgence of interest by researchers who prefer to use the term “competencies.”

*Leadership competencies.* As detailed above, early trait theorists believed that leaders were born with inherent qualities or traits. More recent conceptualizations of trait theory still focus on various aspects of good leaders, but they use the terminology of leadership skills or competencies instead of traits. These theorists believe that leaders are not simply born, but they can be made through study and practice of various leadership competencies or skills.

In a more recent trait-based exploration of leadership linking skills or competencies to the concept of Emotional Intelligence (EI), Goleman, Boyatzis, and McKee (2002) state that “these EI competencies are not innate talents, but learned abilities, each of which has a unique contribution to making leaders more resonant, and more effective” (p. 38). Conceptualizing leadership as a set of skills allows educators to

focus on specific skills to help learners improve their own leadership effectiveness. In thinking of leadership skills or competencies, the focus is moved from innate qualities over which the leader has little control to “an emphasis on skills and abilities that can be learned and developed” (Northouse, 2010, p. 39). In this approach, with education and practice, anyone can improve their leadership competencies or skills.

In the 2001 edition of the *Encyclopedia of Leadership*, Hiebert defines a competency as “an enduring, underlying characteristic of an individual, indicating ways of behaving and thinking that are directly related to an objective measure of effective job performance” (p. 415). Competencies are the underlying motives or traits that lead to or predict specific actions that can be measured or assessed. According to Hiebert, competencies can be used to differentiate between “how a job is performed” and “what is performed” (p. 416). In other words, “most people typically follow the same basic procedures, practices, and policies,” but leadership competencies, those underlying motives, traits and self-concepts, are important attributes in knowledge-based organizations in particular (Hiebert, 2001, p. 416).

Hiebert’s definition closely follows the definition put forth by Spencer and Spencer (1993). In that often-referenced text, they defined a competency as “an *underlying characteristic* of an individual that is *causally related to criterion-referenced effective and/or superior performance* in a job or situation [italics original]” (p. 9).

The term competency, at least in a psychological sense, can be traced back to the publication of an article by D. C. McClelland in 1973 titled “Testing for competence rather than intelligence.” McClelland’s research was based upon a review of studies that academic aptitude and knowledge tests that were used at that time did little to predict

successful job performance and “were often biased against minorities, women, and persons from lower socioeconomic strata” (McClelland, 1993, p. 3). He states, “the testing movement is in grave danger of perpetuating a mythological meritocracy in which none of the measures of merit bears significant demonstrable validity with respect to any measures outside of the charmed circle” (McClelland, 1973, p. 2). McClelland (1993) discusses how in his early research he sought out factors, which could predict performance and were much less biased in nature. He utilized criterion samples and measures that involved open-ended situations so individuals could generate behavior instead of simply responding to multiple-choice or self-report situation. McClelland states, “it may be desirable to assess competencies that are more generally useful in clusters of life outcomes...such as leadership” (McClelland, 1973, p. 9). These early studies of the 1970s began with the U.S. State Department Foreign Service Information Officers and expanded into other work settings.

Competencies appear to be a growing foundation for workplace development, with leadership as a specific component. Sometimes leadership is the focus, sometimes it is part of a series of competencies related to overall employee development. Lombardo and Eichinger (2002) exhort “if we don’t define leadership competencies well, nothing much else matters” (p. 17). They refer to competencies as the “universal common denominator” (Lombardo & Eichinger, 2002, p. 17) critical to success in the workplace. Northouse (2010) places the term competency within his discussion of the skills approach to leadership. He defines leadership skills as “the ability to use one’s knowledge and competencies to accomplish a set of goals or objectives” (p. 40). Evers, Rush, and Berdrow (1998) also place competency development within the realm of skill

development. Emiliani (2003) is more inclusive and defines a competency as a “specific skill, knowledge, or characteristic needed to perform a role effectively” (p. 893). Indeed, Emiliani and Stec (2004) seem to reverse other ways of thinking by listing competencies as established skills or capabilities stemming from behaviors, which are based upon beliefs (p. 634). In a review of literature around global leadership competencies, Jokinen (2005) notes that “competencies have been defined with terms describing certain personal traits, behaviors, skills, values, and knowledge, and many existing frameworks are combinations of these” (p. 201). To summarize, leadership competencies can be viewed in terms of workplace success as fixed personality traits (Hiebert, 2001) or skills that can be developed (Lombardo & Eichinger, 2002; Northouse, 2010). This study approached leadership competencies as skills or abilities that can be developed.

Breaking down the broad concept of leadership into smaller competencies can allow leaders to be self-aware of education or development needs to increase their skills or knowledge. According to Conger and Ready (2004), competencies help organizations set clear expectations about the types of behaviors, capabilities, mind-sets, and values that are important to those in leadership roles” (p. 43). Goleman, Boyatzis, and McKee (2002), in their exploration of leadership and emotional intelligence, break the concepts into domains with associated competencies. For example, under the broad domain of “social competence,” the sub-category of “relationship management” has a further sub-category or competency of “conflict management” (p. 39).

Van der Colff (2003) used a qualitative study in a parallel vein. She took the broad concept of *ubuntu*, which she described as “the key to all African values and involves collective ‘personhood’ and collective morality,” (p. 261) and argued that these

values should “not only be seen as African values but also human values that are important in establishing both an enabling organizational culture and a set of skills and competencies” (p. 258). In other words, for leaders to be successful, they must lead in a culturally sensitive manner, creating an inclusive environment where everyone is enabled to be nurtured. Other researchers also use the concept of competency as a broader categorization into which specific strategies can be placed (Arrendo & Perez, 2003; Lombardo & Eichinger, 2002). Brownell (2005) uses the term ‘competency cluster’ to “indicate a set of competencies – knowledge, behaviors, and attitudes – that, when applied appropriately, result in desired outcomes” (p. 8).

Lombardo and Eichinger (2002) use the words “skill” and “competency” interchangeably, although they attempt to clarify between the two. For these researchers, a competency is a measurable characteristic of a person that is related to success at work. It may be a behavioral skill, a technical skill, an attribute (such as intelligence), or an attitude (such as optimism). As all competencies are measurable, they are often called skills (Lombardo & Eichinger, 2002).

Spencer and Spencer (1993) defined a competency as “an *underlying characteristic* of an individual that is *causally related to criterion-referenced effective and/or superior performance* in a job or situation” [italics original] (p. 9). They noted five different types of competency characteristics including motives, traits, self-concept, knowledge, and skill. What is of note in their definition is the term “criterion-referenced” which “means that the competency actually predicts who does something well or poorly, as measured on a *specific criterion* [italics original] or standard” (p. 9).

Criticisms of competency models include complexity and the fact that they are “based on an idealized *concept* of leadership – the concept of a universal best-in-class leader capable of functioning in all situations” (Conger & Ready, 2004, p. 44). This concept imagines a single set of characteristics that describes effective leaders that harks back to the day of the “great man” theories (Hollenbeck, McCall Jr., & Silzer, 2006). These models may also “fail to recognize that leadership requirements vary by level, culture, and situation” (Conger & Ready, 2004, p. 45). Conger and Ready (2004) express concern that “competency models tend to be focused on *current* leadership behaviors” (p. 46) and not those of the future. Tomorrow’s organizations may not require the same skills and behaviors as those valued or needed today. To address this concern competency-based models should work to identify future needs to help future leaders excel in new leadership environments. Leadership educators should place competencies in perspective, perhaps they should “focus attention on the select few differentiating skills and behaviors that will separate next-generation leaders from the rest of the pack” (Conger & Ready, 2004, p. 46). Regardless of these concerns, competency models are widely used in the business world. In their survey of Fortune 500 companies, Efron, Greenslade, and Salob (2005) found that “73% of non-Top Companies and all Top Companies” have leadership competencies in place, but only 59% of non-Top Companies “regularly use these competencies to evaluate externally hired leaders” and only 23% of companies say that leadership competencies are considered when determining long-term incentive rewards” (p. 22). For their study, they used an independent judging panel to determine the “Top Companies for Leaders.” What these numbers indicate is that while the term “Top Company” is a bit subjective, many Fortune 500 companies nonetheless have leadership

competencies in place; yet while the competencies exist, they are not used consistently in meaningful ways, perhaps due to the concerns listed above.

While competency models can sometimes be complex and focused on current behaviors as opposed to identifying future needs, there are several benefits to looking at leadership through the lens of competencies. These models “provide a tremendous educational tool to people trying to learn how to become more effective” (Hollenbeck et al., 2006, p. 402). They provide a useful framework for leadership development that can be used by anyone seeking to improve their own effectiveness, and this self-directed learning is a key component of effective andragogy, as will be discussed later in this chapter. Silzer (in an article co-authored by Hollenbeck and McCall) uses the metaphor of a map when discussing the competency model, describing it as “a general map to leadership effectiveness, providing alternate ways of reaching a destination, but it is not a trip ticket that dictates very specific and rigid directions” (Hollenbeck et al., 2006, p. 403). This metaphor is useful as it reminds users that any particular set of competencies should be viewed as a set of guidelines, and not as a guarantee of success across time or multiple situations.

To further clarify terminology, the term “competencies” is often used interchangeably with terms such as “skills,” “behaviors,” and “activities”; a differentiation should be made between these terms and “traits” or “qualities.” The latter terms indicate that leaders are born with inherent traits or qualities that are largely immutable. The former set of terms indicates that leaders can be made or developed. Although the terms are sometimes used interchangeably, competencies have become the

prevailing term among leadership researchers who believe that leadership is something that can be developed.

***Behavior or Style Approach.*** Another way to look at leadership is to think of it as a set of activities or behaviors taking place in a particular setting. This approach, also referred to as the style approach, focuses on the behaviors or actions of leaders as they interact with their followers or subordinates. Leadership style “characterizes differences in how elements of leadership are undertaken” (Knights & Willmott, 2007, p. 283). This approach contends that “effective leaders shared a common behavioral style – and the style recommended was socially close, democratic, and inclusive” (Goffee & Jones, 2012, p. 152). These authors note that this approach became predominant in the United States shortly after and closely fits the era of Franklin Delano Roosevelt and the New Deal (Goffee & Jones, 2012). One of the style approach’s earliest champions was Lewin (1948), who posited that styles could include democratic, autocratic, or laissez faire types of leaders and followers. Knights and Willmott (2007) summarize the division between styles of leadership as being generally “between those that are consultative or participative (widely described as ‘democratic’), and others that are imposing and dictatorial (widely called ‘authoritarian’)” (p. 283). Leadership styles are connected directly with behaviors.

Kouzes and Posner (1987) explored five behaviors based upon their qualitative study of leadership. For them, consideration of leadership qualities was less important than focusing on what it was that leaders *did* when they were at their best as leaders. In their words, “our research has shown us that leadership is an observable, learnable set of

practices” (Kouzes & Posner, 2007, p. 13). For these researchers, leadership is more about *doing* than it is about *being*. “Researchers studying the style approach determined that leadership is composed of essentially two general kinds of behaviors: *task behaviors* and *relationship behaviors*” (Northouse, 2010, p. 69).

Task behaviors are those that focus on the tasks themselves that help get things done. Relationship behaviors are those that focus on the relationships of the followers. Kouzes and Posner’s theory includes both task (Challenging the Process and Enabling Others to Act) and relationship (Inspiring a Shared Vision and Encouraging the Heart) behaviors. To be an effective leader, both task and relationship behaviors need to occur. Aldrich (2004) conceptualizes leadership as “getting a group of people to complete the right work” (p. 82). This basic approach includes both types of behaviors.

Limitations to the style approach include the omission of time and place as factors in leadership. Another limitation is the ‘one size fits all’ application of particular styles to particular problems (Knights & Wilmott, 2007). Different cultural values may also impact the effectiveness of utilizing the style approach (Gallo, 2008). If the trait approach helps us understand the “what” of leadership, the behavior or style approach helps us understand the “how” of leadership. The style or behavioral approach to leadership allows leaders to explore their personal behaviors and how they relate to both task and relationship outcomes. They can self-assess the outcomes and modify behaviors to improve their success as a leader. In terms of education, this approach allows educators to work with leaders to analyze behaviors in specific situations to explore alternatives or modify behaviors to increase the desired outcomes of leadership situations.

***Transactional or Leader-Member Exchange (LMX) Approach.*** Transactional leadership occurs “when one person takes the initiative in making contact with others for the purpose of an exchange of valued things” (Burns, 1978, p. 19). Northouse (2010) notes that “before LMX theory, researchers treated leadership as something leaders did toward all of their followers” (p. 147). In contrast with other theories that “seek to explain leadership as a function of personal characteristics of the leader, features of the situation, or an interaction between the two, LMX is unique in its adoption of the dyadic relationship as the level of analysis” (Gerstner & Day, 1997, p. 827). In this approach, a transaction occurs during leadership. Leaders both give and gain, as do followers. The focus on dyadic relationships is key to the LMX approach (Sin, Nahrgang, & Morgeson, 2009). Also of note in this approach is the concept that leaders develop different relationships with each of their followers and vary their interactions accordingly (Dulebohn, Bommer, Liden, Brouer, & Ferris, 2011). Their purposes are related, but usually do not go beyond that of the transaction. Throughout the exchange of rewards or valued items, “leaders accept the independence of their own and their followers’ goals” (Flauto, 1999, p. 87). According to Kort (2008), leadership is a relationship between leaders and followers involving endorsement of leader suggestions by the followers. For Bass (1985), transactional leaders focus on the material needs of an employee. The transactional leader is described in relationship to her/his followers with three key points:

1. Recognizes what it is we want to get from our work and tries to see that we get what we want if our performance warrants it.
2. Exchanges rewards and promises reward for our effort.
3. Is responsive to our immediate self-interests if they can be met by our getting the work done. (Bass, 1985, p. 11)

It should be noted that discussions of transactional leadership usually place it in opposition to the popular transformational models of leadership (Northouse, 2010).

The Leader-Member Exchange approach has been described as providing a greater insight into various leadership processes than other approaches (Dienesch & Liden, 1986). It has also been hailed as being groundbreaking in its focus on the dyadic relationship between leaders and individual followers (Dulebohn et al., 2011).

Limitations include the lack of focus on the “what” of leadership. There have also been concerns expressed about the “unresolved ambiguity about the nature of the construct, its measurement, and its relationships with other organizational variables” (Gerstner & Day, 1997, p. 827). More recent research has sought to address some of those concerns, and one research team calls for other researchers examining the LMX approach to not just advance critiques but “progress to investigate how the unique and relative perspectives of both parties of the dyads might be related, additively or jointly, to important organizational outcomes” (Sin et al., 2009). The LMX or transactional approach also advanced the research into how both parties are impacted in a leadership relationship, and paved the way for future research on followership, which focuses specifically on the impact on followers. Bass (1985) states that exchange theories of leadership direct research to a situational approach to understanding leadership.

***Situational Approach.*** Situational leadership theory looks at various leadership styles but focuses on the situation and people involved. An effective leader does not approach every situation in the same manner due to differences in time, place, goals, and people involved. The model, developed by Hersey and Blanchard 40 years ago, posits that the key to leadership effectiveness is matching leadership style (across the

dimensions of relationship behavior and task behavior) with follower readiness (Hersey & Blanchard, 1969; Hersey, Blanchard, & Johnson, 2007). Four manager styles (delegating, supporting, coaching, and directing) are connected across the dimensions of supportive behavior (low-high) and directive behavior (low-high) (Blanchard, Zigarmi, & Nelson, 1993). Followers will respond best to leaders that adjust their style according to the level of follower. Silzer (2002), in his text on executive leadership, presents numerous variables that can have an impact on leadership including job variables, interpersonal dynamics, team context variables, organizational culture variables, and country culture variables. Varying approaches are needed in the attempt to accomplish goals when a supervisor is present or with a team of disgruntled employees. Situational leadership “stresses that leadership is composed of both a directive and a supportive dimension, and that each has to be applied appropriately in a given situation” (Northouse, 2010, p. xx). “Following the situational approach, some experts argued that certain people were simply ‘not cut out’ to lead in certain situations and hence should be steered away from them” (Knox, 1994, pp. 44-45). This approach does not take into account that both people and situations change.

Several researchers have explored the combination of individual and situation. In their content analysis study Papworth, Milne, and Boak (2009) found that “whilst there has been no support for the model’s three-factor structure to date, leaders who are more flexible in their style appear to deliver greater performance” (p. 595). Fiedler (1976), a researcher who included the situation as part of leadership, discussed the Contingency Model, which bases organizational leadership effectiveness on both the style of the leader, and the situation or “the degree to which the situation gives the leader control and

influence” (p. 109). Others have called for a more comprehensive model of leadership situations focusing very specifically on different types of leadership situations and a common language to identify these different situations (Hollenbeck et al., 2006).

Criticisms of this model include the conceptual ambiguity of applying the theory (Graeff, 1983, 1997), the changes that have been made over the years without empirical evidence (Graeff, 1997; Papworth et al., 2009; G. Thompson & Vecchio, 2009), and logical and internal inconsistencies (Graeff, 1997; Papworth et al., 2009) In spite of being one of the less well-substantiated models of leadership theory, situational leadership remains one of the most widely-known and popular models in business (G. Thompson & Vecchio, 2009) One dissident, Fairholm (1998), contends that leadership is the same regardless of the situation. “Assuming (as we do here) that leadership is the same process regardless of where it is practiced” (p. 187). This researcher concurs with the aforementioned critiques but also agrees with Graeff (1983) that an important contribution of situational leadership is the recognition that leaders need to be flexible based upon the situation in which they are leading. Although it has significant challenges, research within the situational approach has certainly helped explore the “where” or contextual component of leadership.

***Transformational Approach.*** Often contrasted with transactional leadership (Yukl, 1999a), the transformational approach presents leadership as “a process that changes and transforms people” (Northouse, 2010, p. 171). Both Burns (1978) and Bass (1985) sought to “shift the focus of leadership research from predominantly examining transactional models that were based on how leaders and followers exchanged with each other to models that might augment transactional leadership and were labeled

charismatic, inspirational, transformational, and visionary” (Avolio, Walumbwa, & Weber, 2009, p. 428). In his classic text titled simply *Leadership*, James MacGregor Burns (1978) distinguished between two types of leadership: “ the *transactional* [italics original] and the *transforming* [italics original]” (p. 4). “Transactional leadership refers to the bulk of leadership models, which focus on the exchanges that occur between leaders and their followers” (Northouse, 2010, p. 170) as opposed to transformational leadership, which is “the process whereby a person engages with others and creates a connection that raises the level of motivation and morality in both the leader and the follower” (Northouse, 2010, p. 172). Another way to describe the process is “the leader raises follower awareness and understanding of moral values and inspiring visions and encourages followers to transcend their own personal goals and interests for the collective good” (Tafvelin, Armelius, & Westerberg, 2011, p. 481). The transformational leader goes beyond a transactional leadership approach by seeking to more fully engage the follower, to “arouse and satisfy higher needs” (Bass, 1985, p. 14). In both cases, leaders are getting tasks completed through a team, but in transformational leadership, concern for followers is a key element.

In his initial model of transactional and transformational leadership, Bass (1985) proposed six factors that become the basis for the Multifactor Leadership Questionnaire (MLQ). Over the years this instrument has been analyzed and critiqued, and ultimately the charismatic scale was removed so that the instrument would only contain behavioral items (Avolio, Bass, & Jung, 1999). The scales of the MLQ have been found reliable and have significantly predicted work unit effectiveness, yet moderator variables have had “differential impacts on correlations between leader style and effectiveness” (Lowe,

Kroeck, & Sivasubramaniam, 1996, p. 385). Flauto (1999) found a high relationship between transformational leadership and communication competence. This relationship was not necessarily surprising as “the three factors that constitute transformational leadership, charisma, individual consideration, and intellectual stimulation, are communication-based” (Flauto, 1999, p. 95).

Ciulla (2002) noted a change in leadership in the way leaders influenced followers. No longer able to depend upon the power of position, the ability to reward or punish, or personal qualities, leaders have had to work much more collaboratively with modern followers, who tend to be better educated and better informed. Other researchers have found that transformational leadership had positive relationships to follower performance (Wang, Oh, Courtright, & Colbert, 2011). In an update to the transformational leadership model, Bass & Riggio (2006) presented four dimensions of transformational leadership: idealized influence, inspirational motivation, intellectual stimulation, and individualized consideration.

Transformational leadership has proven remarkably popular as a theory (Hunt & Conger, 1999). Research has confirmed the effectiveness of the scales within the popular MLQ instrument as mentioned previously and has also surfaced some challenges with the model as a top-down concept (Yukl, 1999a). A meta-analysis of 75 studies of transformational leadership and effectiveness studies conducted by Lowe et al. (1996) concluded that transformational leadership was likely more important at all levels of an organization and not just at the uppermost levels. Also noted was the possibility that “the enduring importance of transactional leadership at higher organizational levels may have

been overlooked in the ardor that has accompanied our contemplation of the transformational leadership construct” (Lowe et al., 1996, p. 420).

Transformational leadership theorists criticize transactional leadership as being of a lower order or oversimplifying the leadership relationship. However, not all theorists or practitioners agree. Harrison (2011) is among those who question transformational leadership’s tenet of separating leadership from positional authority. This researcher agrees with those who question the theory and posits that transformational leadership is, at its core, transactional leadership that includes the transaction of higher-level needs and motivations. Perhaps because transformational leadership emphasizes emotions and values (Yukl, 1999a) it has developed a passionate following that borders on fanaticism. Semantics may also be at play in this approach’s popularity, as “transformational” may be a more appealing label. People want to believe in transformational leadership even if research such as that conducted by Tafvelin et al. (2011) and others continues to come up short in terms of results. A shift in attitudes may be occurring as researchers such as Harrison critically examine transformational leadership and conclude that its tenets “are questionable guideposts for many administrators” (Harrison, 2011, p. 45).

Yukl (1999a) outlined a number of conceptual weaknesses in transformational leadership which he noted were similar to earlier leadership theories. These conceptual weaknesses include “ambiguous constructs, insufficient description of explanatory processes, a narrow focus on dyadic processes, omission of some relevant behaviors, insufficient specification of limiting conditions (situational variables), and a bias toward heroic conceptions of leadership” (p. 286). Another recent study found that several studies connecting emotional intelligence to transformational leadership may have weak

methodological designs that make those findings less valid (Lindebaum & Cartwright, 2010). Conger (2004) rails against “principally normative models of leadership” (p. 138) including transformational leadership, that have been developed mainly in academia. He states that because these models assume a unitary approach to leadership, they do not take into account that the approach to leadership depends upon the situation. With a rich history of leadership theory and those conceptual weaknesses in mind, a few researchers have recently begun developing a new theoretical approach to leadership studies.

***Integrative or Complexity Leadership Approach.*** During the past 10-15 years several researchers have attempted to weave the various approaches to leadership theory together into a more cohesive, inclusive, integrative approach (Chemers, 1997; Kempster, 2009; Uhl-Bien, Marion, & McKelvey, 2007). Avolio et al. (2009) note “a growing sense of tension in the leadership literature that models of leadership that were designed for the past century may not fully capture the leadership dynamic of organizations operating in today’s knowledge-driven economy” (p. 430). This shift in thinking is in the same vein as a concept termed complexity leadership (Lichtenstein et al., 2006; Uhl-Bien et al., 2007). Kempster (2009) presents a model that incorporates experiences (observed and enacted), situation (context and social interaction), participation (roles and activities), and knowledge (explicit and tacit) in his exploration of how leaders have learned to lead. While the framework is in Kempster’s words “sufficiently broad and inclusive to integrate theory of informal leadership development and principles of experiential learning” (p. 105), it is uncertain whether or not this latest attempt at an integrated model will be widely adapted.

As one might imagine, limitations to the integrative or complexity leadership approach center on the fact that these researchers try to answer all questions about leadership through a single model, stating that leadership is more than the sum of its parts. While this is all well and good, it has not proven to be a definitive answer to the question of what leadership *is* exactly, nor has the research using these models shown results significantly better or more definitive than research with other models (Bass, 1985).

### **Critiques of Leadership Studies**

For all of the writing and research that has been done in regards to leadership over the past 100 years, there is still no clear description of what makes someone a leader or which approach to leadership is the most effective (Ciulla, 2002). The study of leadership as a concept has several critiques. Rost (1991) registers two major complaints regarding leadership studies:

The emphasis that writers on leadership have placed on (1) what is peripheral to the nature of leadership and (2) what I call the content of leadership – the ideas and information that leaders and followers in particular professions or organizations must know in order to influence one another in a leadership relationship. (p. 3)

In the preface to Rost's text on leadership studies Burns states that perhaps Rost's complaints about the "peripherals" may be more central than stated. Leadership competencies get to the content of leadership not as specific ideas or information but the way in which ideas and information are communicated and utilized.

Leadership researchers have often engaged in arguments over approaches or components of leadership. One ongoing argument is over whether leaders are born or made. Trait theorists believe leaders are born with some innate qualities or traits that others may not possess. Others believe that leaders can be made through education and practice. Conger (2004) perhaps sums up this argument best when he states, “it is not a matter of whether leaders are born or made. They are born *and* made [italics original]” (p. 136).

While Rost (1991) rails against this focus on so-called peripheral elements he notes that focusing on elements of leadership such as traits, style, situations, and effectiveness allow scholars to “feel good about themselves because these theories were developed using the best scientific methods known to researchers and conformed to the best logical positivist framework for research” (p. 3). Yukl (2010), echoes similar concerns, detailing several biases in the conceptualization of leadership including the focus on individual leaders; the emphasis on dyadic processes; inadequate explanatory processes; and a lack of attention to context. For all of Rost’s complaints and concerns, the study of leadership remains a robust, complex field of study, and researchers will likely continue searching for a broad answer to the question “what is leadership?” Given the complexity of the concept of leadership itself as well as the variety of approaches to its study, it makes sense to utilize only one approach to investigate a particular aspect of leadership more deeply.

In the next section of this review, leadership development will be explored in detail, including underlying adult education, self-directed learning, experiential, and authentic learning theories that all play into the leadership development framework,

which uses competencies not as an end-point, but as a beginning point for developing leadership.

### **Leader Development**

Several researchers have noted what Silbergh and Lennon (2006) referred to as the “paucity of theoretical and empirical information in the field” (p. 499) of leader development. This scarcity of scientific research has not stopped organizations from undertaking a wide variety of leadership development activities. Indeed, this trend shows no sign of abating (Hirst, Mann, Bain, Pirola-Merlo, & Richver, 2004; Silbergh & Lennon, 2006). Barbara Kellerman, who has taught a course titled Leadership Literacy at the Harvard Kennedy School of Government aptly states that “the field of leadership does not suffer a dearth of pedagogical pointers” (Kellerman, 2012, p. 36). As a starting point for a discussion of leader development, it is important to clarify some definitions.

First, there is some conceptual confusion regarding differences between leader and leadership development (Day, 2001). For some (Gilpin-Jackson & Bushe, 2007; Martin & Ernst, 2005; Richards, 2008; Yukl, 2010), leader development focuses solely on the individual, while leadership development focuses on the organization. For others, leadership and leader development are terms used interchangeably. This study focused on the development of individual leaders, although the terms leader development and leadership development will be used interchangeably

Second, just as there is debate and confusion surrounding the differences (if any exist) between leaders and managers, a parallel debate surrounds leadership development. One difference between leadership and management development noted by Day (2001) is in terms of role definition: “leadership roles refer to those that come with and without

formal authority, whereas management development focuses on performance in formal managerial roles” (p. 582). Other researchers have characterized management development as primarily including managerial education and training (Latham & Seijts, 1998; Mailick, Stumpf, Grant, Kfir, & Watson, 1998) with an emphasis on acquiring specific types of knowledge, skills, and abilities to enhance task performance in management roles (Baldwin & Padgett, 1994; Keys & Wolfe, 1988; Wexley & Baldwin, 1986). Another characteristic feature of management development is the application of proven solutions to known problems, which gives it mainly a training orientation.

Conversely, leadership development is defined as expanding the collective capacity of organizational members to engage effectively in leadership roles and processes (McCauley, Moxley, & Van Velsor, 1998). Leadership processes are those that generally enable groups of people to work together in meaningful ways, whereas management processes are considered to be position- and organization-specific (Keys & Wolfe, 1988). Leadership development involves building the capacity for groups of people to learn their way out of problems that could not have been predicted (N. M. Dixon, 1993). A leadership development approach is oriented toward building capacity in anticipation of unforeseen challenges (i.e., development). This study will utilize the concepts of leader or leadership development as opposed to management development as it will not be limited to individuals working within specific managerial capacities in organizations.

Yukl (2010) states that “leadership competencies can be developed in a number of ways, including (1) formal training, (2) developmental activities, and (3) self-help activities” (p. 458). While more natural, informal experiences are often seen as good

catalysts for leader development, Kempster (2009) notes that “formal education may be a key catalyst for enhancing the dominant arena of informal leadership development” (p. 99). Brown and Posner (2001) noted that “the effective development of future leaders will require leveraging adult learning principles as well as creating the conditions that foster transformational learning” (p. 279). The next four subsections will look at education and learning theories important to the development and education of adult leaders. I will first briefly review adult education theory, then look at self-directed learning, experiential learning (including situated cognition), and finally authentic learning. These theories lay important groundwork for adult educators and trainers who wish to help learners develop specific leadership competencies, especially communication.

**Underlying Adult Education Theories.** The first formal adult learning theories were developed in the 1920s, as a comparison point to general learning theories, which usually focused on the learning of children or pedagogy (the art or practice of educating children). Malcolm Knowles (1980) put forward the concept of andragogy (adult learning theory and practice), in contrast to pedagogy. To generalize, it is useful to think of adult learning as self-directed, or learner-directed, at the other end of a continuum with instructor driven learning. Also significant is the fact that andragogy values the life experience of adults for their learning. Knowles notes that adults “accumulate an increasing reservoir of experience that becomes an increasingly rich resource for learning” (Knowles, 1980, p. 44).

There has been some debate as to whether andragogy is an actual theory or a set of assumptions about working with adults and whether or not andragogy’s tenets apply to

only adults or children as well. However, Merriam (2001) notes that “it is as a guide to practice that andragogy has had its biggest impact” (p. 8). Several learning theories are of particular interest for leadership educators. These include self-directed, experiential, and authentic theories of learning.

**Self-Directed Learning.** Important to both leadership development and adult education best practice is the concept of self-directed learning. In their review of the literature surrounding self-directed learning, Merriam, Caffarella, & Baumgartner (2007) discuss the early reticence of formal learning institutions (i.e. colleges and universities) to focus on adult learning that occurs in normal, everyday life. Knowles (1980) proposed that adult learners become increasingly self-directed as they mature. Adult learners have complex lives often filled with constant change which lends itself well to self-directed learning. This concept dovetails with the learning of leadership, which is “an ongoing process, never static, always in flux. Leaders must take charge of their own development, relying on aids such as learning plans, journaling, developing personal history statements, seeking solitude, and learning how to reflect on their personal experiences” (Knox, 1994, p. 8). Yukl (1999) reported that “an important shift in perspective on leadership development, which the army has already adopted, is to view people as active players who pursue their own development rather than as passive receivers of whatever training is bestowed upon them” (p. 268). In addition to the self-directed nature of leadership development, an experiential component needs to be considered.

**Experiential Learning.** Although Dewey (1938) was perhaps one of the first to write about the connections between life experiences and learning, it wasn’t until several decades later that a more formal theory was published. Kolb first introduced his

experiential learning theory in 1971 in an effort to integrate cognitive and socioemotional factors into a single learning theory (D. A. Kolb, 1981). The model originally conceived of learning as a four-stage continuous cycle. The stages are concrete experience; observations and reflections; formation of abstract concepts and generalizations; and testing implications of concepts in new situations. The theory contends that individual learning styles (named convergers, divergers, assimilators, and accommodators) vary across two basic dimensions of abstract-concrete and active-reflective (D. A. Kolb, 1981). In more recent years the model has been further refined and now includes nine distinct types (A. Y. Kolb & Kolb, 2008). Kolb's expanded experiential learning theory and the Learning Styles Inventory (KLSI) has been utilized in numerous studies. Kolb and Kolb (2005b) call for the creation of learning spaces that can enhance experiential learning. Key components include respect for learners and their experiences; begin learning with the learner's experience of the subject matter; creating and holding a hospitable space for learning; making space for conversational learning, development of expertise, acting and reflecting, feeling and thinking, inside-out learning, and for learners to take charge of their own learning (A. Y. Kolb & Kolb, 2005b). Merriam, Caffarella, & Baumgartner (2007) note that "clearly the role of experience in learning is highly complex" (p. 169).

Experiential or action learning has been noted as important to leadership development endeavors (Cacioppe, 1998; Yukl, 1999b, 2010). Experiential learning occurs when the learner actually does a task in order to learn it, either with or without prior instructions or direction (Hansman, 2001). "Leaders learn by doing – they learn where there are challenges, where the task is unprogrammed, where the job is being done

for the first time” (Bennis, 1989, p. 144). Lave and Wenger (1991) emphasize the conceptualization of learning as participation. As Adair (2005) puts it, “experience seemed to be the only doorway” to developing qualities that make a good leader (p. 12). “The aim of leadership developmental initiatives is long-term skill development. Accordingly, organizations should place greater emphasis on experiential learning so as to foster sustained behavioral and practice changes” (Hirst et al., 2004, p. 324).

***Context based learning.*** Context-based adult learning theory (or situated cognition) acknowledges that experiential adult learning does not occur solely within the individual, but within a social context. According to Merriam, Caffarella, & Baumgartner (2007) “in situated cognition, one cannot separate the learning process from the situation in which the learning is presented” (p. 178). Context-based learning or situated cognition “emphasizes interaction between the learner and other learners and tools in a sociocultural context” (Hansman, 2001, p. 46). This theory values the social nature of learning, and also “emphasizes doing the task in order to learn it” in a situation that is at least similar to where it will be used (Hansman, 2001, p. 46). Tasks or environments might be modified to increase awareness of learning by developing leaders.

***Authentic learning.*** Another lens through which leadership education may be examined is authentic learning. At its most basic level, authentic learning includes activities that directly relate to students and what they encounter in their everyday lives. In authentic learning environments, instructors coach and facilitate as students accomplish tasks related to their everyday lives. Following an extensive literature review of authentic activities Herrington, Oliver, and Reeves (2003) identified 10 key characteristics of authentic activities:

- I. have real-world relevance
- II. are ill-defined, requiring students to define the tasks and sub-tasks needed to complete the activity
- III. comprise complex tasks to be investigated by students over a sustained period of time
- IV. provide the opportunity for students to examine the task from different perspectives, using a variety of resources
- V. provide the opportunity to collaborate
- VI. provide the opportunity to reflect
- VII. can be integrated and applied across different subject areas and lead beyond domain-specific outcomes
- VIII. are seamlessly integrated with assessment
- IX. create polished products valuable in their own right rather than as preparation for something else
- X. allow competing solutions and diversity of outcome. (pp. 3-4)

To function as authentic learning, tasks should allow students to learn specific curriculum components by using resources and their own ideas to choose their own paths of action (Woo, Herrington, Agostinho, & Reeves, 2007). What Lave and Wenger (1991) in their discussion of communities of practice have termed legitimate peripheral participation parallels this conceptualization of authentic learning. Day (2001) stated that “the real movement [in leadership education] is toward understanding and practicing leadership development more effectively in the context of the work itself” (p. 586). This approach is

important to the discussion of learning in a virtual (or any) environment. According to Woo et al. (2007), “technology appears to have great potential to support student performance of authentic tasks and their resultant learning” (p. 37). Indeed, the proliferation of technological advances and a trend toward instructional modes that combine a variety of approaches utilizing technology (or not), has resulted in a “blurring of the boundaries between traditional classifications of instructional approaches” (LeNoue, Hall, & Eighmy, 2011, p. 5).

These adult learning theories provide insight into the various ways that adults learn, and provide insight into strategies for maximizing learning. From the work of Knowles (1980), who characterized adult learning theory as andragogy, to the concepts of self-directed, experiential, and authentic learning; a deeper understanding of how adults and leaders learn has helped educators employ strategies that enhance learning. For example, providing space for reflection (journals and discussions) and considering the environments in which the leaders operate. The reality of educating in a world filled with technology “calls for expansion of the vision of andragogy” (LeNoue et al., 2011, p. 9). The next section expands upon the concept of individual adult leader development to a broader discussion of leadership development.

**The Debate over Leadership Development.** Perhaps the largest area of debate and concern is whether leadership can be developed at all. There are even educators who teach management and leadership who would agree that “no manager, let alone leader, has ever been created in a classroom” (Mintzberg, 2012, p. 198). Another states that “there is little evidence that any course or program produces better leaders, despite their many advocates” (Allio, 2005, p. 1071). Yukl (2010) also states that it has not been

established whether an improvement in competency performance is the result of applying a specific theory, or the result of an increase in skill. “In a contemporary analogue to the Hawthorne effect, performance may improve when the organization pays more attention to the lucky candidates, who view their selection as tacit endorsement and reward for past behavior” (Allio, 2005, p. 1072). “Those who graduate from leadership programs do acquire a vocabulary that implies leadership literacy” (Allio, 2005, p. 1072). However, even Allio admits that “Participants in leadership programs often do polish certain skills, particularly in communications, and they may develop greater awareness of how they present themselves to others” (Allio, 2005, p. 1072).

Allio (2005) calls for educators to acknowledge that leadership programs can “teach about leading, but not how to lead” (p. 1075). He continues by stating, “the best leadership programs will focus on building skills” (p. 1076). Allio suggests rhetoric (critical thinking, communications, and negotiation) as important skills and knowledge – of the context, industry, and the organization in which the leader operates. As Allio (2005) succinctly puts it – “conventional leadership programs miss the mark, and they pander to the organizations that are looking for better leaders. They may provide leadership literacy, but cannot develop leadership competence” (p. 1076).

However, numerous researchers have found that leadership development education or training can make a difference. In their study of community activists, Itzhaky and York (2003) conducted a study that “adds to the literature that shows that leadership can be acquired or, at least, developed among community activists who have the potential and the inclination for involvement in their neighborhoods” (p. 377). Cress et al. (2001) in their longitudinal study of 875 college students noted that “the findings

reported here provide clear evidence of student gains from participation in leadership development programs” (p. 23).

The author of this current study agrees with Cress and other researchers that leadership can indeed be developed. This current study used that conception as a working assumption as have other researchers (Silbergh & Lennon, 2006) and practitioners (Ganz & Lin, 2012; Goffee & Jones, 2012). However, in terms of leadership development, one size does not fit all (Belasen & Frank, 2008), and while many companies appear to be using competency frameworks, they are doing so to varying degrees. In their study of leadership through the lens of human resources, Efron, et al. (2005) found that while 73% of non-Top Companies and all Top Companies have leadership competencies in place, “only 59 percent of non-Top companies regularly use these competencies to evaluate externally hired leaders” (p. 22). Additionally, “only 23 percent of companies say that leadership competencies are considered when determining long-term incentive rewards” (Efron et al., 2005, p. 22). Therefore, competency development is not the final answer. As Richards (2008) notes, “competencies may be part of the equation for leadership development although certainly not the whole picture” (p. 139). Organizations including leadership development in their training should also be mindful of the fact that while individuals may improve their own competency, those improved skills may not immediately translate into improvements in the success of the business (Cacioppe, 1998). Leadership development is a complex endeavor. Adair (2005) concurs, but posits that people can still develop leadership without abandoning “qualities approach” completely” (p.13). There are many different methods of leadership development, including emerging methodologies utilizing emerging technologies such as computerized simulations. “More

research is needed on leadership development on a more empirical basis so that we can understand the suite of tools that may be used in order to address this most critical issue of leadership development” (Richards, 2008, p. 142).

With the acknowledgement that competency development is not the only approach to enhancing leadership and developing leaders, this study will focus on communication as a core competency for leadership development. Negotiation will be a key component, as negotiation and communication are closely connected (Putnam & Roloff, 1992). The next sections will further detail communication as a key competency for leaders, and negotiation as a key sub-competency.

### **Communication as a Core Leadership Competency**

Multiple researchers have connected leadership with communication skills (Apps, 1994; Bambacas & Patrickson, 2009; Flauto, 1999; Knights & Wilmott, 2007; D. G. Kolb, Prussia, & Francoeur, 2009; Rouhianinen, 2005; Yukl, 1999b). In a study of 197 leaders, the Center for Creative Leadership found that communication was among the second most critical leadership competency as identified by responding leaders (with long-term view as the first) (Quinn & Baltes, 2007). In another study, this one of 151 employees at nine organizations, Flauto (1999) also correlated communication competence with leadership. Rouhiainen (2005) interviewed and surveyed 320 leaders and their subordinates to determine what type of communication competence was needed for leaders in a knowledge-based organization. Rouhiainen (2005) states “we increase our leadership competence as we increase our communication competence” (p. 629).

Boyatzis (1982) looks specifically at verbal communication in a competency he terms “oral presentations” (p. 105). These oral presentations can take place

interpersonally between two people, or in front of large audiences. His study of 253 managers found that the “use of oral presentations is a competency that is strongly related to effectiveness as a manager” (Boyatzis, 1982, p. 108).

According to Cacioppe (1998), “it is important for participants to experience some improvement in their skills and abilities over the course of the program” (p. 48). Working on core competencies such as communication allows participants in leadership development programs ample opportunities to practice their new skills, both at home and in the work environment (Cacioppe, 1998).

**Conflict Management and Negotiation.** Much like the term leadership, “conflict” has many definitions (Rahim, 2000). For some, conflict occurs when two or more individuals disagree or attempt to obtain something that cannot be owned or achieved by all parties involved (Whitworth, 2008). This study utilized the definition put forth by Rahim (2000) in which conflict is defined as “an interactive process manifested in incompatibility, disagreement, or dissonance within or between social entities (i.e., individual, group, organization, etc.)” (p. 18).

Havenga (2008) summarizes three schools of thought on conflict that have emerged. The “*traditional approach* [italics original] follows the belief that all conflict is considered to be negative and destructive, and as such should be avoided” (p. 22). The *human relations approach* [italics original] considers conflict to be “a natural phenomenon and can thus not be eliminated, but should be viewed as making a contribution to increasing the performance within a group or organization” (p. 22). The *inter-actionist approach* [italics original] posits, “‘healthy’ organizations seek to increase intra-organisational conflict” (p. 22).

Conflict management is simply what people do when they experience conflict. It is important to examine conflict management as it has been noted that managers spend as much as 20 percent of their time resolving conflict (Appelbaum et al., 1999). Closely related to conflict management is the concept of negotiation.

Conflict situations are managed through bargaining processes and negotiation tactics. Communication is central to this process. At its core, negotiation employs problem solving activities and persuasion to reach mutually acceptable agreements, but these activities do not depict the social interaction in bargaining. Negotiation differs from related types of communication by centering on perceived incompatibilities and employing strategies and tactics aimed at reaching a mutually acceptable agreement.” (Putnam & Roloff, 1992, p. 3)

“Negotiations occur for one of two reasons: (1) to create something new that neither party could do on his or her own, or (2) to resolve a problem or dispute between the parties” (Lewicki, Saunders, & Minton, 1999, p. 5). Negotiation is a skill or competency that can be developed (Kray & Haselhuhn, 2007). Kray and Haselhuhn (2007) argue that “by providing students with a framework for approaching negotiations, their confidence and concomitant performance improve” (p. 49). In this study, conflict management style was measured using the POINTS instrument (Yang, 1996), which also measures the impact of power influences and conflict of interest influences. These influences will be explicated under the umbrella of power and influence.

**Power and Influence.** Power and influence are interrelated concepts that share an ambiguity similar to that of leadership (Foucault & Deleuze, 1977) and there is an “integral relationship between leadership and power” (Hersey, Blanchard, & Natemeyer,

1979, p. 418). At its most basic level, power denotes a relationship between people (Dahl, 1957; Reid & Ng, 2004), and power is used to influence others (Hersey et al., 1979; Standifer, 2010). Borkowski (2005) defined power as “the influence over the beliefs, emotions, and behaviors of people” (p. 162). This definition is quite similar to the definition of leadership used for this study, which conceives of leadership as “a process whereby intentional influence is exerted by one person over other people to guide, structure, and facilitate activities and relationships in a group or organization (Yukl, 2010). Power also directly connects to the concept of communication competency. “Communication, power, and organization are interdependent and coconstructed phenomena” (Mumby, 2001, p. 585). It is helpful to focus on the sources of power as a starting point.

In their seminal work on social power, French and Raven (1959; 1958) identify five bases or sources of social power:

*Reward power* [italics original], based on the perception by the individual, P, that the agent, O, can mediate rewards for him; *coercive power*, based on P's perception that O has the ability to mediate punishments for him; *legitimate power*, based on the perception by P that O has a legitimate right to prescribe behavior for him; *referent power*, based on P's identification with O; and *expert power*, based on P's perception that O has some special knowledge or expertness. (Raven & French, 1958, p. 83)

It may be helpful to think of power as the “what” and influence as the “how.” Influence tactics can be considered the way in which power is activated in relationships.

Influence tactics are often described as existing on a continuum based upon strength, ranging from soft to hard (Van Knippenberg & Steensma, 2003; Van Knippenberg, Van Knippenberg, Flauw, & Vermunt, 1999). Hard influence tactics include relatively controlling and coercive tactics such as pressure and assertiveness; coalition; and blocking (Van Knippenberg & Steensma, 2003). Soft influence tactics include ingratiation, inspirational appeals, and rationality (Van Knippenberg & Steensma, 2003). In a study conducted in a controlled environment, Van Knippenberg and Steensma (2003) found that hard tactics were used less often than soft tactics, and that male participants wielded influence more often than female participants.

Influence tactics have been sorted into widely cited (Barbuto & Moss, 2006) categories based upon the findings of two studies conducted by Kipnis, Schmidt, and Wilkinson (1980). The categories of influence tactics are:

- (a) *assertiveness*: confronting the target in a direct or intimidating and emotionally charged manner;
- (b) *rationality*: presenting arguments and information to the target;
- (c) *ingratiation*: putting the target in a good humor or making the target think positively about oneself;
- (d) *exchange*: referring to reciprocation of material or immaterial (like friendship) goods;
- (e) *coalition*: seeking support with superiors (e.g., upward appeal) or peers;
- (f) *blocking*: hindering the target in carrying out specific actions;
- and (g) *sanctions*: threatening the target with or carrying out administrative compulsory measures. (Van Knippenberg et al., 1999, p. 807)

Researchers have largely been examining influence tactics in organizational settings (Barbuto & Moss, 2006). A number of researchers have explored influence from employees' influence tactics directed upward (Borkowski, 2005; Falbe & Yukl, 1992). Even with limited positional power, influence still occurs. A study by Kipnis, et al. (1980) reported findings that “suggest that in organizational settings the choice of influence tactics is associated with what the respondents are trying to get from the target person, the amount of resistance shown, and the power of the target person” (p. 443).

In a dynamic environment such as the workplace, power and influence can be difficult to measure. Foucault (1980) and Foucault and Deleuze (1977) point out that perhaps the only pure environment for studying power would be in a prison. “It is often difficult to say who holds power in a precise sense, but it is easy to see who lacks power” (Foucault & Deleuze, 1977, p. 213). More recently, researchers such as Yang (1996) have begun exploring power and influence tactics in a more formalized manner. Yang and Cervero (2001) identified “power and influence styles used by adult education practitioners in the practice of designing and planning education and training programmes” (p. 289) utilizing the POINTS instrument. A slightly altered version of that instrument was utilized in this study. A more detailed explanation of this instrument follows.

**Power and Influence Tactics Scale (POINTS) Instrument.** The P.O.I.N.T.S. Power and Influence Tactics Scale (POINTS) instrument was developed by Yang (1996) and revised in 1998. The instrument emerged from the Blake-Mouton (1964) conceptual model that was also the basis for the Thomas-Kilmann Conflict Management Instrument (TKI) developed in 1974, sometimes also referred to as the Thomas-Kilmann Conflict

Management-of-Differences or MODE Instrument (MODE) (Volkema & Bergmann, 1994). The connection between POINTS and the work of Blake and Moulton and other conflict management instruments is not surprising, “Many conflict-style instruments currently in use in research and organizational development in North America owe their beginnings to the conceptual model of Blake and Moulton (1964)” (Volkema & Bergmann, 1994, p. 11).

The POINTS instrument itself was designed to measure power and influence tactics of adult educators as related to program planning (Yang, 1996; Yang, Cervero, Valentine, & Bensen, 1998). The POINTS instrument (Yang, 1996) (see Appendix B) measures seven planning tactics that program planners use with respect to power and influence. The seven planning tactics include: Reasoning, Consulting, Appealing, Networking, Bargaining, Pressuring, and Counteracting (Yang, 1996). The tactics were first hypothesized by Yang utilizing several prior studies (Kipnis et al., 1980; Yukl, Lepsinger, & Lucia, 1992) and refined during the course of his 1996 study. These seven planning tactics correspond to varying levels of assertiveness and cooperativeness.

The use, reliability, and validity of this instrument will be discussed in detail in chapter three. This study used a revised version of the POINTS instrument (see Appendix A). The original instrument focused specifically on scenarios involving program planning. For the purposes of this study participants were asked more broadly about any situation that included negotiation. The next section of this literature review will examine learning styles and introduce a widely used instrument designed to measure learning styles.

## **Personality Types and Learning Styles**

“Personality is the underlying cause of individual behaviour and individual differences (Whitworth, 2008, p. 923).” While many theories attempt to explain differences in learning or personality types, they differ in their specific central focus (Whitworth, 2008). Researchers have noted that personality type impacts conflict-management styles (Whitworth, 2008; Wood & Bell, 2008). This finding, in turn, will impact which type of training might be most appropriate for an adult learner. Some researchers have proposed that “in order to enhance the quality of learning, [the] first step should be [to] analyze their [adult learners’] learning styles” (Ugur, Akkoyunlu, & Kurbanoglu, 2011, p. 20). This proposal is important, at least in part, due to the fact that “not every manager needs the same kind of leadership training content or methodology because not every manager exercises the same learning style” (Belasen & Frank, 2008, p. 139).

The impact of learning styles on performance in a virtual simulation has not been studied. However, the impact of learning styles has been explored in an online learning environment. “While the effect of cognitive styles has been examined extensively in regards to traditional classrooms, fewer studies have addressed the effect of cognitive styles on academic performances in online courses, and their results prove rather divergent (Liu et al., 2008, p. 831).” This study seeks to understand the impact of learning styles not just online, but in a virtual simulation. To explore this further, this study will use the Kolb Learning Styles Inventory instrument (KLSI).

**Kolb’s Learning Style Inventory.** Kolb’s experiential learning theory “defines four phases in the process of learning from experience: concrete experience, reflective

observation, abstract conceptualization and active experimentation (Kolb, 1981). Individual learning styles are defined by a person's relative reliance on these four learning modes (Boyatzis & Kolb, 1991, p. 279).” According to the theory, different learners start at different points in a learning cycle, which includes all four phases. Concrete experience (CE) is learning by experiencing. Reflective observation (RO) is learning by reflecting. Abstract conceptualization (AC) is learning by thinking. Active experimentation (AE) is learning by doing. Another way to look at the cycle is to think of it in terms of problem solving, involving the following processes: identifying the problem, selecting the problem to solve, seeing different solutions, evaluating possible results, and implementing the solution (D. A. Kolb, 2007).

More recently, research on experiential learning has expanded to include not just the four phases of the learning circle (four learning styles), but nine specific learning style types (A. Y. Kolb & Kolb, 2008). The first four processes appear at the ends of the two intersecting modes: Experiencing or Feeling (CE), Reflecting (RO), Thinking (AC), and Acting (AE). The next four styles emphasize two learning modes: Creating (CE and RO), Analyzing (AC and RO), Deciding (AC and AE), and Initiating (CE and AE). The final style is Balancing, which encompasses all four modes in the learning cycle.

Although Kolb tends to use the language of learning style, he also notes that learning styles relate to personality type as well (A. Y. Kolb & Kolb, 2005a).

Although the learning styles of and learning modes proposed by ELT [experiential learning theory] are derived from the works of Dewey, Lewin, and Piaget, many have noted the similarity of these concepts to

Carl Jung's descriptions of individuals' preferred ways for adapting in the world. (A. Y. Kolb & Kolb, 2005a, p. 6)

When asked to weigh in on the question of whether or not the KLSI could be considered in terms of cognitive types as well as learning styles, Kolb responded:

When I developed the LSI I had been working with cognitive style a lot and was thinking along those lines with the exception that I saw learning as not only cognitive but more holistic involving the four modes. The research relating the LSI and MBTI [Myers-Briggs Type Indicator] does show consistent relationships so it must be related to personality somewhat. (D. A. Kolb, personal communication, August 25, 2010)

For the purpose of this study, the KLSI is assumed to work with both cognitive or personality types and learning styles, but is described more in terms of learning styles.

The Learning Styles Inventory helps individuals explore which processes might be more comfortable for them. Knowing one's preferences may help inform conflict management tactics and negotiation success. For example, if a leader is aware that her learning style preference is Acting she would know that she is comfortable with initiating and leading action, and that she should pay attention to Reflecting or Feeling to ensure that she is not neglecting those styles which will likely be helpful in successful conflict management and negotiation. "Each task we face requires a corresponding set of skills for effective performance" (A. Y. Kolb & Kolb, 2005a, p. 7). However, it should be noted that "no single model of personality exhausts the variety of ways in which people experience themselves and others in negotiation (Shell, 2001, p. 172)." Chapter three

presents a detailed discussion of the use, validity, and reliability of the KLSI as part of this study.

This literature review has presented information related to leadership, leader development, communication competency, and learning or cognitive styles. The final section explores various approaches to leadership training and education, focusing on simulations as an experiential education technique. It closes with a discussion of virtual simulations.

### **Approaches to Leadership Training/Education**

There are many different approaches to leadership education and training: formal classroom, personal research, experience, action learning, networking, role modeling, mentoring, coaching, job assignments, 360-degree feedback, case studies, games, simulations, etc. (Day, 2001; Yukl, 2010). Institutions of higher education in particular need to offer a greater variety of instructional approaches that are effective for adult learners (Fadaei, 2010) This study focused on games and more specifically simulations as an effective approach to leadership training/education.

**Games.** Dempsey, Haynes, Lucassen, and Casey (2002) define a game as a set of activities involving one or more players. It has goals, constraints, payoffs, and consequences. A game is rule-guided and artificial in some respects. Finally, a game involves some aspect of competition, even if that competition is with oneself. (p. 159)

Games have been identified as “an effective and cost-saving method in education and training” (Wilson et al., 2009, p. 217). Participation in learning games has the potential to

engage adult learners in ways that more traditional classroom pedagogies may not (Whitton, 2011). Games should be structured in ways that appeal to adult learners, with attention to authentic and other learning theories. For example, “learners are likely to sustain interest in games that are challenging and goal oriented” (Dempsey et al., 2002, p. 166).

Games have also been found to “positively influence trainees in terms of cognitive, skill-based, and affective outcomes” (Wilson et al., 2009, p. 258). In exploring games as an instructional medium, it is important to keep in mind that the curriculum should come first. Aldrich (2005) notes that starting with a game and figuring out what one learns is different from starting with critical items to teach and figuring out how to use computer game methodology to aid instruction.

One promising subset of games is simulation games or simply simulations. “Simulations, like games, are interactive, with the purpose of achieving specific goals in a specific context” (Wilson et al., 2009, p. 218). Simulations, however, go a bit further than games in that they are more carefully designed in an attempt to represent a real phenomenon (Crawford, 1984). In characterizing the difference between games and simulations, Aldrich states, “when designers use universal truths as the core of a learning objective, they are simulation elements. When designers use them to get or keep a learner’s attention, they are game elements” (Aldrich, 2005, p. 91).

**Simulation Games.** “After years at the periphery of the social sciences, simulation is now emerging as an important and widely used tool for understanding social phenomena” (Garson, 2009, p. 267). Educators and trainers have used simulations to accomplish a variety of learning, attitudinal, and behavioral outcomes (Anderson &

Lawton, 2009). More complex than a case study, which simply requires learners to make decisions after analyzing the case and its components, simulations require learners to deal with the consequences of their decisions (Yukl, 2010). Aldrich (2005) describes four traditional types of simulation games: branching stories, interactive spreadsheets, game-based models, and virtual labs/virtual products. In branching stories simulations, learners make multiple-choice style decisions that impact the evolution of a story. Similar to the “choose your own adventure” books for children, branching stories allow learners to choose from multiple possibilities, each with its own consequences and next steps. Interactive spreadsheets are often used for abstract business school type applications. It is helpful to envision an electronic spreadsheet with a series of formulas on it as a backdrop for this type of simulation. Students allocate finite resources along categories at turn-based intervals, and watch results play out on charts/graphs. Interactive spreadsheets are often done in multi-player or team-based environments, often with facilitators. Game-based models ‘make learning fun’ but are more diagnostic than instructional. Examples would include “Wheel of Fortune” and “Jeopardy.” The fourth type of simulations, virtual labs or virtual products, focuses on the proper use of equipment. In these simulations “students interact with visual, selectively accurate representations of actual products without physical restrictions of reality” (Aldrich, 2005). Virtual labs/products give learners access to environments or equipment that may be expensive, dangerous, or scarce; for example, a laboratory with highly sensitive and expensive neurosurgery equipment. Not every type of simulation makes sense for use in every type of learning activity, but all four types can enhance an overall curriculum. Aldrich notes that new genres of simulations will continue to emerge as technology advances. “Recent trends

have made it clear that simulation model fidelity and complexity will continue to increase dramatically in the coming decades” (Yilmaz et al., 2006, p. 339).

Within the field of training and leadership development “training simulation games are used to enhance decision making and/or communication skills of players in complex environments that can be competitive, cooperative, or cooperative” (coopetition is “focused on limited cooperation of otherwise competitive parties”) (Yilmaz et al., 2006, p. 340).

One of the characteristics of simulations that makes them so effective is that simulations cannot be skimmed or browsed, but “can only truly be understood through active trial-and-error engagement” (Aldrich, 2005, p. 177). Learners must truly engage in the simulation to understand it. Creating good simulations is difficult. As simulation designer and researcher Aldrich (2005) summarizes, “If we make simulations too accurate, they will be too hard. If we make simulations too easy, they will be irrelevant. Good luck.” (p. 184). Managing frustrations is part of the learning. Students need to try various approaches and learn from the resultant consequences, and then try again with altered approaches to achieve success. Aldrich (2005) points out that “in any formal learning situation, (simulation or not, e-learning or not) about 20 percent [of the students] weren’t getting it” (p. 258). Simulations will not work for every learner.

One of the benefits of utilizing virtual simulations is the cost savings involved (Garson, 2009), such as learning to fly an airplane or utilize military equipment without actually having to buy fuel or munitions. Sometimes, as in the case of brain surgery, practicing and learning in a virtual simulation is a more obviously viable option than utilizing human subjects. Another key benefit is the ability of the learner to practice

repeatedly without diminishing resources, or harming others. A military pilot or aspiring neurosurgeon can practice maneuvers dozens of times without risk to equipment or colleagues/patients. These significant benefits have led to virtual learning environments proliferating at a rapid pace (Ryan, Scott, Freeman, & Patel, 2000).

Simulations are useful in helping adults learn. Simulations, which are self-directed in nature, allow adult learners to practice and experience situations in realistic, yet simulated environments. “The use of simulations, including 3D simulations is very consistent with the endogenous interpretation of constructivism, which emphasizes learner discovery of knowledge through their interaction with the environment rather than from direct instruction” (Dalgarno, 2002). One notable limitation of simulations is that “whether based on systems of equation or artificial interacting agents, typically [simulations] assume that there are fixed, identifiable variables determining behavior” (Garson, 2009, p. 273). As noted earlier in this chapter, leadership is not a fixed interaction. However, it is also important to note that “the purpose of simulation is not to represent accurately the mind-boggling complexity of reality but rather to simplify segments of reality so that they may be analyzed and understood” (Garson, 2009, p. 274). Another limitation is that simulations are not usually a fast approach to learning, but rather, “to be effective, simulations require a substantial time commitment from participants” (Anderson & Lawton, 2009, p. 195). Simulations also mesh well with the creation of authentic learning environments. Simulations will, according to Aldrich (2005), “break down artificial barriers between what we learn and what we do, between learning in business and learning in academics” (p. xxxiv). “Good simulations also work because practice makes people better at what they do” (Aldrich, 2005, p. 82).

In their text on effective teaching with technology, Bates and Poole (2003) present a continuum of technology-based learning ranging from face-to-face learning on one end of the spectrum and distance education on the other. Within the middle of the continuum are the use of technology as a classroom aid or supplement and a mixed mode of face-to-face and e-learning. One technique that holds promise for mixed-mode and distance education is virtual simulations.

**Virtual Simulations.** Virtual simulations are simply simulations that take place in virtual environments. One example of a virtual environment is Second Life, which describes itself as “a free 3D virtual world where users can socialize, connect and create using free voice and text chat” ([www.secondlife.com](http://www.secondlife.com)). As the technological capability of virtual simulations advances, so does the research related to virtual simulations and environments. Researchers are increasingly investigating the “tremendous potential” of virtual simulations (Halvorson et al., 2011; Hickey, Ingram-Goble, & Jameson, 2009; Standifer, Thiault, & Pin, 2010).

A “virtual environment” or “virtual reality” is defined for this study not according to the specific technology involved, but rather from a communication research perspective, which focuses on human experience. According to Steuer (1992), the “key to defining virtual reality in terms of human experience rather than technological hardware is the concept of *presence*. Presence can be thought of as the experience of one’s physical environment” (p. 5). While *presence* “refers to the *natural* perception of an environment, *telepresence* “refers to the mediated perception of an environment (Steuer, 1992, p. 6). A virtual environment or reality is “a real or simulated environment in which a perceiver experiences telepresence” (Steuer, 1992, p. 7). Defining virtual

reality in this manner shifts the focus from the machine or technology involved to the individual and her/his perceptions, and thereby allows for variations across technologies. This study explored learning in a computer-mediated virtual environment.

There are several items that should not be overlooked when utilizing virtual simulations. First, developing leadership competencies through technology does have some drawbacks. While virtual environments hold real promise for effective andragogy, it is important to keep the focus on the content and the training process and not be lulled by technology like a child drawn to a shiny object. New research notes the importance of using technology for enhancing learning environments while simultaneously cautioning against neglecting principles of good practice in education (McCabe & Meuter, 2011). The challenging and changing role of the trainer/facilitator should be kept central to the conversation (Ryan et al., 2000; Standifer et al., 2010). Second, differing levels of comfort with technology or computers or “perceived ability to use the internet” (Eynon & Helsper, 2010, p. 542) may impact student or employee resistance to modes of teaching and learning. Computer anxiety has been studied extensively, but multiple dimensions contribute to the overall phenomena of computer anxiety (Beckers, Wicherts, & Schmidt, 2007). Self-reported computer phobia has been found to impact a “substantial minority of students (approximately 20%)” in a study of 363 undergraduates (Mcilroy, Sadler, & Boojawon, 2007, p. 1290). Different levels of computer/technological literacy require different educational interventions (Gripenberg, 2011). The role of an introductory computer tutor or educator may not be as important as independent practice in developing computer confidence (Mcilroy et al., 2007). Others have found that technology helped learners become more self-directed and overcome resistance they had to learning (Phelan,

1994). Third, if the education is taking place at a distance, not all participants may have access to appropriate computers (hardware), the internet, or broadband access. It should be noted, however, that both the internet and broadband access are expanding globally quite rapidly (Bates & Poole, 2003). Fourth, while technology is rapidly changing higher education, little research has been done connecting adult learning theory with technology (R. Dixon & Dixon, 2010; Luna & Cullen, 2011). Finally, while “older adults” (a term that encapsulates adult learners from over age 40 to over age 75 depending upon the study) have different needs “resulting from the natural physical and cognitive changes that come with aging” (Wagner, Hassanein, & Head, 2010, p. 870), a multi-disciplinary review of 151 articles found that computer performance in the older adult learner population varied widely which suggests that “predictions should not be based solely on chronological age” (Wagner et al., 2010, p. 876). Instructional and computer designers should be considering interface designs that work with adult learners of varying ages, and more importantly, varying levels of computer competence and comfort (Charness & Holley, 2004; Hawthorn, 2000). Likewise, adult educators should know that while more “mature learners may be resistant to the use of new technologies...even younger students, those generalized as the net generation, should not be presumed to be fluent” in online learning (LeNoue et al., 2011, p. 8).

Virtual simulations exist for a variety of training/development needs including general business ([www.industryplayer.com](http://www.industryplayer.com)), human resources management (The Investigator, [www.kognito.com](http://www.kognito.com)), and leadership/management (vLeader, [www.simulearn.com](http://www.simulearn.com)). This study used vLeader in its exploration of negotiation competence within a virtual leadership training simulation.

**vLeader.** Simulearn, Incorporated ([www.simulearn.net](http://www.simulearn.net)), the company that manages and markets vLeader (short for virtual leader), describes the virtual leadership training simulation as “practiceware,” to bring attention to the experiential aspect of its product. Clark Aldrich (2003a, 2003b, 2004, 2005), who has written extensively on simulations, was the lead developer for vLeader software which was recognized as the Best Online Training Product of the Year (T+D Magazine) and awarded a United States patent. Virtual Leader products are currently deployed in corporate, government, academic, and military sites. This software was “designed to bridge the gap between concept and real-world experience” (Standifer et al., 2010, p. 168). A demonstration video, which can be downloaded from the Simulearn website or viewed on YouTube ([www.youtube.com/watch?v=OsEIzNukHcc](http://www.youtube.com/watch?v=OsEIzNukHcc)), provides an introduction to the simulation. Unlike the online virtual worlds of Second Life or World of Warcraft, vLeader does not include an extensive environment for users to explore (Gurley, Wilson, & Jackson, 2010). The makers of vLeader stress in the companion workbook that the simulated “scenarios are not *real meetings*... the virtual characters are not *real people*... [and] the dialog is not *real conversation*” (Simulearn, 2007, p. 20). However, the scenarios do reflect key aspects of conversations and behaviors present in workplace interactions.

The vLeader simulation is comprised of five modules. Each module simulates a meeting, and each module presents different tasks to explore in increasingly complex scenarios. The learner/player is a new employee who navigates interactions with virtual employees, colleagues, and supervisors by expressing himself or herself in one of five different ways: supporting or opposing a person, supporting or opposing an idea,

switching topics or focusing on a person, asking a question, or doing nothing (Simulearn, 2007) (see Figure 1).

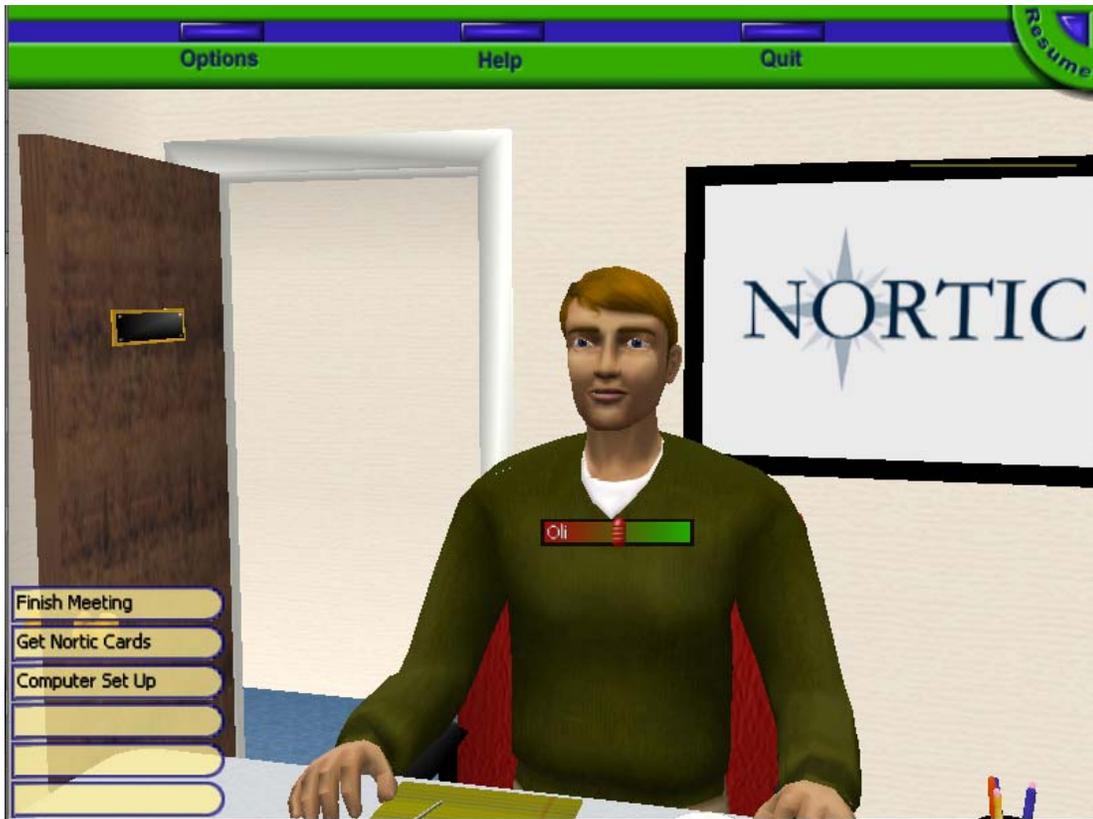


Figure 1. Screen capture of vLeader module one showing simulated employee Oli.

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Learners can employ a variety of leadership styles by moderating power, ideas, and tension. Throughout each simulation, tasks are completed or tabled, and virtual meeting participants are pleased or displeased. This technology is used to “create real-time scenarios placing the user in a first person environment that supports and encourages situated, active learning” (Standifer et al., 2010, p. 168).

Gurley et al. (2010) note that “the student or participant gains power through formal authority, informal authority and political influence” (p. 109). While formal authority is static and dependent upon position within the simulated company (i.e., in the

first scenario, the learner is the direct supervisor of the employee), informal authority must be created by building relationships with others and earning respect, and political influence must be gained through connections to others with greater formal or positional authority. How learners navigate the simulation, gaining power and getting the right work completed, involves communication and negotiation skills. Sometimes it requires “arguing against poor ideas and confronting others who are not focused on the work” (Gurley et al., 2010, p. 109). At other points in the simulation learners must surface hidden agenda items and negotiate which tasks will be completed. Managing conflicting opinions and ideas and negotiating solutions are critical components of the vLeader virtual leadership simulation.

Best practice for adult learners using technology-based learning includes multiple opportunities for self-assessment and self-correction (Dobrovolny, 2006), and vLeader provides numerous practice activities and assessments to help adult learners. The vLeader simulation provides scores across two main dimensions: leadership and business results (Gurley et al., 2010). Leadership scores are based upon how well learners gain power, moderate tension, and generate new ideas. Business results scores are determined based upon a combination of financial performance for the simulated company, customer satisfaction, and employee morale. The overall score is calculated using the average of the leadership and business results scores. At the conclusion of each simulation module, detailed scores and feedback are provided to learners. Due to the proprietary nature of the vLeader software, the exact scoring formulas are not provided. The software has not been tested for reliability and validity. In each of the five modules (simulated meetings), as in non-virtual reality, different actions and tactics will lead to different outcomes. While

other simulations exist in the arena of leadership development, vLeader is one of the most advanced virtual simulations and was therefore a good choice for this study.

This section of the literature review walked through various approaches to leadership training and education, beginning with games as one of the most basic types of experiential learning, focusing in on simulations as a type of game, narrowing to virtual simulations as a specific branch of simulation games, and ending with vLeader, the specific virtual leadership simulation used in this study. Participants completed a pre-simulation survey, completed one or more modules of the vLeader virtual simulation, and completed a post-simulation survey several weeks after the virtual simulation. The following section will wrap up the literature review before formally launching into the methodology for this study.

## **Conclusion**

Numerous researchers concur that negotiation, a sub-competency of communication, is a key leadership competency (Allio, 2005; Mumford et al., 2000; Northouse, 2010). Communication competence, and by extension, negotiation competence is key to the development and maintenance of effective relationships and collaborations that have been identified as “most important to effective leadership in the future” (Martin & Ernst, 2005, p. 91). For these reasons, negotiation, as a sub-competency of communication, was the most important competency upon which to focus this research.

Unfortunately, there is a dearth of understanding as to what constitutes good leadership learning (Kempster, 2009). This study sought to address several key issues related to leadership learning. Factors (conflict management and learning styles)

impacting negotiation as a key leadership competency were examined, along with the interplay between those factors. A review of the literature has revealed that “there has been no effort in literature research to examine the relationship between conflict management behaviors and cognitive styles” (Liu et al., 2008, p. 834). Research examining the relationship between conflict management and cognitive styles is largely absent from the literature (Liu et al., 2008). This study examined the impact of learning styles and conflict-management styles upon performance in virtual leadership simulations.

This study contributes to the field of leadership development by exploring specific factors that impact negotiation competency, a sub-competency of communication. This study also contributes to leadership education best practices by exploring the effectiveness of virtual simulations as an emerging experiential technology for training and educating leaders. This study explores negotiation competence within a virtual simulation, allowing educators to incorporate emerging best practices into their repertoire of methodologies as appropriate. Finally, this study builds on the existing literature examining correlations between learning styles and conflict-management styles by examining two previously un-matched instruments, the POINTS and the KLSI.

## **CHAPTER III**

### **METHODOLOGY**

The purpose of this study was to explore the impact of conflict management tactics as well as learning styles on the efficacy of virtual leadership development training. The four research questions addressed in this study were:

1. To what extent did conflict management tactics based on the POINTS instrument predict the adult learners' virtual leadership simulation scores?
2. To what extent did completion of a virtual leadership simulation change adult learners' conflict management tactics?
3. To what extent did learning styles predict the adult learners' conflict management tactics?
4. To what extent did learning styles predict the adult learners' virtual leadership simulation scores?

This chapter outlines the quantitative methodology used in this study.

Quantitative methodology was chosen for this study because of the comparative aspect of exploring (a) conflict management tactics utilizing the P.O.I.N.T.S. Power and Influence Tactics Scale (POINTS instrument); (b) learning style using the Kolb Learning Styles

Inventory (KLSI); and (c) power and performance using the vLeader virtual leadership simulation scores. This methodology allows the exploration of the relationships between independent and dependent variables represented in these three instruments and demographic characteristics of the sample (Vogt, 2007).

The following sections address the conceptual framework for this study, a description of the three instruments utilized for this study, and the research design that was utilized. The research design section addresses the sampling and selection criteria, data collection methods, analysis procedures, reliability and validity of this study.

### **Conceptual Framework**

The purpose of this study was to explore the impact of conflict management tactics as well as learning styles on the efficacy of virtual leadership development training. The research framework is predicated off three over-arching factors – (1) conflict management tactics, including conflict of interest and power influences, (2) learning styles, and (3) outcomes in the vLeader virtual leadership simulation. Figure 2 presents a visual model of the factors and their relationships.

Four relationships were explored in this study. The first research question examined the relationship between conflict management tactics as measured by the POINTS instrument and the scores resulting from completion of the vLeader virtual leadership simulation. In addition to measuring conflict management tactics, Yang (1996) included five items to measure conflict of interest and three to measure power in his POINTS instrument (see Appendix B). The direct arrow between the POINTS instrument and vLeader represents the impact that those seven conflict management tactics had upon

the virtual leadership simulation measures of power, ideas, and overall leadership (see Figure 2 below).

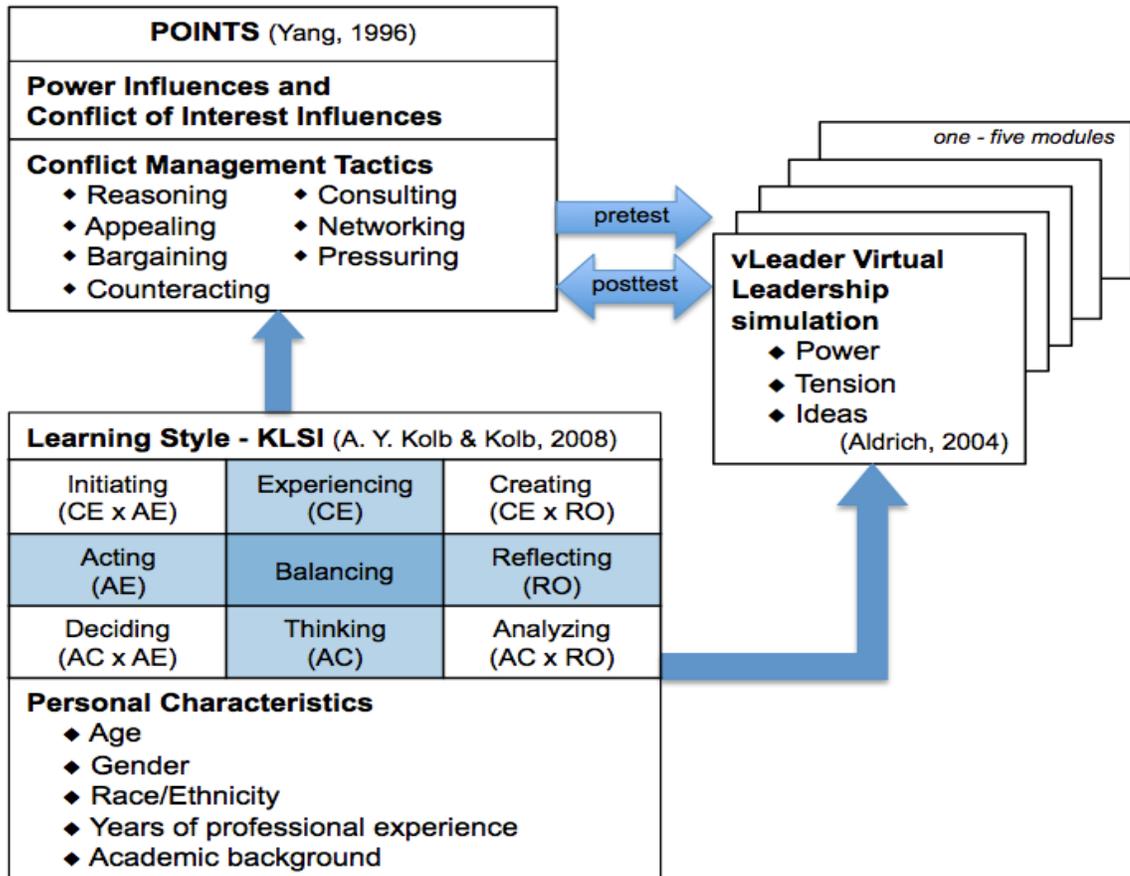


Figure 2. Conceptual Model

The second research question and area of investigation examined the influence that the completion of vLeader simulation modules had on the conflict management tactics used by the adult learners. Following completion of the virtual leadership simulation(s), did preferred tactics change, or did they remain constant? This was measured through completion of a second POINTS instrument following completion of vLeader virtual leadership simulation(s) and is represented by the left-facing arrow (see Figure 2).

The third research question and area of investigation utilized learning style as presented by D. A. Kolb (2007). The Learning Styles Inventory measures learning styles to help individuals understand not only how they learn, but how they solve problems, work in teams, manage conflict, make career choices, and improve personal and professional relationships (D. A. Kolb, 2007). The direct arrow between learning style box and the POINTS box represents the extent to which learning styles predicted adult learners' conflict management tactics (see Figure 2).

The fourth research question and area of investigation also utilized learning style as presented by D. A. Kolb (2007). The direct arrow between learning style and vLeader represents the impact that those nine learning styles (experiencing, creating, reflecting, analyzing, thinking, deciding, acting, initiating, and balancing) had upon the virtual leadership simulation measures (see Figure 2). Little research has been found connecting learning styles with new technology, although one set of researchers did not find differences in learning styles with a sample of students utilizing course management software (McCabe & Meuter, 2011). This study explored the connection between conflict management tactics and learning styles and performance within a virtual leadership simulation.

### **Instrumentation**

Three instruments were utilized in this study, the P.O.I.N.T.S. Power and Influence Tactics Scale (POINTS), the Kolb Learning Styles Inventory (KLSI), and the vLeader virtual leadership simulation leadership score. Both the POINTS and KLSI instruments are widely used by researchers. Additionally, the POINTS instrument was used in part because vLeader has not been tested in respect to the reliability and validity

of its measures. The POINTS scores were compared with the vLeader measures to see if any relationships exist.

**P.O.I.N.T.S. Power and Influence Tactics Scale (POINTS).** The P.O.I.N.T.S. Power and Influence Tactics Scale (POINTS) was developed by Yang (1996). The original POINTS instrument (see Appendix B) measures the seven planning tactics that program planners use with respect to power and influence. Permission to use the instrument was received in May, 2010 (see Appendix D). The seven planning tactics include: Reasoning, Consulting, Appealing, Networking, Bargaining, Pressuring, and Counteracting (Yang, 1996). These seven planning tactics, which correspond to varying levels of assertiveness and cooperativeness, were developed based upon the work of several other studies (Kipnis et al., 1980; Yukl et al., 1992). Yang's (1996) tactics find their original roots in the Blake-Mouton conceptual model (1964), which was also the basis for the Thomas-Kilmann Conflict MODE instrument (1974) (Volkema & Bergmann, 1994). The POINTS evolved from the afore-mentioned studies and put the tactics in a new context by connecting them with program planning and adult educators. The current study took those evolved tactics to see if they could be generalized to any adult negotiation interaction. The planning tactics were distilled from the original POINTS instrument using a model generation method which led to "a shorter form of the instrument, while maintaining the original theoretical structure" (Yang et al., 1998, p. 234).

The revised POINTS instrument (Appendix A) does not approach power and influence from a program planning perspective, but rather approaches it from a broader perspective by asking the individual to think about an idea as opposed to a program. This

change is supported by Cervero & Wilson (2006) who note “there is no time or place in which planners are not also working political relationships in performing technical procedures” (p. 104). This study extends POINTS one logical step beyond program planning to explore factors impacting negotiation of any idea. Instead of asking the respondent to think about a particular person, the object of the question was expanded to include a person or persons, and a plural “others involved” was used in the instrument for the respondent to consider in the situation being discussed.

The revised POINTS instrument is comprised of 39 items and uses a six-point Likert scale to measure the level of agreement from strongly disagree to strongly agree. Respondents were asked to recall a situation where they negotiated an idea with at least one other person and reply to the items accordingly. Originally, Yang developed the instrument to explore the adult education program planning process and asked respondents to specifically recall an adult training or education program that they planned with at least one other person. The descriptions from Yang that follow are presented through that original lens.

The first construct, Reasoning, was originally intended to measure the use of “persuasion, logic, or actual evidence with the co-planner in order to gain influence over the planning process” (Yang, 1996, p. 116). Instrument items 11, 18, 24, 30, and 33 relate to Reasoning (see Appendix B). Sample items include “convincing <the person> that your plan is viable” and “demonstrating to <the person> your competence in planning the program” (Yang, 1996). In the revised instrument Reasoning is intended to refer to the use of logical evidence (facts, figures, and other data) with the other person(s) to gain influence during the negotiation process.

The second construct, Consulting, was originally intended to measure the extent to which the planner “seeks input and ideas from the co-planner in order to gain influence over the planning process” (Yang, 1996, p. 116). Instrument items 9, 15, 20, and 27 relate to Consulting (see Appendix B). Sample items include “asking <the person> for suggestions about your plan” and “indicating that you are receptive to <the person’s> ideas about your plan” (Yang, 1996). In the revised instrument Consulting is intended to refer to the use of seeking input from the other person(s) to gain influence during the negotiation process.

The third construct, Appealing, was originally intended to measure the extent to which the planner appeals to the emotions, predispositions, or values of the co-planner in order to gain influence over the planning process” (Yang, 1996, p. 116). Instrument items 25, 31, 34, 36, and 38 relate to Appealing (see Appendix B). Sample items include “saying that <the person> is the most qualified individual for a task that you want done” and “making <the person> feel that what you want done is extremely important” (Yang, 1996). In the revised instrument Appealing is intended to refer to the use of emotional or values-based appeals to the other person(s) to gain influence during the negotiation process.

The fourth construct, Networking, was originally intended to measure the extent to which the planner “seeks to obtain the support of other people who are important to the co-planner in order to gain influence over the planning process” (Yang, 1996, p. 116). Instrument items 10, 16, 22, and 39 relate to Networking (see Appendix B). Sample items include “getting other people to help influence <the person>” and “asking other people in your organization to persuade <the person> to support your plan” (Yang, 1996). In the

revised instrument Networking is intended to refer to working with others not directly involved to influence or persuade the other person(s) to gain influence during the negotiation process.

The fifth construct, Bargaining, was originally intended to measure the extent to which the planner “offers to exchange things which the co-planner values (or refers to past exchanges) in return for influence over the planning process” (Yang, 1996, p. 116). Instrument items 12, 14, 19, and 26 relate to Bargaining (see Appendix B). Sample items include “promising to support future efforts by <the person> in return for his or her support” and “offering to speak favorably about <the person> to other people in return for his or her support” (Yang, 1996). In the revised instrument Bargaining is intended to refer to offers to the other person(s) of favors or future support to gain influence during the negotiation process.

The sixth construct, Pressuring, was originally intended to measure the extent to which the planner “makes direct demands of or threats to the co-planner in order to gain influence over the planning process” (Yang, 1996, p. 116). Instrument items 13, 21, 32, 35, and 37 relate to Pressuring (see Appendix B). Sample items include “repeatedly reminding <the person> about the things you want done” and “challenging <the person> to do the work your way or to come up with a better plan” (Yang, 1996). In the revised instrument Pressuring is intended to refer to the use of demands to gain influence during the negotiation process.

The seventh construct, Counteracting, was originally intended to measure the extent to which the planner “takes willful action (or willfully refuses to take action) which nullifies efforts of the co-planner, in order to gain influence over the planning

process” (Yang, 1996, p. 116). Instrument items 17, 23, 28, and 29 relate to Counteracting (see Appendix B). Sample items include “telling <the person> that you refuse to carry out those requests that you do not agree with” and “withholding information that <the person> needs unless he or she supports your plan” (Yang, 1996). In the revised instrument Counteracting is intended to refer to actions that are intended to thwart the efforts of the other person(s) to gain influence during the negotiation process.

In addition to the seven conflict management tactics, Yang (1996) included eight items to explore conflict of interest and power as part of the POINTS instrument (see Appendix B). “The Conflicting Interests variable was measured as the planner’s perception of the degree of conflict between the planner and the person with whom he/she interacted with regard to the programme” (Yang & Cervero, 2001, p. 291). Instrument items 1-5 relate to conflict of interests (see Appendix B). Sample items include “<the person> and you had competing personal agendas for this program” and “<the person> and you were unwilling to share the resources you each controlled” (Yang, 1996). In the revised instrument the Conflicting Interests items were retained, but generalized as were the other items to refer to the other person(s) with whom the respondent had been negotiating. These items were not used directly for this study, but were retained as an opportunity to check the POINTS instrument for general usage beyond program planning.

Instrument items 6-8 relate to Power (see Appendix B). Sample items include “<the person> had power to apply pressure or penalize you if you failed to cooperate with him/her” and “overall, <the person> had more power than you during the planning process” (Yang, 1996). These three items were also retained in the revised instrument,

and were examined in relationship to the Power score measured in the vLeader virtual leadership simulation. The vLeader Power variable will be the key measure of power as it results from the shared experience and constraints of the simulated scenario. Although not specifically included as a research question, from a methodological sense, it was determined to be of interest to examine what participants scored in terms of self-perception of power from the POINTS instrument and power as measured in vLeader.

Yang (1996) also included several demographic variables as part of the POINTS instrument (see Appendix B). Those variables were age, gender, years working as an education or training professional, years working in the current organization, and years working in the current position in the organization. Yang and Cervero (2001) found that “power and influence style is not found to significantly relate” (p. 294) to any of those demographic variables. Demographic variables were also included in the pre-simulation survey.

***POINTS Reliability and Validity.*** In measuring phenomena that are too abstract to be precisely measured, researchers turn to two empirical measurements: reliability and validity (Carmines & Zeller, 1979). “*Reliability* concerns the extent to which an experiment, test, or any measuring procedure yields the same results on repeated trials” (Carmines & Zeller, 1979, p. 11). Researchers test the reliability of an instrument to determine consistency of scores based upon repeated completion by the same individual. If an individual receives a high score upon completion of a test the next time she takes the same test the score should be similar (i.e. test-retest method). If this is true, the instrument is considered to have a high reliability (Fraenkel & Wallen, 2009). Another way to test reliability is to calculate an alpha coefficient that is also referred to as a

Cronbach's alpha (Fraenkel & Wallen, 2009). Cronbach's alpha ranges from zero to 1.0; "an alpha of .70 or higher is often considered satisfactory for most purposes" (Vogt, 2007, p. 115).

Yang and Cervero (2001) examined the POINTS instrument utilizing Cronbach's alpha ( $\alpha$ ) (Cronbach, 1951) to measure internal reliability. As a rule of thumb, a minimum measure of .70 ( $\alpha = .70$ ) is the ideal standard for reliability coefficients (Fraenkel & Wallen, 2009; Vogt, 2007). The following reliability measures were found: "*Reasoning* (5 items and  $\alpha=0.73$ ), *Consulting* (4 items and  $\alpha=0.82$ ), *Appealing* (5 items and  $\alpha=0.73$ ), *Networking* (4 items and  $\alpha=0.74$ ), *Bargaining* (4 items and  $\alpha=0.78$ ), *Pressuring* (5 items and  $\alpha=0.63$ ), and *Counteracting* (4 items and  $\alpha=0.68$ ) (Yang & Cervero, 2001, p. 291)."

Validity indicates the extent to which the instrument measures what it purports to measure (Carmines & Zeller, 1979; Fraenkel & Wallen, 2009). Validity for the POINTS instrument was obtained from construct validity, convergent and discriminant validity, and homological validity (Yang et al., 1998). "The construct validity for the measures of power and influence tactics was first examined by alternative measurement models, following Joreskog's (1993) method of alternative models (AM)" (Yang et al., 1998, p. 233). Confirmatory factor analysis (CFA) was also used to "verify the adequacy of the item to factor associations and the number of dimensions underlying the construct (Bollen, 1989; Thompson & Daniel, 1996)" (Yang et al., 1998, p. 233).

Nomological networks are the "interlocking system of laws which constitute a theory" (Cronbach & Meehl, 1955, p. 290). After examining the nomological networks existing between both the behaviors as measured on the proposed scale and the existing

political contexts, “two variables, power base and type of interests, were constructed to establish a nomological net between planning behaviors and political contexts” (Yang et al., 1998, p. 234).

To further explore personality factors, the Kolb Learning Styles Inventory instrument was administered concurrently during the first administration of the POINTS instrument.

**Kolb Learning Style Inventory (KLSI).** Kolb’s experiential learning theory defines four phases in the process of learning from experience (D. A. Kolb, 1981). The first phase, Concrete Experience (CE), is learning by experiencing. The second phase, Reflective Observation (RO), is learning by reflecting. The third phase, Abstract Conceptualization (AC), is learning by thinking. The fourth phase, Active Experimentation (AE), is learning by doing.

The four modes occur along two intersecting dimensions or modes: grasping experience (CE – AC) and transforming experience (RO – AE) (A. Y. Kolb & Kolb, 2008). According to the theory, different learners start at different points in a learning cycle, which includes all four phases. To be effective, learners need to utilize all four processes:

That is, they must be able to involve themselves fully, openly, and without bias in new experiences (CE); they must be able to observe and reflect on those experiences from many perspectives (RO); they must be able to create concepts that integrate their observations into logically sound theories (AC); and they must be able to use these theories to make decisions and solve problems (AE). (D. A. Kolb, 1981, p. 236)

“Individual learning styles are defined by a person’s relative reliance on these four learning modes” (Boyatzis & Kolb, 1991, p. 279).

The KLSI instrument is comprised of twelve statements, each of which has four possible endings. Permission to use the KLSI for this study was secured in January, 2011 (see Appendix C). Respondents are asked to reflect upon a recent learning situation and rank the suggested endings for each sentence based upon how well the ending describes the way that s/he learned (D. A. Kolb, 2007). The rankings, ranging from four for the ending that described it best to one for the ending that seemed to describe it least, are coded into the four different processes. The scores are then transferred to a grid and the four plot points are connected to create a four-sided kite-shaped pattern that then corresponds with a particular style (D. A. Kolb, 2007).

Nine learning styles have been identified based upon preferences that learners have for the four learning modes (A. Y. Kolb & Kolb, 2005b, 2008). The original four processes (see Figure 1) appear at the ends of the two intersecting modes: Experiencing or Feeling (CE), Reflecting (RO), Thinking (AC), and Acting (AE). The next four styles emphasize two learning modes: Creating (CE and RO), Analyzing (AC and RO), Deciding (AC and AE), and Initiating (CE and AE). The final style is Balancing, which balances all four modes in the learning cycle. It should be noted that in the following explication the terms experiencing and feeling can be used interchangeably to refer to the CE mode.

“Learners with an *Experiencing* style emphasize feeling (CE) while balancing acting (AE) and reflecting (RO)” (A. Y. Kolb & Kolb, 2008, p. 20). Adult learners who prefer this style are adept at being very involved in concrete experiences while being

comfortable with both external action and inner reflection. They learn best through hands-on activities and by observing the world around them, although groups, role-playing, brainstorming, and fieldwork may be effective as well (A. Y. Kolb & Kolb, 2008).

“Learners with a *Reflecting* style emphasize reflection (RO) while balancing feeling (CE) and thinking (AC)” (A. Y. Kolb & Kolb, 2008, p. 20). Adult learners who prefer this style tend to excel at deep reflection and are able to also balance feeling and thinking. They learn best through activities that include discussions, interactions and reading (A. Y. Kolb & Kolb, 2008).

“Learners with a *Thinking* style emphasize thinking (AC) while balancing reflecting (RO) and acting (AE)” (A. Y. Kolb & Kolb, 2008, p. 20). Adult learners who prefer this style are deep thinkers who are also able to develop ideas and evaluate them in the outer world of action. They learn best “in a well-structured learning environment in which they can design or conduct scientific experiments or manipulate data” (A. Y. Kolb & Kolb, 2008, p. 20).

“Learners with an *Acting* style emphasize acting (AE) while balancing feeling (CE) and thinking (AC)” (A. Y. Kolb & Kolb, 2008, p. 20). Adult learners who prefer this style are able to use technical analysis to find solutions to concrete problems while paying attention to the needs of others. They learn best through hands-on experiences and real-life projects (A. Y. Kolb & Kolb, 2008).

“Learners with a *Creating* style learn primarily through feeling (CE) and reflecting (RO)” (A. Y. Kolb & Kolb, 2008, p. 21). Adult learners who prefer this style tend to observe as opposed to taking action. They learn best through brainstorming and

gathering information, and “like to receive personalized attention and feedback” (Boyatzis & Kolb, 1991, p. 21).

“Learners with an *Analyzing* style learn primarily through thinking (AC) and reflecting (RO)” (A. Y. Kolb & Kolb, 2008, p. 21). Adult learners who prefer this style are most interested in ideas and concepts as opposed to people and logic. They may learn best while working alone, and are likely to prefer lectures, readings, and exploring theoretical models with time for reflection (A. Y. Kolb & Kolb, 2008).

“Learners with a *Deciding* style emphasize thinking (AC) and acting (AE) in learning situations” (A. Y. Kolb & Kolb, 2008, p. 21). Adult learners who prefer this style enjoy solving problems and making decisions based upon logical solutions. They may learn best with practical applications and “may prefer to experiment with ideas and engage in simulations” (A. Y. Kolb & Kolb, 2008, p. 21).

“Learners with an *Initiating* style learn primarily through acting (AE) and feeling (CE)” (A. Y. Kolb & Kolb, 2008, p. 21). Adult learners who prefer this style can learn from both ambiguous and “hand-on” experiences. They may learn best working with others as they tend to place a greater emphasis on people than on their own thinking or reflection (A. Y. Kolb & Kolb, 2008).

“Learners with a *Balancing* style balance the extremes of the dialectics of action-reflection and concrete-abstract by finding a middle ground between them” (A. Y. Kolb & Kolb, 2008, p. 22). Adult learners who prefer this style are readily able to adapt to the learning task or experience. Some research has indicated that adult learners may also learn from a right- or left-brain approach (McCarthy, 1986). Kolb’s Balancing style may be a balance of those types of learning as well.

Kolb's Learning Styles Instrument identifies nine learning styles that adults use during the process of learning from experience. It provides an additional way to look at the adult learners participating in this study that is different from Yang's POINTS instrument.

***KLSI Reliability and Validity.*** Reliability for the Kolb Learning Style Inventory (KLSI version 3.1) has been tested using Cronbach's alpha and test-retest reliability studies (A. Y. Kolb & Kolb, 2005a). The norm subsample of on-line users of the KLSI (n=5,023) yielded the following reliability measures: Experiencing (alpha=.77), Reflecting (alpha=.81), Thinking (alpha=.84), Acting (alpha=.80) (A. Y. Kolb & Kolb, 2005a). Keeping in mind that an alpha greater than .70 is considered reliable, the KLSI can be considered to be reliable as of its 2005 iteration.

Kolb's Learning Styles Inventory has had validity research, including correlation and factor analysis studies, completed on the instrument since 1971 (A. Y. Kolb & Kolb, 2005a). A meta-analysis of 101 quantitative studies culled from 275 dissertations and 624 articles found 49 studies showing strong support for the KLSI, 40 showing mixed support, and 12 showing no support (Iliff, 1994). Correlations were generally classified as low (<.5), and effect sizes ranged from weak (.2) to medium (.5) for the KLSI scales, and Iliff suggests that "the magnitude of these statistics is not sufficient to meet standards of predictive validity" (A. Y. Kolb & Kolb, 2005a, p. 20). It should be noted that the KLSI is not intended to be a predictive instrument, but rather a self-assessment tool that has been widely used (A. Y. Kolb & Kolb, 2005a). While the reliability of the KLSI instrument will be reported in chapter four, validity was not tested for this study as no

changes have been made to the items comprising the instrument and validity measures for version 4.0 were not yet available.

The third instrument utilized in this study was the summary of scores derived from completion of one or more of the virtual leadership simulation (vLeader) modules.

**vLeader Virtual Leadership Simulation.** Simulearn, Incorporated's vLeader virtual leadership simulation is a prime example of an answer to the call for advances in new methodologies for adult education issued by Martin & Ernst (2005). Adult learners benefit from experiential learning, and online learning is increasingly explored as a delivery method (Merriam et al., 2007). Virtual leadership simulations capitalize upon adult education best practices such as self-directed learning by allowing adult learners the opportunity to learn at any time and in any location (provided they have the needed hardware and software). The vLeader software allows adult learners the opportunity to test out new approaches and practice them repeatedly in a low-risk virtual environment. It is for this reason that the company refers to vLeader not as software, but as "practiceware."

Simulearn's vLeader virtual leadership simulation places learners in simulated meetings as virtual participants with simulated relationships to the others present in the meetings along with task goals to complete. In the first stage of the simulation, the player is the supervisor to the only other participant in the meeting. As the stages progress, additional characters are added to the meetings and the roles and interplays become increasingly complex as the user must navigate relationships with peers, supervisors, and others with varying degrees of power. Cervero and Wilson (1994) note that "planners always *negotiate with* their own specific interests and power and *negotiate between* the

interests of other people in any planning process” (p. 256). Extending the same logic to adult learners participating in a simulation of a meeting similar to program planning, the adult learners must negotiate both with their own interests and power and the interests of other characters in the simulation. The overarching goal of the simulation’s leadership score is to successfully balance the key aspects of power, tension, and ideas.

The first aspect of vLeader, power, is directly connected with the ability to get ideas accomplished through influence within the simulation. Power can be defined simply as the “socially structured capacity to act” (Cervero & Wilson, 1994, p. 254). Forester (1989) notes, “information is a complex source of power” (p. 28) and vLeader simulates that complexity. In any situation that takes place within an organizational context, power relations impact what happens (Cervero & Wilson, 1994). Power within the vLeader simulation is measured by three components. The first component of power within the simulation is formal authority which is the power that exists through titles. In various modules the adult learner is in a supervisory role, with the power that comes simply from being the boss of someone. The second component of power within the simulation is informal authority which emerges from trust or friendship and is unrelated to a formal title, but critical nonetheless. The third component of power within the simulation is political influence which is earned “from coming up with good ideas or being on the winning side of arguments” (Aldrich, 2003a, p. 35). In addition to gaining and sharing power through those three components, adult learners utilizing vLeader need to maintain proper tension within the simulation.

The second aspect of vLeader, tension, is measured by maintaining the proper balance between relaxed and tense. According to Aldrich (2003), some people are most

creative when they are relaxed, and others are most creative when they are tense. Within the simulation, adult learners practice raising and lowering the tension of the simulated meetings and individual participants. In short, “when people are too relaxed, they’re hard to motivate; when they’re too tense, they tend to focus more on themselves than the task at hand” (Aldrich, 2003a, p. 35). In addition to moderating tension, adult learners must complete the right work or ideas to be successful within the leadership simulation.

Ideas are the third aspect of vLeader. Successful leaders need to not only complete tasks, but they must be the right tasks. Within the simulation, adult learners must uncover hidden agendas, listen, and moderate tension to complete each module with the commitment of participants to critical ideas and tasks. Adult learners must overcome common mistakes in negotiation (Bazerman & Moore, 2009) to have the right tasks completed. It is the balance of tension and power, through effective communication and conflict management that allows ideas to flow successfully.

The number and type of ideas successfully negotiated in the virtual meetings as well as the power and influence exhibited determine scores. The concept of tension represents the interplay between supporting others and challenging them to successfully complete agenda items. The simulation produces a leadership score, which is a combination of the scores for power, tension, and ideas; a business score, which is the combination of the scores for financial, customer satisfaction, and employee morale; and an overall scores which combines the leadership and business scores. Because vLeader is a proprietary simulation, the exact algorithms for the score calculations are unavailable. The reliability for vLeader has not been tested, which is one of the reasons for the use of the POINTS Instrument.

Boyatzis and Kolb (1995) note that skills are developed by practice. “The integrated transaction between a personal skill routine and its domain of application is thus developed iteratively by learning from experience” (Boyatzis & Kolb, 1995, p. 5). One of the key strengths of a virtual simulation is that it affords the learner the freedom to repeatedly practice a negotiation scenario. The learner can choose differing approaches to the scenario presented to practice specific tactics. For example, an early module simulates a meeting between the learner who is a new supervisor to the character in the simulation, and her/his new supervisee. In interacting with the character (in this case, Oli), the user can choose to be very directive with Oli by rapidly clicking on task and feedback bars in such a way that Oli is not able to do much more than respond as opposed to asking questions and introducing his own ideas about items to be completed. Combinations of behaviors have implications, and this combination of behaviors is not likely to build employee trust or rapport. After the module is complete, the learner can replay it, trying a different approach to test it out and see how the virtual employee responds to different behaviors.

### **Data Collection**

Data were collected over a period of eleven months. Participants completed both the POINTS and KLSI instruments electronically. For this study, the two instruments were combined into a single electronic pre-simulation questionnaire. Simulation scores were uploaded automatically by the vLeader software and were then collected from a password-protected site created by Simulearn. Two weeks (approximately) following participation in the simulation, the POINTS instrument was delivered by itself as a post-

simulation online questionnaire. At the conclusion of data collection all four instruments were combined into a single spreadsheet.

The pre-simulation questionnaire, consisting of two instruments, raised two important questions regarding order and combined length. While having questions for one instrument immediately prior to the other may have an impact in how individuals respond, a single questionnaire was believed to be more likely to be completed as opposed to multiple questionnaires. The combined length raised some concern regarding response fatigue and completion rates. The pre-simulation questionnaire took 384 survey takers an average of 14 minutes and 34 seconds to complete.

Researchers have examined the impact of fatigue and its impact upon getting work done, including the work of completing assessments or questionnaires (Ackerman & Kanfer, 2009; Cunningham, Sepkoski, & Opel, 1978; Myers, 1937; Uttl, Graf, & Cosentino, 2000). However, Ackerman and Kanfer (2009) found that differences in personality and motivation had a greater impact than test length for predicting participant fatigue. Additionally, experimental studies have found that “subjective fatigue increases with time-on-task when there are no opportunities for breaks or off-task activities” (Ackerman & Kanfer, 2009, p. 166). The online nature of the instrument used in this study would theoretically allow participants to take breaks or complete off-task activities at will. Also, contrary to popular belief, adult learners, specifically older adult learners, are no more susceptible to fatigue than any other learner, so age is not expected to be a factor impacting completion rates (Cunningham et al., 1978; Uttl et al., 2000). The number of items utilized for this research was kept low to minimize the potential for test fatigue. Because the combined length of the instrument is less than 60 items (including

demographic items), test fatigue was not anticipated to be an issue in responses or completion rates.

The human subjects involved with this study incurred little risk in participating. The Institutional Review Board (IRB) reviewed and approved the instruments and methodology before any participants were asked to complete the voluntary instruments.

Data for this study was collected over the course of eleven months from a sample derived of undergraduate and graduate students from four different universities in Kentucky, Maryland, and Ohio who utilized the vLeader virtual leadership simulation as a component of their coursework. Participants in Kentucky and Maryland were sent an email detailing the study and including a link to a website allowing them to complete a combined electronic version of the POINTS and KLSI. Two websites, surveymonkey.com and surveymethods.com, were examined as potential hosts for the study. Surveymethods.com was selected due to the superior package attributes afforded to the professional user. A unique identifier was assigned to each participant to enable POINTS and KLSI scores to be matched with vLeader scores. Participation has been kept confidential and participants were apprised of their rights as research participants in accordance with human research protocol as monitored through the university's Institutional Review Board (IRB). Responses have been stored on password-protected computers until the dissertation has been approved, at which point any potentially identifiable information will be deleted. All data received from the POINTS, Kolb, and vLeader instruments will be stored in an Excel spreadsheet and in a SPSS data set. The data will be stored on the same password-protected computer and will be destroyed five years after the completion of this study.

## **Missing Data**

Once the data from the four instruments was downloaded into a single spreadsheet, a number of decisions were made regarding data. These will be discussed by instrument.

The first instrument, the pre-simulation POINTS (Yang, 1996) served as the anchor as it had the greatest number of raw respondents (n=384). Duplicates appeared as 1) some participants began the survey and had technical problems that did not allow them to complete their first attempt and 2) some participants had completed the survey for two different classes. Partial responses (more than one or two missing items) were deleted. For multiple responses the first complete response was used. This approach yielded a final usable sample of 349 (n=349).

The second instrument was the Kolb Learning Style Inventory (KLSI) (A. Y. Kolb & Kolb, 2008). For this instrument, duplicates were also removed and the first complete response was used. Many respondents did not complete the KLSI as intended, and provided ratings instead of rankings. This different approach meant that for each set of four items, instead of having one '1', one '2', one '3', and one '4'; some respondents had multiple ratings leading to three '3's and one '4' for example. If completed correctly, the total for the instrument should add up to 120. If the respondent's total was under 120, it was scanned for missing data. If there was only one missing number in a set of four (i.e. if there was a 4, 3, and 1 then the missing number would logically be a 2), the missing number was entered. If two numbers were missing in a set of four the response was considered incomplete and unusable. This adjustment yielded a final correctly completed total of 177 responses (n=177).

The third instrument was the scores from the vLeader virtual leadership simulation. Scores were downloaded from Simulearn and the scores were combined into a single spreadsheet. Scores generated by the researcher and technical support staff to test the software were eliminated. This deletion resulted in a total of 319 unique email addresses (n=319). Simulearn provided a separate set of data for each simulation “play.” The 2,965 rows of data were filtered by email address and average scores were generated for each participant. The decision was made to use both Learning the Principles and Applying the Principles simulation plays and to use both Practice and Advance sessions to maximize the number of simulation plays included for each participant. A variable was created for “numbers of play” as it was expected that fifty simulation plays might have a different impact than three simulation plays. When the plays were condensed, the variable of date was expanded to two variables – first date played and last date played. Several participants had dates of 1/0/00. For these cases the date that they completed the pre-simulation instruments was used. If there was only a single date the same date was used for first and last date played. For the purposes of this study, four vLeader scores were examined: Power, Ideas, Leadership, and the Overall score. Since this dissertation is exploring the topic of leadership, the Leadership and Overall scores were deemed to be appropriate scores to examine further. The Ideas and Power scores were deemed appropriate scores to examine as both concepts are factors in conflict management.

The fourth instrument was the POINTS instrument completed two weeks following the simulation. In addition to the date recorded by the survey software, new variables of time elapsed since first and last simulation play were created. To maximize

the number usable responses, three respondents were entered by hand as they were submitted past the original deadline for data collection.

## **Sample**

Participants were undergraduate and graduate students utilizing the vLeader simulation to gain insights into the use of virtual simulations in adult education, human resources training, or general leadership development. At this time Simulearn is the only producer of a virtual leadership training simulation that places the adult learner in an interactive, experiential virtual environment that is designed specifically to work with learners around the issues of power, tension, and ideas through negotiation and conflict management. Participants were users recruited by both Simulearn staff and the principal investigator. To increase the sample size emails were sent out to 4,902 leadership educators and trainers on the Simulearn mailing list. Nearly 1,400 emails were opened and nearly 300 readers clicked on the link for the YouTube overview video. Of the dozens of recipients who replied, most were not currently using Simulearn or had plans to use it outside of the time period for this study. While Simulearn was able to connect the principal investigator to two instructors using the simulation, the most effective method for gaining participation was through face-to-face meetings with faculty members. The principal investigator also worked with staff of an education-based leadership program and a civic leadership education program to recruit participants through electronic solicitation and an in-person presentation; neither of those efforts yielded participants for the study. Ultimately students from 16 different courses participated. More details concerning sample demographics follow a brief description of the pilot study and discussion of sample size.

**Pilot Study.** A pilot study was conducted with a 20-person sample of individuals to test the data linkage and electronic instrument technology. The pilot occurred in spring 2011 utilizing a graduate course at an institution of higher education located in the northeastern United States. Of the 20 students in the course, six accessed the pre-test instrument and four completed the pre-test instrument. No students completed the post-test instrument. The following decisions were made following the pilot study: First, since the SurveyMethods.com website was effective, and survey responses downloaded to SPSS easily, it was determined suitable for the study itself. Second, the low response rate led to the creation of survey protocol with tighter communication touch points and an in-person course presentation to maximize future response rates. Furthermore, permission was sought and granted from the institutional review board to include a drawing for a monetary incentive (gift cards) for participants. Instrument reliability was not tested due to the very low response rate for the pilot study. Finally, following the researcher's participation in a workshop presented by Alice and David Kolb, it was determined that the POINTS instrument would remain positioned before the KLSI instrument in the pre-simulation survey. The POINTS instrument specifically asks respondents to think of a particular situation before responding to the questions, and it is helpful to have a single situation in mind when completing the KLSI as well.

**Sample Size.** When it comes to sample size for this type of study, the general rule is always "bigger is better" (Cohen, 1988; Gravetter & Wallnau, 2011; Leedy & Ormrod, 2010). At the time of the prospectus defense, an ideal/goal sample size of 255 was utilized. This number was derived utilizing a formula of 39 POINTS items + 12 KLSI items multiplied by five = 255. According to multiple researchers (Harroff, 2002;

Messemer, 2006; Perdue, 1999; Reardon, 2004), it is common procedure to require a minimum sample size that equals five times the number of scale items on the survey instrument. A keen-eyed prospectus reader asked for a citation for this formula that did not derive from an unpublished dissertation. The author of the current study discovered that this convention for sample size appears to have been established by a senior colleague (possibly the dissertation methodologist) for the cited studies. It is not uncommon for this type of convention to exist (Lenth, 2001). However, it also does not necessarily fully address the question of sample size.

So if “bigger is better,” what is the appropriate sample size for this study? Little has been published on the topic of sample size determination (Lenth, 2001). The desired number varies, depending upon which researcher or statistician is consulted, and no one formula exists (Vogt, 2007). While a minimum of 100 is considered essential for descriptive studies, and a sample of 50 necessary for correlational studies (Fraenkel & Wallen, 2009), a larger sample will strengthen a study. Vogt (2007) shares several formulas. The first, for multiple regression, for overall prediction equation ( $R^2$ ): desired sample size ( $n$ ) = 50 + (8 x number of variables) (Vogt, 2007). The second formula for estimating individual variables while controlling for others: desired  $n = 104 + 1$  for each additional variable (Vogt, 2007). One recommendation is to use both of the previous formulas and choose whichever yields the higher number (Tabachnick & Fidell, 2010). Utilizing that recommendation, Table 1 (see below) indicates ideal sample sizes for this study based upon each research question.

Lenth (2001) notes that “not all sample size problems are the same, nor is sample size equally important in all studies” (p. 190). The author of this study concurs with the

viewpoint that contends that “sample size should be viewed not as a unique right number, but rather as a factor needed to assess the utility of a study” (Parker & Berman, 2003, p. 166). In Table 1, A represents the pre-simulation survey POINTS instrument, B is the KLSI instrument, C is the simulation, and D is the post-simulation survey consisting solely of the POINTS instrument. To answer the research questions for this study the POINTS instrument yielded eight variables, the KLSI yielded nine variables, and the simulation yielded four variables.

Table 1

*Desired Sample Sizes*

Research Question	Desired n
1. To what extent do conflict management tactics used in negotiation predict the adult learners’ virtual leadership simulation scores? A+C	138
2. To what extent does completion of a virtual leadership simulation change adult learners’ conflict management tactics? A+D	162
3. To what extent do learning styles predict the adult learners’ conflict management tactics? A+B	178
4. To what extent do learning styles predict the adult learners’ virtual leadership simulation scores? B+C	154

The final sample consisted of 349 individuals (n=349) who completed the pre-simulation POINTS instrument; 349 individuals who completed the KLSI instrument; 302 individuals who completed between one to five modules of the vLeader virtual simulation; and 197 individuals who completed the post-simulation POINTS instrument. The sample reached the desired number of participants for all four research questions.

**Demographics.** Participants in this study were undergraduate and graduate students (99% or n=345) attending four different United States institutions of higher

education (two public, two private) in Kentucky (n=25), Maryland (n=6), and Ohio (n=292) who utilized the vLeader virtual leadership simulation as a component of their coursework. Participants also identified as being in seven other states (n=7) or did not indicate a state affiliation (n=19). Two institutions were referred by Simulearn, and two were secured by the researcher. Participants came from 16 different courses in subjects including management, human relations, and adult learning and development. Nine courses were graduate level and seven were undergraduate level. Participation rates were highest in courses that offered points for completing the two questionnaires and the vLeader simulation. Of the student participants, 61% were undergraduates (n=214) and 36% were graduate students (n=124).

Within the sample, 40% of participants identified as female (n=141), 58% identified as male (n=201), 0% (n=0) identified as transgender, and 2% (n=7) chose not to identify their gender/gender identity. The ages of participants ranged from 19 to 64 with an average age of 28.62 and a median age of 24.5. In terms of race/ethnicity, 21% of participants identified as African-American or Black (n=72), 60% identified as Caucasian or White (n=211), 7% as Asian (n=25), 3% as Hispanic (n=10), 1% as Middle Eastern (n=4), 4% identified differently (n=14) and 4% declined to respond (n=13). In terms of work experience, participants reported an average of 6.5 years of working as a professional (median response = 3 years) with a range of zero to 41 years.

### **Reliability and Validity**

Multiple empirical measures were conducted to establish reliability and validity. “*Reliability* concerns the extent to which an experiment, test, or any measuring procedure yields the same results on repeated trials” (Carmines & Zeller, 1979, p. 11). Since the

POINTS instrument was modified to reflect a contextual change (from program planning to leadership) and multiple potential influences (as opposed to one other person), the reliability was tested. To test the reliability of the instruments (to determine consistency of scores based upon repeated completion by the same individual), an alpha coefficient (Cronbach’s alpha) was calculated (Carmines & Zeller, 1979; Cronbach, 1951; Fraenkel & Wallen, 2009; Spector, 1992) and a standard rating of .7 or greater was used to indicate reliability.

In their 2001 study, Yang and Cervero reported the following reliability measures: “Reasoning (with 5 items and alpha=0.73), Consulting (4 items and alpha=0.82), Appealing (5 items and alpha=0.73), Networking (4 items and alpha=0.74, Bargaining (4 items and alpha=0.78), Pressuring (5 items and alpha=0.63), and Counteracting (4 items and alpha=0.68) (Yang & Cervero, 2001, p. 291).” (See Table 2).

Table 2

*Table of Alpha Coefficients for POINTS Instrument*

<b>Conflict Management Tactic</b>	<b>Yang &amp; Cervero (2001)</b>	<b>Pre-simulation POINTS</b>	<b>Post-simulation POINTS</b>
Reasoning	0.73	0.79	0.79
Consulting	0.82	0.73	0.79
Appealing	0.73	0.65	0.77
Networking	0.74	0.64	0.70
Bargaining	0.78	0.78	0.84
Pressuring	0.63	0.69	0.73
Counteracting	0.68	0.62	0.79

The revised version of the POINTS instrument used in this study broadened the focus from program planning to any situation involving another person since leadership can occur during, but goes beyond, program planning. For that reason, reliability was reviewed for the revised POINTS instrument. For the first POINTS measure, Conflict of Interests, reliability was low ( $\alpha=.40$ ) with the original five items included so the decision was made to remove the third item “You and the others involved had no conflicting interests” to increase the reliability for this measure ( $\alpha=.69$ ). The second measure was Power Base which was comprised of three items and had a reliability of  $\alpha=.73$ . This measure’s reliability could have been increased slightly ( $\alpha=.78$ ) if item number six “the others involved could offer rewards to you if you cooperated with them” was removed, but since that would have left the measure with only two items the decision was made to keep all three items as reliability met the generally agreed upon standard and reducing to fewer items was not desirable (Gliem & Gliem, 2003).

The POINTS instrument is comprised of seven conflict management tactics. The internal reliability for the tactics in the pre-simulation POINTS instrument was as follows: Reasoning (5 items and  $\alpha=.79$ ), Consulting (4 items and  $\alpha=.73$ ), Appealing (5 items and  $\alpha=.65$ ), Networking (4 items and  $\alpha=.64$ ), Bargaining (4 items and  $\alpha=.78$ ), Pressuring (5 items and  $\alpha=.69$ ), and Counteracting (4 items and  $\alpha=.62$ ). The range of reliability is similar to that found by Yang and Cervero (2001); the alpha coefficients for that study ranged from .63 to .82 (see Table 2 above).

The POINTS instrument was completed both prior to the simulation ( $n=349$ ) and after the simulation ( $n=198$ ). Alpha coefficients for the measures and tactics for the post-simulation iteration of POINTS are as follows: Conflict of Interests (5 items and  $\alpha=.49$ ),

Power Base (3 items and  $\alpha=.78$ ), Reasoning (5 items and  $\alpha=.79$ ), Consulting (4 items and  $\alpha=.79$ ), Appealing (5 items and  $\alpha=.77$ ). Networking (4 items and  $\alpha=.70$ ), Bargaining (4 items and  $\alpha=.84$ ), Pressuring (5 items and  $\alpha=.73$ ), and Counteracting (4 items and  $\alpha=.79$ ) (see Table 2 above). Because the reliability for Conflict of Interests was low, again the third item was removed for an increased reliability of (4 items and  $\alpha=.72$ ).

For the Kolb Learning Style Inventory, formulas provided by the Hay Group and researcher A. Kolb were used to calculate both for four learning styles (akin to version 3.1) and for nine styles (akin to version 4.0) Formulas were cross-checked with a fellow doctoral colleague using the same instrument and formulas to make certain that conversions from four learning styles to nine was consistent.

Although the reliability of the KLSI did not need to be retested, it was examined due to the fact that the virtual setting of the vLeader is believed to be a unique environment compared to previous reliability research with that instrument. Cronbach's alpha was again used (Carmines & Zeller, 1979; Cronbach, 1951; Fraenkel & Wallen, 2009; Spector, 1992) and a standard rating of .7 or greater was used to indicate reliability. Previously, reliability for the Kolb Learning Style Inventory (KLSI version 3.1) had been tested using Cronbach's alpha and test-retest reliability studies (A. Y. Kolb & Kolb, 2005a). As previously mentioned, the norm subsample of on-line users of the KLSI ( $n=5,023$ ) yielded the following reliability measures: Experiencing ( $\alpha=.77$ ), Reflecting ( $\alpha=.81$ ), Thinking ( $\alpha=.84$ ), Acting ( $\alpha=.80$ ) (A. Y. Kolb & Kolb, 2005a). Keeping in mind that an alpha greater than .70 is considered reliable, the KLSI can be considered to be reliable as of its 2005 iteration. Reliability for the latest version (4.0) was still being studied at the time of this research and is therefore not reported. It

was determined to be unwise to attempt to run validity testing since it has not yet been reported by the creators of the instrument for the revised version.

For this study, the four phases or modes of experiential learning were examined using Cronbach's Alpha. These were chosen as they are the stem of both the four learning style (version 3.1) and nine learning style (version 4.0) models. This analysis resulted in the following reliability coefficients, each from 12 items: CE ( $\alpha=.80$ ), RO ( $\alpha=.82$ ), AC ( $\alpha=.86$ ), and AE ( $\alpha=.84$ ). Using the generally accepted standard of reliability ( $\alpha=.70$ ), the stem scales of the KLSI can be considered reliable.

The vLeader virtual simulation was not tested for reliability due to the fact that the scoring algorithms were not available for the proprietary simulation used for this study. The next section will explore the data analysis procedures used for this study.

### **Data Analysis**

Data were gathered via [surveymethods.com](http://surveymethods.com) and Simulearn. Data were downloaded from the internet sites in February 2012 and combined into a single Microsoft Excel workbook. The pre-simulation questionnaire was selected as the starting point as it had the largest raw response rate ( $n=384$ ). Partial questionnaires were examined to determine usability and duplicates removed which yielded a final sample size of  $n=349$ . The researcher converted data from the three instruments using Microsoft Excel and conducted the data analysis using PASW (SPSS) Statistics 18 release 18.0.0 statistical software package. Data were then analyzed to determine the relationship between the learning styles of the participants, preferred conflict-management approach, and virtual leadership simulation results. The statistical analysis for this study sought to

address the four research questions stated at the beginning of this chapter. An explication of data analysis for each of the four research questions follows.

**First Research Question.** The first research question “To what extent did conflict management tactics based on the POINTS instrument predict the adult learners’ virtual leadership simulation scores?” was addressed through three main procedures. First, a new variable was created for each of the seven conflict management tactics from the POINTS instrument utilizing the mean score. The mean score (or average) is derived by totaling the scores for each item and dividing by the total number of scores for that variable (Fraenkel & Wallen, 2009). As an example, the first construct, Reasoning, became a variable by adding up the scores for instrument items 11, 18, 24, 30, and 33 and dividing the total by five. This process was repeated for each of the seven tactics. Second, because both instruments (POINTS and vLeader) have continuous variables, the Pearson Correlation Coefficient was used to compare the mean scores of the POINTS instrument with select vLeader scores (Gall, Gall, & Borg, 2009).

The Pearson Correlation Coefficient  $r$  measures the strength of the linear relationship between the *numerical values* of the variables and is completely independent of what these numerical values represent in a particular situation. The Pearson Correlation Coefficient  $r$  can therefore be computed for variables on any level of measurement. (Weinberg & Goldberg, 1990, p. 122)

Since the  $r$  value does not determine the level of power within the relationship between variables,  $r^2$  was used to explain the percentage of the relationship that is accounted for in each pairing (POINTS Reasoning with vLeader Power, etc.).

**Second Research Question.** The second research question “To what extent did completion of a virtual leadership simulation change adult learners’ conflict management tactics?” examined pre-simulation and post-simulation responses. First, a new variable was created for each of the seven conflict management tactics from the POINTS instrument utilizing the mean score. The mean score was again calculated by adding the scores from the items for each variable and dividing the sum by the number of items. This calculation was done for the pre-simulation responses and again for the post-simulation responses. Second, a paired t-test was computed to compare the differences in mean scores for pre- and post-simulation responses. The t-test is used by researchers to analyze two-groups, or as in this case, two sets of scores (Fraenkel & Wallen, 2009; Gall et al., 2009; Keppel & Wickens, 2004). The one-tailed t-test was used to determine whether the two distributions differed from each other significantly (Vogt, 2007). The standard benchmark for statistical significance ( $<.05$ ) was used (Fraenkel & Wallen, 2009; Keppel & Wickens, 2004; Weinberg & Goldberg, 1990).

**Third Research Question.** The third research question “To what extent did learning styles predict the adult learners’ conflict management tactics?” examined scores from the Kolb Learning Styles Inventory as compared with the POINTS instrument. The KLSI instrument is comprised of twelve statements, which are ranked from one to four, across the four dimensions that are then totaled (D. A. Kolb, 2007). The KLSI variables were compared to the seven POINTS variables using the Pearson Correlation Coefficient as both instruments have continuous variables. As in research question one the  $r^2$  was used to explain the percentage that is explained with each pairing. The learning styles

were placed in rank order according to the influence each has upon the POINTS conflict management tactics.

**Fourth Research Question.** The fourth research question “To what extent did learning styles predict the adult learners’ virtual leadership simulation scores?” examined the KLSI scores utilized for research question three as compared to the vLeader scores. The Pearson Correlation Coefficient was again used as both instruments have continuous variables. As in research question one, the  $r^2$  was used to explain the percentage that is explained with each pairing. The learning styles were placed in rank order according to the influence each had upon the various vLeader virtual leadership simulation scores.

### **Summary**

Prior research did not adequately answer the question of how best to measure leadership development, especially in the realm of new technologies such as virtual leadership simulations. This chapter provided an overview of the research methodology used in this study. A conceptual framework was shared and the three instruments that were used were discussed. Also, the sample, data collection, and analysis methodologies were presented. The next chapter will discuss the findings associated with this research.

## **CHAPTER IV**

### **FINDINGS**

The purpose of this study was to explore the impact of conflict management tactics as well as learning styles on the efficacy of virtual leadership development training. This chapter will report the findings of the study, presenting data and statistics with respect to the four research questions:

1. To what extent did conflict management tactics based on the POINTS instrument predict the adult learners' virtual leadership simulation scores?
2. To what extent did completion of a virtual leadership simulation change adult learners' conflict management tactics?
3. To what extent did learning styles predict the adult learners' conflict management tactics?
4. To what extent did learning styles predict the adult learners' virtual leadership simulation scores?

Initially for this study, no hypotheses were developed for the research questions in alignment with emerging trends in the field of adult learning and development. Multiple researchers are eschewing hypotheses, as they are believed to skew research towards the stated hypothesis (personal communication, J. Messemer and T. Valentine, 2012). For clarity and flow within the final two chapters of this study, hypotheses have been developed primarily from the literature and are presented with each area of inquiry.

**Research Question 1: Conflict management tactics and the prediction of virtual leadership simulation scores.**

The first research question used the pre-simulation POINTS instrument paired with the virtual leadership simulation scores. For this question the idealized sample size was 194 participants and the final sample was n=301. For further information on sample size please refer to Table 1 in Chapter 3. The seven pre-simulation conflict management tactics, measured on a six-point scale of 6 (very effective) to 1 (very ineffective), had a total mean score that ranged between 4.57 and 2.10, with Reasoning showing the highest mean score and Counteracting showing the lowest mean score. This information will be presented and discussed in more detail in Table 18 which will appear later in this chapter. The Pearson Coefficient was used to correlate the mean scores of the POINTS instrument with the vLeader scores to measure the strength of the linear relationship (Vogt, 2007; Weinberg & Goldberg, 1990) (see Table 3 below).

Prior research has not examined the relationship between conflict management styles or tactics and scores within a virtual simulation. At the beginning of this study, it was anticipated that participants with preferences for Reasoning or Pressuring conflict management tactics might find it easier to navigate a logic-based experiential learning mode such as a virtual simulation and therefore receive higher Leadership and Overall scores. This study actually found that all of the conflict management tactics affected various scores for the virtual simulation. Because of the large number of statistically pairings in the data generated for this first area of inquiry, the findings regarding conflict management tactics as matched with virtual simulation scores will be discussed in extensive detail over the next nineteen sections of this chapter.

*Conflict management tactics and the prediction of virtual leadership simulation*

*Power scores.*

Between the conflict management tactic of Reasoning and the simulation measure of Power the correlation was statistically significant at a very high rate  $r(301) = .22, p < .01, r^2 = .05$  (see Table 3 below). Between the conflict management tactic of Consulting and the simulation measure of Power the correlation was also statistically significant at a very high rate  $r(293) = .19, p < .01, r^2 = .04$ . The conflict management tactic of Networking was also statistically significant at a very high rate with the simulation measure of Power  $r(292) = .14, p < .01, r^2 = .02$ . The last statistically significant correlation, also with a high rate of significance, for the simulation measure of Power was with the conflict management tactic Appealing  $r(294) = .12, p < .05, r^2 = .01$ . These four conflict management tactics had strong positive correlations to the Power measure in the vLeader simulation, accounting for 12 percent of the predicted value for the vLeader Power construct.

*Conflict management tactics and the prediction of virtual leadership simulation*

*Ideas scores.* The vLeader measure of Ideas also had several significant correlations with several conflict management tactics. The findings suggest that there is a statistically significant negative correlation between the conflict management tactic of Bargaining and the simulation measure of Ideas  $r(297) = -.11, p < .05, r^2 = .01$  (see Table 3). The findings suggest that there is a statistically significant negative correlation between the conflict management tactic of Pressuring and the simulation measure of Ideas at a high level  $r(295) = -.11, p < .05, r^2 = .01$ . Finally, the findings suggest that there is a statistically significant negative correlation between the conflict management tactic of Counteracting

and the simulation measure of Ideas  $r(298) = -.11, p < .05, r^2 = .01$ . However, the significant correlation between these three conflict management tactics and Ideas, accounts for only three percent of the predicted value of Ideas. These three conflict management tactics and their relationship to the simulation score of Ideas will be examined more closely later in this chapter.

*Conflict management tactics and the prediction of virtual leadership simulation Leadership and Overall scores.* A few other correlations of statistical significance should be noted between conflict management tactics and vLeader virtual leadership simulation scores. The correlation between the conflict management tactic of Reasoning and the simulation Leadership Score was statistically significant and was positively correlated  $r(301), = .11, p < .05, r^2 = .01$  (see Table 3). The correlation between Reasoning and the simulation Overall Score was statistically significant and was positively correlated  $r(301), = .13, p < .01, r^2 = .02$ . The correlation between the conflict management tactic of Counteracting and the simulation Overall Score was also statistically significant, but it also showed to be negatively correlated  $r(298), = -.10, p < .05, r^2 = .01$ . While there was statistical significance, these two correlations only measured between 1-2 percent of the predicted value for the vLeader Overall score measurement.

A Pearson correlation was computed between the conflict management tactics of the POINTS instrument and the Power, Idea, Leadership Score and Overall Scores generated through the vLeader virtual leadership simulation for participants who completed both instruments ( $n=301$ ). These findings are shown in Table 3.

Table 3

*Strength of relationship between pre-simulation POINTS conflict management tactics and simulation scores (n=301)*

		<b>Power</b>	<b>Ideas</b>	<b>Leadership Score</b>	<b>Overall Score</b>
<b>Reasoning</b>	Pearson	<b>.220</b>	.037	<b>.108</b>	<b>.133</b>
	Significance	<b>.000**</b>	.262	<b>.030*</b>	<b>.010**</b>
	r <sup>2</sup>	<b>.048</b>	.001	<b>.011</b>	<b>.018</b>
<b>Consulting</b>	Pearson	<b>.194</b>	-.029	.044	.036
	Significance	<b>.000**</b>	.309	.226	.272
	r <sup>2</sup>	<b>.038</b>	.001	.002	.001
<b>Appealing</b>	Pearson	<b>.116</b>	-.024	.035	.046
	Significance	<b>.023*</b>	.343	.272	.217
	r <sup>2</sup>	<b>.013</b>	.001	.001	.002
<b>Networking</b>	Pearson	<b>.137</b>	-.001	.064	-.003
	Significance	<b>.010**</b>	.494	.138	.481
	r <sup>2</sup>	<b>.019</b>	.000	.004	.000
<b>Bargaining</b>	Pearson	-.001	<b>-.108</b>	-.060	-.062
	Significance	.494	<b>.031*</b>	.153	.142
	r <sup>2</sup>	.000	<b>.012</b>	.004	.004
<b>Pressuring</b>	Pearson	.079	<b>-.107</b>	-.047	-.053
	Significance	.089	<b>.033*</b>	.209	.181
	r <sup>2</sup>	.006	<b>.011</b>	.002	.002
<b>Counteracting</b>	Pearson	.010	<b>-.105</b>	-.081	<b>-.101</b>
	Significance	.435	<b>.035*</b>	.082	<b>.041*</b>
	r <sup>2</sup>	.000	<b>.011</b>	.007	<b>.010</b>

\*\* p < 0.01, 1-tailed.

\* p < 0.05, 1-tailed.

### **Descriptive mean scores for simulation scores and conflict management tactics.**

Descriptive mean scores were generated for each of the conflict management tactics that indicated a significant correlation with a simulation score. Since the POINTS instrument used a six-point scale (1=very ineffective to 6=very effective), all variables with a mean greater than 3.50 were considered to be a positive influence. For the simulation score of Power, four statistically significant tactics were closely examined: Reasoning, Consulting, Appealing, and Networking.

*Virtual Simulation Scores and the Conflict Management Tactic Reasoning.* As reflected later in this chapter in Table 18, the overall mean score for the pre-simulation conflict management tactic Reasoning was 4.75. All five items for the Reasoning tactic (items 11, 18, 24, 30, 33) were considered strong positive influences, as the individual items for this tactic ranged between 4.37 and 4.82 (see Table 4).

Table 4

*Rank order of the five-item scale measuring the POINTS Conflict Management Tactic "Reasoning" Means (n=345)*

<b>Item number</b>	<b>How effective would each of the tactics have been in influencing this person/these persons?</b>	<b>Mean</b>
18	Presenting the others with facts, figures and data that support your idea.	4.82*
30	Demonstrating to the others your competence.	4.63*
24	Using logical arguments to convince the others to support your idea.	4.57*
33	Showcasing the relationship between your idea and past practices in your organization.	4.49*
11	Convincing the others that your plan is viable.	4.37*

\* > 3.5, positive influence for six-point scale (1 = very ineffective to 6 = very effective)

Item 18, "presenting the others with facts, figures and data that support your idea," had the highest mean (4.82) and could be considered the strongest positive

influence for the conflict management tactic Reasoning. Item 11, “convincing the others that your plan is viable,” had the lowest mean (4.37), which would nonetheless place it as a strong positive influence for Reasoning.

***Virtual Simulation Scores and the Conflict Management Tactic Consulting.***

The overall mean score for the pre-simulation conflict management tactic Consulting was 4.43 (see Table 18 later in the chapter). All four items for the Consulting tactic (items 9, 15, 20, 27) were considered strong positive influences, as they all ranged between 4.37 and 4.71 (see Table 5). Item 27, “indicating that you are receptive to the others’ input about your idea” had the highest mean (4.71) and could be considered the strongest positive influence for the conflict management tactic Consulting. Item 9, “asking the others for suggestions,” had the lowest mean (4.37), but would also nonetheless be placed as a strong positive influence for Consulting.

Table 5

*Rank order of the four-item scale measuring the POINTS Conflict Management Tactic “Consulting” Means (n=336)*

<b>Item number</b>	<b>How effective would each of the tactics have been in influencing this person/these persons?</b>	<b>Mean</b>
27	Indicating that you are receptive to the others’ input about your idea.	4.71*
20	Indicating your willingness to modify your idea based on input from the others.	4.49*
15	Asking others if they have any special concerns.	4.45*
9	Asking the others for suggestions.	4.37*

\* > 3.5, positive influence for six-point scale (1 = very ineffective to 6 = very effective)

***Virtual Simulation Scores and the Conflict Management Tactic Appealing.*** The overall mean score for the pre-simulation conflict management tactic Appealing was 4.08, which represents a positive influence (see Table 18 later in the chapter). All five

items for the Appealing tactic (items 25, 31, 34, 36, 38) were also considered strong to moderately positive influences, as they ranged between 3.67 and 4.49 (see Table 6). Item 38, “appealing to the others’ values in making a request,” had the highest mean (4.49) and could be considered the strongest positive influence for the conflict management tactic Appealing. Item 25, “saying that the others are the most qualified individuals for a task you want done,” was a slightly less strong influence with a mean of 3.67.

Table 6

*Rank order of the five-item scale measuring the POINTS Conflict Management Tactic “Appealing” Means (n=341)*

<b>Item number</b>	<b>How effective would each of the tactics have been in influencing this person/these persons?</b>	<b>Mean</b>
38	Appealing to the others’ values in making a request.	4.49*
34	Making the others feel good about you before making your request.	4.25*
36	Making the others feel that what you want done is extremely important.	4.11*
31	Waiting until the others are in a receptive mood before making a request.	4.10*
25	Saying that the others are the most qualified individuals for a task you want done.	3.67*

\* > 3.5, positive influence for six-point scale (1 = very ineffective to 6 = very effective)

***Virtual Simulation Scores and the Conflict Management Tactic Networking.***

The overall mean score for the pre-simulation conflict management tactic Networking was 3.97, which represents a positive influence. This information will be presented in more detail in Table 18 which will appear later in this chapter. All four items for conflict management tactic Networking (items 10, 16, 22, 39) were also considered to be positive influences, as they ranged between 3.66 and 4.10 (see Table 7). Item 16, “presenting the others with facts, figures and data that support your idea,” was a strong positive influence

for the conflict management tactic Networking with a mean of 4.10. Item 39, “Asking other people in your organization to persuade the others involved to support your idea,” was only a low positive influence for Networking with a mean of 3.66.

Table 7

*Rank order of the four-item scale measuring the POINTS Conflict Management Tactic “Networking” Means (n=338)*

Item number	How effective would each of the tactics have been in influencing this person/these persons?	Mean
16	Linking what you want the others to do with efforts made by influential people in the organization.	4.10*
22	Obtaining support from other people before making a request of the others directly involved.	4.03*
10	Getting other people to help influence the others.	3.93*
39	Asking other people in your organization to persuade the others involved to support your idea.	3.66*

\* > 3.5, positive influence for six-point scale (1 = very ineffective to 6 = very effective)

*Virtual Simulation Scores and the Conflict Management Tactic Bargaining.* As reflected in Table 18 later in the chapter, the overall mean score for the pre-simulation conflict management tactic Bargaining was 3.37 which is nearly neutral on a six-point Likert scale. Also, since the Bargaining tactic is below the 3.50 level, we are required to consider this conflict management tactic as a negative influence. Bargaining had two items that were considered positive influencers: item 12 “promising to support future efforts by the others in return for their support” had a mean of 3.67 and item 14 “offering to do some work for the others in return for their support” had a mean of 3.55 (see Table 8). Two items were considered negative influencers: item 26 “offering to speak favorably about the others involved to other people in return for their support” had a mean of 3.15

and item 19 “offering to do a personal favor in return for the others’ support” had a mean of 3.02.

Table 8

*Rank order of the four-item scale measuring the POINTS Conflict Management Tactic “Bargaining” Means (n=343)*

<b>Item number</b>	<b>How effective would each of the tactics have been in influencing this person/these persons?</b>	<b>Mean</b>
12	Promising to support future efforts by the others in return for their support.	3.67*
14	Offering to do some work for the others in return for their support.	3.55*
26	Offering to speak favorably about the others involved to other people in return for their support.	3.15
19	Offering to do a personal favor in return for the others’ support.	3.02

\* > 3.5, positive influence for six-point scale (1 = very ineffective to 6 = very effective)

***Virtual Simulation Scores and the Conflict Management Tactic Pressuring.*** The overall mean score for the pre-simulation conflict management tactic Pressuring was 2.64, which is a negative influencing factor (see Table 18 later in the chapter). All five items for the Pressuring tactic (items 13, 21, 32, 35, 37) were considered negative influences, as means for the individual items for this tactic ranged between 1.97 (item 32, “raising your voice when telling the others what you want done”) and 3.30 (item 13, “repeatedly reminding the others about things you want done”) (see Table 9).

Table 9

*Rank order of the five-item scale measuring the POINTS Conflict Management Tactic “Pressuring” Means (n=341)*

<b>Item number</b>	<b>How effective would each of the tactics have been in influencing this person/these persons?</b>	<b>Mean</b>
13	Repeatedly reminding the others about things you want done.	3.30
35	Challenging the others to do the work your way or to come up with a better idea.	3.01
37	Demanding that the others do the things you want done because of organizational rules and regulations.	2.87
21	Simply insisting that the others do what you want done.	2.12
32	Raising your voice when telling the others what you want done.	1.97

\* > 3.5, positive influence for six-point scale (1 = very ineffective to 6 = very effective)

***Virtual Simulation Scores and the Conflict Management Tactic Counteracting.***

The last conflict management tactic, Counteracting, had a pre-simulation overall mean score of 2.10, which represents a strong negative influence upon the virtual simulation Ideas and Overall scores. This information will be presented in more detail in Table 18 which will appear later in this chapter. None of its four items were considered strong positive influencers as the individual items ranged very closely between 1.99 and 2.19 (see Table 10). Item 17, “communicating in an ambiguous way so that the others are never quite clear,” represented the lowest mean score (mean=1.99) among the Counteracting tactics as it had a strong negative influence upon the virtual simulation scores. Item 29, “telling the others that you refuse to carry out those requests with which you do not agree,” represented the highest mean score (mean=2.19) among the Counteracting tactics, but it had a negative influence on the virtual simulation scores.

Table 10  
*Rank order of the four-item scale measuring the POINTS Conflict Management Tactic  
 "Counteracting" Means (n=345)*

<b>Item number</b>	<b>How effective would each of the tactics have been in influencing this person/these persons?</b>	<b>Mean</b>
29	Telling the others that you refuse to carry out those requests with which you do not agree.	2.19
23	Taking action while the others are absent so that they will not be included.	2.13
28	Withholding information that the others need unless they support your idea.	2.07
17	Communicating in an ambiguous way so that the others are never quite clear.	1.99

\* > 3.5, positive influence for six-point scale (1 = very ineffective to 6 = very effective)

The next section will go into detail concerning the influence of the individual items that were combined to create each of the conflict management tactics.

**Individual items comprising conflict management tactics.** Combined together, the statistically significant factors (items) that comprised the POINTS conflict management tactics explained 28.8% of the predictive value of the virtual simulation Power score (see Tables 11-17). Those statistically significant items also explained 6.9% of the predictive value of the Ideas score, 3% of the predictive value of the Leadership score, and 5.6% of the predictive value of the Overall score for the virtual simulation. Later in this chapter each factor for each conflict management tactic will be explained independently (see Tables 11-17).

***Correlation between the conflict management tactic Reasoning and simulation scores.*** For the conflict management tactic Reasoning, all five items (items 11, 18, 24, 30, 33) were identified as having a statistically significant positive influence ( $p < .05$ ) in predicting the simulation Power score (see Table 11). One item (item 33) was identified

as having a statistically significant influence ( $p < .05$ ) in predicting the Leadership score and two items (items 24 and 33) were statistically significant ( $p < .05$ ) in having an influence in predicting the Overall simulation score.

Item 33, “showcasing the relationship between your idea and past practices in your organization” had a statistically significant positive influence on the Power  $r(301) = .19$ ,  $p < .01$ ,  $r^2 = .04$ ; Leadership  $r(301) = .17$ ,  $p < .01$ ,  $r^2 = .03$ ; and Overall score  $r(301) = .14$ ,  $p < .01$ ,  $r^2 = .02$  simulation scores at very high levels (see Table 11). Item 24 had a statistically significant positive influence in predicting both the Power score  $r(302) = .15$ ,  $p < .01$ ,  $r^2 = .02$  and the Overall simulation score  $r(302) = .11$ ,  $p < .05$ ,  $r^2 = .01$ , but it was not statistically significant for the Ideas or Leadership scores. Item 30, “demonstrating to the others your competence,” had a statistically significant positive influence in predicting the Power score  $r(302) = .19$ ,  $p < .01$ ,  $r^2 = .04$ , but it was not statistically significant for the Ideas, Leadership, or Overall scores. Item 18, “presenting the others with facts, figures and data that support your idea” also had a statistically significant positive influence in predicting the Power score  $r(302) = .13$ ,  $p < .05$ ,  $r^2 = .02$ , but no statistical significance for the Ideas, Leadership, or Overall scores. Finally, item 11, “convincing the others that your plan is viable,” had a statistically significant positive influence in predicting the Power score  $r(302) = .16$ ,  $p < .01$ ,  $r^2 = .03$ .

Table 11

*Strength of relationship between the conflict management tactic “Reasoning” and simulation scores (n=302)*

item number		Power	Ideas	Leadership Score	Overall Score
<b>18</b>	Pearson	<b>.129</b>	.045	.077	.060
	Significance	<b>.012*</b>	.218	.091	.149
	r <sup>2</sup>	<b>.017</b>	.002	.001	.004
<b>30</b>	Pearson	<b>.194</b>	.018	.103	.116
	Significance	<b>.000**</b>	.375	.037	.022
	r <sup>2</sup>	<b>.038</b>	.000	.010	.013
<b>24</b>	Pearson	<b>.148</b>	-.015	.028	<b>.114</b>
	Significance	<b>.005**</b>	.400	.312	<b>.024*</b>
	r <sup>2</sup>	<b>.022</b>	.000	.001	<b>.013</b>
<b>33</b>	Pearson	<b>.193</b>	.099	<b>.172</b>	<b>.138</b>
	Significance	<b>.000**</b>	.044	<b>.001**</b>	<b>.008**</b>
	r <sup>2</sup>	<b>.037</b>	.010	<b>.030</b>	<b>.019</b>
<b>11</b>	Pearson	<b>.161</b>	-.013	.024	.062
	Significance	<b>.003**</b>	.410	.338	.142
	r <sup>2</sup>	<b>.026</b>	.000	.001	.004

\*\* p < 0.01, 1-tailed.

\* p < 0.05, 1-tailed.

***Correlation between the conflict management tactic Consulting and simulation***

***scores.*** For the second conflict management tactic, Consulting, three of the four items (items 9, 15, 27) were statistically significant (p<.05) in having a positive influence on predicting power of the tactic. However, none of the four items was statistically significant in having an influence in predicting the Ideas, Leadership, or Overall simulation scores. Item 9, “asking the others for suggestions,” had a statistically significant influence on Power  $r(302) = .16, p < .01, r^2 = .03$ . Item 15, “asking others if they

have any special concerns,” also had a statistically significant influence on Power  $r(298) = .15, p < .01, r^2 = .02$ . Also item 27, “indicating that you are receptive to the others’ input about your idea,” had a statistically significant influence on Power  $r(300) = .10, p < .05, r^2 = .01$ . Item 20, “indicating your willingness to modify your idea based on input from the others” had no statistically significant influence on any of the simulation scores. The three statistically significant items (items 9, 15, 27) represented nearly 6% of the predicted value for the virtual simulation Power score.

Table 12

*Strength of relationship between the conflict management tactic “Consulting” and simulation scores (n=302)*

item number		Power	Ideas	Leadership Score	Overall Score
<b>27</b>	Pearson	<b>.098</b>	-.009	.037	.076
	Significance	<b>.046*</b>	.439	.262	.096
	$r^2$	<b>.010</b>	.000	.001	.006
<b>20</b>	Pearson	.083	-.078	-.028	-.034
	Significance	.075	.089	.315	.279
	$r^2$	.007	.006	.001	.001
<b>15</b>	Pearson	<b>.145</b>	.012	.062	.021
	Significance	<b>.006**</b>	.421	.143	.358
	$r^2$	<b>.021</b>	.000	.004	.000
<b>9</b>	Pearson	<b>.164</b>	-.022	.027	.015
	Significance	<b>.002**</b>	.350	.319	.399
	$r^2$	<b>.027</b>	.000	.001	.000

\*\*  $p < 0.01$ , 1-tailed.

\*  $p < 0.05$ , 1-tailed.

*Correlation between the conflict management tactic Appealing and simulation scores.* With respect to the third conflict management tactic (see Table 13), Appealing

had two items (items 34 and 36) that were statistically significant ( $p < .05$ ) in having a positive influence in predicting the Power score, and one item (item 31) was statistically significant ( $p < .05$ ) in having a positive influence in predicting the Overall simulation score, but not for the Power, Ideas, or Leadership scores. The other two items (items 25 and 38) did not have a statistically significant influence in predicting any of the simulation scores.

Item 34, “making the others feel good about you before making your request,” had a statistically significant influence on the Power score at a very high level:  $r(301) = .14$ ,  $p < .01$ ,  $r^2 = .02$ . Item 36, “making the others feel that what you want done is extremely important” had a statistically significant influence on the Power score at a high level:  $r(299) = .13$ ,  $p < .05$ ,  $r^2 = .02$ . Items 34 and 36 represent 3.5% of the predicted value for the virtual simulation Power score. Item 31, “waiting until the others are in a receptive mood before making a request” had a statistically significant influence on the Overall simulation score at a high level:  $r(301) = .11$ ,  $p < .05$ ,  $r^2 = .01$  which represents only 1% of the predicted value for the Total simulation score.

Table 13

*Strength of relationship between the conflict management tactic “Appealing” and simulation scores (n=301)*

item number		Power	Ideas	Leadership Score	Overall Score
<b>38</b>	Pearson	.069	-.046	-.016	-.030
	Significance	.116	.216	.392	.303
	r <sup>2</sup>	.005	.002	.000	.001
<b>34</b>	Pearson	<b>.137</b>	.034	.100	.061
	Significance	<b>.009**</b>	.277	.042	.144
	r <sup>2</sup>	<b>.019</b>	.001	.010	.004
<b>36</b>	Pearson	<b>.125</b>	-.020	.034	.056
	Significance	<b>.015*</b>	.365	.278	.166
	r <sup>2</sup>	<b>.016</b>	.000	.001	.003
<b>31</b>	Pearson	.019	.055	.082	<b>.106</b>
	Significance	.368	.170	.077	<b>.033*</b>
	r <sup>2</sup>	.000	.003	.007	<b>.011</b>
<b>25</b>	Pearson	.030	-.086	-.059	-.015
	Significance	.304	.068	.153	.400
	r <sup>2</sup>	.001	.007	.003	.000

\*\* p < 0.01, 1-tailed.

\* p < 0.05, 1-tailed.

*Correlation between the conflict management tactic Networking and simulation scores.* For the fourth conflict management tactic, Networking, two items (items 22 and 39) were statistically significant in having a positive influence in predicting the Power score (see Table 14). However, there was no statistical significance in having an influence for the Ideas, Leadership, and Overall simulation scores. Item 22, “obtaining support from other people before making a request of the others directly involved” had a statistically significant positive influence on Power at a very high level:  $r(300) = .18$ ,

$p < .01$ ,  $r^2 = .03$ . Item 39, “asking other people in your organization to persuade the others involved to support your idea” had a statistically significant positive influence on Power at a high level:  $r(302) = .10$ ,  $p < .05$ ,  $r^2 = .01$ . Items 22 and 39 represented about 4% of the predicted value for the virtual simulation Power score.

Table 14

*Strength of relationship between the conflict management tactic “Networking” and simulation scores (n=302)*

item number		Power	Ideas	Leadership Score	Overall Score
<b>16</b>	Pearson	.062	.065	.070	.003
	Significance	.142	.134	.115	.482
	$r^2$	.004	.004	.005	.000
<b>22</b>	Pearson	<b>.180</b>	-.005	.092	.047
	Significance	<b>.001**</b>	.464	.055	.210
	$r^2$	<b>.032</b>	.000	.008	.002
<b>10</b>	Pearson	.058	-.027	-.002	-.070
	Significance	.156	.320	.489	.115
	$r^2$	.003	.001	.000	.005
<b>39</b>	Pearson	<b>.095</b>	-.048	.021	.029
	Significance	<b>.049*</b>	.201	.361	.306
	$r^2$	<b>.009</b>	.002	.000	.001

\*\*  $p < 0.01$ , 1-tailed.

\*  $p < 0.05$ , 1-tailed.

*Correlation between the conflict management tactic Bargaining and simulation*

*scores* For the fifth conflict management tactic, Bargaining, only one item (item 12) was statistically significant in having an influence on any of the simulation scores, and it was for the Ideas score (see Table 15). Item 12, “promising to support future efforts by the others in return for their support” had a statistically significant negative correlation with

the Ideas score at a high level:  $r(301) = -.13, p < .05, r^2 = .02$ . The three remaining items that comprise the conflict management tactic of Bargaining were negative with respect to the Ideas score, but not at a statistically significant level. Item 12 represented nearly 2% of the predicted value for the virtual simulation Ideas score.

Table 15

*Strength of relationship between the conflict management tactic "Bargaining" and simulation scores (n=302)*

item number		Power	Ideas	Leadership Score	Overall Score
12	Pearson	.062	<b>-.133</b>	-.049	-.024
	Significance	.143	<b>.011*</b>	.199	.338
	r <sup>2</sup>	.004	<b>.018</b>	.002	.001
14	Pearson	-.020	-.046	-.031	-.032
	Significance	.364	.211	.296	.292
	r <sup>2</sup>	.000	.002	.001	.001
26	Pearson	-.001	-.082	-.043	-.076
	Significance	.493	.079	.229	.095
	r <sup>2</sup>	.000	.007	.002	.006
19	Pearson	-.014	-.046	-.030	-.023
	Significance	.403	.213	.299	.344
	r <sup>2</sup>	.000	.002	.001	.001

\*  $p < 0.05$ , 1-tailed.

***Correlation between the conflict management tactic Pressuring and simulation***

**scores** For the sixth conflict management tactic, Pressuring, only one item (item 37) had a statistically significant influence ( $p < .05$ ) in predicting the Power score, and two items (items 35 and 32) had a statistically significant influence ( $p < .05$ ) in predicting the Idea score. Two items (items 13 and 21) did not have a statistically significant influence in predicting any of the simulation scores (see Table 16). Item 37, "demanding that the

others do the things you want done because of organizational rules and regulations” had a statistically significant positive influence on the Power score at a high level:  $r(301) = .12$ ,  $p < .05$ ,  $r^2 = .01$ . Item 35, “challenging the others to do the work your way or to come up with a better idea” had a statistically significant negative influence on the Ideas score at a very high level:  $r(301) = -.13$ ,  $p < .01$ ,  $r^2 = .02$ . Item 2, “raising your voice when telling the others what you want done” also had a statistically significant negative influence on the Ideas score at a high level:  $r(301) = -.11$ ,  $p < .05$ ,  $r^2 = .01$ . As with the Bargaining tactic, all five items that comprise the conflict management tactic of Pressuring were negative with respect to the Ideas score (with only two at statistically significant levels). Items 32 and 35 represented 3% of the predicted value for the virtual simulation Ideas score, and item 37 represented 1.4% of the predicted value for the virtual simulation Power score.

Table 16

*Strength of relationship between the conflict management tactic “Pressuring” and simulation scores (n=301)*

item number		Power	Ideas	Leadership Score	Overall Score
<b>13</b>	Pearson	.011	-.049	-.030	-.076
	Significance	.425	.198	.300	.095
	$r^2$	.000	.002	.001	.006
<b>35</b>	Pearson	.037	<b>-.134</b>	-.081	-.004
	Significance	.259	<b>.010**</b>	.080	.475
	$r^2$	.001	<b>.018</b>	.007	.000
<b>37</b>	Pearson	<b>.118</b>	-.012	.057	-.002
	Significance	<b>.020*</b>	.421	.163	.489
	$r^2$	<b>.014</b>	.000	.003	.000

item number		Power	Ideas	Leadership Score	Overall Score
21	Pearson	.043	-.055	-.036	-.082
	Significance	.228	.172	.269	.080
	r <sup>2</sup>	.002	.003	.001	.007
32	Pearson	.028	<b>-.113</b>	-.080	-.043
	Significance	.311	<b>.025*</b>	.084	.231
	r <sup>2</sup>	.001	<b>.013</b>	.006	.002

\*\* p < 0.01, 1-tailed.

\* p < 0.05, 1-tailed.

*Correlation between the conflict management tactic Counteracting and simulation scores.* For the seventh conflict management tactic, Counteracting, all four items (items 17, 23, 28, 29) were shown not to be statistically significant in predicting the virtual simulation Power score (see Table 17). Two items (items 23 and 28) had a statistically significant negative influence ( $p < .05$ ) in predicting the Idea score and one item (item 28) had a statistically significant negative influence ( $p < .05$ ) in predicting the Overall simulation score. Item 23, “taking action while the others are absent so that they will not be included” had a statistically significant negative influence on the Ideas score at a high level:  $r(302) = -.10$ ,  $p < .05$ ,  $r^2 = .01$ . Item 28, “withholding information that the others need unless they support your idea” had a statistically significant negative influence on predicting both the Idea score  $r(301) = -.10$ ,  $p < .05$ ,  $r^2 = .01$  and the Overall simulation score  $r(301) = -.11$ ,  $p < .05$ ,  $r^2 = .01$ . Items 23 and 28 represented 2% of the predicted value for the virtual simulation Ideas score and item 28 also represented more than 1% of the predicted value for the virtual simulation Overall score.

Table 17

*Strength of relationship between the conflict management tactic “Counteracting” and simulation scores (n=302)*

item number		Power	Ideas	Leadership Score	Overall Score
<b>29</b>	Pearson	.072	-.026	-.003	-.003
	Significance	.108	.326	.483	.482
	r <sup>2</sup>	.005	.001	.000	.000
<b>23</b>	Pearson	.031	<b>-.104</b>	-.070	-.047
	Significance	.298	<b>.036*</b>	.111	.207
	r <sup>2</sup>	.001	<b>.010</b>	.005	.002
<b>28</b>	Pearson	-.027	<b>-.102</b>	-.080	<b>-.113</b>
	Significance	.321	<b>.038*</b>	.083	<b>.025*</b>
	r <sup>2</sup>	.001	<b>.010</b>	.006	<b>.013</b>
<b>17</b>	Pearson	-.045	-.059	-.069	-.114
	Significance	.218	.154	.116	.025
	r <sup>2</sup>	.002	.003	.005	.013

\* p < 0.05, 1-tailed.

**Summary of Research Question 1 findings.** The intent of this first area of inquiry was to find out to what extent the seven conflict management tactics based on the POINTS instrument predicted the adult learners’ virtual leadership simulation scores measuring Power, Ideas, Leadership, and the Overall Scores. This research question yielded the most statistically significant pairings. The four conflict management tactics of Reasoning, Consulting, Networking, and Appealing all had strong correlations with the vLeader measure of Power. The virtual simulation measure of Ideas had strong correlations with the other three conflict management tactics measured by the POINTS instrument: Bargaining, Pressuring, and Counteracting. While all seven tactics had strong

correlations, the amount of variance accounted for in each simulation measure was only 12 percent for Power and a much smaller percentage for Ideas.

**Research Question 2: The impact of completion of a virtual leadership simulation on adult learner conflict management tactics**

The second research question utilized the pre-simulation POINTS instrument and the post-simulation POINTS instrument. Because it involved the post-simulation instrument, the response rate was anticipated to be lower than the idealized sample size of 162 participants. For further information on idealized sample size, please refer to Table 1 in Chapter three. The actual sample for this question was  $n=196$ . A paired t-test was computed to compare the differences in mean scores for pre- and post-simulation responses (Keppel & Wickens, 2004) (see Table 18).

Research has not yet caught up with advances in technology and leadership development practices (Aldrich, 2005) and therefore few studies have explored simulation as an experiential learning technique (Ahmad et al., 1998). However, based upon prior studies which found that leadership development education or training does make a difference (Allio, 2005; Cress et al., 2001; Itzhaky & York, 2003) it was anticipated that the use of a virtual leadership simulation would make a difference, and that the knowledge gained could be measured through the use of a post-simulation POINTS instrument in comparison to the virtual leadership simulation scores.

Two of the paired conflict management tactics met the standard benchmark for statistical significance ( $<.05$ ) (Fraenkel & Wallen, 2009; Keppel & Wickens, 2004; Vogt, 2007; Weinberg & Goldberg, 1990), Reasoning and Counteracting (see Table 18). Prior to conducting the paired t-test, Pearson correlations were used to examine the

intercorrelation of the pre-simulation and post-simulation POINTS variables that were determined to be significantly intercorrelated.

Table 18

*POINTS conflict management tactics one-tailed t-test paired sample statistics for pre- and post-simulation instruments*

	Pre-Simulation POINTS			Post-Simulation POINTS			df	t	Sig
	Mean	SD	SE	Mean	SD	SE			
Reasoning (n=196)	4.57	.89	.06	4.45	.89	.06	195	2.221	<b>.028*</b>
Consulting (n=192)	4.43	.87	.06	4.44	.95	.07	191	-.198	.843
Appealing (n=191)	4.08	.79	.06	4.16	.85	.06	190	-1.197	.233
Networking (n=191)	3.97	.93	.07	3.97	.94	.07	190	.020	.984
Bargaining (n=193)	3.37	1.10	.08	3.50	1.16	.08	192	-1.528	.128
Pressuring (n=194)	2.64	.88	.06	2.72	.90	.06	193	-1.406	.161
Counteracting (n=195)	2.10	.83	.06	2.30	1.04	.07	194	-3.056	<b>.003**</b>

\*\*  $p < 0.01$ , 1-tailed.

\*  $p < 0.05$ , 1-tailed.

This area of investigation examined the pre-simulation POINTS instrument and the post-simulation POINTS instrument to see if a change in conflict management tactics occurred. The results indicate that the virtual leadership simulation did change to a small extent participants' tactics, producing a slight decrease in preferences for using the Reasoning conflict management tactic (mean = 4.57 to 4.45) and a slight increase in preferences for Counteracting (mean = 2.10 to 2.30) (see Table 18).

However, in spite of the slight changes between these two conflict management tactics, the Reasoning tactic remained a positively correlated tactic at a statistically

significant level ( $p < .05$ ) and Counteracting remained a negatively correlated tactic at a statistically significant level ( $p < .01$ ). The other five tactics were deemed not statistically significant in terms of changes, but Consulting, Appealing, and Networking were somewhat positively preferred, while Bargaining and Pressuring were less likely to be utilized. Although not statistically significant increases, all five stayed the same or went up in terms of preference (see Table 18).

**Summary of Research Question 2 findings.** The POINTS instrument was revised from Yang's (1996) original use focusing on program planning (see Appendix B) and was broadened to explore any type of conflict management/negotiation situation (see Appendix A). This expansion was successful in maintaining, and actually increasing in most cases the reliability of the instrument. Also of note for this area of investigation were the reliability measures for the pre- and post-simulation POINTS instruments (see Table 18 above). The reliability scores were uniformly higher for the post-instrument (with the exception of Reasoning, which remained the same).

### **Research Question 3: Predicting conflict management tactics with learning styles**

The third research question utilized the pre-simulation POINTS instrument and the KLSI instrument. An idealized sample size was calculated to be 178 and the actual sample size was  $n=177$ . For further information on idealized sample size, please refer to Table 1 in Chapter three. The KLSI variables were compared to the seven POINTS variables using the Pearson Correlation Coefficient as both instruments have continuous variables. As in research question one the  $r^2$  was used to explain the percentage that is explained with each pairing.

Researchers have noted that little research has been conducted exploring the relationship between conflict management styles and personality or cognitive styles (Liu et al., 2008). One study was located in that area of research, and based upon the work of Whitworth (2008), who did not find a relationship between conflict management style (tactics) and personality factors, one might expect that preferred conflict management tactics would not have a relationship with learning styles. The current study, while focusing more specifically on learning styles, confirms those findings.

In looking at the data for this research question, three pairings had statistical significance. Between the conflict management tactic Appealing and the learning style Initiating the correlation was statistically significant at a high rate  $r(175) = -.13, p < .05, r^2 = .02$  (see Table 19). This was a negative correlation in that it suggests for those adult learners who preferred the Initiating learning style were less likely to use the Appealing tactic, which represented a predicted value of more than 4%. Between the conflict management tactic of Reasoning and the learning style Analyzing the correlation was statistically significant at a very high rate  $r(176) = .17, p < .01, r^2 = .03$ . This was a positive correlation in that it suggests that those adult learners who preferred the Analyzing learning style were more likely to use the Reasoning tactic, which represented a predicted value of nearly 3%. Finally, between the conflict management tactic of Counteracting and the learning style Deciding the correlation was statistically significant at a very high rate  $r(177) = .18, p < .01, r^2 = .03$ . This was a positive correlation in that it suggests for those adult learners who preferred the Deciding learning style were more likely to use the Counteracting tactic, which represents a predicted value of more than 3%.

Table 19

*Strength of relationship between POINTS conflict management tactics and KLSI Learning Styles (n=177)*

		Reasoning	Consulting	Appealing	Networking	Bargaining	Pressuring	Counteracting
<b>Initiating</b>	Pearson	-.034	-.063	<b>-.132</b>	.029	-.021	.101	.032
	Sig	.328	.204	<b>.041*</b>	.353	.390	.092	.334
	r <sup>2</sup>	.001	.004	<b>.017</b>	.001	.000	.010	.001
<b>Experiencing</b>	Pearson	-.094	-.021	-.036	-.071	-.070	-.035	-.021
	Sig	.108	.389	.316	.175	.180	.325	.391
	r <sup>2</sup>	.009	.000	.001	.005	.005	.001	.000
<b>Imagining</b>	Pearson	-.084	-.051	.074	-.026	.062	.025	-.001
	Sig	.134	.253	.164	.370	.209	.371	.496
	r <sup>2</sup>	.007	.003	.005	.001	.004	.001	.000
<b>Reflecting</b>	Pearson	.006	.002	.023	.034	.007	.015	-.006
	Sig	.470	.490	.383	.328	.462	.422	.466
	r <sup>2</sup>	.000	.000	.001	.001	.000	.000	.000
<b>Analyzing</b>	Pearson	<b>.171</b>	.118	.079	.091	.001	-.105	-.104
	Sig	<b>.012*</b>	.061	.148	.116	.495	.085	.085
	r <sup>2</sup>	<b>.029</b>	.014	.006	.008	.000	.011	.011
<b>Thinking</b>	Pearson	-.082	-.072	.114	.037	-.051	-.018	-.005
	Sig	.139	.171	.066	.315	.250	.409	.472
	r <sup>2</sup>	.007	.005	.013	.001	.003	.000	.000
<b>Deciding</b>	Pearson	.061	-.069	-.041	-.014	-.016	-.006	<b>.183</b>
	Sig	.212	.184	.294	.426	.416	.469	<b>.007**</b>
	r <sup>2</sup>	.004	.005	.002	.000	.000	.000	<b>.033</b>
<b>Acting</b>	Pearson	.062	.111	.034	.009	.071	-.017	-.049
	Sig	.205	.072	.326	.454	.176	.411	.259
	r <sup>2</sup>	.004	.012	.001	.000	.005	.000	.002
<b>Balancing</b>	Pearson	.042	.079	-.041	-.071	.036	.004	-.021
	Sig	.291	.151	.294	.177	.319	.479	.392
	r <sup>2</sup>	.002	.006	.002	.005	.001	.000	.000

\*\* p < 0.01, 1-tailed. \* p < 0.05, 1-tailed.

**Summary of Research Question 3 findings.** Out of all of the pairings between the seven conflict management tactics and nine learning styles, only three held statistical significance. The pairings of Appealing and Initiating, Reasoning and Analyzing, and Counteracting and Deciding were all statistically significant, but do not point to a true relationship between the two instruments. All of the remaining pairings were found not to be statistically significant.

***Correlation between the conflict management tactic Appealing and the learning style Initiating.*** The first statistically significant pairing between the POINTS instrument and the KLSI was the conflict management tactic Appealing as paired with the learning style Initiating. As noted previously, all five items comprising the conflict management tactic Appealing (items 25, 31, 34, 36, 38) were statistically significant in having an influence in predicting power of the tactic (see Table 6 above). Two items (items 38 and 31) were statistically significant at a high level in having a negative influence in predicting the learning style Initiating.

Item 38, “appealing to the others’ values in making a request” had a statistically significant negative influence on predicting the learning style Initiating  $r(177) = -.136$ ,  $p < .05$ ,  $r^2 = .02$ , at a high level (see Table 20). Item 31, “waiting until the others are in a receptive mood before making a request” also had a statistically significant negative influence on predicting the learning style Initiating  $r(177) = -.205$ ,  $p < .01$ ,  $r^2 = .04$ , at a very high level. These two negative correlations had a combined predicted value of 6% suggesting that those adult learners at the Initiating learning style were less likely to utilize the two Appealing conflict management tactics represented by items 31 and 38. Items 34, “making the others feel good about you before making your request,” 36,

“making the others feel that what you want done is extremely important,” and 25, “saying that the others are the most qualified individuals for a task you want done,” were not statistically significant in having an influence on the learning style Initiating.

Table 20

*Strength of relationship between the conflict management tactic “Appealing” and the learning style “Initiating” (n=177)*

<b>POINTS item number</b>	<b>Pearson</b>	<b>Significance</b>	<b>r<sup>2</sup></b>
<b>38</b>	<b>-.136</b>	<b>.035*</b>	<b>.018</b>
34	-.081	.142	.007
36	.009	.453	.000
<b>31</b>	<b>-.205</b>	<b>.003**</b>	<b>.042</b>
25	-.063	.201	.004

\*\* p < 0.01, 1-tailed.

\* p < 0.05, 1-tailed.

*Correlation between the conflict management tactic Reasoning and the learning style Analyzing.* The second statistically significant pairing between the POINTS instrument the KLSI was the conflict management tactic Reasoning as paired with the learning style Analyzing. As noted previously, for the conflict management tactic Reasoning, all five items (items 11, 18, 24, 30, 33) were statistically significant in having and influence in predicting power of the tactic (see Table 4 above). Two items (items 24 and 11) were statistically significant in having an influence in predicting the learning style Analyzing.

Item 24, “using logical arguments to convince the others to support your idea” had a statistically significant positive influence on the learning style Analyzing  $r(177)$ ,  $p < .05$ ,  $r^2 = .03$ , at a high level (see Table 21). Item 11, “convincing the others that your

plan is viable” also had a statistically significant positive influence on the learning style Analyzing  $r(177)$ ,  $p < .05$ ,  $r^2 = .02$ , at a high level. These two positive correlations represented a predicted value of more than 5% suggesting that those adult learners at the Analyzing learning style were more likely to utilize the Reasoning conflict management tactics represented by items 11 and 24. Items 18, “presenting the others with the facts, figures and data that support your idea,” 30, “demonstrating to the others your competence,” and 33, “showcasing the relationship between your idea and past practices in your organization” were not statistically significant in predicting the learning style Analyzing.

Table 21

*Strength of relationship between the conflict management tactic “Reasoning” and the learning style “Analyzing” (n=177)*

<b>POINTS item number</b>	<b>Pearson</b>	<b>Significance</b>	<b>r<sup>2</sup></b>
18	.074	.164	.005
30	.104	.084	.011
<b>24</b>	<b>.166</b>	<b>.014*</b>	<b>.028</b>
33	.120	.056	.014
<b>11</b>	<b>.151</b>	<b>.023*</b>	<b>.023</b>

\*  $p < 0.05$ , 1-tailed.

*Correlation between the conflict management tactic Counteracting and the learning style Deciding.* The third statistically significant pairing between the POINTS instrument the KLSI was the conflict management tactic Counteracting as paired with the learning style Deciding. As noted previously, none of the four items (items 17, 23, 28, 29) were statistically significant in predicting the power of the tactic (see

Table 10). Two items (items 23 and 17) were statistically significant in predicting the learning style Deciding (see Table 22).

Item 23, “taking action while the others are absent so that they will not be included” was statistically significant in having a positive influence at predicting the learning style Deciding  $r(177)$ ,  $p < .05$ ,  $r^2 = .02$ , at a high level. Item 17, “communicating in an ambiguous way so that the others are never quite clear” was also statistically significant in having a positive influence at predicting the learning style Deciding  $r(177)$ ,  $p < .05$ ,  $r^2 = .03$ , at a high level. These two positive correlations represented a combined predicted value of more than 5% suggesting that those adult learners at the Deciding learning style were more likely to utilize the Counteracting conflict management tactics represented by items 17 and 23. Item 29, “telling the others that you refuse to carry out those requests with which you do not agree” and item 28, “withholding information that the others need unless they support your idea” were not statistically significant in having an influence at predicting the learning style Deciding.

Table 22

*Strength of relationship between the conflict management tactic “Counteracting” and the learning style “Deciding” (n=177)*

<b>POINTS item number</b>	<b>Pearson</b>	<b>Significance</b>	<b>r<sup>2</sup></b>
29	.052	.246	.003
<b>23</b>	<b>.152</b>	<b>.022*</b>	<b>.023</b>
28	.093	.108	.009
<b>17</b>	<b>.168</b>	<b>.013*</b>	<b>.028</b>

\*  $p < 0.05$ , 1-tailed.

#### **Research Question 4: Predicting virtual leadership simulation scores with learning styles**

The fourth research question examined the KLSI scores utilized for research question three and compared them with the vLeader virtual leadership simulation scores. An idealized sample size was calculated to be 154 and the actual sample size was  $n=160$ . For further information on idealized sample size, please refer to Table 1 in Chapter three. The Pearson Correlation Coefficient was again used as both instruments have continuous variables. As in the previous research questions the  $r^2$  was used to identify the percentage that is explained with each pairing.

While a call for research examining learning styles in relationship to virtual worlds education exists (Halvorson et al., 2011), not much insight is currently available into the relationship between learning styles and scores within a virtual simulation. At the beginning of this study it was anticipated that participants with Acting, Initiating, or Experiencing learning styles might find it easier to navigate an experiential learning mode such as a virtual simulation and therefore receive higher Leadership and Overall scores. That belief was not borne out by the data collected for this study.

**Summary of Research Question 4 findings.** In examining the data, only one pairing was found to have statistical significance. The correlation between the virtual leadership simulation Power score and the learning style Analyzing was positive at a statistically significant high level  $r(160) = .17, p < .05, r^2 = .03$  (see Table 23). This finding suggests that for those adult learners at the Analyzing learning style are more likely to positively influence their virtual simulation Power score at a predicted value of almost 3%. No other pairings were statistically significant for this research question.

**Table 23***Strength of relationship between KLSI learning styles and simulation scores (n=177).*

		<b>Power</b>	<b>Ideas</b>	<b>Leadership Score</b>	<b>Overall Score</b>
<b>Initiating</b>	Pearson	-.056	.004	-.055	.008
	Significance	.242	.478	.245	.459
	r <sup>2</sup>	.003	.000	.003	.000
<b>Experiencing</b>	Pearson	.010	-.023	.002	-.094
	Significance	.452	.385	.488	.118
	r <sup>2</sup>	.000	.001	.000	.009
<b>Imagining</b>	Pearson	-.094	.021	-.028	-.076
	Significance	.118	.397	.363	.168
	r <sup>2</sup>	.009	.000	.001	.006
<b>Reflecting</b>	Pearson	-.005	.017	.026	-.011
	Significance	.474	.415	.374	.445
	r <sup>2</sup>	.000	.000	.001	.000
<b>Analyzing</b>	Pearson	<b>.167</b>	.045	.117	.112
	Significance	<b>.018*</b>	.284	.071	.079
	r <sup>2</sup>	<b>.028</b>	.002	.014	.013
<b>Thinking</b>	Pearson	-.037	-.009	-.034	.087
	Significance	.321	.453	.335	.138
	r <sup>2</sup>	.001	.000	.001	.008
<b>Deciding</b>	Pearson	-.035	.023	.020	.067
	Significance	.332	.387	.401	.199
	r <sup>2</sup>	.001	.001	.000	.004
<b>Acting</b>	Pearson	.105	.037	.075	.039
	Significance	.093	.320	.172	.314
	r <sup>2</sup>	.011	.001	.006	.002
<b>Balancing</b>	Pearson	-.028	-.121	-.105	-.074
	Significance	.361	.063	.094	.176
	r <sup>2</sup>	.001	.015	.011	.005

\* p &lt; 0.05, 1-tailed.

## **Limitations**

Part of the process of completing a dissertation entails learning about what could have been done differently to strengthen the study. This section will detail a number of limitations related to this study. These limitations are grouped into subsections including research design, instrumentation, and participant benefit.

**Research design.** First, this study contained many extraneous variables including: the number of virtual leadership simulation modules completed; the number of virtual leadership simulation practice sessions completed; facilitation of the simulation experience; course content and relationship to content; and instructor/moderator differences. Good practice in education emphasizes time spent on task (McCabe & Meuter, 2011) and this study restricted student time spent working with the simulation directly. As mentioned in previous studies (Ryan et al., 2000; Standifer et al., 2010), the role of trainer/facilitator likely had an impact on learner perception and preparation which is not fully accounted for in this study. Additionally, the length of time spent by participants in the Learning the Principles component of the simulation varied depending upon how long it took them to complete the survey during in-class sessions. Each participant did not have the exact same experience. While some general conclusions can be made, this study did not have the rigor associated with research in a controlled environment.

The results presented show correlational relationships, so conclusions about the causal direction of relationships should not be extrapolated without critical consideration. For example, the second research question concerning whether or not the virtual leadership simulation made a difference in adult learner conflict management tactics does

not take into effect mediating variables such as time elapsed and difference of environment. It would have been better to include a sub-sample of participants who did not complete the virtual leadership simulation and compare that group with those who did. Another option would have been to ask one group to complete the virtual leadership simulation, a second group to complete a case study, and a third group to perhaps just read about the topics included in the simulation and case studies. The virtual simulation used in this study should not be considered interchangeably with other educational technology tools such as online courses, role-playing games, interactive spreadsheets, etc.

While the overall sample size was good, a larger sample would have strengthened the study and allowed for stronger, more confident conclusions. This study also used convenience sampling. Bias could have existed in terms of Simulearn screening facilitators for the two recommended out-of-state groups based upon an unknown factor. Two of the institutions included in this study were chosen in part due to proximity which allowed the researcher to physically facilitate sessions in computer labs at those campuses. There is also research that criticizes college student samples as being “slightly more homogeneous than those of nonstudent subjects” (Peterson, 2001, p. 450). Because of this, relationships derived from this study may not be generalizable to the managers or other leaders looking for development opportunities. However, this study focused on adult learners, and the sample did consist of adult learners who ranged in age from 19 to 64 with an average age of 28.6. Findings may therefore be more relevant than college student samples in other studies.

Instructors of the courses included in this study varied in how they framed the simulation and participation in this study. For some, it was a fully integrated component

of the course; included in the course syllabus and fully connected to course content. For others it was not as well connected. Students had varying levels of advance preparation ranging from a pre-session facilitated overview to a short presentation on theory related to the course to a cursory “show up at the computer lab to help a student with his dissertation.” The researcher was not present in all of the courses in person, and the sessions that the principal investigator facilitated varied in length from 1.25 to 2 hours and included framing that changed slightly to incorporate previous student questions or areas of confusion. One course was online, so participants’ only communication was via the online course and email.

**Instrumentation.** Three limitations stand out regarding instrumentation relating to the KLSI, vLeader, and the post-simulation POINTS instruments. First, the Kolb Learning Style Inventory, remains immensely popular, yet it has been critiqued often (Iliff, 1994), including questions about its reliability and validity. Following receipt of approval from the institutional review board and after the pilot study, a new version of the KLSI (4.0) was released. The decision was made not to utilize this updated version because the study was already underway, but more importantly, because version 4.0 is only available online and it was considered unlikely that participants would complete two different surveys on two different websites for the pre-simulation component of this study. The new version of the KLSI contains two additional questions, but the researcher connected with a fellow student researcher who was in conversation with Alice Kolb (personal communication, January 2012) who confirmed that utilizing the provided formulas with the questions on version 3.1 would yield appropriate results for the nine styles.

During the course of this study, the ranking (as opposed to the rating) nature of the KLSI instrument challenged many participants. This confusion led to a smaller response rate of accurately completed KLSI instruments for this study. Utilizing the KLSI 4.0 would likely have increased the response rate, although the impact on the final number of participants who would have declined to complete two separate instruments remains unknown.

Second, the marketplace for virtual leadership simulations is a small one, and utilizing a single type of software is inherently limiting. Also, due to the proprietary nature of the vLeader software, there is not a strong understanding of how scores are calculated for power, tension, ideas, nor is there data about the reliability and validity of those scales. Because the simulation software is not accessible online it must be downloaded to an individual machine running Windows software. A beta test version that can run on the Apple Macintosh platform was released during the course of the study, however only two participants were able to take advantage of it. Overall, access to the simulation was limited for most participants to in-class usage of under an hour. A web-accessible virtual simulation might have improved access and participation.

Two final limitations are noted. First, while efforts were made to minimize research bias, it should be noted that the researcher worked as a professional in the field of leadership education for 14 years, which may have led to personal bias. Second, professors with an affinity for leadership and technology as an area of research or interest were probably more likely to include the virtual leadership simulation as part of their course activities.

This chapter presented the findings of this study, organized by research question, as well as limitations. The findings from the pairing of the pre-simulation POINTS and the virtual leadership simulation scores yielded the most significant pairings. Conclusions derived from these and other findings will be discussed further in Chapter five. The final chapter will also present implications and directions for future research.

## **CHAPTER V**

### **SUMMARY, DISCUSSION, AND IMPLICATIONS**

For over a century, researchers and practitioners have discussed leadership and leaders – good, bad, effective, ineffective – with little consensus as to what exactly defines leadership (Kellerman, 2012; Rost, 1991; Terman, 1904) or which approach to leadership is most effective (Ciulla, 2002). While more adult educators are incorporating technology within higher education (Luna & Cullen, 2011), a need has been identified for more research in this area. Working with the conceptualization that leadership “involves a process whereby intentional influence is exerted by one person over other people to guide, structure, and facilitate activities and relationships in a group or organization” (Yukl, 2010, p. 3), this study delved into the process of leadership by focusing on a specific leadership competency (conflict management/negotiation) and a specific mode of leadership education/training (a virtual leadership simulation).

The literature review presented an overview of theoretical approaches to leadership. It also outlined the underlying adult education theories relating to leader development including self-directed, experiential, and authentic learning. Conflict management and negotiation were presented as key leadership competencies and the

POINTS and KLSI instruments were introduced. The literature review ended with an overview of simulation games and virtual simulations, which were the focus of this study. The methodology section presented the three instruments in greater detail and provided an overview of the design, sample, and implementation of this study. Chapter four presented the significant findings for the four research questions and limitations. This final chapter will first summarize the design of the study and findings. That section will be followed by a discussion of the primary conclusions. Finally, implications will be discussed for various audiences and possibilities for future research will be enumerated.

### **Summary of the Study**

Although the concept of leadership is widely utilized and leadership development remains a popular subject for educators, trainers, and adult learners; not much is known about what factors might affect how adults perform within experiential leadership development activities, specifically virtual simulations. To help address that deficiency, the purpose of this study was to explore the impact of conflict management tactics as well as learning styles on the efficacy of virtual leadership development training.

A quantitative methodology was chosen for this study because of the comparative aspect of exploring (a) preferred conflict management tactic utilizing a revised version of the P.O.I.N.T.S. Power and Influence Tactics Scale (POINTS instrument); (b) learning style using the Kolb Learning Styles Inventory (KLSI); and (c) the vLeader virtual simulation Power, Ideas, Leadership, and Overall scores. Data were collected electronically over a period of eleven months from a sample of undergraduate and graduate students (n=349) from four different universities in Kentucky, Maryland, and

Ohio who utilized the vLeader software as part of their coursework. The four research questions addressed in this study were:

1. To what extent did conflict management tactics based on the POINTS instrument predict the adult learners' virtual leadership simulation scores?
2. To what extent did completion of a virtual leadership simulation change adult learners' conflict management tactics?
3. To what extent did learning styles predict the adult learners' conflict management tactics?
4. To what extent did learning styles predict the adult learners' virtual leadership simulation scores?

Participants completed a pre-simulation questionnaire consisting of the POINTS and KLSI instruments as well as questions seeking demographic information. Following completion of the questionnaire, participants first familiarized themselves with the vLeader virtual simulation software, then completed one or more iterations of the first simulation module. Two weeks following completion of the virtual simulation participants were sent a post-simulation questionnaire consisting solely of the POINTS instrument.

Several findings emerged in response to the research questions. The first finding answered the research question "To what extent did conflict management tactics based on the POINTS instrument predict the adult learners' virtual leadership simulation scores?" The data showed that the combined statistically significant items from the POINTS instrument explained 28.8% of the predictive power of the virtual simulation Power score as well as small percentages of the predictive power of the Ideas (6.9%), Leadership

(3.0%), and Overall (5.6%) scores (see Tables 11-17). All seven of the conflict management tactics had a statistically significant relationship to one or more of the virtual simulation scores.

The second finding answered the research question “To what extent did completion of a virtual leadership simulation change adult learners’ conflict management tactics?” After examining scores from the pre-simulation and post-simulation POINTS instruments, the data revealed statistically significant changes in two conflict management tactics, Reasoning and Counteracting. The POINTS instrument used a six-point scale. The Reasoning mean declined from 4.6 to 4.5 ( $p < .05$ ) and the Counteracting mean increased from 2.1 to 2.3 ( $p < .01$ ).

The third finding answered the research question “To what extent did learning styles predict the adult learners’ conflict management tactics?” Out of the 63 pairings between conflict management tactics and learning styles, only three held statistical significance ( $p < .05$ ): Appealing and Initiating, Reasoning and Analyzing, and Counteracting and Deciding.

Finally, the fourth finding answered the research question “To what extent did learning styles predict the adult learners’ virtual leadership simulation scores?” Out of the 36 pairings examined for this research question, only one pairing was found to have statistical significance ( $p < .05$ ). The virtual simulation score of Power and the learning style of Analyzing were positively correlated at a statistically significant level.

## **Conclusions**

From the overall field of leadership research this study focused on a competency-based approach to leadership development and specifically on the competency of conflict

management. From the overall field of research about adult learning and development this study focused on experiential learning, specifically on virtual simulations as a mode for learning. This section will discuss the primary conclusions that emerged from the intersections of conflict management tactics, learning styles, and the virtual simulation as a mode of experiential education or training for leadership development.

The main conclusions are:

1. A virtual simulation can be a good experiential learning tool for adult learners to practice the leadership competency of conflict management.
2. The POINTS instrument is a strong predictor of an adult learner's vLeader Power score.
3. Use of the POINTS instrument combined with instruction about underlying themes of conflict management and negotiation, especially Reasoning, could impact an adult learner's development of competencies related to Power, Ideas, and Leadership in both the vLeader virtual leadership simulation and in traditional (face to face) leadership development.

**Virtual simulations.** The first conclusion of this study is that virtual simulations can be good experiential learning tools for adult learners to practice the leadership competency of conflict management. This conclusion addresses the call for additional empirical research to help leadership educators “understand the suite of tools that may be used” (Richards, 2008). As discussed in the literature review, the technology available to educators and trainers has been proliferating at a rapid pace (Luna & Cullen, 2011) and researchers are increasingly exploring the benefits of technology such as virtual

simulations (Halvorson et al., 2011; Hickey et al., 2009; Ryan et al., 2000; Standifer et al., 2010).

Yukl (1999) reported on the shift in leadership development practice to “view people as active players who pursue their own development rather than as passive receivers of whatever training is bestowed upon them” (p. 268). Experiential learning, which occurs when the learner actually does a task in order to learn it (Hansman, 2001), has been noted as important to leadership development endeavors (Cacioppe, 1998; Yukl, 2010). Many adult educators have embraced experiential learning as a technique, but fewer have embraced technology such as virtual simulations (Conceição, 2007). “Designed to bridge the gap between concept and real-world experience, the vLeader simulator is a situated learning tool within which students may develop and practice leadership and interpersonal skills” (Standifer et al., 2010, p. 168).

In this study, participants completed the POINTS conflict management tactics instrument to determine preferred conflict management tactics in relation to the vLeader simulation. All seven of the conflict management tactics correlated with one of the vLeader Ideas, Power, Leadership, and/or Overall scores (see Table 3) which solidly correlates the simulation software with the concept of conflict management tactics as measured by the POINTS instrument. Because the correlation is spread among all seven tactics, the software can respond to different tactical approaches used by adult learners within its modules, allowing those adult learners the opportunity to practice different tactics repeatedly to learn how to implement those tactics. The next logical question (and another research question explored in this study) might be whether or not different

learning styles employed by adult learners would make a difference within the vLeader virtual simulation.

Learning styles are probably not an area worthy of lengthy consideration in a discussion of the virtual vLeader environment. This study found that there was no predictive power in assessing participants' KLSI learning style. This may be because virtual simulations by their very nature encompass Kolb's entire learning style model. While we have no way of knowing the underlying adult education principles that were used in the design of this particular simulation, it is possible that by its very nature of experiential learning in a simulated natural environment, all learning styles are leveraged.

Another hope was that this study would build upon the scant existing literature pairing learning styles and conflict management styles (Whitworth, 2008; Wood & Bell, 2008) by pairing two previously unmatched instruments, POINTS and the KLSI. While research examining the relationship between conflict management and cognitive (learning) style is largely absent from the literature (Liu et al., 2008), this study does little to add to that literature beyond the finding that no significant correlations appear to exist between these two instruments.

Virtual simulations provide a platform in which adult learners can experience a simulated scenario, allowing them to practice the task repeatedly so they can learn it (Gurley et al., 2010; Standifer et al., 2010), and in the case of conflict management and vLeader, to explore different conflict management tactics in relation to successful performance within the virtual simulation. The vLeader virtual leadership simulation, as one example of a virtual leadership simulation, meets the basic benchmarks for authentic learning; it allows students to learn specific curriculum components by using their own

ideas to choose their own paths of action (Woo et al., 2007). If implemented well, it also aligns with the majority of the key characteristics of authentic activities as presented by Herrington, Oliver, and Reeves (2003). These include: having real-world relevance, being ill-defined so as to require students to define tasks needed to complete the simulation, comprising complex tasks and the opportunity to examine the tasks from different perspectives, providing opportunities for collaboration and reflection, being integrated with assessment, and allowing for competing solutions with diverse outcomes (Herrington, Reeves, & Oliver, 2007). In addition to the conclusion that a virtual simulation can be a good experiential learning tool for adult learners to practice the leadership competency of conflict management, two related conclusions were derived from the unique relationship between the POINTS instrument and the vLeader virtual simulation.

**Approach to conflict management and performance within the vLeader virtual simulation.** The second and third conclusions of this study also come from the first research question which examined the impact of conflict management tactics upon performance within a virtual leadership simulation. The POINTS instrument was determined to be a strong predictor of an adult learner's vLeader Power score and the use of the POINTS instrument, combined with instruction about underlying themes of conflict management and negotiation, especially Reasoning, could impact an adult learner's development of competencies related to Power, Ideas, and Leadership in both the vLeader virtual leadership simulation and in traditional (face to face) leadership development. These conclusions emerged first from the findings, and are supported by the existing literature.

Four conflict management tactics (Reasoning, Consulting, Appealing, and Networking) accounted for twelve percent of the predicted value for the vLeader Power construct (see Table 3). Broken down into select individual items (9, 11, 15, 18, 22, 24, 27, 30, 33, 34, 36, 37, and 39) that comprise the POINTS conflict management tactics (see Tables 11-17), the total amount of predicted value for the vLeader Power construct is 28.8%. The POINTS instrument can therefore be considered a strong predictor of the vLeader Power score. Since the Reasoning conflict management tactic accounted for the largest statistically significant positive amount of variance with the Power score in the vLeader virtual simulation ( $r^2=.05$ ,  $p<.01$ ), increasing adult learner's familiarity with conflict management tactics, especially Reasoning, prior to the use of the vLeader simulation could impact the Power, Ideas, Leadership, and Overall scores within the vLeader virtual simulation.

Multiple researchers have written about the connection between leadership and communication skills (Apps, 1994; Bambacas & Patrickson, 2009; Flauto, 1999; Knights & Wilmott, 2007; D. G. Kolb et al., 2009; Rouhianinen, 2005). Conflict management as a subset of communication is an important skill worthy of an investment in development time since managers in particular use it often (Appelbaum et al., 1999). Previous researchers have argued that students can improve their confidence and performance when provided a framework for approaching negotiations (Kray & Haselhuhn, 2007). Similarly, if students are provided with a framework for managing conflict they could improve performance within the vLeader virtual simulation and also in traditional face to face leadership development training.

Researchers have found that adult learners in leadership development education or training activities have gained leadership skills from their participation (Cress et al., 2001; Itzhaky & York, 2003). Additionally, simulations have been used in efforts to enhance communication skills in adult learners (Yilmaz et al., 2006). Using POINTS and conflict management instruction can impact the development of competencies in virtual and traditional (face to face) leadership development experiential learning. Based upon the predictive power seen in this study, the POINTS instrument can be a valuable starting point to introduce students to the concepts of multiple approaches or tactics to conflict management.

**Implications.** Conflict management tactics appear to be an area worthy of consideration. Since the POINTS instrument indicates preferred conflict management tactic, students of leadership will want to be aware of the complete range of tactics available to them and will want to practice using various tactics. Participants in this study approached vLeader through the lenses of their personal backgrounds and academic courses, both those completed and those in which they were enrolled at the time of the study. Adult learners can also approach the simulation with a variety of conflict management tactics in mind to explore diverse outcomes. While the virtual leadership simulation can be somewhat self-contained and operate as a self-directed experiential learning opportunity for adult learners, leadership educators or trainers in non-computer-mediated environments would want to present and emphasize conflict management theory and tactics and then provide multiple opportunities for practice in safe environments that provide feedback. These findings are also consistent with Allio's (2005) contention that leadership programs often help adult learners develop an

awareness of how they present themselves to others in communication situations such as negotiation or conflict management.

For adult educators and management trainers, this would seem to indicate that a virtual leadership simulation would be a mode of learning worth further exploration for addition to the curriculum or training agenda (Gurley et al., 2010; Martin & Ernst, 2005; Standifer et al., 2010). Adult educators and trainers using the simulation to teach leadership or negotiation would be well served to provide some background on various conflict management tactics to adult learners and structure the simulation experience in such a way as to include exploration of various tactics as alternate approaches to the simulation scenarios presented in vLeader. The vLeader software also allows adult learners (with a computer) the opportunity to practice and learn at any time of day and in any location.

### **Future Research**

The use of virtual leadership simulations as a component of leadership education is still in its infancy. Few studies to date have investigated the efficacy of virtual leadership simulations or factors that impact performance within a virtual leadership simulation. In addition to the implications mentioned earlier in this chapter, this study has generated numerous ideas for future research.

1. This research did not explore the potential impact of demographic factors.

Future research could examine the demographic data in relationship to preferred conflict management tactics, learning style, and/or virtual leadership simulation scores.

2. Future research could explore whether the uncanny valley has an impact on adult learner performance within virtual leadership simulations. Mori (1970) coined the phrase, “bukimi no tani” or the “uncanny valley” for his theory which posits that

as a robot or CG [computer generated] avatar becomes more human-like in appearance, we experience the viewing of the synthetic agent increasingly more pleasant until its appearance reaches a point at which very subtle differences from human-like produces a feeling of profound discomfort in the observer (Mori 1970). (J. C. Thompson, Trafton, & McKnight, 2011, p. 695)

Future research could explore the impact (if any) of the uncanny valley on adult learner performance within virtual simulations that use avatars.

3. Future research could replicate this study using the actual Kolb software to ensure that the instrument is completed as it was designed in order to see if the correct completion of the instrument would produce different results.
4. The sample in this study consisted of college students. Although college students are indeed adult learners, they represent only one type of adult learner. It would be beneficial to replicate this study using other adult learner populations such as trainees in a corporate setting or adults in corporate leadership programs not associated with colleges or universities. Peterson (2001) underscores the importance of “replicating research based on college student subjects with nonstudent subjects before attempting any generalizations” (p. 450).

5. Future research could compare more traditional leadership education with vLeader or another virtual leadership simulation to determine whether virtual leadership simulations change adult learner preferred conflict management tactics.
6. Future research could work to create a typology of learners that might perform well within a virtual leadership simulation if particular tactics or styles are shown to correlate with simulation scores, construction of a typology of learners may be possible. A typology is a classification system that groups subjects with similar characteristics while ensuring that the resulting groups are both mutually inclusive and exclusive of other groups (Knights & Wilmott, 2007). What type of adult learner is most likely to utilize a particular conflict management tactic? A typology of adult learners would provide insight into conflict management preferences based upon personality types and personal characteristics.
7. This study could be replicated with a sample that completes the full vLeader virtual leadership simulation, rather than the time-limited experiences used in this study.

### **Final Thoughts**

This study found that each of Yang's (1996) conflict management tactics as measured by the revised POINTS instrument correlated significantly with a virtual leadership simulation score. This is significant because it points to the importance of including conflict and negotiation strategies as vital prerequisites when developing and teaching communication leadership competencies.

It is logical therefore to conclude that the vLeader virtual leadership simulation is a useful experiential learning tool for adult learners to practice various conflict management tactics. Because the software allows the learner to revisit the simulated scenario multiple times, it is easy to approach it with a particular conflict management tactic in mind. Since negotiation and conflict management are situated within the realm of communication competencies they can also be considered leadership competencies (Apps, 1994; Bambacas & Patrickson, 2009; Rouhianinen, 2005). The vLeader virtual leadership simulation can therefore be considered a useful tool for educators and trainers to use when working to develop leadership competencies within adult learners.

This study also found that the vLeader virtual leadership simulation does not demonstrate a preference for any particular learning style. This may indicate that the experiential learning technology of the simulation is accessible to all adult learners. Adult educators and trainers do not have to alter pre-simulation preparation work to account for differences based upon learning style. The dearth of texts and studies exploring the phenomenon of leadership learning noted by previous research (Ahmad et al., 1998; Kempster, 2009) has been made a little less expansive with the addition of this study which provides new insight into a particular mode of leadership learning: the use of a virtual leadership simulation.

Virtual leadership simulations are part of an emerging category of experiential learning tools available to adult educators and trainers. While the technology is advancing at a rapid pace, this study demonstrates that virtual leadership simulations such as vLeader can be a helpful tool for adult learners to explore leadership competencies such as conflict management and negotiation. Students and educators with diverse

learning styles should not view a particular style as a barrier to success within a virtual leadership simulation. Educators and trainers should endeavor to keep the principles of good practice in education (McCabe & Meuter, 2011) and authentic learning (Herrington et al., 2003) foremost in practice and not turn to technology just because it is the latest or newest tool available. In this study, the virtual simulation was found to be helpful and if used appropriately, can align with principles of both good practice and authentic learning.

This study provides additional encouragement for educators and trainers to adapt virtual simulations as new tools to add to their experiential learning toolboxes.

Experiential learning is important to leadership development endeavors (Cacioppe, 1998; Yukl, 199b, 2010). In addition to the cost savings often associated with the use of virtual simulations (Garson, 2009), one of the major benefits using a virtual simulation such as vLeader is that it allows adult learners to practice and experience multiple approaches and tactics within the same simulated scenario multiple times (Gurley et al., 2010). Since conflict management is a key competency to successful leadership, and there are multiple approaches or tactics for successful conflict management, a good leadership development program or course will allow students the opportunity to practice multiple approaches multiple times. A virtual simulation is a tool worthy of serious consideration for inclusion in a leadership training seminar or course.

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# Appendix A

## Revised POINTS instrument

**Virtual Leadership Development Pre-Simulation Survey**

**Page 1 Introduction and Overview** Page 1 of 10

Thank you for clicking the link to this survey. My name is Paul Putman, and I am a doctoral candidate at Cleveland State University researching virtual leadership development. I am interested in learning more about how factors such as learning styles and conflict management tactics impact performance within a virtual leadership simulation such as Simulearn's vLeader.

Completion of this survey should only take about 15-20 minutes. There are no risks other than those associated with normal daily living, yet completion of the survey may be of great benefit to future educators and trainers working with virtual leadership development. I am hoping that you will be willing to complete this survey both prior to completing the vLeader virtual leadership simulation and after.

Your surveys will be kept completely confidential, and you will not be contacted for any other reason. Completion of this survey is voluntary, and you may choose to exit at any time by closing this website. However, I hope that you will choose to take a few minutes to help out this graduate student by completing the survey. It's good karma!

Should you have any questions, I can be reached at [216-523-7132](tel:2165237132) or via email at [p.putman@csuohio.edu](mailto:p.putman@csuohio.edu). The supervising Methodologist for this study is Dr. Jonathan Messemer who may be reached at (216) 523-7132 or via email at [j.messemer@csuohio.edu](mailto:j.messemer@csuohio.edu).

When you click forward to respond to this survey you become a participant in this study. Participants have rights as outlined above. By clicking you also acknowledge that "I understand that if I have any questions about my rights as a research subject I can contact the CSU Institutional Review Board at (216) 687-3630."

Your proceeding with this survey constitutes your informed consent to participate. Thank you!

**\*1. In order to match your survey responses to your vLeader simulation scores we need a unique identifier. Please enter the email address that you will be using for vLeader here. Note that it will only be used to match your responses and to send a reminder for completing the post-test survey. Once the responses are matched the email address will be removed from the database. You will not be added to any mailing list.**

**Next**

Please recall a recent situation where you were negotiating an idea with at least one other person.

Identify the person(s) with whom you have interacted. This person/these people will be referred to as <the others> in the following statements.

Read each of the following statements and then circle the number that best represents your opinion.

2. Although we will not ask you to identify the person(s), please indicate the others' relationship to you by checking the following that apply:

- your supervisor
- your subordinate
- your colleague in your organization
- someone outside your organization
- If other, please specify

Now, keep this person/these people in mind as you answer each of the items on the next page:

[Previous](#) [Next](#)

3. Describe your interaction during the negotiation process with <the others> you have identified.

	Strongly Disagree	Moderately Disagree	Mildly Disagree	Mildly Agree	Moderately Agree	Strongly Agree
a. You and the others involved clearly had different visions.	<input type="radio"/>					
b. You and the others involved had competing personal agendas.	<input type="radio"/>					
c. You and the others involved had no conflicting interests.	<input type="radio"/>					
d. You and the others involved were pursuing different goals.	<input type="radio"/>					
e. You and the others involved were unwilling to share the resources you each controlled.	<input type="radio"/>					
f. The others involved could offer rewards to you if you cooperated with them.	<input type="radio"/>					
g. The others involved had power to apply pressure or penalize you if you failed to cooperate with them.	<input type="radio"/>					
h. Overall, the others involved had more power than you.	<input type="radio"/>					

[Previous](#) [Next](#)

Instructions

1. Consider the situation.
2. Think about the person/people you previously identified.
3. Please look at the tactics listed on the next three pages and indicate how effective each one would have been in influencing others.
4. In reading the statements, please keep in mind that we are not asking you what tactics you actually used -- or even whether you believe that a given tactic should have been used. We are simply asking you to judge the likely effectiveness of each tactic if you had, in fact, used it.

[Previous](#) [Next](#)

4. How effective would each of the tactics have been in influencing this person/these persons?

	very ineffective	ineffective	somewhat ineffective	somewhat effective	effective	very effective
a. Asking the others for suggestions.	<input type="radio"/>					
b. Getting other people to help influence the others.	<input type="radio"/>					
c. Convincing the others that your plan is viable.	<input type="radio"/>					
d. Promising to support future efforts by the others in return for their support.	<input type="radio"/>					
e. Repeatedly reminding the others about things you want done.	<input type="radio"/>					
f. Offering to do some work for the others in return for their support.	<input type="radio"/>					
g. Asking others if they have any special concerns.	<input type="radio"/>					
h. Linking what you want the others to do with efforts made by influential people in the organization.	<input type="radio"/>					
i. Communicating in an ambiguous way so that the others are never quite clear.	<input type="radio"/>					
j. Presenting the others with facts, figures and other data that support your idea.	<input type="radio"/>					

5. How effective would each of the tactics have been in influencing this person/these persons?

	very ineffective	ineffective	somewhat ineffective	somewhat effective	effective	very effective
a. Offering to do a personal favor in return for the others' support.	<input type="radio"/>					
b. Indicating your willingness to modify your idea based on input from the others.	<input type="radio"/>					
c. Simply insisting that the others do what you want done.	<input type="radio"/>					
d. Obtaining support from other people before making a request of the others directly involved.	<input type="radio"/>					
e. Taking action while the others are absent so that they will not be included.	<input type="radio"/>					
f. Using logical arguments to convince the others to support your idea.	<input type="radio"/>					
g. Saying that the others are the most qualified individuals for a task that you want done.	<input type="radio"/>					
h. Offering to speak favorably about the others involved to other people in return for their support.	<input type="radio"/>					
i. Indicating that you are receptive to the others' input about your idea.	<input type="radio"/>					
j. Withholding information that the others need unless they support your idea.	<input type="radio"/>					

6. How effective would each of the tactics have been in influencing this person/these persons? \*NOTE: This is the last page of multi-questions - you're almost done!

	very ineffective	ineffective	somewhat ineffective	somewhat effective	effective	very effective
a. Telling the others that you refuse to carry out those requests with which you do not agree.	<input type="radio"/>					
b. Demonstrating to the others your competence.	<input type="radio"/>					
c. Waiting until the others are in a receptive mood before making a request.	<input type="radio"/>					
d. Raising your voice when telling the others what you want done.	<input type="radio"/>					
e. Showing the others the relationship between your idea and past practices in your organization.	<input type="radio"/>					
f. Making the others feel good about you before making your request.	<input type="radio"/>					
g. Challenging the others to do the work your way or to come up with a better idea.	<input type="radio"/>					
h. Making the others feel that what you want done is extremely important.	<input type="radio"/>					
i. Demanding that the others do the things you want done because of organizational rules and regulations.	<input type="radio"/>					
j. Appealing to the others' values in making a request.	<input type="radio"/>					
k. Asking other people in your organization to persuade the others involved to support your idea.	<input type="radio"/>					

## Appendix B

Original POINTS Instrument (1996)

# POINTS . . .

## Power and Influence Tactics Scale



This instrument was developed to measure power and influence tactics during the planning process of educational and training programs. Please recall a recent adult education or training program you planned with at least one other person and answer the following questions by checking appropriate number.

### PART I. PROGRAM PLANNING SITUATION

#### Directions:

1. Please recall a recent adult education or training program you planned with at least one other person.
2. Identify one person with whom you have interacted frequently while planning this program. This person will be referred to as <the person> in the following statements.
3. Read each of the following statements and then circle the number that best represents your opinion.
4. Although we will not ask you to identify the person, please indicate the person's relationship to you by checking one of the following:

your supervisor

your colleague in your organization

your subordinate

someone outside your organization

5. Now, keep this person in mind and answer each of the following items:

Describe your interactions during the planning process with < the person > you have identified	Strongly Disagree	Moderately Disagree	Mildly Disagree	Mildly Agree	Moderately Agree	Strongly Agree
1. <The person> and you clearly had different visions for this program. . . . .	1	2	3	4	5	6
2. <The person> and you had competing personal agendas for this program. .	1	2	3	4	5	6
3. <The person> and you had no conflicting interests for this program. . . . .	1	2	3	4	5	6
4. <The person> and you were pursuing different goals for this program. . . . .	1	2	3	4	5	6
5. <The person> and you were unwilling to share the resources you each controlled. . . . .	1	2	3	4	5	6
6. <The person> could offer rewards to you if you cooperated with him/her. . .	1	2	3	4	5	6
7. <The person> had power to apply pressure or penalize you if you failed to cooperate with him/her. . . . .	1	2	3	4	5	6
8. Overall, <the person> had more power than you during the planning process. . . . .	1	2	3	4	5	6

**PART II. POWER AND INFLUENCE TACTICS**

Directions:

1. Consider the adult education and training program you previously identified.
2. Think about the person you previously identified. This person will be referred to as <the person> in the following statements.
3. Please look at the tactics listed below and indicate how effective each one would have been in influencing <the person> during the planning process.

4. In reading the statements, please keep in mind that we are not asking you what tactics you actually used during the planning process--or even whether you believe that a given tactic should have been used. We are simply asking you to judge the likely effectiveness of each tactic if you had, in fact, used it in your dealing with <the person>.

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<b>How effective would each of the tactics have been in influencing this person?</b>	<i>Very Ineffective</i>	<i>Ineffective</i>	<i>Somewhat Ineffective</i>	<i>Somewhat Effective</i>	<i>Effective</i>	<i>Very Effective</i>
9. Asking <the person> for suggestions about your plan. . . . .	1	2	3	4	5	6
10. Getting other people to help influence <the person>. . . . .	1	2	3	4	5	6
11. Convincing <the person> that your plan is viable. . . . .	1	2	3	4	5	6
12. Promising to support future efforts by <the person> in return for his or her support. . . . .	1	2	3	4	5	6
13. Repeatedly reminding <the person> about things you want done. . . . .	1	2	3	4	5	6
14. Offering to do some work for <the person> in return for his or her support. . . . .	1	2	3	4	5	6
15. Asking <the person> if he or she has any special concerns about your plan. . . . .	1	2	3	4	5	6
16. Linking what you want <the person> to do with efforts made by influential people in the organization. . . . .	1	2	3	4	5	6

17. Communicating your plan in an ambiguous way so that <the person> is never quite clear about it. . . . .	1	2	3	4	5	6
18. Presenting <the person> with facts, figures and other data that support your plan. . . . .	1	2	3	4	5	6
19. Offering to do a personal favor in return for <the person's> support for your plan. . . . .	1	2	3	4	5	6
20. Indicating your willingness to modify your plan based on input from <the person> . . . . .	1	2	3	4	5	6
21. Simply insisting that <the person> do what you want done . . . . .	1	2	3	4	5	6
22. Obtaining support from other people before making a request of <the person>. . . . .	1	2	3	4	5	6

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<b>How effective would each of the tactics have been in influencing this person?</b>	<i>Very Ineffective</i>	<i>Ineffective</i>	<i>Somewhat Ineffective</i>	<i>Somewhat Effective</i>	<i>Effective</i>	<i>Very Effective</i>
23. Taking action while <the person> is absent so that he or she will not be included in the planning process. . . . .	1	2	3	4	5	6
24. Using logical arguments to convince <the person> to support your plan. .	1	2	3	4	5	6

25. Saying that <the person> is the most qualified individual for a task that you want done. . . . .	1	2	3	4	5	6
26. Offering to speak favorably about <the person> to other people in return for his or her support. . . . .	1	2	3	4	5	6
27. Indicating that you are receptive to <the person's> ideas about your plan.	1	2	3	4	5	6
28. Withholding information that <the person> needs unless he or she supports your plan. . . . .	1	2	3	4	5	6
29. Telling <the person> that you refuse to carry out those requests that you do not agree with. . . . .	1	2	3	4	5	6
30. Demonstrating to <the person> your competence in planning the program. . . . .	1	2	3	4	5	6
31. Waiting until <the person> is in a receptive mood before making a request. . . . .	1	2	3	4	5	6
32. Raising your voice when telling <the person> what you want done. . . . .	1	2	3	4	5	6
33. Showing <the person> the relationship between your plan and past practices in your organization. . . . .	1	2	3	4	5	6
34. Making <the person> feel good about you before making your request. . . . .	1	2	3	4	5	6
35. Challenging <the person> to do the work your way or to come up with a better plan. . . . .	1	2	3	4	5	6
36. Making <the person> feel that what you want done is extremely important. . . . .	1	2	3	4	5	6

- |  |   |   |   |   |   |   |
|--|---|---|---|---|---|---|
| 37. Demanding that <the person> do the things you want done because of organizational rules and regulations. . . . . | 1 | 2 | 3 | 4 | 5 | 6 |
| 38. Appealing to <the person's> values in making a request . . . .   | 1 | 2 | 3 | 4 | 5 | 6 |
| 39. Asking other people in your organization to persuade <the person> to support your plan. . . . .<br>.....         | 1 | 2 | 3 | 4 | 5 | 6 |
-

### PART III. BACKGROUND INFORMATION

40. Your gender is

Female

Male

41. Your age is ..... \_\_\_\_\_  
years old.

42. The highest degree you have earned:

High School diploma

Associate Degree

Bachelor Degree

Master Degree

Doctoral Degree.

43. You have been working as an education  
or training professional for .....  
\_\_\_\_\_ years.

44. Your organization is:

public

private

not-for-profit.

45. Your position in the organization can be  
classified as:

senior management

middle management

supervisor

non-management.

46. The size of your department or work  
group is:

one person

2-50 people

51-100 people

over 100 people.

47. You have been working in your current  
organization for .....  
..... \_\_\_\_\_ years.

48. You have been working in your current  
position in that organization for .....  
..... \_\_\_\_\_ years.

**Item Scoring:**

**Conflict of Interests:** 1, 2, 3, 4, 5.

**Power Base:** 6, 7, 8.

**Reasoning:** 11, 18, 24, 30, 33.

**Consulting:** 9, 15, 20, 27.

**Appealing:** 25, 31, 34, 36, 38.

**Networking:** 10, 16, 22, 39.

**Bargaining:** 12, 14, 19, 26.

**Pressuring:** 13, 21, 32, 35, 37.

**Counteracting:** 17, 23, 28, 29.

**Thank you for your participation in this study!**

Please return the completed questionnaire in the enclosed stamped envelope.

## Appendix C

### Kolb Learning Style Inventory

NOTE: The company that owns the KLSI instrument does not grant permission to include a copy of the instrument in this research paper. Please refer to email pasted below.

Gmail - Congratulations! LSI Research Approval

<https://mail.google.com/mail/u/0/?ui=2&ik=87386687af&vicw...>



Paul Putman <[REDACTED]>

### Congratulations! LSI Research Approval

Samantha Melchin <Samantha.Melchin@haygroup.com>

Tue, Jan 4, 2011 at 2:04 PM

To: Paul Putman <[REDACTED]>

Congratulations! Your research request regarding use of the Learning Style Inventory (LSI) has been approved. Attached you will find one document containing three pages (.pdf file—Adobe Acrobat 4.05):

\* MCB200C - This is a copy of the LSI test. You may print or copy this document as needed for your research.

\* MCB200D - The profile sheet contains the answer key for the test as well as the profiling graphs for plotting scores. This document may also be reproduced as necessary for your research. The AC-CE score on the Learning Style Type Grid is obtained by subtracting the CE score from the AC score. Similarly, the AE-RO score = AE minus RO.

These files are for data collection only. This permission does not extend to including a copy of these files in your research paper. It should be sufficient to source it.

We wish you luck with your project and look forward to hearing about your results. Please email a copy of your completed research paper to Samantha\_Melchin@Haygroup.com or mail it to the following address:

LSI Research Contracts  
c/o Samantha Melchin  
HayGroup  
116 Huntington Avenue  
Boston, MA 02116

If you have any further questions, please let me know.

Regards,

## Appendix D

Permission to Use POINTS Instrument and Include in Dissertation Document.

Gmail - POINTS survey

<https://mail.google.com/mail/u/0/?ui=2&ik=47.96647.ahv...>



Paul Putman [REDACTED]

### POINTS survey

Jonathan E Messemer [REDACTED]

Sun, May 16, 2010 at 11:57 PM

To: Baiyin Yang [REDACTED]

Co [REDACTED]

Thank you Baiyin, for your permission to use your POINTS survey and for the two copies of the instrument you provided. Thank you again for your continued support.

Jonathan E. Messemer, Ed.D.  
Assistant Professor  
Adult Learning and Development Master Degree Program &  
Urban Education: Leadership and Lifelong Learning Ph.D. Program &  
Coordinator of the Accelerated ALD Master's Degree Program  
Cleveland State University  
2121 Euclid Ave., RT-1312  
Cleveland, OH 44115-2214  
Phone: [REDACTED]  
Email: [REDACTED]

-----"Baiyin Yang" [REDACTED] wrote: -----

To: "Jonathan E Messemer" [REDACTED] <[REDACTED]@[REDACTED]>  
From: "Baiyin Yang" [REDACTED]  
Date: 05/15/2010 01:51PM  
Subject: RE: POINTS survey

Hi Jonathan,

This sounds a very interesting study. Yes, please feel free to use the POINTS. For your reference, I am including two versions for your consideration, one is based on 1996 published article and the other is used to test some new items.

Have a great weekend!

Baiyin

Baiyin YANG, Ph.D.

1/1

11:12:17 PM



Paul Putman [redacted]

---

**(no subject)**

---

Baiyin Yang <[redacted]> Tue, Feb 21, 2012 at 2:57 AM  
To: Jonathan E Messemer <[redacted]>  
Cc: Paul Putman <[redacted]>

This is perfect alright. Thank you for letting me know. Have a great day!

Baiyin

Baiyin YANG, Ph.D.  
Cheung Kong Scholar Professorship (Ministry of Education, P. R. China)  
COSCO Chair Professor  
Chair, Department of Human Resources and Organizational Behavior  
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Fax: 86-10-62772021  
E-mail: [redacted]

Editor, *Human Resource Development Quarterly* (HRDQ)  
A Thompson Scientific SSCI Listed Journal  
[http://onlinelibrary.wiley.com/journal/10.1002/\(ISSN\)1532-1096](http://onlinelibrary.wiley.com/journal/10.1002/(ISSN)1532-1096)

---

发件人: Jonathan E Messemer [mailto:[redacted]]  
发送时间: 2012年2月15日 4:36  
收件人: Yang Baiyin

Group - no subject

<https://mail.google.com/mail/u/0/?ui=2&ik=57786667&ik=...>

抄送: Paul Putman; Catherine H Monaghan  
主题:  
重要性: 高

Hello Baiyin, how are things in China? Sometime back you gave my doctoral student (Paul Putman), for which I am serving as the methodologist for his dissertation (Dr. Catherine Monaghan is the Dissertation Chair), permission to use your POINTS Survey for his dissertation. We are currently requesting permission to include a printed copy of your POINTS instrument in the Appendices section of his dissertation. I am just checking to see if this ok with you. We don't want to put it in the dissertation if you are not ok with it.

Thank you for your support and I look forward to hearing back from you regarding this matter.

Sincerely,

Jonathan E. Messemer, Ed.D.  
Assistant Professor  
Adult Learning and Development Master Degree Program,  
Urban Education: Leadership and Lifelong Learning Ph.D. Program, &  
Coordinator of the Accelerated ALD Master's Degree Program  
Cleveland State University  
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Julka Hall - Room 265  
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Phone: [REDACTED]  
Email: [REDACTED]

Information from ESET NOD32 Antivirus, version of virus signature database 6900 (20120220)

The message was checked by ESET NOD32 Antivirus.

<http://www.eset.com>