THE IMPACT OF THINKING AND LEADERSHIP STYLES ON THE ADVANCEMENT OF WOMEN

by

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ABSTRACT

Women remain severely underrepresented at the executive leadership level of many organizations when compared to men. The purpose of this quantitative correlational research was to determine if there was a relationship between mental models, in the form of both leadership styles and thinking styles, internalized by women, and their career advancement. The literature review supports a systems thinking perspective with regard to mental models in the guise of gender, leadership styles, thinking styles, culture, and multiple intelligences, which form barriers to career advancement opportunities for women. The findings indicate that women perceive vision and leadership are not supported below the executive leadership level. This study is intended to contribute to the body of knowledge associated with leadership theories inclusive of multiple and organizational intelligences as the organizational status quo is challenged. A quantitative study of this type may assist in further understanding the effect of mental models and their associated behavior in the decision making process, offering new ways of understanding how our future leaders will be selected.

DEDICATION

I firmly believe that all of humanity has a Divine purpose. This work is a reflection of my purpose and is dedicated to women everywhere who dare to be who they are on purpose. This work is also dedicated to my family and friends: my father who was the first to ever call me doctor; my mother who held my hand when I needed it held and let go when I could walk on my own; my sister Pat who mentors by example and my brother Greg for the man he is in the process of becoming. To Ralph Easton-Woodard for staying up late nights to help me process new ideas; to Lola Louis (CAPAS) for releasing my music and expression and Belinda J. Womack for guiding me to freedom from emotional bondage at all levels and to Virginia Murry-Ellis and Arnela Ten Meer for taking such good care of me during trying times.

To my Godchildren, Michelle Rosario, Aaron Edwards, Ebonique Edwards, and Perri Marie Jones, who represent the next generation of executive leaders. Extra special thanks to Nube, Babu, and Kiki for the Love you bring - I honor the Divine in you ALL!

"Into a daybreak that's wondrously clear
I rise
Bringing the gifts that my ancestors gave,
I am the dream and the hope of the slave.
I rise, I rise, I rise" (Angelou, 1978)

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TABLE OF CONTENTS

LIST OF TABLES

LIST OF FIGURES

CHAPTER 1: INTRODUCTION

The 21st century organization is in an evolutionary stage as many organizations attempt to meet the needs of a growing global economy. According to Handy (1996), a vast reconfiguration is taking place, impacting entire layers of management. Breaking through glass-ceiling barriers became a new global accomplishment for women worldwide as they attained top positions in corporations in the 1990s (Carli & Eagly, 2001). In many instances, organizational leadership has been hindered by internalized societal barriers in the form of mental models of prejudice and bias. According to Dennis and Kunkel (2004), "though laws have been established to prevent discrimination against women in the workplace, it seems that female executives are still facing many obstacles in their efforts to achieve high-level … positions" (p. 155).

Chapter 1 details the background, problem, and purpose statements that examine the extent to which *mental models* affect the leadership advancement process for women. For the purposes of this research, mental models are referred to as *thinking styles* and *leadership styles*. Chapter 2 provides a review of existing literature specific to mental models, multiple intelligences, leadership styles, gender, thinking styles, culture, and systems theory. Chapter 3 details the selected methodology and research design in order to establish the credibility of the study. Chapter 4 presents an in-depth analysis of the data, which include the results and findings, as well as a review of the hypotheses based upon the results. Chapter 5 details the conclusions, implications, and recommendations through the provision of a review of the research questions, scope, and findings.

Background of the Problem

According to the U.S. Bureau of Labor Statistics (2003), in 2002 women represented 46.5% of the labor force in the United States (U.S.). During the same period, women of color represented 13.4% of the U.S. labor force. Fullerton and Toosi (2001) state that this number (13.4%) is estimated to increase to 15.2% by 2010.

Adler (1999) reports the number of women in a position to accept leadership positions has grown considerably since the 1990s. This trend has been reflected in international political leadership, where 42 women have served as presidents or prime ministers, with 25 assuming office during the 1990s. Women have also made progress in the U.S. over the past 20 years, as illustrated by the 29 women who have served in the U.S. at cabinet-level positions (Dolan, 2005). Janet Reno served as the first female Attorney General, and Madeleine Albright was selected as the first female Secretary of State in the U.S. under President Clinton's administration (Center for American Women and Politics, 2004). Currently, in President Bush's administration, Condoleeza Rice is the first female Black American to hold the position of Secretary of State (Dolan, 2005).

Even though the United States, an advanced industrial society, may appear to be reaching gender equality, Catalyst (2000) reported in Fortune 500 companies, women represented approximately 4% of the top positions, 3% of the highest paid positions, and 0.4 % of CEOs. According to the Federal Glass Ceiling Commission (1995), the corporate structure had a demographic orientation that was 95% white male and 5% female and men of color. Catalyst (2002) reported that female corporate officers represented 9.9% of the total number of revenue generating line positions available. Men comprised 90.1% of the same positions. These statistics reveal a pattern of ignoring

concepts of diversity within the ranks of organizational leadership. This phenomenon, which refers to the lack of advancement of women and other minorities, is commonly referred to as the *glass ceiling.*

The term *glass ceiling* was introduced by the *Wall Street Journal,* in 1986, in recognition of the disjunction behind the presence of so few women in powerful positions. It has since been recognized by the public as an invisible but very powerful barrier that does not allow women and others labeled as having less socially desirable characteristics to advance to more powerful positions. The glass ceiling is a metaphor for prejudice and discrimination, which manifests itself in many ways with a myriad of effects. Subtle or blatant forms of bias were determined to have been held by employers, customers, and the targets of prejudice themselves (Carli & Eagly, 2001).

Morgan (1998) illustrated how women have been "socialized to accept roles placing them in a subordinate position" (p. 153). This study sought to identify *mental models,* in the form of both *thinking styles* and *leadership styles,* internalized by female leaders with the expectation of career advancement and successful integration into the global marketplace. One characteristic identified by researchers as influencing such expectations is referred to as the *groupthink* mentality. According to Johnson and Johnson (2003), characteristics of *groupthink* symptoms include illusions of invulnerability, collective rationalization, belief in inherent morality of the group, stereotypes of out-groups, direct pressure on dissenters, self-censorship, illusions of unanimity, and self-appointed mind guards.

Postmodern organizations are devoting both financial and human resources to develop and leverage change within their companies with the objective of creating a more

diverse leadership. The Federal Glass Ceiling Commission (1995) reported, “Most companies prefer to grow their own leaders, and those who do not engage in active recruitment campaigns for minorities and women will not make much progress in advancing them” (p. 29). Company executives who recruit, advance, and retain women will gain by cultivating new talent and resources that link to new markets.

According to the National Center for Educational Statistics (2002), in 2001, women in the United States represented 57.3% of all earned bachelors’ degrees, 58.5% of the total number of masters’ degrees, 44.9 % of all earned doctorates, and 47.3 % of the total number of law degrees. Fullerton and Toosi (2001) reported a projected increase of almost 10 million women in the U.S. labor force by the year 2010, representing a growth rate approximately one third higher than the estimated rate for men. In order to take advantage of the growing number of educated women available to the workplace, organizations can leverage diversity by advancing women in business and leadership positions. The barriers to women’s advancement in general management and line experience opportunities must be addressed. In order to facilitate this advancement, an internal examination may be in order to focus on the detection of potential barriers to the process.

There is a need to develop the concrete abilities and critical thinking skills of current organizational leaders. Organizational leaders may inadvertently perpetuate barriers to the advancement of women. These barriers may be eradicated with the detection of personal bias and distortion—an act that is critical to the development of the future of organizations. The need to contrast and analyze different views of mental models of learning and reality may provide the answer to new leadership, learning

models, and paradigms (Argyris & Schon, 1978, Senge, 1990). Senge (1990) states that working with mental models "includes the ability to carry on *learningful* conversations that balance inquiry and advocacy, where people expose their own thinking effectively and make that thinking open to the influence of others" (p. 9).

The research problem is of important social concern or theoretical interest because the way in which leaders are presently chosen may not meet the needs of the 21st century organization. Many new insights are ignored because they are different from or go against the status quo. Many of these new insights are in "conflict with deeply held internal images of how the world works, [and] are images that limit us to familiar ways of thinking and acting" (Senge, 1990, p. 174).

Rationalizing stereotypes or seeking concurrence in the selection of future leaders are outmoded and need to be examined in order to facilitate the successful integration of diverse ideas and cultures among future leaders. Learning how to manage and share mental models will help to change and improve internal pictures of reality. The challenge of leadership is to encounter, reflect upon, and develop lessons that incorporate a wide range of perspectives relative to how future leaders are chosen.

Statement of the Problem

According to the U.S. Bureau of Labor Statistics (2003), in 2002, women in the United States made up 46.5% of the labor force. In 1995, 57% of the working population in the United States were female, minority, or both. "By 2005, women and minority men will comprise 62% of the workforce" (Federal Glass Ceiling Commission, 1995, p. iv). Fullerton and Toosi (2001) reported a projected increase of almost 10 million women in the U.S. labor force by the year 2010.

Yet, according to Catalyst (2000), women represented approximately 4% of top positions, 3% of the highest paid positions, and 0.4% of chief executive officers (CEOs). Sellers, as cited in Dennis and Kunkel (2004), reported "at the turn of the present century, only six women held the position of chief executive officer (CEO) in companies on the Fortune 500 list" (p. 156). Women remain drastically underrepresented in managerial roles that lead to top-level executive management positions despite the increase of women in the workplace.

The specific problem, as it relates to this study, is that in spite of increasing numbers of qualified females in the workplace, the vast majority of management positions go to men. The study endeavored to determine if male domination resulted from hiring personnel holding preconceived notions of strong management/leadership characteristics, and if women also held similar opinions, which may then become self-defeating.

A quantitative correlational research design was used in this study. According to Leedy, Newby, and Ertmer (1997), correlational research investigates, "the relationship between one factor and one or more other factors" (p. 111). The general population sample was drawn from the Interracial Women's Leadership Round Table (IWLR) and the Zonta Club of Westchester, Westchester County, New York.

Purpose of the Study

The purpose of this quantitative correlational research was to determine if there was a relationship between mental models, in the form of both thinking styles and leadership styles, internalized by women and their career advancement. For the purposes of the research, mental models are referred to as thinking styles and leadership styles. An

examination of perceived mental models may aid in the identification of strategies that could assist organizations in the facilitation of a more diversified leadership.

A quantitative research method was appropriate to the study because it "seeks explanations and predictions that will generalize to other persons and places. The intent is to establish, confirm, or validate relationships and to develop generalizations that contribute to theory" (Leedy et al., 1997, p. 106). A correlational design was appropriate to the research method because it offered the opportunity for a close examination of possible correlations between the variables used in the design: thinking style and leadership style, and how such styles internalized by female leaders affect leadership selection and advancement of women.

To fulfill this purpose, a quantitative correlational research study was conducted of female leaders from the Interracial Women's Leadership Round Table (IWLR) and the Zonta Club of Westchester. Both clubs are located in Westchester County in New York State. The IWLR and Zonta Club of Westchester are comprised of more than 300 women, over the age of 18, who represent a diversity of religions and ethnicities. The members of IWLR represent organizations in the corporate sector, not-for-profit, and private sectors.

Significance of the Problem

The study is significant because it has the potential to provide present organizational leaders with a better understanding of the type of leadership they have created and how leaders can make organizations stronger and more resilient in the global marketplace. According to Hesselbein, Goldsmith, and Beckhard (1996), truly effective future leaders will be identified in organizations by their strong personal values and belief in the ability of people to grow. Leaders are visionary and strongly believe that it is

imperative that they can and should attempt to shape the future and present such beliefs through personal behaviors.

Understanding the effect of mental models on the leadership advancement and promotion process for women will assist organizations in meeting the aspired postmodern dictates such as the innovative creation of new knowledge. Present technological and communication growth has increased the demands on leaders to be more resilient, diverse, and adaptable to the changing roles and relationships found in various sectors of society. In many respects, the creation of a more balanced power structure is reflective of a postmodern society (Hage & Powers, 1992).

The significance of the study is also inherent in the identification of mental models in the assessment of leadership advancement for women. The identification of mental models that create the fear base represented by a small number of women and other minorities in leadership roles in many American organizations must be identified and addressed. It is extremely important when considering the demographics of the American labor force alone. Learning the value of shared mental models has the potential to allow for the necessary elements associated with the advancement of a culturally, non-color based, gender diverse leadership to take place more readily.

Significance of the Study to Leadership

A corollary contribution to the future of leadership, business research, community, and/or self, will be reflected in the enhancement of new strategies and practices dedicated to the creation of a diversified leadership. The study has the potential to provide information that will assist leaders in achieving a greater understanding of the

extent to which a relationship exists between thinking style and leadership style in the identification of appropriate female leaders for executive leadership positions.

When women and other minorities are placed in positions that will enhance leadership skill, training, and knowledge in revenue generating positions, future leaders will be not only more diverse, but, better prepared to lead. The study has the potential to contribute to leadership in two major ways. First, it adds to the growing body of literature relevant to the examination of the nature of thinking styles and leadership styles. Second, by providing empirical data, the study assists in the facilitation of a better understanding of the nature of mental models in relation to both thinking and leadership styles in the advancement of female leaders. The establishment of parameters for leadership advancement for women will assist an organization's potential for the successful integration of thinking styles and leadership styles attributed to a diverse leadership.

In the definition of operational principles of organizations that are more successful than their competition, Collins (2001) indicated that the leadership style adopted and promoted by an organization was an integral aspect of a leader's ability to successfully achieve long-term goals. The use of the organization's role as a culture setter assists in the definition of societal norms, values, and rewards. Zhang (2002) stated, "people's thinking styles vary depending on the stylistic demands of a given situation and are at least partially socialized, suggesting that they can be modified" (p. 180).

Nature of the Study

The purpose of this quantitative correlational research was to identify mental models in the form of both thinking styles and leadership styles, internalized by female leaders when examining their expectations for career advancement and successful

integration into the global marketplace. Quantitative correlational research techniques and statistical tools were used to analyze the survey results (Leedy & Ormond, 2001). This research uses a quantitative design that is consistent with inquiry into an issue or social problem. It employs theoretical testing and statistical analyses in order to determine whether the predicted generalizations can be made with regard to the results (Creswell, 2003).

A quantitative correlational research design is appropriate because according to McMillan (1996), as cited by Leedy et al. (1997), "correlational studies examine the degree to which variations or differences in one variable are related to variations or differences in another variable" (p. 224). The researcher will accomplish the study goals using a quantitative correlational design in order to examine a representative sample of a population, the results of which may be used to generalize across the entire population (Leedy & Ormond, 2001). A correlational design was chosen by the researcher to offer the opportunity for a close examination of possible correlations between the variables used in the design: thinking style, leadership style, and leadership level within participant's organization. The data were extracted through the use of three questionnaires: (a) a demographic questionnaire, which included a self-reported level within the participant's organization; (b) the InQ, which measured thinking styles; and (c) the MLQ, which measured leadership styles. A randomized, stratified sample was utilized based upon the self reported level in the participant's organization.

Research Questions

Organizations are a microcosm of the society in which they are created. Women are absent from many organizational leadership positions in contrast to white men, according to the U. S. Bureau of Labor Statistics (2003) and the Federal Glass Ceiling Commission (1995). Sellers, as cited in Dennis and Kunkel (2004), postulated that, "At the turn of the present century, only six women held the position of chief executive officer (CEO) in companies on the Fortune 500 list" (p. 156). In order to meet the needs of a global leadership, organizations will need to rely upon a diverse group of leaders and thinkers in order to shape their continuous success and survival. The issues future organizations will have to address will be more complex in nature and require more from their leaders in order to maintain a competitive advantage in the marketplace (Hesselbein et al., 1996). This study provided data that potentially answers the following three research questions:

1. Is there a correlation between one's thinking style and leadership advancement for women?
2. Is there a correlation between one's leadership style and leadership advancement for women?
3. What is the extent to which a relationship exists as perceived by women, between organizational leadership and the advancement of women as leaders?

Hypotheses

Dennis and Kunkel (2004) conducted a study in which they examined the similarities and sex differences between successful male and successful female executives in the role of chief executive officer (CEO). The results of the study indicated

that even though the gaps between successful male and successful female CEOs appear to be getting smaller, male executives are still perceived as more successful than female executives. This dissertation was conducted with the assistance of two public, social organizations of female professionals, thus extending the related body of knowledge specific to the identification of mental models that impede the advancement of women in leadership roles. The results of the study may potentially support one of the following hypotheses:

H_0^1: There is no correlation between thinking styles and the advancement of women.

H_1: There is a correlation between thinking styles and the advancement of women.

H_0^2: There is no correlation between leadership styles and the advancement of women.

H_2: There is a correlation between leadership styles and the advancement of women.

H_0^3: There is no relationship perceived by women, between organizational leadership and the advancement of women as leaders.

H_3: There is a relationship perceived by women, between organizational leadership and the advancement of women as leaders.

H_0^4: There is no interaction between thinking and leadership styles and the advancement of women's careers with certain types of styles.

H_4: There is an interaction between thinking and leadership styles and the advancement of women's careers with certain types of styles.

Theoretical Framework

The theoretical framework for this study was based upon Gardner's (1983/2004) *theory of multiple intelligences*. Gardner's theory suggests that people use a large number of abilities in order to synthesize their experiences of the world. These abilities are based on several categories of mental models that advocate a certain type of information. The identified mental models are linguistic, mathematical/logical, musical /rhythmic, bodily/kinesthetic, visual/spatial, personal/emotional and existential. Gardner (1989) posited that by limiting our categories of perception, information processing, and problem solving to a narrow range of abilities, theories are created that offer a greater propensity of being biased.

According to Harquail (2004), the basic premise of the multiple intelligences typology was found in the ability of people within organizations to process information that included, but was not limited to, verbal and logical capacities. "The six types of mental models are quasi-independent and correlated, because they are different manifestations of the same organization" (Harquail, p. 2). Mental models were determined to be significant when relating to an organization's identified leadership and barriers to women's advancement within these organizations. The premise behind mental models in the leadership advancement of women, based upon the poor representation of women in executive leadership positions, is twofold. First, there is a greater propensity toward prejudice and bias toward women that continue to perpetuate the problem, barriers to the advancement of women via a masculine groupthink concept. Second, by limiting the interaction with women at executive leadership levels, organizations will not

benefit from the female decision-making perspective, which represents a large portion of the American and world public.

The research conceptual framework is based upon the relationship between the mental models that create thinking styles and leadership styles for the advancement of female leaders. This framework also includes the mental models encountered in organizational settings relating to leadership and advancement for women. The concept of mental models of female leadership selection and advancement in the form of thinking styles and leadership styles are fundamental to the study.

This dissertation has the potential to make a contribution to the empirical data in current leadership theories and research. Seven main topics are espoused upon in the literature review. The areas of focus include: an overview of the history of mental models, the theory of multiple intelligences, thinking styles, gender, leadership styles, culture, and systems theory (see Figure 1).

Overview of Mental Models

The history of mental models began with the experimental models of Ludwig Boltzmann (1899). Boltzmann's models represented small-scale versions of reality, such as an architect's model to scale of a new building. His work was expounded upon by his student, Ludwig Wittgenstein (1921), who offered the concept of propositions as pictures of reality. Experimental scale models were used based upon the realization that a proposition is a picture. The realization of a picture-theory concept was used to consider the meaning of language in the corresponding structured meaning of mental models. Kenneth Craik (1943) was the first to coin the term "mental models," which are small-scale models of reality.

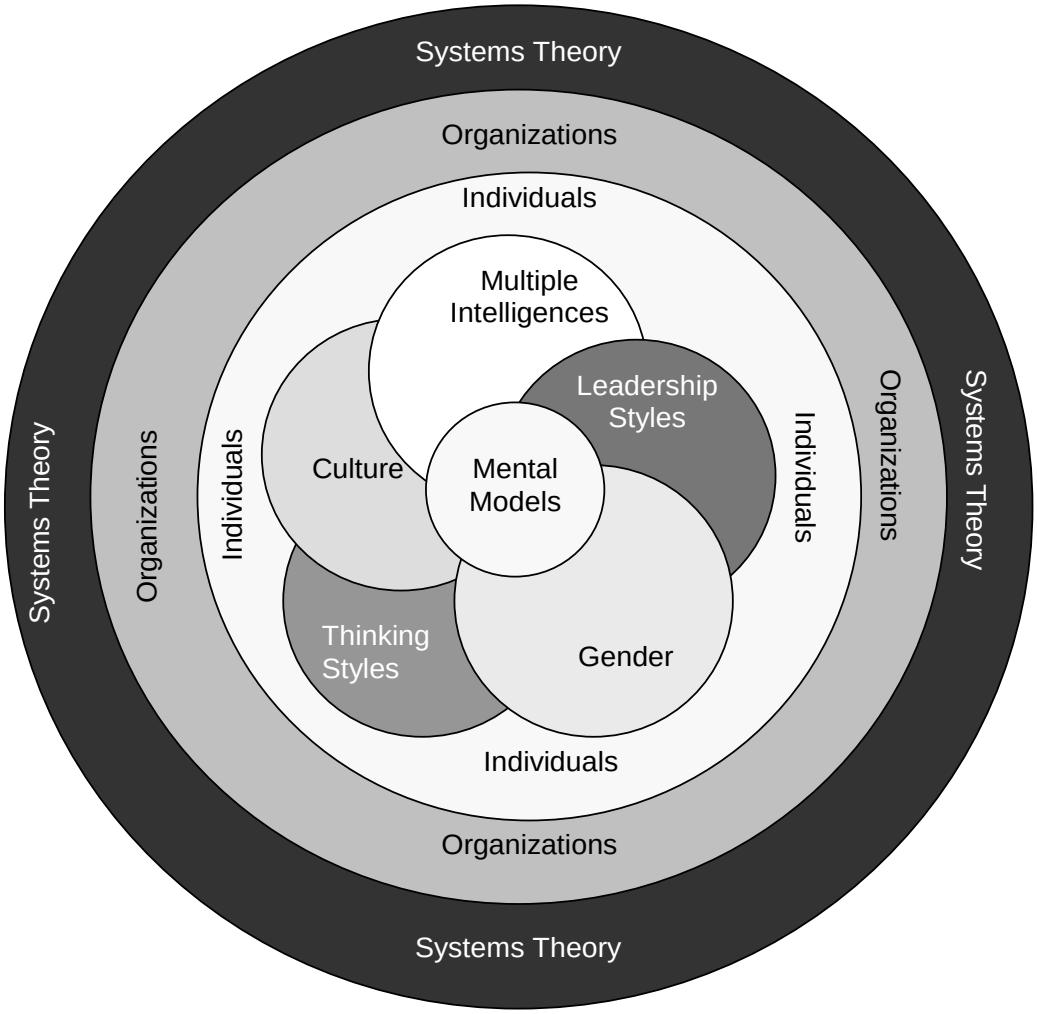

Figure 1. Diagram of mental models of leadership advancement for women.

According to Rutherford, Rogers, and Bibby (1992), the literature supports the instability of mental models as subject to change because they are highly subjective—a reason for the low number of studies that discuss the specific aspects of a stimulus/system that uses cues to create mental models of reality. Current literature in the field expounds and expands the broad knowledge base of mental models through the work of Agyris and Schon (1974), Johnson-Laird (1983/2001), and Senge (1990).

Definition of Terms

Concurrence-seeking. Concurrence-seeking refers to "group members inhibiting discussion in order to avoid any disagreement or arguments, emphasizing agreement, and avoiding realistic appraisal of alternative ideas and courses of action" (Johnson & Johnson, 2003, p. 303).

Direct pressure on dissenters. Pressure to conform to group thinking (Johnson & Johnson, 2003).

Glass ceiling. Refers to barriers placed in organizational settings to prevent women and people of color or individuals with less socially desirable characteristics from advancing within a company.

Groupthink. A group collective striving for unanimity, overriding individual member motivation to consider alternative courses of action, which includes "a deterioration of mental efficiency, reality testing, moral judgment and the ignoring of external information inconsistent with an alternative course of action" (Johnson & Johnson, 2003, p. 303).

Illusion of invulnerability. Such illusions are "characterized by unwarranted optimism and excessive risk taking, believing the group is above attack or reproach" (Johnson & Johnson, 2003, p. 305).

Illusions of morality. Such illusions can happen among members of a group if "members ignore the ethical consequences of the favored alternative and assume that the group's actions are morally justified" (Johnson & Johnson, 2003, p. 305).

Illusions of unanimity. Illusions of unanimity occur in a group when "each member assumes that everyone (except oneself) is in agreement. There is a state of

pluralistic ignorance in which members falsely assume that the silence of other members implies consent or agreement" (Johnson & Johnson, 2003, p. 304).

Laissez-faire leadership. Laissez-faire leadership suggests the absence of any leadership behaviors, which result in a negative level of satisfaction for followers (Harrison & Bramson, 1977/2003).

Leadership styles. These styles are based on Bass and Avolio's full range leadership model which are inclusive of three basic styles of leadership described as transformational, transactional, and laissez-faire (Harrison et al., 1977/2003).

Line officer. A term used to depict managers closest in rank to executive leaders.

Mental models. Mental models are "deeply ingrained assumptions, generalizations, or even pictures or images that influence how we understand the world and how we take action. Very often we are not consciously aware of our mental models or the effects they have on our behavior" (Senge, 1990, p. 8).

Mind guards. Mind guards are represented when "certain group members try to prevent dissenters from raising objections" (Johnson & Johnson, 2003, p. 305).

Self-censorship. Refers to a group dynamic that happens when "each member minimizes any doubts about the apparent group consensus" (Johnson & Johnson, 2003, p. 304).

Stereotyping. Stereotyping occurs when "group members dismiss competitors, rivals and potential critics as too weak or stupid to react effectively or as too evil to warrant genuine attempts at negotiation" (Johnson & Johnson, 2003, p. 305).

The Analyst. The analyst thinking style is characterized when an individual searches for the *one best solution* to a problem. This thinking style places an emphasis on

formal logic and analysis, as well as theory, as the basis for decisions. The Analyst examines data identified as useful to the extent that the data supports theory. However, aspects of reality that cannot be quantified may be given insufficient consideration (Harrison et al., 1977/2003).

The Idealist. The idealist thinking style is characterized as assimilative, with a tendency toward the *big picture or holistic thinking*. It supports a strong focus on process. However, there is a tendency to overlook details and downplay the value of facts. Individuals with this thinking style function best without structure (Harrison et al., 1977/2003).

The Pragmatist. The pragmatist thinking style is characterized by the term "effectiveness": the use of facts, values, or solutions that work. It keeps decision-making groups active and moving toward outcomes that resolve immediate problems. There is a tendency, however, for such individuals to place an emphasis on expedience, which may fail to deal with the long-term implications of the solutions they generate (Harrison et al., 1977/2003).

The Realist. The Realist thinking style is characterized by directly perceived facts and data. It rejects the subjective and theoretical viewpoints with an emphasis on solutions that are immediately workable. Realists are good at simplifying a problem, but may be too results-oriented (Harrison et al., 1977/2003).

The Synthesist. The Synthesist thinking style is characterized by an integrative viewpoint, which suggests being able to identify relationships between opposites, and the use of conflicts to synthesize information (Harrison et al., 1977/2003).

Thinking styles. Thinking styles are based upon the work of Harrison et al. (1977/2003), and are referred to as Synthesist, Idealist, Pragmatist, Analyst, and Realist.

Transactional leadership. Transactional leadership refers to the exchange of tangible outcomes between the leader and follower. This leadership style is characterized by moderate levels of contingent reward, such as management-by-exception (active), and management-by-exception (passive) as the basis for leadership (Bass & Avolio, 1993).

Transformational leadership. Transformational leadership refers to motivating techniques such as intellectual stimulation, idealized attributes, individual consideration, charisma, and inspiration used by a leader to lead (Bass & Avolio, 1993).

Assumptions

For the purposes of this study, one assumption was that participants would respond honestly to the questionnaires. The demographic questionnaire relied on self-reported information specific to the participant's level within the organization. The InQ is a self-scoring questionnaire that offers the participants immediate insight into their personal thinking style. A second assumption is that the limits to the generalizability of the study are under the control of the researcher. The data were collected using three questionnaires and a stratified random sample, which allowed the population an opportunity to express themselves and their experiences regarding leadership advancement without fear of repercussions.

Scope

This study was confined to correlational data collected from the members of the Interracial Women's Leadership Roundtable (IWRL) and Zonta Club of Westchester County, New York. The IWLR is a coalition of organizational leaders addressing the

issues of racial tensions, prejudice, and discrimination and leadership efforts to improve understanding among all races of women in Westchester County, New York. Zonta is an international organization of executive business women working together to advance the status of women.

Limitations

This quantitative, correlational research project examined the extent to which a relationship existed between thinking styles and leadership styles and leadership advancement for women. The study was conducted among a stratified random sample of professional women representing the Interracial Women's Leadership Roundtable and Zonta Club of Westchester County, New York. The study used quantitative data from a demographic survey, the InQ, which measured thinking styles, and the MLQ, which measured leadership styles. The sampling methodology and the criteria for determining the sample size are discussed in chapter 3.

The population studied represented professional female leaders from different ethnic backgrounds in the corporate, public, and private sectors. They are all members of the Interracial Women's Leadership Roundtable (IWLR) and Zonta Club of Westchester. Both clubs are located in Westchester County, New York. There were three limitations noted. First, the samples were drawn from members of the IWLR organization and Zonta Club of Westchester; the findings may not be directly applicable to a single type of organization. The findings should be relevant to the female perception of barriers to female leadership advancement within many American organizations. Second, all of the study participants were female. Finally, the study only included those participants who decided to complete the instruments in their entirety.

Delimitations

Delimitations existed that were controlled for the purposes of the study. First, the study was limited to surveying a stratified random sample of professional women of the Interracial Women's Leadership Roundtable and Zonta Club of Westchester; both clubs are located in Westchester County, New York. The purpose of this delimitation was to allow for a broader view of women's perceptions of leadership advancement in various levels of achievement within their respective organization. Second, the study only included currently employed professional women in order to eliminate variables that may have been introduced due to unemployment.

Summary

Chapter 1 presents an overview of the research project centered upon the extent to which thinking styles and leadership styles have an effect upon leadership advancement opportunities for women. The overview presents the established problem that the researcher had chosen to investigate, which was focused upon the limited number of women in leadership roles in proportion to the significant presence of women in the work force overall, and the effect that mental models have upon their absence. The potential significance of findings of this quantitative correlational study as relative to the existing body of knowledge regarding female leadership is discussed. The research questions and hypotheses are presented for investigation.

The theoretical framework that provided the conceptual framework for the study is presented with regard to the cognitive processing of mental models associated with multiple intelligences, thinking styles, gender, leadership styles, culture, and systems thinking. Definitions of terms used in the dissertation are presented in this chapter in

order to ensure a complete understanding of the presented materials. The conclusion of chapter 1 includes the scope, limitations, and delimitations of the dissertation.

Chapter 2 presents a review of literature that is relevant to the information presented in chapter 1. The information surrounds the theoretical framework for the study. The literature as it relates to the research questions is also investigated in chapter 2.

CHAPTER 2: LITERATURE REVIEW

Introduction

Chapter 2 is divided into seven sections pertaining to mental models of leadership advancement for women. The seven sections that comprise the review of the literature are as follows: Mental Models: A Historical Overview, Multiple Intelligences, Thinking Styles, Gender, Leadership Styles, Culture and Systems Theory (see Figure 1). The body of literature presented in this chapter begins with a historical overview of mental models. Mental models, as presented by cognitive scientists in an attempt to understand how humans construct behavior through the ability to perceive, know, and make decisions in different environments, are reviewed. The first section includes a review of research and literature examining the foundation and development of mental models from their germinal authors, as presented by Boltzmann (1899), Wittgenstein (1921), and Craik (1943), to the present as reflected in the works of Argyris and Schon (1978), Johnson-Laird (1983), and Senge (1990).

The sections that follow explore the complex aspects of related constructs of mental models as they relate to Gardner's (1983/2004) theory of multiple intelligences—thinking styles, gender, leadership styles, culture, and systems theory. An examination of the most current statistics presented in the literature regarding the impact of mental models on leadership advancement of women in business is included, as is an overview of literature regarding the empowered leader perspective in the leadership selection and promotion process.

Also undergoing examination is the ongoing need presented in the literature regarding adaptive and maladaptive methods for sharing mental models in the creation of

new knowledge within the learning organization. Finally, the author reflects upon the implications of Gardner's (1983/2004) theory of multiple intelligences in the selected domains as a point of organizational learning and development. These perspectives consider the importance of multiple intelligences to the sharing of mental models and the continued growth of the new learning organization.

Documentation

The following sources were used in order to compile the data presented in the literature review: EbscoHost, InfoTrac, ProQuest, Google Scholar, and the UMI ProQuest Digital Dissertation database. These databases offer peer reviewed journal articles in the topic areas presented in this chapter. Table 1 presents an explanation of the search constructs, and the number of articles identified in the searches of peer reviewed or refereed articles. Books published by germinal authors such as Wittgenstein (1921/1961), one of the forefathers of the mental model concept, and Gardner (1983/2004), with his theory of multiple intelligences, were important to this review. Each topic area was discussed in the literature review as it pertains to the specific problem addressed by this research, the research questions, and the overall purpose of the study.

The following review of the research was conducted in the following categories: (a) peer-reviewed journal articles, (b) Internet sites, and (c) books and reports, as shown in Table 1. The topics, concepts, and theories reviewed in chapter 2 include the items listed in the left column in Table 1. The topics, concepts, and theories are reviewed to the extent to which they are relevant to this study.

Table 1

Summary of Literature Reviewed by Search Topic

Theoretical concepts and search topics	Peer-reviewed journal articles	Internet	Books/ reports	Total
Systems Theory	0	0	5	5
Gender	15	0	7	22
Multiple Intelligences	6	0	9	15
Culture	4	0	5	9
Leadership Styles	7	1	3	11
Thinking Styles	6	1	5	12
Mental Models/ Historical Overview	6	2	2	10
Total	44	4	36	84

Historical Overview

The history of thinking and research on "mental models" has grown considerably as cognitive scientists have explored the theories of deductive reasoning and the mind in general. The concept of mental models began with the germinal thinkers on the topic, presented by the experimental models of Boltzmann (1899), the concept of propositions as pictures (Wittgenstein, 1921), and Craik's (1943) small-scale models of reality (mental models). Contemporary work on mental models has been attributed to Johnson-Laird (1983), Argyris and Schon (1974), and Senge (1990).

Mental models are explanations or representations of reality of how one experiences the world. They are individual symbol systems that reflect one's external reality, a major component of cognition. Mental models can be based upon one's

perception or imagination. They can be abstract or remain beneath visual images that represent circumstances that cannot be seen. Mental models represent possibilities. Ludwig Boltzmann (1899), as cited in Johnson-Laird, Griotto, and Legrenzi (1998), was the first to initiate the epithet, “All our ideas and concepts are only internal pictures” (p. 1). Although the literature is limited with regard to Boltzmann’s work with mental models, his contribution of experimental scale models that represent reality are very important because some models cannot be visualized and are dependent upon underlying models for explanation.

Wittgenstein was a student of Boltzmann in 1906, the year that Boltzmann died (Sterrett, 2000). Wittgenstein (1921/1961) wrote *Tractatus Logico-Philosophicus* (TLP), first published in German in 1921, in which he states:

> The aim of this book is to set a limit to thought, or rather—not to thought, but to the expression of thoughts: for in order to be able to set a limit to thought, we should have to find both sides of the limit thinkable (i.e., we should have to be able to think what cannot be thought). (Wittgenstein, 1921/1961, p. 3)

Wittgenstein used the TLP as a tool to discuss the methodology of experimental scale models based upon the realization that a proposition is a picture. Realization of a picture-theory concept is used to consider the meaning of language in the corresponding structured meaning of mental models.

Wittgenstein (1921/1961) explained the importance of TLP as a thinking tool. Pictures are models of reality, of fact. A picture conceived in this manner, includes “the pictorial relationship, which makes it into a picture.” The author again states that, “The pictorial relationship consists of the correlations of the picture's elements with things …

These correlations are, as it were, the feelers of the picture's elements, with which the picture touches reality" (Wittgenstein, 1921/1961, p. 15).

Wittgenstein's picture/theory concept was comparable to an experimental or architectural model in its structure and similarity to the situation it represented. The experimental structures of these models are analogous to formal rule theories, as found in mathematics and physics, as in an architect's model of a building (Starrett, 2000).

Kenneth Craik (1943) wrote a book entitled, *The Nature of Explanation*, in which he explained his concept of small-scale models used by the mind in order to anticipate events. The thought that people rely on mental models to construct their reality was first attributed to Craik. His work on mental models was short lived due to a fatal biking accident at the age of 31. However, since his original work on mental models, cognitive scientists continue to argue about how the mind constructs mental models. The most popular arguments surround the use of perception, imagination, and knowledge and the comprehension of discourse. Cognitive scientists have studied children in how they develop mental models. These scientists have also studied the design of artifacts and computer systems to assist in the creation of new models and an understanding of how such models help express thoughts, judgments, and feelings (Johnson-Laird, Griotto, & Legrenzi, 1998).

Johnson-Laird (1983) reintroduced mental models to the literature as a way of describing the process by which humans attempt to solve problems of deductive reasoning. He theorized that using a set of diagrams could describe different combinations of premises and conclusions. Johnson-Laird (2001) proposed that through the mental model theory of deductive reasoning, each model presented a true

representation of what was possible. A conclusion is then valid if it contains all of the premises with their respective mental models. The fewer models one uses to make a judgment, the easier it is to render a judgment. Errors in judgment are therefore noted when individuals take into account all possibilities, given that the models presented are generally true.

Chris Argyris and Donald Schon (1974) presented the concept of mental maps or the way in which individuals plan, implement, and review their actions. Argyris and Schon argued that these maps serve as a guide in the determination of actions as opposed to one's espoused theories. In these cases, mental maps tended to be tacit in nature as they controlled actual behavior. Mental maps were then placed within the schema of action science. The concept of action science was designed to be used in organizational settings and suggested methods of reflection and inquiry into one's actions. According to Argyris, as cited in Senge (1990), "We trap ourselves in defensive routines that insulate our mental models from examination, and we consequently develop skilled incompetence" (p. 182). Exploration of one's beliefs and behaviors is essential for the growth and learning of individuals, as well as organizations.

Senge (1990) presented a view of mental models in management. He stated that managers know that often the best ideas or strategies are not put into action, and systemic insights not always get incorporated into operating policies. This dynamic, according to Senge, is due to mental models. As new ideas conflict with strongly retained internal images in how the world functions, there is the need to discipline the management of mental models by testing and improving these internal pictures that, according to Senge, "promises to be a major breakthrough for building learning organizations" (p. 174).

One clear gap in the literature has to do with the instability of mental models. Mental models are subject to change because they are delicate and highly subjective. According to Rutherford et al. (1992), there are not many studies that discuss the elements specific to a stimulus/system, inclusive of cues, to the formation of the varying components of mental models. Continued research would assist in the understanding of how to use mental models for the learning and development of organizations.

Current research and literature on the topic of mental models are vast and continue on a broad scale. One area of particular interest is the claim that gender stereotypes are responsible for biased evaluations in organizations. The issues of the glass-ceiling phenomenon are not new concepts. Gender stereotyping has often been used to exclude women from being hired into positions leading to organizational power and prestige (Heilman, 2001).

According to Heilman (2001), “Pipeline theories that lay the blame on time, supply of appropriate women for leadership advancement and deficit theories that presume women to be deficient in the characteristics necessary to fulfill traditionally male roles” (p. 1) must be continually challenged. In order to meet the demands of the global marketplace, many organizations are challenged to maintain the new movement of continuous innovation. In order to survive, an organization will need to look within to determine its multiple intelligences and learn to share the mental models relating to these intelligences.

Theory of Multiple Intelligences (MI)

According to Khun (1962), a theory that is valuable to a certain field or society is dependent on the explanatory and generative power of the theory. Explanatory power

refers to a wide range of observations that bring order and coherence to information. Coherent information clarifies the relationship of parts to the whole in the description of the underlying mechanisms. Generative power refers to the presentation of new frameworks for studying the unknown in order to contribute new knowledge to a particular field (Chen, 2004).

Theories of cognition as they relate to intelligence are concerned with concepts of the human mind. In order to understand what best constitutes intelligence, Gardner (2000) posited that humans from the earliest stages of development try to understand the physical, biological, and social world. It is during this knowledge-gathering phase that powerful tacit theories about the world are created. As adults, the very same tacit theories about the world become so deeply ingrained that they are not recognized as the theoretical basis for current thoughts. Cognitive psychology refers to these reflections as scripts and stereotypes.

Intelligence, from a traditional perspective, was operationally defined by an individual's capacity to perform on a test of intelligence. This traditional view used statistical techniques and inferences to determine one's level of intelligence, which was generally set for a lifetime and not reflective of new knowledge or experience (Gardner 1993). The traditional view of intelligence was *apriori* in nature.

Gardner (1993) defined intelligence as biopsychological potential because it was emergent and responsive given its pluralistic nature. Gardner's Theory of Multiple Intelligences (MI) used a plural concept of traditional intelligence inclusive of the ability to problem solve. This component featured the capacity of individuals to create a way to

meet an identified goal. The result was a product that was reflective of one's community or culture in that it shared new knowledge, such as beliefs or feelings.

MI theory took into consideration the biological function of the brain in relation to each problem-solving skill. Gardner focused his theory on meaningful roles in society by identifying the value of the capacity of an intelligence associated with a culture. If an intelligence was not supported by a culture, it was not identified as an intelligence (Gardner, 1993).

Bass (1990) posited that leadership was one of humankind's oldest preoccupations and current research has studied the topic from a myriad of perspectives. An adage that supports this thought is referenced by the need of the postmodern era to identify heroes to provide leadership. "A would–be leader must be able to create a story about that society—a persuasive narrative that accounts for his or her place within it and one that can link individuals of different intelligences, domains, and allegiances in a more incorporative enterprise" (Gardner, 1983/ 2004, p. xxxviii).

In the case of organizations within the context of the global marketplace, the field of organizational leadership is based upon a sociological construct. This sociological construct refers to people, businesses, and rewards, with the assessment of individuals and groups from an organizational standpoint of competent performance. Gardner (1983/2004) posited that it was important to broaden conceptions of intelligence to include not only the results of written tests but also to gain knowledge of the human brain and to develop a sensitivity to the diversity of human cultures.

Gardner's (1983/2004) theory of multiple intelligences claimed that all human beings possess a set of relatively self-governing intelligences, not just a single

intelligence. Such a set of intelligences that constitutes the cognition of humanity incorporates intelligence from linguistic/verbal, mathematical/logic, visual/spatial, bodily/kinesthetic, musical/rhythmic, naturalist, and inter/intra personal (emotional) capacities. This combination of multiple intelligences is aligned with the cognitive nature of human beings in as much as the variations found among the strengths and weaknesses of these areas of intelligence exist. The differences among the intelligences found in humanity may be experiential or caused by genetics and demographics.

According to Gardner (1983/2004), the best approach to understand the human mind is "to examine its different frames, its separate intelligences" and finally learn how to harness those intelligences together to mobilize them toward constructive ends (p. xxxix). The following multiple intelligences (MI) all offer different methods of problem solving that are significant to the evolution of the species as well as the individual. These MI represent many of the ways in which humans self-construct their individual sense of self as unique symbols of personal information.

Linguistic/Verbal Intelligence

Linguistic/verbal intelligence is characterized by sensitivity to the meaning of words such as in the personal valuation or shades of inference between words. Gardner (1983/2004) posited four distinct aspects of linguistic/verbal knowledge in human society. These aspects were rhetorical, mnemonic, explanation, and self-reflection.

Rhetorical language refers to the use of language that leads individuals on paths of action not otherwise ordinarily taken. Mnemonic aspects of language are harnessed as a tool to assist in memory enhancement. Explanation is the faculty of learning that takes place through both oral and written language, and self-reflection refers to the ability of

language to reflect upon itself for the purposes of a linguistic analysis (metalinguistics) that recognizes the system of language facility.

Linguistic or verbal intelligence is recognized by sensitivity to how words are placed in a particular order with a particular emphasis on grammar. This type of intelligence acknowledges sensitivity to the inflection, sound, and rhythm of words. There is also a noted sensitivity to the various functions or methods associated with language in the ability to excite, convince, stimulate, please, or convey information (Gardner, 2004).

T.S. Eliot provided an example of an individual with linguistic/verbal intelligence. As a poet, he worked specifically with linguistic symbols in the form of meaning, nuances, and word combinations. With the exception of sensitivity to his own plight and emotional awareness, he extracted knowledge from many different literary sources that he used as the basis of exploration to capture precise meanings and understanding through poetry (Gardner, 1993).

Mathematical/Logic Intelligence

Traditional psychology refers to mathematical/logic intelligence as a model of raw intelligence, given its problem-solving capacity across all associated domains. Scientific thinking in the form of deduction and observation allow for the processing of multiple variables at the same time, which is a component of this intelligence. Problem-solving at a very fast pace and the nonverbal processing and construction of solutions to problems are a few of the defining characteristics of mathematical/logic intelligence (Gardner, 1993).

Visual/Spatial Intelligence

Visual/spatial intelligence involves spatial problem-solving of visual objects or spaces such as the skills used in navigation or the use of space by a visual artist. According to Gardner (1993), Einstein was noted for his visual/spatial intelligence. He was able to assimilate the mental pictures created by other scientists as models. Einstein was gifted with the ability to visualize problems and relevant constructs that identified mental puzzles, referred to as thought experiments. Phillip Frank (as cited in Gardner, 1993) stated that when Einstein had worked through a problem he would formulate the subject in several different ways to be able to present it to others who might be accustomed to other modes of thinking and who might come from other educational backgrounds.

Bodily/Kinesthetic Intelligence

The problem solving associated with bodily/kinesthetic intelligence is not considered intuitive; however, the nature of this intelligence is in its expression of emotion through body movement, such as with dance or sports, which provides a parallel to the cognitive features of problem solving (Gardner, 1983/2004). Gardner (1993) postulated, "The crucial bodily/kinesthetic intelligence was represented in the course of its own experimentation, its transformations and retransformation rather than thought through or encoded in a self-standing symbol system" (p. 296). An example of bodily/kinesthetic intelligence is offered by Lynn Garafola, dance historian, about Martha Graham. Garafola, as cited in Gardner (1993), stated that Graham "was her body." Graham was who she was because she knew her body, disciplined it to be "strong,

eloquent, and beautiful" (p. 296). What her body could do or could not do defined her movements and determined the basis of her dance techniques.

Musical/Rhythmic Intelligence

Musical/rhythmic intelligence is characterized by one's ability to create and perceive musical patterns (Gardner, 1997). One aspect of this pattern is a noted ability to discern between meaning and levels of importance in the rhythm of pitch sequences used to communicate with others. Pitch, melody, and rhythm are the medium of musical/rhythmic intelligence based upon auditory frequencies of a prescribed system (Gardner, 1983/2004).

The Naturalist

This intelligence displays empathy, recognition, and understanding for living and natural things (e.g., plants, animals, and geology). Individuals with strong naturalist tendencies, based on occupation, become farmers, scientists, or animal behaviorists. Recognition is used as a tool to identify classifications of different species in order to understand the nature of ecological systems. Empathy allows individuals to care for and manage the conduct of living creatures (Shearer, 2004).

Interpersonal Intelligence

Interpersonal intelligence gives one the ability to understand and work along with others. More specifically, it allows individuals to identify specific areas of change in others, such as changes in moods, temperament, intention, and motivation. A high level of interpersonal intelligence will allow individuals to anticipate the needs of others, such as parents do with children (Gardner, 1993).

Intrapersonal Intelligence

Intrapersonal intelligence, on the other hand, is characterized by the ability to understand and work with oneself. This intelligence allows one to recognize and understand internal knowledge, which is identified by how one feels about life, the expression of a full range of emotions and the ability to discriminate between them. Intrapersonal intelligence allows for the development of personal tools in order to better understand and guide one's personal behavior. Individuals with good intrapersonal intelligence have a well developed and effective model of self. A sense of self emerges from a synthesis of both inter and intrapersonal intelligences (Gardner, 1993).

The multiple intelligences theory suggests that people use a large number of abilities in order to synthesize their experiences of the world. These abilities are based on several categories of mental models that suggest a certain type of information specific to each domain of intelligence. According to Gardner (1989), by limiting our categories of perception, information processing, and problem solving to a narrow range of abilities, theories are created that have a greater propensity of being biased.

A consideration of the relationship between general intelligences (often referred to as *g* intelligence) and particular intelligences assists with the understanding of the human mind as multifaceted in its intelligence and ability to problem solve. This is an important consideration because Gardner (1983/2004) posited that based upon his case studies, unusually high performances were indicative of one area of specialty such as music or mathematics with a "focused laser intelligence" (p. xxi). Politicians and business leaders were described as generalists who performed with a nearly "flat profile of cognitive strengths or an ever-vigilant and shifting searchlight intelligence" (p. xxi).

Gaps in the Literature

One area where there is a dearth of information available in the literature about MI theory is in organizational management and leadership development. According to Posner (2004), MI theory attempted to use a neuropsychological theory of common mental processes and human behavior with a view of individual differences implicit in the term intelligences. The common mental processes and associated behaviors as represented in organizations have not been addressed from an MI perspective in the literature. According to Gardner (2004), from its inception MI theory has attracted educators looking for new and creative learning environments for children. Gardner (2004) states, "My theory derives from an evolutionary perspective, and that way of thinking is consistent with how most biologists think about the mind and the brain" (p. 214).

A new method for organizational management and leadership development may be available to address the risks associated with using a single intelligence in the decision-making process. Incorporating multiple intelligences into the cultural fabric of organizations may encourage a more open-ended approach to projects. According to Gardner (2004), individuals in misjudging their own intellectual strengths could select areas of activities for which they may have no aptitude.

The use of MI theory by the adult learner in an organizational setting may revolutionize the very nature of organizational development and leadership based upon the terms of the goals and values of the individuals within an organizational culture (Gardner, 2002). According to Gardner (1983/2004), the issue of leadership should go

beyond multiple intelligences. Leadership needs to involve capacities that cut across intelligences to affect people emotionally and socially as it does cognitively.

Gender and Organizational Leadership

Schein began researching sex-role stereotyping in leadership advancement and management characteristics in the United States almost 30 years ago. Since that time, numerous replications of Schein's study have taken place in the United States and in the international community. The main issue uncovered in these studies supports the theory that managerial sex typing is a major psychological barrier to the advancement of women in the United States. Globalization has expanded this issue to the international arena by highlighting the fact that women in management are faced with barriers to leadership advancement world-wide (Schein, 2001).

Compared to men, women do not have equal access to power and organizational leadership positions. According to former President Clinton, "the tops of managerial and governmental hierarchies do not look like America" (Carli & Eagly, 2001, p. 3). Sellers, as cited in Dennis and Kunkel (2004), postulated that at the turn of the 20th century, only six women held CEO positions in Fortune 500 companies.

Schein (2001) stated that managerial sex typing has created a serious psychological barrier to the advancement of women in America. Gender-related stereotypes and the expectations of and for women based upon stereotypes ensure that organizations must revisit cultural mental models to create equal opportunities for women who aspire to senior positions. The United States, the most advanced industrial society, is still moving very slowly toward gender equality. In fact, over the past decade, the presence of a very small number of women in leadership positions supports the existence

of the glass ceiling metaphor. The glass ceiling metaphor represents an unseen barrier that is powerful enough to prevent women from advancing beyond a certain level (Carli & Eagly, 2001).

Decision-making that parallels the values of society, and the way in which resources are allocated in society, are ordinarily determined by people in positions of power. To steady the balance of inequality, large numbers of women must be placed in managerial positions to effectively participate in decision-making and to achieve a status equal to that of men. For change to occur, a look at the status of women in society and the roles associated with women as well as issues of subordination is necessary. Understanding mental models of prejudice, bias, and subordination associated with the roles of women and the outcome of these associations is vital to understanding the limited access of women to powerful leadership positions.

Gardner (1993) makes the point that many cultures have a very different value for boys than girls. Parental values and goals for children based on the parents' preferred type of intelligence begin in early childhood. Teaching these different values begins with preferred modes of intelligence that correspond to each gender. Gardner (1997), further postulates that before one makes the assumption that only boys can achieve a prodigious status, it is necessary to identify societal values in terms of activities that are encouraged or discouraged for certain members in society. According to Peters, Kinsey, and Malloy (2004), social stereotyping could preclude activity that is necessary to help attain a position of leadership by pursuing advanced training, seeing oneself in a leadership position, giving expression to one's point of view, or sharing ideas in a problem-solving group.

Even though the role of women in business has changed quite dramatically in the past decade, prejudice, which can be presented in subtle or blatant forms against women leaders, has a myriad of effects. According to Carli and Eagly (2001), bias against women as leaders or potential leaders could interfere with women gaining authority and exercising influence to result in discrimination when it is translated into personnel decisions within organizations or political structures. Wirth (as cited in Dennis and Kunkel, 2004) found that social and cultural biases were identified as major discriminating factors against women from attaining high level positions in organizations.

The mental models that create the persistent stereotype that associates management with being male are endemic in the social attitudes and cultural biases in an international arena. According to Schein (2001), globalization of management brings the need of examining the relationship between sex role stereotyping and requisite management characteristics in the international arena to the forefront. There are barriers to advancement for women in management worldwide.

The global implications of "the think manager-think male phenomenon" (Dennis & Kunkel, 2004, p. 157), abound. "Underlying resistance, the foot dragging, and the excuses may be a deeply held attitude of *for men only* or *only men are really qualified* to do these jobs" (Schein, 2001, p. 681). Executive leadership and senior level management have a propensity for male characterization.

According to Heilman (2001), the top of many organizational hierarchies have almost always been characterized as "male sex-type." The so-called male sex-type refers to emotional toughness with achievement-oriented aggressiveness that is distinctly considered male in character and antithetical to the stereotypical view of what women are

like or should be. The global impact of sex typing is an issue that must be addressed in order to promote gender equality from a global perspective.

Hegemony as a social theory refers to the status among social groups to hold authority over others through the use of manipulation, imposition, and consent over other groups, thereby assisting in the maintenance of power by consent as opposed to force in support of the societal status quo (Hartley, 1982). Hegemony represents the expression of the interests of a ruling class where such interests are considered normal reality or common sense by subordinated groups or societies (Williams, 1985). This type of phenomenon represents a cognitive distortion that undervalues the accomplishments of women as compared to men (Heilman, 2001).

Many organizational leaders in Western society represent businesses aligned with a hegemonic, masculine social tradition, or the acceptance of masculinity as the defining characteristic of leadership. As a result, women have been kept out of leadership because organizational leadership, through its emphasis on masculinity, confirms men's power and control (Theberge, 1987). The assumed helplessness of women and other subordinate groups is therefore considered a normal reality or commonsense. Hegemony as a concept relates to social institutions and organizations that are maintained through reproduction in society. It is also espoused as a norm in cultural institutions and perpetuated through the mass media. This effect seems to "naturalize men's power and privilege over women" (Whisenant, Pedersen & Obenour, 2002, p. 486).

Numerous barriers assist in the promulgation of the glass ceiling, or the hegemonic reality faced by many women in business. Women are not perceived as tough enough for line jobs but seen as being expressive or communal, with a disposition to

being sensitive and nurturing, and therefore nudged into the areas of human resources or public relations (Haslett, Geis, & Carter, 1992). Line officer jobs, however, involve financial management, an area where women are not well represented, and often lead to promotions to executive leadership. Davison and Burke (2000) in a study of employee selection also found that mental models colored the decision-making process, perceptions, and judgments of decision-makers. According to Heilman (2001), the expectation of a negative performance contributed to the gender-specific manner in which women were depicted.

Coakley (2001) reported that one of the reasons women were underrepresented in major decision-making positions was because of a lack of networking opportunities available to women as compared to their male counterparts. Men essentially had more strategic professional associations in business. According to Hovden (2000), many women appeared less qualified in the subjective evaluation of different job searches as compared to men. Additional barriers are presented by several organizational cultures that are not readily diverse and open to varied viewpoints.

Haben (2001) says it is important to realize the full potential of everyone in the work force to produce better business results, thus giving the process its own momentum. However, according to Schein (2001), women consider male stereotyping as the major barrier—again, gender stereotyping, suggesting that women lack the masculine characteristics required for tough line positions. The insidious effects of these stereotypes can be devastating to career women. Schein (2001) further postulates that such male decision-making attitudes of sex typing management positions seem to go unchecked.

Hegemonic masculinity is deeply entrenched among the more powerful leadership positions of many American organizations. Schein (1985) indicates that "organizations tend to find attractive those candidates who resemble present members in style, assumptions, values, and beliefs" (p. 235). The issues perpetuated by this concept create barriers to the advancement of women to senior leadership positions. Unless there are changes made within the culture of organizations, gender equality will not happen and substantial numbers of women will not advance to executive leadership positions. Even though the barriers to leadership advancement opportunities for women are vast, many scholars suggest that women should challenge the status quo that supports hegemonic masculinity found in top leadership positions instead of trying to adopt the male characteristics of executive leaders (Burrell, 1984; Hearn & Parkin, 1983; Mills & Tancred, 1992).

According to Haben (2001), it is just as important to recognize that maximizing opportunity and advancement for women is a fundamental business issue as is productivity, quality, or product development. The global devaluation of women is reflected in the status of women worldwide. Rhoodie (cited in Schein, 2001) states that when comparing the sexes, the social, economic, and political status of women is still one of subordination. The status of women and issues of inequality are deeply ingrained in the cultures, practices, and traditional views of people in the U.S. and around the world. The opportunity to link women with management in order to broaden and enhance the opportunities for women regarding freedom and civil rights may create the changes necessary to realize equality in the work place. Haben (2001) states, "The closer we come

to true equality—the more we release all that untapped potential—the more successful all of our organizations will be" (p. 9).

Thinking Styles

Mental models in the form of inquiry modes or thinking styles address the manner in which people gather and process information. Work presented by Churchman (1971), Miroff and Pondy (1974), Senge's (1990) mental models, and Argyris and Schon's (1974) work with single and double-loop learning support the idea of inquiry modes and the associated styles of cognition. Courtney, Croasdell, and Paradice (1996, 1998), as cited in Keinholz (1999), propose that "learning organizations are viewed as inquiring systems, or systems whose actions result in the creation-and sharing-of knowledge" (p. 2).

According to Simon (1968), more important than advances in technology and computer design is the advancement made in understanding "human information processing—of thinking, problem solving and decision making" (p. 624). As the learning organization continues to emerge, the dearth of leadership advancement opportunities for women regarding executive leadership positions will become challenged as more educated women establish themselves in the workforce. According to Simson (2005), a historic consensus exists that suggests that women's thinking has a tendency to be more personal and emotional as well as less abstract and objective than men's thinking. The premise that women characteristically think in these more "feminine," less "rational," ways has been the basis for a great deal of discriminatory treatment of women. It has been used to justify excluding women from such roles as scientist, business executive,

and government leader, and assigning them to roles that focus on nurturing, such as mother, wife, and caregiver (Simson, 2005).

Understanding one's thinking style, inclusive of both personal and collective preferences for data collection, problem solving, and decision making, would assist in a higher order of organizational decision making and learning. This understanding would enhance both individuals and organizations in the development of communication skills, leadership, team building, and decision making through knowledge sharing. Knowledge sharing is necessary for organizations to compete more effectively in the global market place.

In a distributed notion of intelligence, it is recognized that rarely, if ever, do productive humans work only with their intelligence.

> Rather, it is the rule that individuals work with all kinds of human and inanimate objects and prosthetics; these entities become so integral to their activities that it is reasonable to think of them as part of the individual's intellectual armament. (Gardner, 1993, p. 223)

This concept is vitally important to understanding the use and interaction of different thinking styles as a part of individual and organizational armament. Thinking styles reflect the manner in which individuals select and process information and how that information is used in decision making. Thinking skills are integral to understanding what types of information are of interest to different mental models of thought. They take into account how information influences one's decisions when reflecting upon experiences of self and others in the world. Having a better understanding of the differences in the five identified thinking styles per the Inquiry Mode Questionnaire that

define most human thinking can assist business leaders with interactions based upon key behavioral cues.

The suitability of thinking styles as they pertain to women addresses the subordination of women who remain underrepresented in most organizational aspects of American society. A contributing factor to such a phenomenon is the cultural belief that men are synonymous with powerful positions, which perpetuates the acceptance of a standard masculine way of thinking. Masculine thinking has a tendency to be more general and abstract in its processing, while feminine thinking has a tendency to be more concrete, taking in multiple variables and context-dependent variables (Simpson, 2005).

Churchman (1971) postulated that inquiring systems were needed in order to promote organizational learning in the form of knowledge acquisition, creation, and utilization of new knowledge at a faster, more advanced rate. Malhotra (1997), as cited in Keinholz (1999), presented concepts of knowledge management by procuring an available means with which to expedite a paradigm shift in thinking to assist in the demand for a faster, more elaborate cycle of knowledge creation and activity. Organizational decision-making processes should be explored in order to facilitate this more elaborate cycle of knowledge in work environments receptive and appreciative of multiple styles of thinking.

Explanation of the Five Thinking Styles

The five thinking styles examined in the dissertation were adapted from the work of Churchman (1971), and Miroff and Pondy (1974). Subsequently, the Inquiry Mode Questionnaire (InQ) was developed by Harrison, Bramson, Bramson and Parlette (1977/2003). Churchman (1971) associated thinking styles with Western philosophy. The

Western philosopher and associated thinking styles are as follows: the synthesist (Hegel), the idealist (Kant), the pragmatist (Singer and Churchman), the analyst (Liebniz), and the realist (Locke).

The Synthesist (Hegel)

The Hegelian viewpoint is characterized by an integrative perspective that suggests a relationship between opposites and the use of conflicts to synthesize information (Bruvold et al., 1983). According to Mitroff and Pondy (1974), "The Hegelian inquiry system was designed to present the strongest possible debate on the nature of the problem between two or more sharply contrasting views of the problem" (p. 474). This system recognizes that data is not information. Information is derived from the interpretation of data.

The Idealist (Kant)

The Idealist Kantian theory is characterized as assimilative, with a tendency toward the big picture or holistic thinking. This thinking style is supported by a strong emphasis on process. The theory emphasizes a tendency to overlook details and not place great significance on the value of facts. Individuals with the idealist thinking style function best without structure (Bruvold et al., 1983). The Kantian inquiry system, according to Mitroff and Pondy (1974), "presents multiple views of any problem so that the decision maker can witness explicitly how the 'nature' of his [*sic*] problem changes the underlying theoretical representations" (p. 473).

The Pragmatist (Singer and Churchman)

The Pragmatist perspective is characterized by the term *effectiveness* due to the use of facts, values, or solutions that work. This thinking style keeps decision-making

groups active and moving toward outcomes in order to resolve immediate problems. There is a tendency with the pragmatist thinking style for such individuals to place importance on expedience. However, individuals may not deal with the long-term implications of the solutions they created (Bruvold et al., 1983). According to Mitroff and Pondy (1974), the Singer-Churchman inquiry system (IS) is anti reductionist. This system does "not believe the process of inquiry can be reduced to a single set of fundamental entities on which knowledge can be shown to depend" (p. 476).

The Analyst (Liebniz)

Characterized by the search for the one best solution to a problem, the analyst thinking style places an emphasis on formal logic, analysis, and theory for decision making in a structured environment. The analyst examines data identified as useful to the extent that the data supports theory. However, aspects of reality that cannot be quantified may be given insufficient consideration (Bruvold et al., 1983). The Leibnizian inquiry system (IS) represents "the epitome of formal, deductive reasoning systems. No matter what the problem, Leibnizian (IS) always strives to reduce it to a completely pure mathematical, logical, or formal representation of some sort" (Mitroff & Pondy, 1974, p. 472).

The Realist (Locke)

Characterized by directly perceived facts and data, the realist thinking style would reject both subjective and theoretical viewpoints for an emphasis on solutions that are immediately workable. Individuals with the realist thinking style are skilled at simplifying a problem. They have a tendency to place great emphasis on results (Bruvold et al., 1983). According to Mitroff and Pondy (1974), Lockean inquiry systems (IS) "are

the epitome of inductive, experiential systems. No matter what the problem, Lockean IS always strives to break it down into its 'basic experiential components'" (p. 472).

According to Bruvold et al. (1983), the Inquiry Mode Questionnaire (InQ) measures thinking strategies as thinking modes or styles of cognition used when individuals approach problems. The differences in styles are based on the physiology of the brain. These differences denoting genetic and learned styles are developed early in life. Bruvold et al. postulated that the most beneficial approach to validity would be to use the InQ profile analyses in order to predict future group behavior in problem solving and in work settings.

Significance to the Learning Organization

According to *Girls Work in Teams* (2005), in studying leadership in young boys and girls, the research indicates that gender differences often appear to be established in children from a very young age. The past trend in organizations placed an emphasis on women to change their styles to be like men so that they would succeed in the think-manager-think-male workplace. However, from the research it is suggested that it is important to bring female thinking and leadership into institutions and organizations (Girls Work in Teams, 2005).

The following Table 2 was adapted from Keinholz (1999). It is a summarization of the five thinking styles as applied to Senge's (1990) five disciplines of the learning organization. Senge's five disciplines are expounded upon in the systems theory section of chapter 2.

Table 2

Applications of the Five Inquiring Systems

	Synthesist	Idealist	Pragmatist	Analyst	Realist
SYSTEMS THINKING	• Mental Models • Identifying the real problem vs. the apparent problem • Balancing loops (thesis-antithesis-synthesis	• Systems • Understands relational logic basic to Systems Thinking	• A good Systems Thinker sees four levels at once: 1. Mental Models 2. Systems 3. Patterns 4. Events	• Patterns • Reinforcing Loop • Exponential process (needs more data)	• Events • Single Loop Processing (arithmetic process) (simple cause and effect)
PERSONAL MASTERY	• Focus on underlying assumptions • Focus our energies	• Continually clarifying and deepening ones personal vision • Developing patience	• Mastery of each inquiring system • The Master is the one who can change at will to be situationally responsive	• Developing patience • Seeing reality objectively	• Focusing our energies • Seeing reality objectively
MENTAL MODELS	• Inquiry • Fundamental purpose is to surface mental models for discussion and improvement	• Inquiry • Reflection	• Balance of inquiry and advocacy	• Advocacy • Reflection	Advocacy Ladder of inference

(table continues)

Table 2 *(continued)*

BUILDING SHARED VISION	• Purpose or mission • Values	• Visioning • High standards • Long-range goals • Values	• Goal achievement (tactical approach)	• Method-oriented to achieve goals • Logic and sequence	Short–range goals
TEAM LEARNING	• Discussion - (Suspended assumptions)	• Discussion - (thinking together)	• Coordinated patterns of action	• Create order out of chaos	• Consensus

Note. From Systems Rethinking: An inquiring systems approach to the art and practice of the learning organization by A. Keinholz, 1999, Foundations of Information System, p. 9. Copyright 1999 by A. Keinholz adapted with permission.

Leadership Styles

The history of leadership and development of organizations has had a lasting societal impact inclusive of theories of transformational and visionary leadership. Two classic examples in the literature of the power of transformational and visionary leadership are "Gandhi who changed world politics and Martin Luther King, Jr. who changed domestic policies on race discrimination" (Tejada, Scandura, & Pillai, 2001, p. 32). Leadership is about power and how it is used; it is about resources and how they are controlled and disposed. Leadership steers social understanding and interpretation as it guides individuals in the meaning and place of issues of social control (Griffin, 2003).

According to Gardner (2004), leaders generally stand out in terms of three intelligences: linguistic, interpersonal, and existential. Linguistic intelligence is derived from a leader's ability as storyteller, given the special power associated with linguistic symbol systems. Linguistic intelligence recognizes the ability of leaders to create a story, communicate it effectively, and alter it if changes prove necessary. Interpersonal intelligence represents the need of leaders to understand other people in order to motivate them by listening to them, and responding to their needs and aspirations. Existential intelligence corresponds to fundamental questions about life and death and the meaning of the past as it relates to the future.

James McGregor Burns (1978) has been credited with identifying transformational and transactional leadership, which are two types of leadership style. Burns delved into the literature along with his own observations to obtain traits and leadership styles that correlate with the behavior of both leaders and followers (Lowe &

Kroeck, 1996). Bass (1985), and Bass and Avolio (1993) extended the work of Burns (1978) and derived the multifactor leadership theory.

Bass (1985) postulated that there are three second–order domains to the composition of leadership. The second–order domains are transformational, transactional, and laissez-faire. According to Bass, as cited in Tejada et al. (2001), "transformational and transactional leadership are conceptually separate and independent dimensions that appear simultaneously in the behavioral repertoire of leaders" (p. 34). Transformational leadership, according to Bass, is an extension of transactional leadership; however Burns (1978) suggested that transformational and transactional leadership represent opposite ends of a continuum.

According to Bass (1985) and Bass and Avolio (1993), there are several important underlying constructs to both transformational and transactional leadership. Both leadership styles consist of multidimensional concepts. Transformational leadership is a synthesis of leader behaviors, such as "attributed charisma, idealized influence, inspirational leadership, intellectual stimulation and individualized consideration" (Tejada et al., 2001, p. 34).

Charisma and idealized influence relate to subordinate characteristics projected by the leader such as success and self-confidence, shared goals, and tapping followers' emotions (Bass, 1985). Inspirational leadership relies on the behavior of leaders to share their goals and vision about what is mutually important and right (Bass & Avolio, 1993). The idea of intellectual stimulation grew from the understanding that leaders support and encourage the growth of followers by teaching new methods for addressing issues. Individualized consideration refers to the focused attention given to followers by a leader

who emphasizes their developmental needs (Bass, 1985; Bass & Avolio, 1993; Tejada et al., 2001).

The behavior of transactional leaders, according to Bass (1985), is a composite of contingent reward and management-by-exception. Contingent reward refers to the behaviors used by a leader who reinforces the followers' ability to meet their goals for task completion. Management-by-exception refers to the leader behavior that is used for punishment or coercion. Laissez-faire leadership is the last category of leader behaviors presented by Bass (1985) and Bass and Avolio (1993). Laissez-faire leadership is the antithesis of the construct of leadership in that it refers to the avoidance or non-leadership of the interaction with followers.

There is an ongoing debate in the literature as to the use of different leadership styles between men and women in management. According to Burke and Collins (2001), as women share the leadership organizational positions of managers and executives with their male counterparts, more attention should be given to possible differences in management and leadership styles of women and men. Powell (1993), as cited in Burke and Collins (2001), postulated that early patterns of socialization are responsible for developing different qualities in women and men, which would suggest diversity in leadership styles.

According to Eagly and Karau (2002), there are two types of prejudice directed toward female leaders. The first type is a discriminatory evaluation of women in their potential for leadership as compared to men, which is socially constructed. This type ascribes to descriptive beliefs about women's characteristics, including stereotypes about women in leadership positions, which are not highly desirable in leaders. The second type

looks at the prescriptive norms of the leadership evaluation and behavior of women as compared to men.

Aldoory and Toth (2004) postulate that "transformational leadership may be characterized as more feminine because the socialized characteristics of nurturing and supporting subordinates are integral to this leadership approach" (p. 162). Rosner (1994), as cited in Aldoory and Toth (2004), states that women have a tendency to attempt to enhance the self-worth of others through participative management, sharing knowledge and power, and motivating staff, which is referred to as interactive leadership.

Maher (1997) postulates that as organizations demand more transformational leadership to guide them through change, women may become more acceptable as leaders. Transformational leadership has been positively associated with both leadership effectiveness and feminine thinking. Women who break through the glass ceiling and obtain leadership positions are scrutinized with biased evaluations of cultural nonconformity to the female role. However, if, according to Maher (1997), women typically exhibit transformational leadership behaviors and are advanced in the leadership selection process to executive leadership positions, this may assist in breaking the glass ceiling. Schein (2001), as reported in Sczesny (2003), states that on the basis of less gender stereotyping view of leadership observed among women, differing in degree in different countries, women's responses may serve as a "barometer of change" (p. 2).

Culture

According to Schein (1999), "Culture matters because it is a powerful, latent, and often unconscious set of forces that determine both our individual and collective behavior, ways of perceiving, thought patterns, and values" (p. 14). Schein (1992)

postulates that there are three levels of culture that operate between very explicit and very tacit levels of perception and understanding. These three levels are artifacts, espoused values, and basic underlying assumptions, and are represented in every organizational culture.

The first level of culture is organizational artifacts, which represent the visible, physical, and emotional characteristics of the organization. These characteristics are not easy to interpret because they represent the organization at a surface level. Artifacts describe what one sees, hears, feels, and includes items such as the organizational architecture and physical environment, technology, language, dress code, myths, stories, ceremonies, traditions and values. Artifacts include the group's routine, visible behavior (Schein, 1992).

The second level, espoused values, represents the social validation of the leader or organization founders' values and beliefs. These beliefs become conscious rules that are explicitly discussed in order to guide the organization's behavior. The expressed values and beliefs serve as the organization's ideology and assist when issues of uncertainty arise (Schein, 1992).

The third level of culture, according to Schein (1992), consists of basic underlying assumptions, which are considered the essence of organizational culture. At this level of culture, assumptions are shared, tacit, and essentially taken for granted. An examination of the history of the organization and the values, and beliefs of its founders who made it successful represent the underlying tenets of the basic underlying assumptions.

According to Le Vine and White (1986), as cited by Gardner (1993), intelligent human beings, for the most part, behave according to the communal moral norms and

conventions as otherwise it would antagonize the community in which they live. Intelligent people maintain the social linkages for long-term security. Le Vine and White state that this moral communal behavior implies “normal rather than exceptional intelligence” (p. 234). The authors suggest that the people most respected in the community are generally credited with “being the wisest and most intelligent” (p. 234). Once organizational assumptions are integrated into the ideology of the organization, a mental map of what is acceptable behavior for the organization is established. Events that are congruent with organizational assumptions will be maintained to the point of distortion, denial, and deflection. “Culture as a set of basic assumptions defines for us what to pay attention to, what things mean, how to react emotionally to what is going on, and what actions to take in various kinds of situations” (Schein, 1992, p. 22).

Culture is profound because it represents an accumulation of shared group experiences and tacit learning. Cultural learning is based upon the thought, feeling, and perception of the success of the organization. The stability of the culture is based upon this learning, which makes change difficult for the group. Essentially, culture is the culmination of shared mental models that the group maintains and takes for granted (Schein, 1999).

Van Vianen and Fischer’s (2002) research examined masculine organizational culture as it pertained to the tenacity of the glass ceiling phenomenon. The findings suggested that beliefs and norms, which form the basis of organizations, were adhered to more regularly by men than by women. Masculine cultures and subcultures were noted to be comprised of “hidden assumptions, tacit norms and organizational practices that promote forms of communication, views of self, approaches to conflict, images of

leadership, organizational values, definitions of success and of good management, which are stereotypically masculine" (p. 2).

The majority of senior leaders and managers in large businesses are male, suggesting the tendency of men to adhere to values that are more masculine as opposed to feminine. The culture or subculture presented under the guise of male dominant beliefs and values forms a core element of the glass ceiling barrier for women. van Vianen and Fischer (2002) posited that most research on the glass ceiling has focused on mechanisms of exclusion and selection as the dynamics through which organizational culture forms a barrier for women's careers. It has been argued that women are silenced and banned from the dominant male culture by selection processes that are biased against women.

In *Both Sexes Agree More Opportunities Needed for Women* (2004), it is stated that organizational culture can dissuade women from seeking senior roles because there is excessive stereotyping of women's roles and skills, a dearth of role models and mentors, and a lack of support for family commitments. Mechanisms used to exclude women from career advancement are gender stereotypes and schemes, and prejudices that influence the leadership selection and promotion process (van Vianen & Fischer).

Stalinski (2004) has stated: "The potential for organizational cultures to understand and utilize both conscious and unconscious aspects of their collective mind and intelligence for positive benefit seems to be a new theory with much to offer" (p. 1). Albrecht (2003) proposed the systems perspective of cultural intelligence as an emerging property because it represents the sum of the entire organization's individual intelligences. "Organizational intelligence is the capacity of an organization to mobilize

all of its brain power, and focus that brain power on achieving the mission" (Albrecht, p. 15).

According to Albrecht (2003), organizational intelligence stems from concepts based upon Howard Gardner's work on multiple intelligences. Organizational intelligence suggests that organizations, like people, have multiple intelligences. The organizational intelligences (OI) are reflective of the different dimensions or levels of competence found in an organization. The differences between organizational intelligences allow organizations to catalog and direct organizational growth and change.

Morgan (1998), as cited in Stalinski (2004), described systems of self-regulation as integral to learning systems that are able to learn in order to remain stable and continue to grow. A double-loop learning process is necessary in order for an organization to question the value of its own values. Not consciously engaging in continual double-loop learning can affect an organization's ability to transform and grow, as well as its ability to maintain its stability and its viability.

According to Merrifield (2005), informal cultures can be found in each organization around the world. Cultures continue to evolve based upon the methods, procedures, and biases that provide coping mechanisms for organizations to address presenting problems. Over time, however, the values on which cultures are based can become obsolete and resistant to change.

There is a cultural shift in progress that demands continuous innovation while outsourcing production to countries that offer low-cost labor and delivery through online-management systems. According to Merrifield (2005), small businesses represent the new

economy. Merrifield states, “Innovation now has become the ‘core competency’ of the US and it is the primary source of productive growth” (p. 1).

Small business represents almost 65% of the Gross Domestic Product (GDP) in the United States. The old economy represents large businesses, which have lost approximately 40 million jobs due to downsizing and organizational restructuring alone. The old economy has continued to decline steadily, from over 60% in 1982 to approximately 35% of GDP today (Merifield, 2005).

According to the National Science Foundation (2003), as cited in Merrifield (2005), the cultural shift that calls for continuous innovation is unique. Its uniqueness is that it continues to build itself upon an “unprecedented data base of advanced technology, inclusive of almost 90 percent of all scientific knowledge, generated over the last 30 years” (p. 2). Clearly, there is a cultural interchange between organizations and environments as proposed by Trice and Beyer (1993).

Culture can be culture bound or culture free according to Trice and Beyer (1993). “Culture bound” refers to the external surrounding culture that determines the formal, internal structure of an organization’s norms. “Culture free” refers to the logic of industrialization, which infers that culture is determined via industrialization and the internal activities of organizations. Finding a balance between both “culture bound” and “culture free” involves giving consideration to global competition and increased cultural diversity in organizational settings. An increase in the number of consumer choices makes it obvious that “cultures need to adapt and change in order to survive” (McAleese & Hargie, 2004, p. 10).

Systems Theory

The following section serves as a view of systems theory as presented by Capra (1996), Checkland (1999), Senge (1990), and Gardner (1993). A synthesis and explanation of the properties of organisms and social systems are reviewed. Ecosystems are also reviewed in their various stages of wholeness as they may provide insight into mental models.

There are three different levels of systems theory as presented in Capra (1996): basic or general system science, complexity/chaos, and quantum systems theory. A look at the application of systems theory and systems thinking from the perspective offered by Checkland (1999) through his work with hard and soft systems are important to the development of this section. Senge's (1990) five disciplines are also reviewed here in an effort to identify the mental models of social systems within organizations. Gardner (1993) reviews systems theory from the contextualized view of intelligence in the basic framework of his theory of Multiple Intelligences.

Systems theory offers individuals a tool with which to see the interdependence in the concept of wholeness. Western civilization has utilized the methods of science to identify observations of the world through the use of reductionism, repeatability, and refutation in order to acquire well-tested knowledge of the noted regularities found within the universe (Capra, 1996). Understanding an organization using a systems perspective identifies that each part of the organization is dependent upon the other in the creation of the whole of the organization.

General Systems Science

Ludwig von Bertalanffy has been credited by scientists with the establishment of open systems and general systems theory. Bertalanffy, as cited in Hatch (1997), "presented a theory intended to explain all scientific phenomena across both natural and social sciences from the atom to the molecule, through the single cell, organ and organism up to the level of individuals, groups and societies" (p. 34). Hatch states that Bertalanffy acknowledged that these phenomena were all interrelated because "societies contain groups, groups contain individuals, individuals are comprised of organs, organs of cells, cells of molecules and molecules of atoms" (Hatch, p. 34). Bertalanffy called these groups "systems" because they are all things that contain interrelated parts. What this means is that a whole system, such as an organization, must be considered in its entirety because it cannot be fully understood by simply analyzing its individual parts. In other words, in order to truly understand an organizational system, one has to be willing to transcend the individual parts to view the entire system at "its own level of complexity" (Hatch, p. 35).

Complexity

According to Capra (1996), living systems are self-organizing networks with individual parts that are all interconnected and interdependent, which accomplishment is understood by using new mathematical tools that permit scientists to model "the non linear interconnected characteristic of networks" (p. 112). A new discovery, it was referred to as the mathematics of complexity and is technically referred to as dynamical systems theory. The system is more qualitative than quantitative, embodying the shift of

emphasis characteristic of systems thinking, “from objects to relationships, quantity to quality and from substance to pattern” (Capra, p. 113).

Chaos

Capra (1996) stated that “the behavior of chaotic systems is not merely random but shows a deeper level of patterned order” (p. 123). Chaotic systems as a patterned order whose distinct shapes and underlying patterns are made visible with the new dynamical systems theory show that there is an order to chaos.

Quantum

Quantum physics relates to atoms and subatomic particles. What it shows is that there are no parts, only patterns, in an inseparable web of relationships. This allows for theory to shift, not only from the parts to the whole, but from objects to relationships. The systems view of objects is identified as a network of relationships inextricable from larger networks, which means that the concept of relationships for a systems thinker is primary and “the boundaries of the discernible patterns (objects) are secondary” (Capra, 1996, p. 37).

According to Checkland (1999), Western civilization has used reductionism, repeatability, and refutation as tools to acquire knowledge in order to identify observations of the world. System science begins with the premise and the antecedents that are related to systems thinking as well as the concepts that compliment classical natural science. These concepts attempt to use a particular set of ideas and systems (a set of elements together which form a whole) to understand the complexity of the world.

There are limitations found in science in that complexity, in general, and social phenomena, in particular, both make problems for science, which science has not been

able to deal with - the so called “real-world problems” (Checkland, 1999, p. 13). Paradigm shifts in management science, for example, remain essential to the resolution of identified problems in organizations requiring alternatives to management issues. “The systems paradigm is concerned with wholes and their properties as well as their hierarchical arrangement” (Checkland, 1999, p. 13). Systems thinking therefore implies thinking about the world outside of ourselves and how we are connected to that world by utilizing the very concepts or mental models offered by systems science with both hard and soft systems.

Hard Systems

Hard systems thinking is a methodology borrowed from the discipline of engineering. It provides a systems analysis, which is an integral part of providing possibilities via the analysis of different accounts or possible problems. This allows the leader of an organization or project to make an informed choice or decision taking all of the possibilities into account. “The belief that real-world problems can be formulated in this way is the distinguishing characteristic of all hard systems thinking” (Checkland, 1999, p. 15). Hard systems thinking is goal-directed because it begins by defining the desired output or goal to be reached.

According to Checkland (1999), scientists ask if we have learned anything while engineers want to know if it works. This is because the field of science implies that the highest value is given to the advancement of knowledge. The fields of engineering and technology prize highly the successful achievement of the defined purpose. Science assists humanity with the understanding and knowledge of the world and how we are a part of it. The methodology of science, according to Checkland (1999), is to utilize

reductionist and repeatable experiments in order to test hypotheses of destruction. This scientific methodology has been used to establish public knowledge, which is disseminated through man-made technology.

Soft Systems

Soft problems relate to the social systems of human activity. Soft systems were derived from the application of the hard system methodology, which was not applicable to soft system problems or social systems with obscure goals. Soft systems allow for entirely unexpected answers to emerge. They are derived from studies begun with the identification of the system and its objectives as they pertain to people in real world situations. The soft system methodology "can thus be seen as a general problem-solving approach appropriate to human activity systems when problems cannot be stated clearly and unambiguously" (Checkland, 1999, p. 191). Soft systems create the parameters for paradigm shifts by exploring ambiguity utilizing systems analysis as a means of allowing for the unexpected answer to emerge.

In order to implement changes that are desirable and feasible, Checkland (1999) describes three types of changes that are possible within organizations. The changes are in structure, in procedure, and in attitude. Structural and procedural changes are relatively simple short-term changes. They may be implemented in organizational groupings through organizational reporting structures or through an organization's structure of functional responsibility under the direction of an organization's leadership. However, changes in attitude warrant a genuine look at the individual and collective consciousness of groups as they relate to expectations regarding appropriate behavior. Changes in attitude also merit viewing roles in an appreciative inquiry mode, which is

inclusive of changes in influence. Checkland recommended that monitoring changes in this last area could help to identify any perceived problems and mode for improvement. The implementation of new systems would allow for a more flexible and functional organization relative to the creation of continued trust, understanding, and better programming. A combination of both hard and soft systems could bring notably desired changes to fruition for an organization in the process of becoming a learning organization.

Senge's Five Disciplines

According to Senge (1990), "systems thinking is a conceptual framework, a body of knowledge and tools that have been developed over the past fifty years, to make the full patterns clearer, and to help us to see how to change them effectively" (p. 7). Senge presented systems thinking from the human perspective of the up and coming learning organization. He notes that business and human systems are interconnected by an unseen fabric of interrelated actions as wholes among wholes as opposed to wholes made up of individual parts. Apparently, these actions are not always immediate and can often take years to fully play out their effects on each other.

Senge (1990) described the first principles of systems thinking at a level of direct experience. The universe, world, and humanity are all examples of an *indivisible whole.* Humanity has created boundaries, through its mental models that were both fundamental and arbitrary, thus trapping humanity with its own limitations. Senge's following five disciplines work toward a synthesis of personal accounting and organizational growth. This is an integral part of the journey to becoming conscious within the interconnected whole, a never-ending journey of creation for a learning organization.

Personal Mastery

According to Senge (1990), personal mastery is the learning organization's spiritual foundation because it starts by clarifying the things that are of the utmost importance to individuals. Personal mastery is reflected by the manner in which individuals use their lives for the service of the greatest good. Mastery represents the personal and consistent realization of ideals that are of essential importance to individuals. Organizations are challenged to grow by assisting employees in mastering the desire for personal growth.

Mental Models

Senge (1990) states that mental models are assumptions, generalizations, or pictures of images that are deeply ingrained in the human mind influencing how the world is understood and how action is taken. Often humanity is not aware of the effect that mental models have on human behavior. Within organizational management settings, new ideas and insights into outmoded practices are often in conflict with the organization's powerful, tacit mental models. The discipline of working with mental models begins with learning how to uncover our internal pictures of the world in order to discuss them in a learning environment (Senge, 1990).

Shared Vision

Shared vision refers to the ability of an organization's leadership to inspire as well as bring its members together with a common identity and sense of destiny (Senge, 1990). It is incumbent upon leaders to find pictures of the future that foster genuine dedication and participation, but not compliance. If there is a genuine vision, and not the usual "vision statement," people could excel and learn. However, often leaders have

personal visions that do not get translated into “shared visions” to galvanize an organization (Senge, 1990).

From an organizational perspective, allowing staff to participate in the decision-making is viable. However, quite often it is an ignored resource. An organizational commitment to continued learning and enhancement of an organization’s shared vision is essential in the new learning organization (Senge, 1990).

Team Learning

Team learning is a discipline that happens with a group whose combined intelligence often exceeds the individual level of intelligence within the team and where teams, on the other hand, develop an extraordinary capacity for coordinated action (Senge, 1990). A team that is truly learning is capable of achieving truly extraordinary results. The individual members of a team continue to grow more rapidly together than had they not been a part of the group (Senge, 1990). Team learning in the postmodern organization is vital because teams, not individuals, are the fundamental learning unit upon which individuals base their mental models.

According to Senge (1990), systems thinking is the fifth discipline. Systems thinking is the discipline that allows for the integration of all of the above principles or disciplines. Together they form an interrelated pattern with powerful results for the learning organization. Each of the individual disciplines is assisted by the other via the concept of systems theory that identifies how the whole can exceed the sum of its individual parts.

Systems thinking can assist individuals in understanding the ways in which organizations view themselves in relation to the world they serve. Many individuals

within organizations perceive themselves as independent agents. Many organizational issues are not addressed from the perspective of how personal thoughts and actions create current experiences. “A learning organization is a place where people are continually discovering how they create their reality and how they can change it” (Senge, 1990, p. 13).

The Indivisible Whole

Systems thinking is significant and substantial because it allows individuals to see, experience, and understand the whole picture without boundaries and divisions. The indivisible whole represents the inter/intra connection of the world without boundaries and separations. It recognizes the fact that in reality there are no real separations between people and things, that humanity is interconnected in a myriad of ways. This is the way of systems theory—to see the totality in the concept of wholeness in as much as humans can see where the connection to the web of life begins or ends (Senge, 1990).

The integration of all of the parts of an organization, from personal mastery to team learning, the synergy that is systems thinking or, the fifth discipline, is created. As human systems continue to improve both personal and group skills, learning can be perpetuated by recognizing the importance of the indivisible whole of the organization.

Systems theory offers a contextualized view of intelligence as postulated by Gardner (1993) because it takes into account that human beings are both biological and cultural in nature.

> Even before birth, the immature organism lies in the womb of a woman who has habits, styles, and practices that reflect her culture and subculture. And while it is possible to exaggerate the influence of these prenatal influences, there is no

question that the life of the infant after birth is inextricably bound with the practices and assumptions of her culture. (Gardner, p. 220)

All of these views are critical to the understanding of mental models within organizations and the way in which they are formed and affect the decision-making process regarding the selection and promotion of future leaders. These views highlight the idea that cognitive mapping within an organizational culture is based upon the mental models of the established leadership that permeate the entire organization.

Although Capra (1996), Checkland (1999), Senge (1990), and Gardner (1993) take different approaches to systems thinking, they all seem to have the same basic common denominator with regard to systems, which is that all parts of the whole are interrelated. Such an understanding is essential to the development of future leadership of organizations.

Senge's (1990) five disciplines of the new learning organization are: personal mastery, mental models, systems thinking, building a shared vision among members of an organization, and team learning. The purpose of the five pillars is to assist in the enhancement of organizational leadership skills. Team experiences within organizations that include shared mental models, vision, and personal goals are on the way to becoming healthier learning organizations that are better able to meet global dictates.

In the case of the organization, which is a microcosm of society, it may be possible that the system can be enhanced by the very nature of a global sense of community. Systems theory suggests the process of reconnecting to the "web of life" by building and nurturing communities that are sustainable, where people can satisfy needs

and aspirations without hurting future generations. It is the way that individuals and organizations can engage to maintain a sustainable future (Capra, 1996).

Summary

Chapter 2 provides a review of the literature regarding mental models of leadership advancement for women. The literature was examined in order to understand the history of the *concept of the mental model*, which began with the germinal thinkers on the topic. Boltzmann (1899) presented the concept of experimental models as the basis of understanding the importance of models. The idea of propositions as pictures was presented by Wittgenstein (1921), which continued the model/picture concept. Craik (1943) was the first to use the term "mental models," which he referred to as small-scale models of reality. Contemporary work on mental models has been attributed to Phillip Johnson-Laird (1983), Argyris and Schon (1974), and Senge (1990).

The examination of the literature suggests the existence of mental models, which have an effect on leadership advancement for women. The research of mental models in this study is based upon thinking styles, leadership styles, gender and organizational leadership, culture, multiple intelligences, and systems theory, which suggest a myriad of outcomes. Clearly, there are no single answers to address the issue of poor representation of women in executive leadership positions. This is attributed to a gap in the literature that suggests the instability of mental models, which are subject to change given their delicate and highly subjective nature. There is a dearth of studies that represent the elements specific to the formation of the different components of mental models (Rutherford, Rogers & Bibby, 1992)

Problems that contribute to the creation of circumstances resulting in an imbalance in organizational leadership roles are based on cultural roles for men and women and the limitations that those roles present in business via the glass ceiling phenomenon. This is a world wide phenomenon that challenges organizations to recognize and maximize upon the opportunities presented by the number of educated women prepared to assist in the development of leadership roles that help to address the global agenda (Haben, 2001). The points of interest that are reviewed in the study of mental models are significant and substantial in identifying areas where there are pockets of unconscious decision making. Identifying conscious growth as a necessary medium for both women and men to make positive changes will enhance the learning organization. Recognizing the areas of multiple intelligences in organizations, as well as individuals, may be the first place to start in leveling the glass ceiling effect on women in attaining leadership positions (Gardner, 1993; Harquail, 2002).

The literature review has identified an absence of studies that link mental models to cultural development, gender and role development, thinking styles, leadership styles, and multiple intelligences creating a gap in the literature in each of these areas. The intention of this quantitative study is to contribute to the existing body of knowledge by partially filling the existing gap in the literature on mental models and their effect on the advancement of women to executive leadership positions. Chapter 3 presents the details of the methodology that was used in order to expand upon the body of knowledge espoused upon in the literature review that establishes a link between the expectations internalized by female leaders with regard to leadership advancement opportunities.

Conclusion

This literature review has addressed the subject matter via a broad perspective with regard to the history of mental models relative to the concepts of multiple intelligences, thinking styles, gender, leadership styles, culture and systems theory. The discussion that ensued was focused upon the theoretical elements of the study: (a) mental models create leadership styles and thinking styles; (b) mental models are significant as they relate to an organization's identified leadership and the subsequent advancement of women within these organizations; (c) people, like organizations, use a large number of abilities to synthesize their experiences of the world.

Organizational leadership is based upon a sociological construct of strongly held internal images of how the world works (Gardner, 1983/2004). A representative example of this sociological construct would include assumptions and values that represent the validation of cultural models (Schein, 1992). Pipeline and deficit theories have challenged women's advancement opportunities for leadership (Heilman, 2001). The importance of examining mental models via surfacing and testing are essential to the improvement of our internal pictures of the way the world works (Senge, 1990). Argyris, as cited in Senge (1990), suggest the rationale for the continued examination of mental maps and the improvement of personal and organizational mental models. The rationale is based upon the understanding that the tendency exists to become trapped by defensive routines, which can develop into skilled incompetence. This project has explored the mental models of female leaders in the form of thinking styles and leadership styles as women examine their expectations for successful career advancement and integration into

the global marketplace. Chapter 3 details the proposed methodology to provide answers to the research questions proposed in this study.

CHAPTER 3: METHOD

The purpose of this quantitative correlational research was to identify if there was a relationship between mental models, in the form of both thinking styles and leadership styles, internalized by women and their career advancement. An examination of perceived mental models aided in the identification of strategies that could assist organizations in the facilitation of a more diversified leadership. For this purpose, a correlational research study was conducted of female leaders from the Interracial Women's Leadership Round Table of Westchester County and Zonta Club of Westchester; both clubs located in Westchester County in New York State. A quantitative research method is appropriate to the study because it offered the opportunity for a close examination of the variables used in the design: thinking styles and leadership styles, and how these styles are internalized by female leaders and affect leadership selection and advancement of women's careers.

Chapters 1 and 2 present the essence of the study and its importance to leadership along with a review of related literature. Chapter 3 provides a review and discussion of the appropriateness of the approach and research design chosen, and includes an examination of the data collection methods used.

Research Method and Design

A graphic representation of the research project is depicted in Figure 2. A quantitative correlational research design was used to identify and to solve the research problems through the interpretation of data gathered in the study. The quantitative research method is the most appropriate because it seeks explanations and predictions that can be generalized to other persons and places with the need to establish, confirm, or

validate relationships and to develop generalizations that can contribute to theory (Leedy et al., 1997).

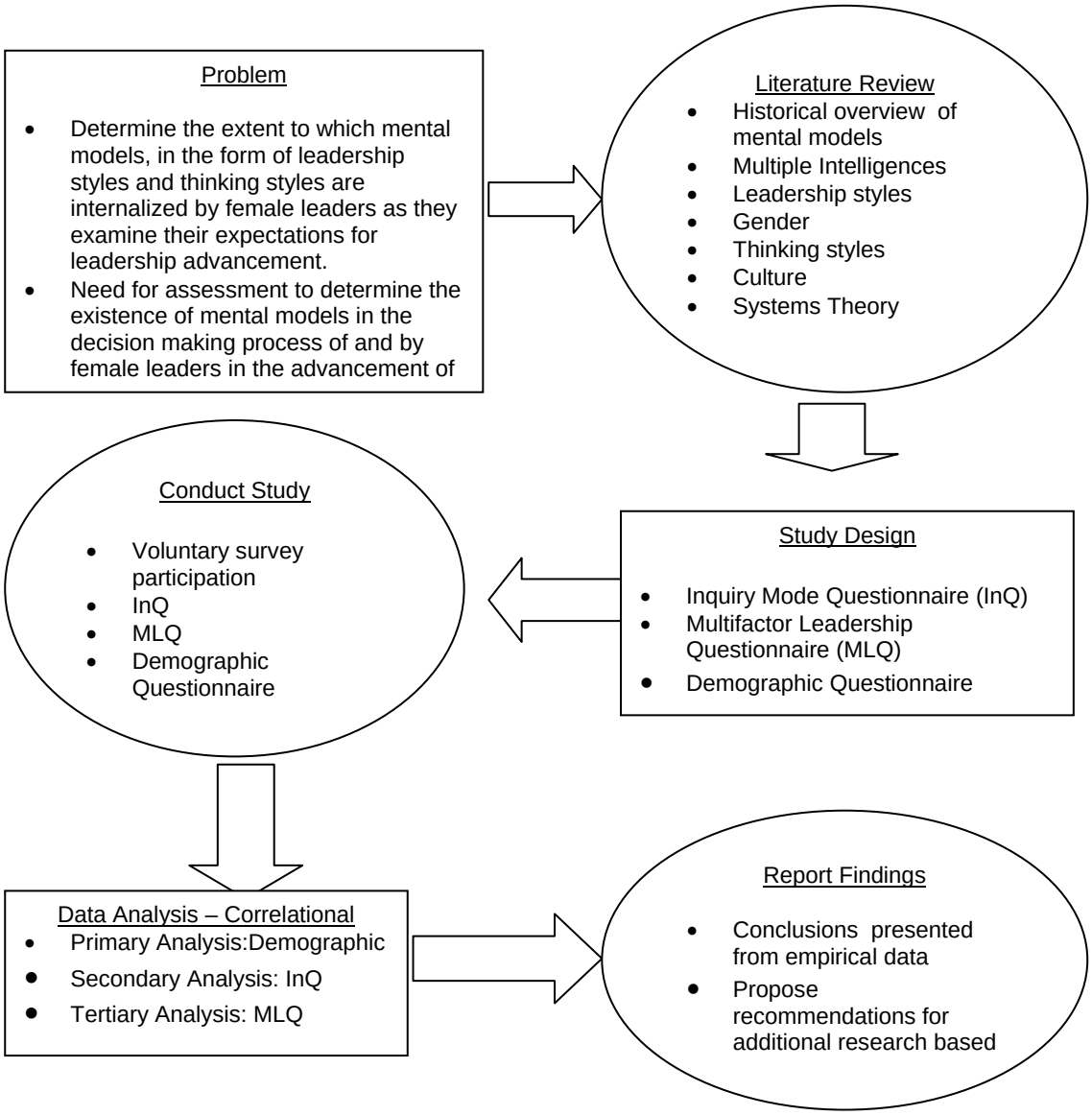

Figure 2. Graphic representation of research methodology.

A qualitative method was not deemed most appropriate as it requires the researcher to provide interpretive narratives from the data with a more literary style (Leedy et al., 1997, p. 108). Since a qualitative methodology would not identify correlations between the variables, it was not a viable choice for the study. A correlational research design was appropriate to the study because it looks at surface relationships but does not necessarily

probe for underlying casual reasons (Leedy & Ormond, 2001). According to McMillan (1996), as cited by Leedy et al. (1997), "correlational studies examine the degree to which variations or differences in one variable are related to variations of differences in another variable" (p. 224).

A quantitative research method with a correlational design identified the extent to which a correlation exists between mental models and leadership advancement of women's careers. The use of such a research methodology had the potential to assist in the identification of parameters of behavior that affect mental models of leadership in the advancement of the careers of women leaders and the degree to which such mental models are internalized by women in Westchester County, New York. A quantitative study of this type assisted in further understanding the effect of mental models and their associated behavior in the decision-making process, offering new ways of understanding how our future leaders will be selected. A summary of identified leadership styles and thinking styles were examined in order to detail possible correlations between empowered leaders and corresponding thinking and leadership styles, thus, addressing the association of mental models (thinking and leadership styles), which are the independent variables on the dependent variable—the leadership selection and advancement of women's careers. The categories for the dependent variables are based upon four dichotomous measures of advancement: received leadership training, been promoted, hired from outside the organization, and belief that growth opportunities existed in their organization.

Research Questions

The study will seek to provide data to answer the following research questions:

1. Is there a correlation between one's thinking style and leadership advancement for women?
2. Is there a correlation between one's leadership style and leadership advancement for women?
3. What is the extent to which a relationship exists as perceived by women, between organizational leadership and the advancement of women as leaders?

Population

The population in the study was derived from the Interracial Women's Leadership Roundtable and the Zonta Club of Westchester. IWLR is a coalition of organizational leaders addressing the issues of racial tensions, prejudice and discrimination and leadership efforts, to improve understanding among all races of women in Westchester County, New York. The IWLR is comprised of more than 300 women, over the age of 18, who represent diverse religions and ethnicities. The IWLR is a collaborative effort between the Junior Leagues of Westchester; The Westchester and Greater Hudson Valley Chapters of the Links, Inc; Jack and Jill of America, Westchester Chapter; The League of Women Voters; The YWCA of White Plains and Central Westchester; the American Jewish Committee, Westchester Chapter; Con Edison; and many professional women. The IWLR was created to assist in the promotion of interracial and intercultural understanding between and among women leaders and organizations. The Zonta Club of Westchester is a Westchester County, New York branch of Zonta International, a global service organization of executives in business and the professions working together, across political and social boundaries, to advance the status of women worldwide.

The members of both IWLR and the Zonta Club of Westchester represent organizations in the corporate sector, not-for-profit, and private sectors. Many of the women are in leadership positions, or are in positions to assume such roles, as well as to select future leaders for their organizations. The research targeted leaders—executive level leaders, mid-level managers/leaders, and entry level professionals (future leaders)—women with leadership potential as identified by leaders in their organization. These leaders are participants of the IWLR and the Zonta Club of Westchester who consented to be the population for the research. Approximately 300 available participants were identified through IWLR and the Zonta Club of Westchester.

Informed Consent

Each of the participants of the study was informed prior to beginning the questionnaires that member participation was voluntary. A letter of informed consent (Appendix F) to participate in the research study was provided and signed prior to returning the questionnaires. Individuals who did not meet the study criteria or who chose not to participate in the study were free to leave at any time. Incomplete questionnaires were not collected for use in the study. Under these circumstances, study participants were thanked for their time, with no further obligation to the study.

Sampling Frame

Within the specified geographic location there were 300 members of IWLR and the Zonta Club of Westchester combined. A random stratified sample of the population evaluated was determined using the following formula: $N = (z/e)\ 2\ (p)\ (1\text{-}p)$

N = the size of the sample

z = standard score corresponding to a given confidence level

e = the proportion of sampling error

p = incidence of cases in the population

the required sample size for a population of 300 was 169 (Leedy et al., 1997).

The stratified levels were separated by level of leadership within an organization. For example, the independent variables represent the mental models of executive leaders, mid-level leaders, and future leaders or (Strata #1= Executive Leaders), (Strata #2 = Mid-level Leaders), (Strata #3 = Entry Level/Future Leaders). The dependent variables were identified by the leadership selection and advancement process and leadership expectations.

The sample was stratified to include the following:

Population Level

Strata # 1: Executive Leaders

Strata # 2: Middle Managers/Leaders

Strata # 3: Entry Level/Future Leaders

Equalization Level

Strata # 1: Executive Leaders

Strata # 2: Middle Leaders

Strata # 3: Entry Level/Future Leaders

Randomization Level

Strata # 1: Random Sample

Strata # 2: Random Sample

Strata # 3: Random Sample

Total Randomized Sample of All the Above Samples

Data Level and Confidentiality

Data were extracted from the randomized stratified aforementioned sample via the three implemented questionnaires (Leedy et al., 1997). The identity of the participants remained confidential along with the data sets. The process for ensuring confidentiality was met as participants were asked to submit their informed consent prior to receiving the surveys. A portion of the informed consent form addressed confidentiality by assuring participants that they were free to participate in the study and could withdraw at any time during the process with the guarantee of anonymity. The assurance was also offered that their individual responses would be presented in stratified groups for reporting purposes. The questionnaires were individually packaged with the researcher's contact information in a self-addressed, stamped envelope for collection purposes.

Geographic Location

The geographic location selected for the study was confined to employed workers who were members of the Interracial Women's Leadership Roundtable and the Zonta Club of Westchester, Westchester County, New York. The facilities selected to administer the questionnaires were the general meeting places for the IWLR and the Zonta Club of Westchester. These facilities are centrally located in Westchester County, New York.

Data Collection

The researcher visited the club meeting place on dates specified by the IWLR and the Zonta Club of Westchester for the purpose of conducting the research by distributing the informed consent and questionnaires. A set of three instruments was placed in an unsealed envelope for distribution and completion. Only completed sets of instruments were accepted for use in the study. Completed instruments were placed back in the original envelope and sealed in order to ensure the integrity and confidentiality of the responses until the data were to be analyzed. Stamped self-addressed envelopes were provided for those participants who preferred to complete their surveys at home or who required more time to complete the questionnaire process.

The researcher personally distributed and collected the instruments. The researcher was present at meetings to answer any questions that arose. The researcher provided participants with an email address and phone number as an avenue for any additional questions as the InQ is a self-scoring questionnaire and participants could return the questionnaires via the US Postal Service. This helped to prevent confusion and assist in the timely completion of data sets from the participants. The estimated time allotment for the completion of the three instruments was 1 hour and 45 minutes.

The data collected was appropriate to the correlational research design as they represented responses from women who met the criteria for the study. The data correlated thinking styles, leadership styles, and level of leadership within organizations. The specific problem that the study addressed was: In spite of increasing numbers of qualified females in the workplace, men have been placed in the vast majority of management positions. The study endeavored to identify if this was as a result of female leaders

internalizing mental models in examining their expectations for successful integration into the global marketplace in the advancement of their careers.

Existing measurement instruments were used to collect data on the independent variables of thinking styles and leadership styles. The measurement instruments were both reliable and validated instruments. The dependent variable— leadership advancement—was collected using a self-report questionnaire (demographic questionnaire). The categories for the dependent variables were based upon four dichotomous measures of advancement: received leadership training, a career promotion, hired from outside of the organization, and the opportunity for career advancement. A determination of individual thinking styles and leadership styles was made based on participant responses to the two measurement instruments as these responses were correlated with leadership advancement (level) to determine if thinking style and leadership style were indeed related to leadership advancement.

Instrumentation

The study instruments addressed both the research questions and the hypotheses. The first instrument was a demographically oriented questionnaire that offered a self-reporting measure of level of leadership within the participant's organization. The second instrument was the Inquiry Mode Questionnaire (InQ), which was used to identify one's thinking profile, and the third was the Multifactor Leadership Questionnaire (MLQ) which identified leadership styles.

Demographic Oriented Questionnaire

The demographically oriented questionnaire collected data specific to the organization of the participant being surveyed. The data included the respondent's position in the company, number of years in the organization, level of leadership in organization, education level, leadership training, promotions within the organization, current position, if hired from outside or promoted from within organization.

Inquiry Mode Questionnaire (InQ)

The InQ was created by Harrison, Bramson, Bramson, and Parlette (1977/2003). It was developed to examine one's thinking style by determining how information is gathered, processed and used to make and act on decisions. An examination of one's thinking style can assist in the identification of the models one gravitates toward that influence decision making. The concept behind the InQ suggests if individuals can understand their own and thinking styles and the differences between the remaining thinking styles, it is easier to understand the process of interaction. The InQ is a self-administered, self-scored, and self-interpreted tool. The InQ can be used for individual personal development or team building and employee development. There are five suggested styles that define most human thinking that are currently recognized by the InQ. The InQ measures the extent to which individuals use these styles by identifying the strengths and weaknesses or limitations of each style. It is specifically designed to measure one's thinking as opposed to aspects of individual personalities and describes the behavioral cues that provide the key to each style of thinking.

According to Harrison et al. (1977/2003), the five styles of thinking identified by the InQ are: Synthesists, Idealists, Pragmatists, Analysts, and Realists:

Synthesists center their thinking on ideas in an attempt to find connections between things that others do not see as having a strong relationship. The Synthesist thinking style is challenging, speculative, integrative, and process-oriented.

Idealists experience reality as the space where new data is assimilated due to recognized or perceived similarities to known situations. The Idealist thinking style is assimilative, receptive, and need-oriented.

Pragmatists understand or perceive that the world is a changing and basically unpredictable place that requires flexibility in the approach to problem solving. The Pragmatist thinking style is adaptive, incremental, and payoff oriented.

Analysts experience the world in a structured, organized, and predictable manner. The belief system here supports the idea that there should be a single best way to accomplish a goal. The Analyst thinking style is prescriptive and method-oriented.

Realists utilize inductive reasoning drawn from observation and personal experience. The Realist thinking style is empirical in nature and task-oriented.

Exploring how people think in the decision-making process of future female leaders can assist companies in seeking to improve their leadership, team building, negotiating, and communication skills. Enhancing such skills can assist in the facilitation of a more productive, competitive, and effective organization.

Multi-Factor Leadership Questionnaire (MLQ)

The Multi-Factor Leadership Questionnaire (MLQ) was created by Bass and Avolio (1995/2000). The instrument was developed in order to measure both transactional and transformational leader behavior while investigating the relationship between leader styles, work effectiveness, and satisfaction. The use of the MLQ for

research offered the researcher the opportunity to examine leadership from 12 different points of interest in the form of sub-scales to further delineate and differentiate leader behavior. Idealized Influence (attributed to individuals and the behaviors individuals display), Inspirational Motivation, Intellectual Stimulation, Individualized Consideration, Contingent Reward, Management by Exception (Active/Passive) and Laissez Faire Leadership, Extra Effort, Effectiveness, and Satisfaction are the categories and points of interest that can be measured by the MLQ.

The InQ, MLQ, and demographic questionnaires were chosen for the study to measure thinking styles, leadership styles, and organization levels. Other instruments considered could not address the study issues and consequently were not used. For the purposes of this study, mental models were defined as thinking styles and leadership styles and level of organization.

Validity and Reliability

Instrument validity was important to the study. According to Bruvold, Parlette, Bramson, & Bramson (1983), the validity and reliability of the InQ was determined upon initial trial runs in a test-retest of 63 students from three different universities at six-week intervals from 1977 to 1978. Reliability was assessed for profiles using Spearman rank correlations computed for all respondents. The MLQ has been widely used since its inception in 1985 and has proven to be both valid and reliable as a research tool for the measurement of leadership styles given its popularity in a multitude of research projects.

This research design sought to examine the effect of mental models on the leadership selection and promotion process of female leaders. As Leedy et al. (1997) purport, the purpose of research from a quantitative perspective is:

> to explain, predict, confirm, and validate. The essence of this correlational research design tests theory and is outcome oriented. The nature of this research process is focused on known variables and established guidelines, with a static design. It is context free and offers a detached view of results. The methods of data collection are representative and will use large sample standardized instruments. Deductive analysis is the form or reasoning used in quantitative analysis. Quantitative findings are communicated via numbers, statistics, aggregated data, and scientific style. (p. 106)

Internal validity was considered in this study design as it attempted to answer the questions asked through the data collected. External validity addressed whether or not the results could be generalized outside of the study population.

Data Analysis

A test is not statistically significant if there is no effect or if the study design makes it unlikely that a biologically real effect would be detected. Power analysis can distinguish between these alternatives and, is therefore, a critical component of designing experiments and testing results (Thomas & Krebs, 1997). Frequency counts for selected variables, descriptive statistics for the demographic questionnaire, InQ and MLQ scores, point biserial correlations for the InQ, MLQ and leadership advancement, as well as chi-square tests were used to analyze the data presented in this study. Data from each questionnaire was correlated as a part of the final statistical analysis.

Organization and Clarity

In order to resolve the research questions, a quantitative method with a correlational research design was selected as the most appropriate design for the study.

Three questionnaires (Demographic Questionnaire, InQ, MLQ) were selected for collecting raw data to solve the research questions with the use of statistical analysis. One questionnaire was used to collect demographic characteristics to identify the population in the marketplace. The InQ measured mental models in the form of thinking style profiles, and the MLQ measured mental models in the form of leadership styles. Statistical analysis will be used to determine if there is a correlation between specific leader behavior and expectations elicited in the leadership advancement process of women's careers.

The population in the study was drawn from the Interracial Women's Leadership Roundtable and the Zonta Club of Westchester, Westchester County, New York. These clubs are comprised of women who are in positions of leadership or future leadership in organizations that represent the corporate sector, not-for-profit, and private sectors. A stratified random sampling design was used in the study. The levels were separated by level of leadership within an organization. For example, executive leaders, mid-level leaders, and future leaders or (Strata #1= Executive Leaders); (Strata#2= Mid-level Leaders); (Strata #3= Entry Level/Future Leaders).

Surveys help to understand data in a sequential manner (Creswell, 2003). The study research model allowed for a detailed analysis of the presented problem without being invasive to the individual participants or the organizations that employ them. Both the surveys and sampling measures assisted in ensuring that bias had not been introduced into the process (Bickman & Rog, 1997). These reliable instruments also assisted in the promotion of triangulation for the study. These surveys presented the researcher with a view of data that were not readily available from other sources.

Summary

Chapter 3 presents the methodology used in the study. The quantitative method with a correlational research approach was used to the extent to which mental models in the form of both thinking styles and leadership styles were internalized by female leaders as they examined their expectations for successful organizational integration and career advancement into executive leadership positions. This chapter details the research design, reviews the research questions, identifies the participating population, and describes the protocol for data collection and analysis. The research instruments are reviewed along with their respective reliability and validity as related to the study.

The results obtained in this study have the potential to assist individuals and organizations in a better understanding of the relationship between thinking styles and leadership styles. These relationships may provide a predictor of mental models of successful female leaders that will provide positive outcomes for organizational success worldwide. The chapters that follow present an analysis of the gathered data and an interpretation of the data as well as recommendations based upon the findings.

CHAPTER 4: RESULTS

The purpose of this quantitative correlational research was to determine if there was a relationship between mental models in the form of both thinking styles and leadership styles internalized by women and their career advancement. One hundred and six women participated in the study. Standardized instruments were used to measure thinking styles and leadership styles. Demographic information was also collected on each leader. Chapter 4 contains a description of the population that participated in the research, analysis of the data, a review of the hypotheses, and the chapter summary.

Results and Findings

Table 3 displays the frequency counts for selected variables. Slightly more than half the women (55.7%) were African-American, 33.0% were Caucasian, and 11.3% were Hispanic. These frequency counts are not reflective of the entire population of working women as the sample only reflects demographics for race/ethnicity in the following categories: African-American, Caucasian, and Hispanic. Eighty-four percent were full-time employees. Regarding education, 73.5% reported having at least a bachelor's degree. Ages ranged from 20 to 86 years (M = 45.10, SD = 12.23). Years in the organization ranged from less than a year to 50 years (M = 9.42, SD = 9.74). Most common types of organizations were "not-for-profit (36.8%)" or "other (43.4%)." Approximately one-third (32.1%) received leadership training through their organization. Based on job title, 67.0% had positions in the organization that were "white collar professional" status or higher. When asked the category for their position, 21.7% were "executives," 47.2% were "middle managers/leaders," and 31.1% were "entry level/future leaders." Promotions had been received by 43.4% of the participants and

74.5% reported that they had been hired from outside the organization. Most (79.2%) reported that growth opportunities existed for them within the organization (Table 3).

Table 3

Frequency Counts for Selected Variables

		n	Percent
Gender	Female	106	100.0
Race/Ethnicity	Caucasian	35	33.0
	African-American	59	55.7
	Hispanic	12	11.3
Full-time Employee	Yes	89	84.0
	No	17	16.0
Level of Education	High School	11	10.4
	AA Degree	17	16.0
	Bachelor's degree	38	35.8
	Master's degree	37	34.9
	Doctorate	3	2.8
Age[a]	20-29 years	14	13.2
	30-39 years	16	15.1
	40-49 years	34	32.1
	50-59 years	31	29.2
	60-86 years	11	10.4
Years in Organization[b]	0-1 years	24	22.6
	2-4 years	14	13.2
	5-9 years	33	31.1
	10-19 years	18	17.0
	20-50 years	17	16.0
Type of Organization	Not for profit	39	36.8
	Corporation	7	6.6
	Private	14	13.2
	Other	46	43.4
Received Leadership Training Through Organization	Yes	34	32.1
	No	72	67.9

(table continues)

Table 3 *(continued)*

Current Position	Blue collar-unskilled	4	3.8
	Blue collar skilled or white collar clerical	31	29.2
	White collar professional	34	32.1
	Manager	18	17.0
	Executive	19	17.9
Current Position Category	Executive	23	21.7
	Middle manager/leader	50	47.2
	Entry level/future leader	33	31.1
Been Promoted	Yes	46	43.4
	No	60	56.6
Hired from Outside the Organization	Yes	79	74.5
	No	27	25.5
Do Growth Opportunities Exist	Yes	84	79.2
	No	22	20.8

[a] Age: *M* = 45.10, *SD* = 12.23.

[b] Years: M = 9.42, SD = 9.74.

Table 4 displays the descriptive statistics for the five Inquiry Mode Questionnaire (InQ) scores. The highest score was Analyst (*M* = 58.43).

Table 4

Descriptive Statistics for InQ Scores

	M	*SD*	Low	High
Synthesist	47.29	7.50	34.00	69.00
Idealist	56.42	6.58	37.00	74.00
Pragmatist	53.68	6.11	40.00	70.00
Analyst	58.43	7.39	40.00	78.00
Realist	55.19	6.44	40.00	72.00

Table 5 displays the psychometric characteristics for the five Multifactor Leadership Questionnaire (MLQ) scores. Cronbach Alpha reliability coefficients ranged from r = .48 to r = .82, with a median coefficient of r = .59 (Table 5).

Table 5

Psychometric Characteristics for MLQ Scales

	# Items	*M*	*SD*	Low	High	Alpha
Transformational Leadership	20	3.08	0.45	2.10	3.90	.82
Laissez Faire Leadership	4	0.75	0.65	0.00	2.50	.52
Contingent Reward	4	3.08	0.68	0.75	4.00	.59
Management by Exception-Passive	4	0.94	0.65	0.00	2.75	.48
Management by Exception-Active	4	1.96	0.89	0.00	3.75	.67

Table 6 presents the point biserial correlations for thinking styles, leadership styles, and organizational leadership with advancement of women (N = 106).

Table 6

Point biserial correlations

	Received Training [a]	Promoted [a]	Outside Hire [a]	Growth Exists [a]
InQ Synthesist	.05	-.08	-.06	-.05
InQ Idealist	-.11	-.14	-.14	-.13
InQ Pragmatist	-.03	-.08	.11	.06
InQ Analyst	.06	.03	-.02	-.01
InQ Realist	-.05	.23**	.05	-.01
MLQ Transformational Leadership	.01	-.17*	.02	-.08
MLQ Laissez Faire Leadership	.01	-.03	.19**	.20**
MLQ Contingent Reward	.15	.02	.04	-.06
MLQ Management by Exception-Passive	.08	.06	.16*	.08
MLQ Management by Exception-Active	.17*	.06	-.01	.03
Position [b]	.29****	.13	-.09	-.11
Position category [c]	.31*****	.09	-.08	.00

Note. * $p < .10$. ** $p < .05$. *** $p < .01$. **** $p < .005$. ***** $p < .001$.
[a] Coding: 0 = No 1 = Yes

InQ = Inquiry Mode Questionnaire

MLQ = Multifactor Leadership Questionnaire

[a] Coding: 0 = *No* 1 = *Yes*

[b] Position: 1 = *Blue Collar-Unskilled* to 5 = *Executive*

[c] Category: 1 = *Entry level/future leader* to 3 = *Executive Leader*

MLQ = Multifactor Leadership Questionnaire

Table 7 presents the association of the interaction of InQ *Synthesist* thinking and MLQ transformational leadership related to *career advancement controlling for type of job.* Chi-square test of significance.

(N = 106)

Table 7

Interaction of InQ Synthesist Thinking and MLQ Transformational Leadership

		Not Promoted		Promoted	
Type of Job	Interaction	*n*	%	*n*	%
Non-Leaders Only (*n* = 33) [a]					
	Low InQ-Low MLQ	13	65.0	7	35.0
	Low InQ-High MLQ	11	91.7	1	8.3
	High InQ-Low MLQ	0	0.0	0	0.0
	High InQ-High MLQ	1	100.0	0	0.0
Leaders Only (*n* = 73) [b]					
	Low InQ-Low MLQ	10	33.3	20	66.7
	Low InQ-High MLQ	23	59.0	16	41.0
	High InQ-Low MLQ	1	50.0	1	50.0
	High InQ-High MLQ	1	50.0	1	50.0

Note. Low and high InQ scores were based on above or below 60T while low and high.

MLQ scores were based on a median split for the sample.

[a] χ^2 (3, *n* = 33) = 3.23, *p* = .20

[b] χ^2 (3, *n* = 73) = 3.23, *p* = .20

Table 8 presents the association of the interaction of InQ *Idealist* thinking and MLQ transformational leadership related to *career advancement controlling for type of job.* Chi-square test of significance.

(N = 106).

Table 8

Interaction of InQ Idealist Thinking and MLQ Transformational Leadership

		Not Promoted		Promoted	
Type of Job	Interaction	*N*	%	*n*	%
Non-Leaders Only	(n = 33) [a]				
	Low InQ-Low MLQ	12	63.2	7	36.8
	Low InQ-High MLQ	9	90.0	1	10.0
	High InQ-Low MLQ	1	100.0	0	0.0
	High InQ-High MLQ	3	100.0	0	0.0
Leaders Only	(n = 73) [b]				
	Low InQ-Low MLQ	9	39.1	14	60.9
	Low InQ-High MLQ	11	45.8	13	54.2
	High InQ-Low MLQ	2	22.2	7	77.8
	High InQ-High MLQ	13	76.5	4	23.5

Note. Low and high InQ scores were based on above or below 60T while low and high.

MLQ scores were based on a median split for the sample.

[a] χ^2 (3, n = 33) = 4.03, p = .26

[b] χ^2 (3, n = 73) = 8.63, p = .03

Table 9 presents the association of the interaction of INQ *Pragmatist* thinking and MLQ transformational leadership related to *career advancement controlling for type of job.* Chi-square test of significance.

(N = 106).

Table 9

Interaction of InQ Pragmatist Thinking and MLQ Transformational Leadership

		Not Promoted		Promoted	
Type of Job	Interaction	*n*	%	*n*	%
Non-Leaders Only (n = 33) [a]					
	Low InQ-Low MLQ	9	64.3	5	35.7
	Low InQ-High MLQ	9	90.0	1	10.0
	High InQ-Low MLQ	4	66.7	2	33.3
	High InQ-High MLQ	3	100.0	0	0.0
Leaders Only (n = 73) [b]					
	Low InQ-Low MLQ	9	32.1	19	67.9
	Low InQ-High MLQ	20	58.8	14	41.2
	High InQ-Low MLQ	2	50.0	2	50.0
	High InQ-High MLQ	4	57.1	3	42.9

Note. Low and high InQ scores were based on above or below 60T while low and high.

MLQ scores were based on a median split for the sample.

[a] χ^2 (3, n = 33) = 3.34, p = .34

[b] χ^2 (3, n = 73) = 4.66, p = .20

Table 10 illustrates the association of the interaction of InQ *Analyst* thinking and MLQ transformational leadership related to *career advancement controlling for type of job.* Chi-square test of significance.

(N = 106).

Table 10

Interaction of InQ Analyst Thinking and MLQ Transformational Leadership

		Not Promoted		Promoted	
Type of Job	Interaction	*n*	%	*n*	%
Non-Leaders Only (n = 33) [a]					
	Low InQ-Low MLQ	6	54.5	5	45.5
	Low InQ-High MLQ	6	85.7	1	14.3
	High InQ-Low MLQ	7	77.8	2	22.2
	High InQ-High MLQ	6	100.0	0	0.0
Leaders Only (n = 73) [b]					
	Low InQ-Low MLQ	5	27.8	13	72.2
	Low InQ-High MLQ	12	63.2	7	36.8
	High InQ-Low MLQ	6	42.9	8	57.1
	High InQ-High MLQ	12	54.5	10	45.5

Note. Low and high InQ scores were based on above or below 60T while low and high.

MLQ scores were based on a median split for the sample.

[a] χ^2 (3, n = 33) = 5.01, p = .17

[b] χ^2 (3, n = 73) = 5.22, p = .16

Table 11 illustrates the association of the interaction of InQ *Realist* thinking and MLQ transformational leadership related to *career advancement controlling for type of job.* Chi-square test of significance.

(N = 106).

Table 11

Interaction of InQ Realist Thinking and MLQ Transformational Leadership

		Not Promoted		Promoted	
Type of Job	Interaction	*N*	%	*n*	%
Non-Leaders Only (n = 33)[a]					
	Low InQ-Low MLQ	12	80.0	3	20.0
	Low InQ-High MLQ	8	88.9	1	11.1
	High InQ-Low MLQ	1	20.0	4	80.0
	High InQ-High MLQ	4	100.0	0	0.0
Leaders Only (n = 73) [b]					
	Low InQ-Low MLQ	10	41.7	14	58.3
	Low InQ-High MLQ	20	60.6	13	39.4
	High InQ-Low MLQ	1	12.5	7	87.5
	High InQ-High MLQ	4	50.0	4	50.0

Note. Low and high InQ scores were based on above or below 60T while low and high.

MLQ scores were based on a median split for the sample.

[a] χ^2 (3, n = 33) = 10.74, p = .01

[b] χ^2 (3, n = 73) = 6.54, p = .09

Hypotheses

Hypothesis 1

H_1: There is a correlation between thinking styles and the advancement of women.

The study utilized four dichotomous measures of advancement: Had the women received leadership training, had they been promoted, were the women hired from the outside, and did the women believe growth opportunities existed for them within the organization? Point biserial correlations were utilized to compare these four advancement measures with the five InQ scores (see Table 6). Due to the exploratory nature of this study, findings significant at the $p = .10$ level will be reported to suggest avenues for future research. Women who were promoted had higher InQ *Realist* scores ($r_{pb} = .23$). Given that only 1 of 20 correlations was significant, no support was found for Hypothesis One.

Hypothesis 2

H_2: There is a correlation between leadership styles and the advancement of women.

The four measures of advancement were correlated with five MLQ leadership scores (see Table 6). Participants who had received leadership training had higher MLQ Management by Exception-Active scores ($r_{pb} = .17$). The participants who had been promoted had lower MLQ Transformation Leadership scores ($r_{pb} = -.17$). The women who had been hired from the outside had higher MLQ Laissez Faire scores ($r_{pb} = .19$) and higher Management by Exception-Passive scores ($r_{pb} = .16$). Those women who believed that growth opportunities existed had higher Laissez Faire scores ($r_{pb} = .20$). Given that only 5 of 20 correlations were significant at the $p < .10$ level, minimal support was found

for Hypothesis 2. Considering the 5 of 20 correlations were all weak correlations there is no need to consider the "real" impact by computing r^2 to determine the proportion of variance.

Hypothesis 3

H_3: There is a relationship perceived by women between organizational leadership and the advancement of women as leaders.

Participants who had received training were at higher positions in the organization (r_{pb} = .29) and were in a higher position category (r_{pb} = .31) (see Table 6). Given that only two of eight correlations were significant, some support was found for Hypothesis 3.

Hypothesis 4

H_4: There is an interaction between thinking and leadership styles and the advancement of women's careers with certain types of styles.

Tables 7 to 11 display the chi-square test comparisons for the interaction of InQ thinking style with transformational leadership as it related to career advancement. These tests also controlled for the type of job (non-leader versus leader). Non-leader participants (n = 33) were separated in these analyses from the managerial-executive participants (n = 73) due to the differing nature of their job functions.

For the InQ, a "high score" was considered one that was at 60T or higher (Harrison et al., 2003). The participants' MLQ scores were dichotomized based on a median split for the sample. As a result of the median split a new four-category thinking-leadership variable was created (Low InQ-Low MLQ, Low InQ-High MLQ, High InQ-Low MLQ and High InQ-High MLQ) for each of the five InQ scores. This new four-category variable was compared for the rate of receiving a promotion (see Tables 7-11).

Chi-square tests were utilized to compare the InQ Synthesist thinking-leadership variable with promotion rate. No associations were found between thinking-leadership style and promotion rate for the non-leader subsample [a] χ^2 (3, n = 33) = 3.23, p = .20 or the leader sample [b] χ^2 (3, n = 73) = 3.23, p = .20 (see Table 7).

Chi-square tests were utilized to compare the InQ *Idealist* thinking-leadership variable with promotion rates. No associations were found between thinking-leadership style and promotion rates for the non-leader subsample (p = .26). However, for the leader sample, a significant association was found (p = .03) (see Table 8). Inspection of Table 8 found that promotion rates were lowest for those with a High Idealist-High Transformational style (23.5%) and highest for those with a High Idealist-Low Transformational style (77.8%).

Chi-square tests were utilized to compare the InQ *Pragmatist* thinking-leadership variable with promotion rates. No associations were found between thinking-leadership style and promotion rates for the non-leader subsample (p = .34) or the leader sample (p = 20) (see Table 9).

Chi-square tests were utilized to compare the InQ *Analyst* thinking-leadership variable with promotion rates. No associations were found between thinking-leadership style and promotion rates for the non-leader subsample (p = .17) or the leader sample (p = 16) (see Table 10).

Chi-square tests were utilized to compare the InQ *Realist* thinking-leadership variable with promotion rates. In the non-leader subsample, a significant association was found (p = .01) (see Table 11). Inspection of Table 11 found that promotion rates were lowest for those with a High Realist-High Transformational style (0.0%) and Low

Realist-High Transformational style (11.1%). The highest promotion rate was for those non-leader participants with a High Realist-Low Transformational style (80.0%). In the leader subsample, a significant association existed between style and promotion rate (p = .09). Lowest promotion rates were for participants with a Low Realist-High Transformational style (39.4%) and highest for those with a Highest Realist-Low Transformational style (87.5%) (see Table 11). Given that only three of the ten chi-square tests representing a comparison of the InQ thinking style/MLQ leadership style variables depicted in Tables 7 to 11 were statistically significant; that suggested some support for Hypothesis 4.

Summary

The key points covered in chapter 4 report findings gathered from 106 working women from the Interracial Women's Leadership Roundtable and Zonta Club of Westchester. Multivariate hierarchical analysis was not appropriate because it requires a much larger sample. Data were gathered to address the research questions and answer the hypotheses regarding the relationship between thinking styles and leadership styles and the impact on leadership advancement for women. The Multifactor Leadership Questionnaire (MLQ), Inquiry Mode Questionnaire (InQ), and a demographic questionnaire were used to gather data.

Chapter 5 details the conclusion of the research study, which include the implications of the inquiry for a variety of constituents and recommendations for future study. The recommendations are based upon the findings and analysis of the research. Interpretations of the findings will be discussed that highlight the significance of the research.

CHAPTER 5: CONCLUSIONS AND RECOMMENDATIONS

This dissertation research produced empirical data with regard to the correlation between thinking styles and leadership styles and the advancement of women's careers. The population for the study was derived from the Interracial Women's Leadership Roundtable and Zonta Club of Westchester. Both clubs promote the advancement of women in all professional domains in Westchester County, New York. Chapter 5 discusses the implications of the results presented in chapter 4, scope and limitations of the study, recommendations for future study, and final conclusions.

Summary

The purpose of this quantitative correlational research was to determine if there was a relationship between mental models—in the form of both thinking styles and leadership styles—that are internalized by women for career advancement. For the purposes of the research, mental models were referred to as thinking styles and leadership styles. Using Bass and Avolio's (2000) Multifactor Leadership Questionnaire (MLQ) and Harrison, Bramson, Bramson, and Parlette's (1977/2003) Inquiry Mode Questionnaire (InQ), this study examined thinking styles and leadership styles in relation to career advancement for women.

Research Questions One and Two

1. Is there a correlation between one's thinking style and leadership advancement for women?
2. Is there a correlation between one's leadership style and leadership advancement for women?

Research question one sought to identify point biserial correlations between one's thinking style and leadership advancement for women. Research question two sought to identify point biserial correlations between one's leadership style and leadership advancement for women. The data obtained from the research, illustrated in Tables 7-11, indicate the results of chi-square testing for each of the thinking styles, leadership styles, and the advancement of women.

Chi-square tests were utilized to compare the InQ *Synthesist* thinking-leadership variable with promotion rate. No associations were found between thinking-leadership style and promotion rate for the non-leader subsample (p = .20) or the leader sample (p = 20) (see Table 7).

Chi-square tests were also utilized to compare the InQ *Idealist* thinking-leadership variable with promotion rates. No associations were found between thinking-leadership style and promotion rates for the non-leader subsample (p = .26). However, for the leader sample, a significant association was found (p = .03) (see Table 8). Inspection of Table 8 found that promotion rates were lowest for those with a High Idealist-High Transformational style (23.5%). The data indicate that female employees with this set of mental models are the least likely to be promoted. The correlation between perceptions of women with a High Idealist-High Transformational style and low promotion rates for this style combination coupled with the lack of leadership training (as cited in Table 6) suggests the advisability of organizational leaders implementing leadership training programs reflective of the organization's culture for all of its employees. Peters, Kinsey, and Malloy (2004) said, "Social stereotypes may preclude activity that is required to attain a position of leadership such as pursuing advanced training, viewing oneself as a

leader, expressing one's point of view, or offering ideas in a problem-solving group" (p. 93).

Promotion rates were highest for those with a High Idealist-Low Transformational style (77.8%). The data produced in the study demonstrated a significant association between perceptions of women with a High Idealist-Low Transformational style and promotion rate. According to the literature, there were significant associations between thinking styles and leadership styles and the advancement of women to executive leadership positions. Haslett, Geis, and Carter (1992) stated that women are not perceived as tough enough for line jobs and are seen as "expressive or communal, the disposition to be sensitive and nurturing to others, and are nudged into human resources and public relations" (p. 31). Line officer jobs, such as financial management positions, often lead to promotions to executive leadership, which is an area not well represented by women. Coakley (2001) postulated that one of the reasons women were underrepresented in major decision-making positions was lack of available networking opportunities as compared to their male counterparts. Men essentially had more strategic professional associations in business. This correlation supports the establishment of mentoring programs, open to all employees, with an emphasis on strategic career planning and placement.

Chi-square tests were utilized to compare the InQ *Pragmatist* thinking-leadership variable with promotion rates. No associations were found between thinking-leadership style and promotion rates for the non-leader subsample (p = .34) or the leader sample (p = 20) (see Table 9).

Chi-square tests were also utilized to compare the InQ *Analyst* thinking-leadership variable with promotion rates. No associations were found between thinking-leadership

style and promotion rates for the non-leader subsample (p = .17) or the leader sample (p = 16) (see Table 10).

To compare the InQ *Realist* thinking-leadership variable with promotion rates, chi-square tests were again utilized. In the non-leader subsample, a significant association was found (p = .01) (Table 11). Inspection of Table 11 found that promotion rates were lowest for those with a High Realist-High Transformational style (0.0%) and Low Realist-High Transformational style (11.1%). Heilman (2001) describes the top of many organizational hierarchies as male in sex-type referring to "an achievement oriented aggressiveness and an emotional toughness that is distinctly male in character and antithetical to both the stereotyped view of what women are like and the stereotype-based norms describing how they should behave" (p. 658).

In the leader subsample, a significant association existed between style and promotion rate (p = .09). Lowest promotion rates were for participants with a Low Realist-High Transformational style (39.4%). This association once again demonstrates the need for continued training and development of critical thinking skills that are in accord with the culture of the organization and formal training on team building for all employees. The highest promotion rates were for those female employees with a High Realist-Low Transformational style (87.5%) (see Table 11). This data indicates that there is a preference among many organizations for employees with transactional leadership characteristics. According to Bass (1990), "the transactional leader works within the framework of the self interests of his or her constituency" (p. 23).

The literature supports the challenge women face regarding the organizational status quo that upholds hegemonic masculinity practices. Gender-related stereotypes and

the expectations of and for women based upon stereotypes support the recommendation that organizations revisit cultural mental models if they wish to create equal opportunities for women who aspire to senior positions.

Research Question Three

3. What is the extent to which a relationship exists as perceived by women, between organizational leadership and the advancement of women as leaders?

Research question three sought to determine the extent to which a relationship exists, as perceived by women, between organizational leadership and the advancement of women as leaders. Table 6 illustrates correlations of thinking styles, leadership styles and organizational leadership with advancement for women. Items number 9, 12, 14, and 15 from the Demographic Questionnaire pertain to the perceived relationship between organizational leadership and the advancement of women. Women in the InQ Realist category had a correlation of .23 ($p < .05$) in the Promoted category, which indicates that those women who were promoted had significantly higher Realist scores than those women who were not promoted.

There is a negative correlation of -.17 ($p < .10$) on the MLQ Transformational Leadership/Promoted category, which data indicate that those women who were promoted had lower transformational leadership scores. This score reflects an organizational preference for employees who are more transactional in leadership characteristics, particularly, at the lower levels of an organization. A final set of correlations was determined using Position (Blue Collar Unskilled to Executive) and Category (Entry level/ future leader to Executive Leader). Position/Received training category was significant with a correlation of .29 ($p <.005$) and Position

category/Received training was significant with a correlation of .31 (p <.001). These scores indicate that the higher the position level, the more likely one is to have received leadership training.

The literature supports these findings. According to Handy (1996), "as executives get nearer the top of their organizations, perspectives and worries change. Things outside the organization beyond their control become priorities and they need creative, conceptual skills to deal with a whole range of issues" (p. 103). Jones, as cited by Hesselbein et al. (1997), postulated,

> As the leadership organization of the twenty-first century defines its course, its next most valuable undertaking is the identification of associates willing to become lifelong learners. Once internal leaders are identified, fulfillment of the mission will begin to define itself. (p.135)

Scope

This study confined itself to correlational data collected from the members of the Interracial Women's Leadership Roundtable (IWRL) of Westchester County, New York. A second women's organization, the Zonta Club of Westchester County, Westchester, New York, was added to the population for data collection as the researcher was unable to make contact with a significant number of members of IWLR given the various club schedules over the holiday season. The IWLR is a coalition of organizational leaders who address the issues of racial tensions, prejudice and discrimination and leadership efforts in an effort to improve understanding among all races of women in Westchester County, New York. It is comprised of members of several different clubs, all of which ascribe to

the mission of IWLR. The Zonta Club of Westchester is another service-oriented group of professional women working for the advancement of women locally and worldwide.

In hindsight, the study would have been enhanced with better planning among the different subgroups of IWLR. Also planning to collect data at a time of the year that is less hectic for participants would have made a difference in the rate of returns of the instruments. Another possibility that may have motivated participants to return the instruments was implementation of a raffle to win a predetermined gift.

Issues of allocation constraints were noted in both time and money in the study. Without time and financial constraints, the researcher would have been able to canvas the entire IWLR inclusive of all of its subgroups, as was initially anticipated. The researcher would have also been able to purchase more instruments for distribution to the additional participants or identify research tools that could be accessed via the Internet, which may have made a difference in the response rate of the participants.

Limitations

This quantitative correlational research project examined the extent to which a relationship exists between thinking styles and leadership styles and leadership advancement for women. With regard to ethical dimensions of the research, there were no constraints created by carrying out research with integrity. The study was conducted among a stratified random sample of professional women representing the Interracial Women's Leadership Roundtable of Westchester County and the Zonta Club of Westchester, Westchester County, New York. The study used quantitative data from a demographic survey, the InQ, which measures thinking styles, and the MLQ, which

measures leadership styles. The sampling methodology and the criteria for determining the sample size are discussed in chapter 3.

The population studied represents professional female leaders from different ethnic backgrounds in the corporate, public, and private sectors. They are all members of the Interracial Women's Leadership Roundtable and Zonta Club of Westchester, Westchester County, New York. There were five limitations noted. First, the samples were drawn from members of the IWLR organization and the Zonta Club of Westchester; the findings may not be directly applicable to a single type of organization. The findings should be relevant to the female perception of barriers to female leadership advancement within many American organizations, however. Second, all of the participants of this study were female. Third, the instrument distribution was by mail and returned using the postal service. Fourth, gender, race, and ethnicity are noted as limitations even though they can also be recognized as a strength.

According to Occupational Outlook Quarterly (2001/2002) the labor force in the U.S. is determined by the number of people available to work who are civilians over the age of 16. This number does not include workers who are institutionalized. With regard to gender, significant growth rates are expected for women from 2000 to 2010, during which, a decline in the labor force participation rates for men has been projected. For women, the rate of participation in the labor force is expected to increase from 47 percent in 2000 to 48 percent in 2010. The rate of participation for men in the labor force is projected to decline from 74.7 percent in 2000 to 73.3 percent in 2010 (Fullerton & Toossi (2001). According to the Bureau of the Census and the Bureau of Labor Statistics, the ethnic composition of the United States is identified by the following

categories: White, non-Hispanic; Black, non-Hispanic; Hispanic origin of any race; Asian or other, non-Hispanic, inclusive of Alaskan Natives, American Indians, as well as Pacific Islanders. Gender, race, and ethnicity are noted as a limitation given the low number of women representing executive level leadership. However it is also recognized as a strength due to the number of women available to the workforce as the diversity of the labor force continues to increase. Finally, the study only included those participants who willingly chose to complete the instruments in their entirety.

Recommendations

The findings herein may prove to be a catalyst to action from organizations and individuals. This section of chapter 5 will detail the recommendations for policy, and practitioners.

Policy Recommendations

The data in the study was derived from the perceptions of 106 women. The data supports employee advancement based upon transactional leadership characteristics. Transformational leadership skills were not recognized as an organizational asset below the executive level, which is where the majority of the employees are found. The data supports the idea that, according to the perception of female employees, organizational leadership and vision primarily exist at the top of organizational hierarchies. This idea is promulgated by the culture in many organizations.

The literature supports cultural intelligence as an emerging property because it represents the sum of the entire organization's individual intelligences. Howard Gardner's work on multiple intelligences, which were expounded upon in the literature review in chapter 2, provides the basis for organizational intelligence. Organizational

intelligence supports the idea that organizations, like people, have multiple intelligences reflective of the different levels of competence found in an organization (Albrecht, 2003).

The key to such a policy recommendation is found in the culture of organizations and organizational intelligence. It supports "the capacity of an organization to mobilize all of its brain power and focus that brain power on achieving the mission" (Albrecht, 2003, p. 15). Instituting a system of self-regulation would enhance the learning system and promote organizational growth. The aim of the system of self-regulation would be to recognize the level of organizational intelligence and begin to put it to use to achieve its goals.

A double-loop learning process that assists an organization in the examination of its own values is necessary in order for that organization to grow (Morgan, 1998). According to Stalinski (2004), "failure to consciously engage in continual double-loop learning not only affects our organizations' and communities' ability to grow and transform, it could potentially affect our ability to even maintain their stability and viability" (p. 2.). In recognition of the increasing number of consumer choices, organizations must prepare for the uncertainty which leads to change because "cultures need to adapt and change in order to survive" (McAleese & Hargie, 2004, p. 10).

Practitioner Recommendations

Recommendations for practitioners are based upon the data collected from 106 women, which reported that primarily executive level employees and above received leadership training in their organization. The data also supports the assumption that transactional leadership, task orientation, and the ability to follow orders is necessary in order to reach higher levels of achievement within an organization. Additionally, the data

supports the belief that employees who exhibit behaviors compatible with hierarchical and/or transactional rather than transformational leadership styles are more apt to receive promotions.

The literature supports the idea that inquiring systems promote organizational learning through knowledge acquisition, creation, and utilization of new knowledge at a faster and more advanced rate (Churchman, 1971). Concepts of knowledge management which incorporate a paradigm shift in thinking would assist in the demand for a faster, more elaborate cycle of knowledge creation and activity according to Malhorta (1997), as cited in Keinholz (1999). In order to implement changes that are desirable and feasible, Checkland (1999) describes "three types of changes that are possible within organizations: changes in structure, changes in procedures, and changes in attitudes" (p. 180). These concepts have been expounded upon in the literature review, with changes in attitude of particular importance to this recommendation. Changes in attitude warrant a review of the individual and collective consciousness of groups as they relate to expectations regarding appropriate behavior. Changes in attitude also merit an evaluation of roles in an appreciative inquiry mode, which is inclusive of changes in influence.

According to Merrifield (2005), cultures continue to evolve based upon the methods, procedures, and biases that provide coping mechanisms for organizations to address presenting problems. Over time, the values on which cultures are based can become obsolete and resistant to change. The importance of such a recommendation is a practical exploration of applied organizational decision-making processes, which would facilitate a more elaborate cycle of knowledge in work environments receptive and appreciative of multiple styles of thinking.

Implications of the Research Based on Study Constituents

The study has three important constituencies and concepts that may affect each group significantly.

Executive Leaders

Seeking input from the entire organization would assist in the creation of new and innovative approaches to problems regarding organizational flexibility and survival. Downsizing should compel companies to maximize on organizational intelligence. Leaders can be found at all organizational levels and executive leaders who recognize and support leadership at all levels are likely to survive economic changes.

According to Merrifield (2005), there is a cultural shift in progress that demands continuous innovation while outsourcing production to countries offering low-cost labor and delivery through online-management system increases. Small businesses represent 65% of the Gross Domestic Product and the new economy. Instituting Senge's Five Disciplines (personal mastery, mental models, shared vision, team learning, and systems theory) would be instrumental in the development of a more flexible learning organization able to sustain itself in a period of continuous innovation.

Middle Managers

Middle managers are in danger of becoming complacent regarding the possibility of limited access to executive leadership positions. The data suggests a dearth of opportunities to share in organizational decision-making processes. Sharpening personal, critical thinking, and group communication skills is in order. While the need for employment may guide behavior, such as following orders and suppressing visionary

suggestions, middle managers must remain vigilant to personal mastery, mentoring, and team learning opportunities.

Personal mastery is vital as it pertains to individual and consistent realization of ideals that are essentially important to individual employee development. Personal mastery can help middle managers remain proactive and growing as they learn new skills or sharpen skills that have already been acquired. Team learning in the postmodern organization is vital because teams, not individuals, are the fundamental learning unit upon which individuals base their mental models (Senge, 1990). According to Senge (1990), team members grow more rapidly together than when acting individually.

Entry Level Leaders

The data suggests that with the absence of leadership training, entry level leaders generally complete tasks and follow orders. Learning how to follow before one leads is the basis for this recommendation. Entry level leaders are encouraged to use as many sources as possible to enhance their level of education and ability in order to lead effectively in the future. Learning to be a team player and enhancing critical thinking skills are other skill sets that will enhance learning on a personal and organizational level.

Implications to the Broader Society

Organizations represent a microcosm of society. Organizations that continue to be led with thought patterns that are old and resistant to change have helped to create a new small business economy. The opportunity to create something new is the charge to businesses today given the technological advances that give competition a global perspective.

Society has the opportunity to learn what it has created by looking at the cultural mental models it perpetuates. These thoughts are translated into the culture and the language of the business era. Humanity remains co-creator with the system, which can be enhanced by the very nature of a global sense of community. According to Capra (1996), "reconnecting to the web of life by building and nurturing sustainable communities in which we can satisfy our needs and aspirations without diminishing the chances of future generations" (p. 297), is the way that individuals and organizations can continue to engage in a sustainable future.

The Implications and Benefits to Organizational Leadership

In the analysis of the data, the results were as expected. The socially constructed roles that have been allocated to women in organizations will challenge the status quo. Based upon the review of the literature, the data are reflective of what is happening in the workplace today with regard to the advancement of women. The advancement of more women to leadership positions will offer challenges and rewards to organizations. Organization leadership will benefit from this research as organizations and individuals attempt to understand why there are so few female executive leaders, where the women can be located in organizations, and how to maximize this underutilized resource.

The growing number of educated women who will enter the workplace in the coming years will challenge the status quo regarding leadership advancement opportunities for women. The specific problem that the study addressed was: In spite of increasing numbers of qualified females in the workplace, men have been placed in the vast majority of management positions. The data collected in this study were reflective of

the glass ceiling metaphor and a transactional leadership style which is hierarchical in nature.

Masculinity is deeply entrenched among the most powerful positions of many American organizations. Organizations have a tendency to promote the candidates who resemble present leaders in style, beliefs, values and assumptions (Schein, 1985). Recognizing mental models of prejudice, bias and subordination associated with the outcome of roles is vital to understanding the limited access of women to executive leadership positions. The ability to engage in organizational activities required to attain an executive leadership position such as advanced training, seeing oneself as a leader, sharing and offering problem solving ideas or expressing a personal point of view are all activities that parallel organizational positions of power (Peters, Kinsey & Malloy, 2004).

The need for organizational leadership continues to grow exponentially in order to meet the needs of a global perspective. This research serves as a small contribution to the field of organizational leadership with the hope that some of the gaps in the literature regarding the advancement of women in organizations will be addressed.

A recommendation for additional scholarship is based on the need for creating diverse literature promoting leadership advancement for women. The need to replicate this study and add a qualitative component is recommended. Additional studies could potentially demonstrate other factors that positively affect leadership advancement of women to executive leadership positions. Increased diversity reflected in organizational leadership literature may influence organizations to become more cognizant of the societal impact of bias and prejudice which affect their decision-making processes. This research focused on the perceptions of women in terms of their thinking styles and

leadership styles as potential barriers to leadership advancement for women to executive leadership positions.

Conclusion

The history of leadership and development of organizations has had a lasting worldwide societal impact. Leadership is about power and how it is used; it is about resources and how they are controlled and disposed. Leadership steers social understanding and interpretation as it guides individuals in the meaning and place of issues of social control (Griffin, 2003).

What is the Problem?

The specific problem as it relates to this study is that in spite of increasing numbers of qualified females in the workplace, the vast majority of management positions are held by men. The study attempted to determine if the preconceived notions of strong management/leadership characteristics of hiring personnel brought about such a result. It also attempted to determine if women also held similar opinions, thus creating a self-defeating frame of mind.

What Do We Know About the Problem?

The global devaluation of women is reflected in the status of women worldwide. Rhoodie, as cited in Schein (2001), postulated that in comparison to men in the domains of social, economic, and political status, women, are still subordinate. The status of women and issues of inequality remain deeply ingrained in the culture, practices, and traditional views of people and organizations in the United States as well as world wide. Women remain drastically underrepresented in managerial roles leading to top-level executive management positions despite the increase of women in the workplace.

What was Found?

The empirical data collected from 106 women and analyzed in this research revealed the following: the transactional leader or hierarchical employee who follows orders and implements tasks is more often promoted than the employee with high transformational leadership skills. There is a scarcity of leadership training opportunities below the executive leader level of organizations. Vision and leadership as positive characteristics of employees were recognized primarily at the executive level of organizations. The lack of opportunities to share in organizational decision-making, which would enhance critical thinking and problem-solving skills, were also noted below the executive leadership levels.

What Will Be Done About It?

Continued research in the field of organizational leadership and development is necessary to address the depth of the issues presented by the data. As the learning organization continues to emerge, problems will hopefully be discussed in a supportive environment so solutions can be put in place quickly and efficiently. This, in turn, may create the type of changes necessary to realize equality in the workplace. James Baldwin said, “Not everything that is faced can be changed but nothing can be changed until it is faced” (Johnson & Johnson, 2003, p. 389).

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APPENDIX A: INFORMED CONSENT: PERMISSION TO USE PREMISES, NAME, AND/OR SUBJECTS

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INFORMED CONSENT: PERMISSION TO USE PREMISES, NAME, ANDIOR SUBJECTS

(Facility, Organization, University, Institution, or Association)

Interracial Women's Leadership Roundtable

Name of Facility, Organization, University, Institution, or Association

I hereby authorize Beverly D. Carter, student of University of Phoenix, to use the premises, name and/or subjects requested to conduct a study entitled The Impact of Thinking and Leadership styles on the Advancement of Women.

Christine Mortell Plazas
Signature

08/01/05
Date

Founding Chair Emeritis
Title

Interracial Woman's Leadership Roundtable
Name of Facility

UNIVERSITY OF PHOENIX

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The Zonta Club of Westchester

Name of Facility, Organization, University, Institution, or Association

I hereby authorize Beverly D. Carter, student of University of Phoenix, to use the premises, name and/or subjects requested to conduct a study entitled The Impact of Thinking and Leadership styles on the Advancement of Women.

Shirley J. Carter
Signature

12/06/05
Date

President
Title

The Zonta Club of Westchester
Name of Facility

APPENDIX B: PERMISSION TO USE AN EXISTING SURVEY

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PERMISSION TO USE AN EXISTING SURVEY

10/12/05

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If these are acceptable terms and conditions, please indicate by signing one copy of this letter and returning it to us.

Best wishes with your study.

Sincerely,

Carol Holland Parlette, President

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Sandra Darrow

Director of Customer Service

APPENDIX C: INQUIRY MODE QUESTIONNAIRE

InQ Your Thinking Profile®

INQUIRY MODE QUESTIONNAIRE
A Measure of How You Think and Make Decisions

By Allen F. Harrison, D.P.A., Robert M. Bramson, PhD.,
Susan Bramson & Nicholas Parlette M.P.H.

DIRECTIONS

This questionnaire has no right or wrong answers. It is a tool which can help you identify your preferred modes of thinking, asking questions, and making decisions. To be of maximum value to you, it is important that you respond as accurately as possible in terms of the way you believe you actually behave, not as you think you should.

Each item in this questionnaire is made up of a statement followed by five possible endings. Indicate the order in which you believe each ending applies to you. In the blank box to the left of each ending, fill in the number 5, 4, 3, 2, or 1, indicating the degree to which an ending is most like you (5) or least like you (1). Do not use any number more than once for any group of five endings. Even if two or more endings seem equally like you, rank them anyway. Each ending must be ranked, 5, 4, 3, 2, or 1. **Remember 5 is most like you, 1 is least like you.**

EXAMPLE

Please fill in this example:
WHEN I READ A REPORT, I AM MOST LIKELY TO PAY ATTENTION TO:

- ☐ 1. The quality of the writing
- ☐ 2. The main ideas in the report
- ☐ 3. The table of contents
- ☐ 4. The back-up materials and tables
- ☐ 5. The finding and recommendations

5 = MOST LIKE YOU 1 = LEAST LIKE YOU

Once you are sure you understand the directions given above, please turn the page and proceed.

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PAGE ONE 5 = MOST LIKE YOU 1 = LEAST LIKE YOU

A: WHEN I HEAR PEOPLE ARGUE OVER AN IDEA, I TEND TO FAVOR THE SIDE THAT:

1. Identifies and tries to bring out the conflict
2. Best expresses the values and ideals involved
3. Best reflects my personal opinions and experience
4. Approaches the situation with the most logic and consistency
5. Expresses the argument most forcefully and concisely

B: WHEN I BEGIN WORK ON A GROUP PROJECT, WHAT IS MOST IMPORTANT TO ME IS:

1. Understanding the purposes and value of the project
2. Discovering the goals and values of individuals in the group
3. Determining the steps to be taken to get the project done efficiently
4. Understanding how the project will pay off for myself and others
5. Getting the project organized and under way

C: GENERALLY SPEAKING, I ABSORB NEW IDEAS BEST BY:

1. Relating them to current or future activities
2. Applying them to concrete situations
3. Concentration and careful analysis
4. Understanding how they are similar to familiar ideas
5. Contrasting them to other ideas

D: FOR ME, THE BACK-UP DATA IN A BOOK OR REPORT ARE USUALLY:

1. Very important if they demonstrate the truth of the findings
2. Important only for checking on the accuracy of the facts that are cited
3. Useful, if supported and explained by the narrative
4. Important only in terms of the conclusions to be drawn from them
5. No more and no less important than the narrative

E: IF I WERE PUT IN CHARGE OF A PROJECT, I WOULD PROBABLY START BY:

1. Trying to fit the project into broad perspective
2. Deciding how to get it done with the available time and money
3. Speculating about what the possible outcomes might be
4. Determining whether or not the project should be done at all
5. Trying to formulate the problem as thoroughly as possible

F: IF I WERE ASKED TO GATHER INFORMATION FROM PEOPLE, I WOULD PREFER TO:

1. Form my own opinion on the facts and issues and then ask specific questions
2. Hold an open meeting and ask them to air their views
3. Interview them in small groups and ask general questions
4. Meet informally with key people to get their ideas
5. Ask them to give me their information in writing

PAGE TWO 5=MOST LIKE YOU 1=LEAST LIKE YOU

G: I AM LIKELY TO BELIEVE THAT SOMETHING IS TRUE IF IT:

1. Has held up against opposition
2. Fits in well with other things that I hold to be true
3. Has been shown to hold up in practice
4. Make sense logically and scientifically
5. Can be personally verified by observable facts

H: I CAN CONTRIBUTE THE MOST WHEN I'M ASKED TO:

1. Identify the goals and objectives of a project
2. Identify priorities between competing projects
3. Identify how to save time and money on a project
4. Identify the practical effects of a project
5. Identify and assign the resources needed to carry out a project

I: WHEN I READ A NON-FICTION BOOK I PAY MOST ATTENTION TO:

1. The relation of the conclusions to my own experience
2. Whether or not the recommendations can be accomplished
3. The validity of the findings, backed up by data
4. The writer's understanding of goals and objectives
5. The inferences that are drawn from the data

J: WHEN I HAVE A JOB TO DO, THE FIRST THING I WANT TO KNOW IS:

1. What the best method is for getting the job done
2. Who wants the job done and when
3. Why the job is worth doing
4. What effect it may have on other jobs that have to be done
5. What the immediate benefit is for doing the job

K: I USUALLY LEARN THE MOST ABOUT HOW TO DO SOMETHING NEW BY:

1. Understanding how it is related to other things I know
2. Starting in to practice it as soon as possible
3. Listening to differing views about how it is done
4. Having someone show me how to do it
5. Analyzing how to do it in the best way

L: IF I WERE TO BE TESTED, I WOULD PREFER:

1. An objective, problem-oriented set of questions on the subject
2. A debate with others who are also being tested
3. An oral presentation covering what I know
4. An informal report on how I have applied what I have learned
5. A written report covering background, theory and method

PAGE THREE 5 = MOST LIKE YOU 1 = LEAST LIKE YOU

M: PEOPLE WHOSE ABILITIES I RESPECT THE MOST ARE LIKELY TO BE:

1. Philosophers and consultants
2. Writers and teachers
3. Business and government leaders
4. Economists and engineers
5. Entrepreneurs and journalists

N: GENERALLY SPEAKING, I FIND AN IDEA USEFUL IF IT:

1. Fits in well with ideas that I have learned
2. Explains things to me in a new way
3. Can systematically explain a number of related situations
4. Serves to clarify my own experience and observations
5. Has a practical and concrete application

O: WHEN SOMEONE MAKES A RECOMMENDATION, I PREFER THAT HE OR SHE:

1. Show clearly what benefits will be realized
2. Show how the recommendation can be implemented
3. Back up the recommendation with data and a plan
4. Show how the recommendation will support overall goals
5. Take into account the drawbacks as well as the benefits

P: I WOULD MOST LIKELY READ A BOOK ON AN UNFAMILIAR TOPIC BECAUSE OF:

1. An interest in improving my technical knowledge
2. Having been told it would be useful by someone I respect
3. A desire to know more about how others think
4. A desire to find ideas that would challenge me
5. A wish to learn if the specific subject could benefit me

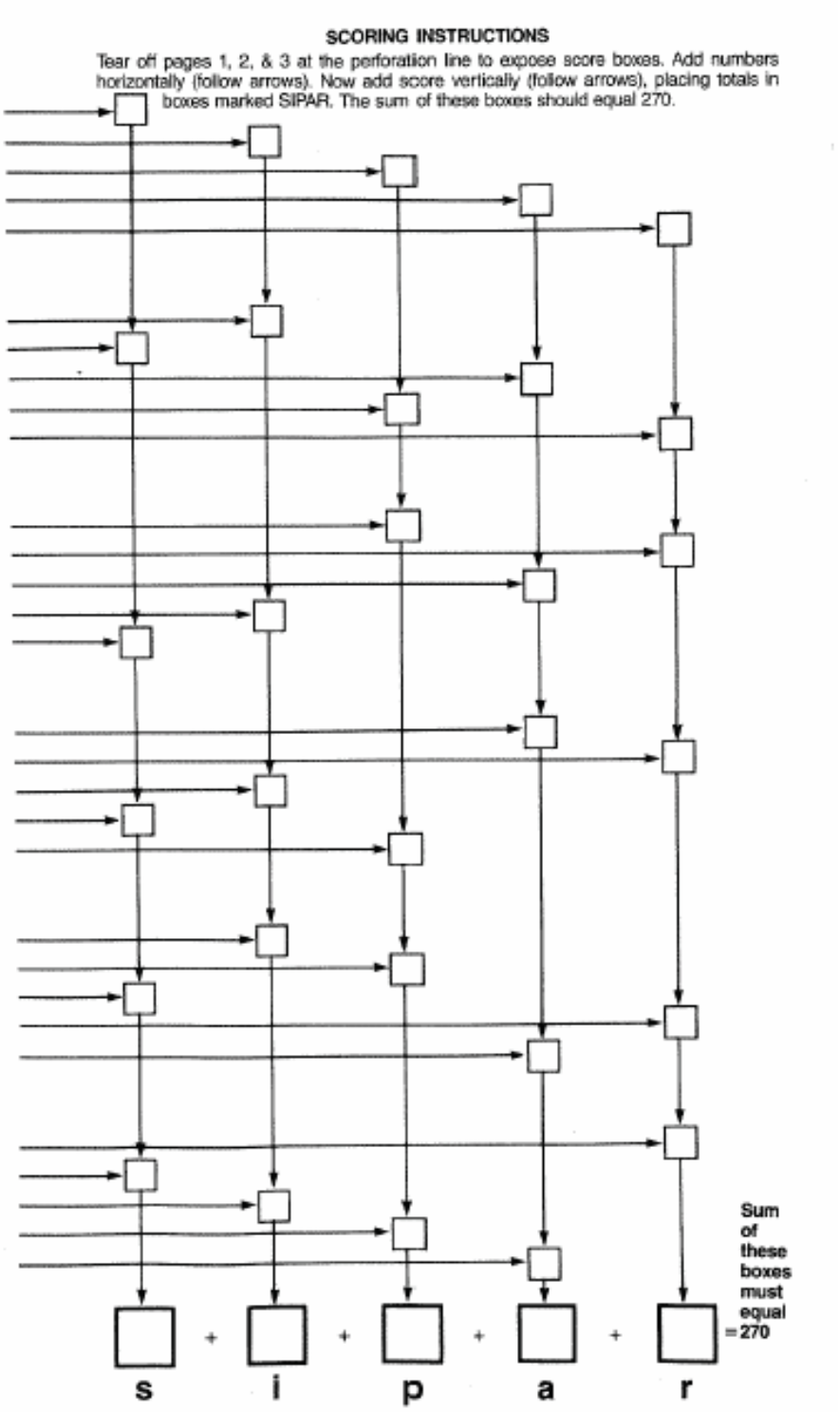
Q: WHEN I FIRST APPROACH A PROBLEM, I AM MOST LIKELY TO:

1. Try to relate it to a broader problem or theory
2. Look for ways to get the problem solved quickly
3. Think of a number of opposing ways to solve it
4. Look for ways that others might have solved it
5. Try to find the best procedure for solving it

R: GENERALLY SPEAKING, I AM MOST INCLINED TO:

1. Find existing methods that work, and use them as well as possible
2. Speculate about how dissimilar methods might work together
3. Strive for quality regardless of the cost
4. Look for new ways to do things
5. Be dissatisfied until I've found the best method

Tear off pages 1, 2 & 3 at the perforation line to expose the score boxes



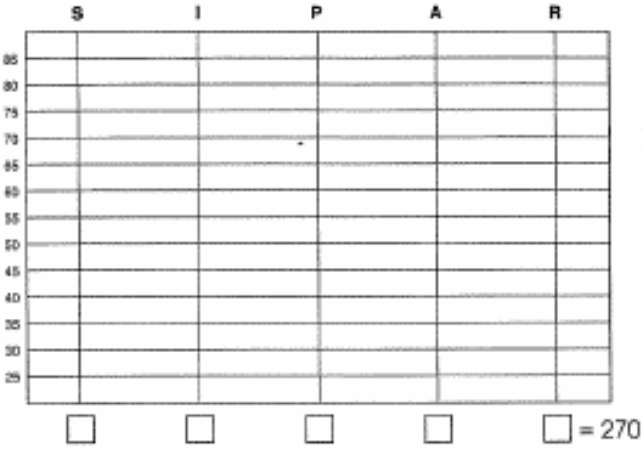
Summary Chart, Styles of Thinking

	I SYNTHESIST	II IDEALIST	III PRAGMATIST	IV ANALYST	V REALIST
Orientation					
Characteristics	Integrative view. Seeks conflict and synthesis. Interested in change. Speculative.	Holistic view. Seeks ideal solutions. Interested in values. Receptive.	Eclectic view. Seeks shortest route to payoff. Interested in innovation. Adaptive.	Deductive view. Seeks "one best way." Interested in "scientific solutions." Prescriptive.	Empirical view. Seeks solutions that meet current needs. Interested in concrete results. Corrective.
Strengths	Focus on underlying assumptions. Points out abstract conceptual aspects. Good at preventing over-agreement. Best in controversial situations. Provides debate and creativity.	Focus on process and relationships. Points out values and aspirations. Good at articulating goals. Best in value-laden situations. Provides broad view, goals, standards.	Focus on payoff. Points out tactics and strategies. Good at identifying impacts. Best in complex situations. Provides experiment and innovation.	Focus on method and plan. Points out data and details. Good at model building and planning. Best in structured situations. Provides stability and structure.	Focus on facts and results. Points out realities and resources. Good at simplifying, "cutting-through." Best in well-defined situations. Provides drive and momentum.
Liabilities	May screen out agreement. May seek conflict unnecessarily. May try too hard for change, newness. May theorize excessively. Can appear uncommitted.	May screen out "hard" data. May delay from too many choices. May try too hard for "perfect" solutions. May overlook details. Can appear overly sentimental.	May screen out long-range aspects. May rush too quickly to payoff. May try too hard for expediency. May rely too much on what "sells." Can appear over-compromising.	May screen out values. May over-plan, over-analyze. May try too hard for predictability. May be inflexible, overly cautious. Can appear "tunnel visioned."	May screen out disagreement. May rush to over-simplified solutions. May try too hard for consensus. May over-emphasize perceived "facts." Can appear too results-oriented.
Behavioral Cues					
Apt to appear	Challenging, skeptical, amazed.	Attentive, receptive, supportive.	Open, sociable, humorous.	Cool, studious, hard to read.	Direct, forceful; quick nonverbal expression.
Apt to say	On the other hand... No, not necessarily...	It seems to me... Don't you think...	I'll buy that... That's one sure way...	It stands to reason... Logically...	It's obvious to me... Everybody knows that...
Apt to express	Concepts, opposite points of view.	Feelings, ideas about values, what's good.	Non-complex ideas, personal anecdotes.	General rules; supporting data.	Opinions, factual anecdotes.
Tone	May sound argumentative, sardonic.	May sound tentative, hopeful, resentful.	May sound insincere, enthusiastic.	May sound stubborn, careful, dry.	May sound dogmatic, forthright, positive.
Enjoys	Intellectual, philosophical, arguments.	Feeling-level discussions.	Brainstorming, lively give-and-take.	Rational examination of issues.	Short, direct, factual discussions.
Apt to use	Parenthetical expressions, qualifying phrases, adjectives.	Indirect questions, aids to agreement.	Case examples, illustrations, popular opinions.	Long, discursive, well-formulated sentences.	Direct, pithy, descriptive statements.
Dislikes	Talk that seems simplistic, superficial, mundane.	Talk that seems too factual, too competitive, dehumanizing.	Talk that seems dry, dull, humorless, "nit-picking."	Talk that seems irrational, aimless, "far-out."	Talk that seems too theoretical, sentimental, impractical.
Under stress	Pokes fun.	Looks hurt.	Looks bored.	Withdraws.	Becomes agitated.

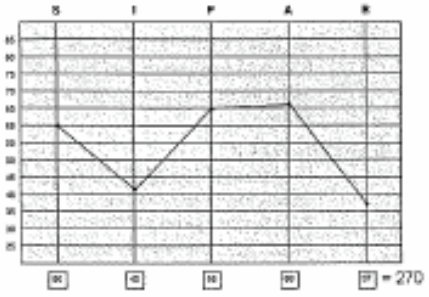
Interpreting your scores

Line Graph

Enter your numerical score for each Style with a dot at the appropriate place on the vertical line. Connect the dots to form a line graph (see example).



Example



Scores, and what they mean

(Remember, there are no right or wrong styles. It is a matter of experience and preference.)

1. If you scored
   - 72 or higher — this style dominates your approach to thinking.
   - 66 to 71 — you have a strong preference for the style.
   - 60 to 65 — you have a moderate preference for the style.
   - 49 to 59 — neutral—no preference for, or disinclination against, the style.
   - 41 to 48 — you have a moderate disinclination to use the style.
   - 37 to 42 — you have a strong disinclination to use the style.
   - 0 to 36 — you have a predisposition against the use of the style.

2. High scores (60 or above) show where your preferences lie. They identify the thinking strategies you have learned, over time, and which you prefer to use because they work well for you. The higher the score, the stronger the preference.

3. Low scores (48 or below) identify your areas of strategic thinking that are under-used or under-developed. The lower the score, the greater the tendency not, or disinclination, to use this style.

4. Combinations. Although half of individuals score 60-or-above in just one style, a few score 60-or-above in two, or even three, styles.

5. If the difference between any two of your scores is less than 4, regard the styles as being somewhat equal — the difference is too small to attribute any significance to it.

Understanding your Style

Summary description of the five styles

Synthesist

Synthesists tend to be challenging people — curious, restless, and creative. They are motivated to understand, but not necessarily control, the world, and are much concerned that others see them as competent and worthy of admiration. They can be negative and disruptive, argumentative and rambling, as they try to integrate different perspectives.

Idealist

Idealists tend to expect much of themselves and of others. At the same time, their deeply felt needs to be helpful to others, to be appreciated, and to be found worthy of trust make idealists frequently very supportive and helpful to others. They can be so helpful that, occasionally, they are just plain meddlesome.

Pragmatist

Pragmatists are likely to be good at knowing what people will "buy." They can afford to approach problems in innovative or compromising ways because they have no vested interests in particularly theories or methods. They provide optimism and enthusiasm that motivates people to move ahead even when the task seems mountainous. Because they don't need to take on the whole world at once, Pragmatists often have a high tolerance for ambiguity. They need less structure and predictability than the rest of us.

Analyst

Analysts view the world on an assumption that it is basically orderly, logical, and rational. If it isn't, it should be, and Analysts will do their best to make it so. Within this world, they have a need to feel competent and self-sustaining. Analysts believe that "so long as we proceed carefully and methodically, things will work out." They are interested, above all else, in finding the correct method for getting something done. Analysts are apt to look for (or already "know") the "one best way" to solve a problem.

Realist

Realists tend to view the world empirically — whatever can be seen, felt, heard, smelled, and experienced is vividly real. Anything else is somewhat fanciful, theoretical, and not very compelling. Realists assume the world is as they sense it, the facts are there for everyone to see, and any two *intelligent* people can't help but agree on these facts. In that respect, Realists are quite the opposite of Synthesists. They are bothered by compromise, synthesis, analysis, and idealism. They want to achieve concrete results — nothing else can influence the course of that "real world."

Combinations of styles

Our research show that about 35% of people show a preference for using two or more thinking styles in combinations — not as a *blend* but rather using one or another style in combinations, for whatever reasons. The three most-common combinations are:

Idealist-Analyst
Analyst-Realist
Synthesist-Idealist

The least-common are the *Synthesist* in combination with either the *Pragmatist*, *Analyst*, or *Realist*.

What is important to remember is that all combinations can create some element of internal conflict, within the person, when the contrasting values are brought together, and all can be of great value when the complementary values are emphasized.

Three-way thinkers are likely to behave more situationally, since they employ a greater range of strategies.

Level-profiles, in which all scores fall between 49 and 59, tend to be less predictable than others. They tend to look at things differently, depending on the situation.

APPENDIX D: MULTIFACTOR LEADERSHIP QUESTIONNAIRE

MLQ Multifactor Leadership Questionnaire

Leader Form (5x-Short)

Name_____ Date _____

Organization _____

Five sample questions for the appendix as authorized by Mind Garden Inc.

This questionnaire is to describe your leadership style as you perceive it. Please answer all items on this sheet. **If an item is irrelevant, or if you are unsure or do not know the answer, leave the answer blank.**

Forty-five descriptive statements are listed on the following pages. Judge how frequently each statement fits you. The word "others" may mean your peers, clients, direct reports, supervisors, and/or all of these individuals.

Rating Scale

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

I re-examine critical assumptions to question whether they are appropriate ... 0 1 2 3 4

I talk about my most important values and beliefs 0 1 2 3 4

I spend time teaching and coaching 0 1 2 3 4

I avoid making decisions 0 1 2 3 4

I heighten others' desire to succeed 0 1 2 3 4

APPENDIX E: DEMOGRAPHIC QUESTIONNAIRE

Demographic Data Questionnaire

Directions: Please circle answer where appropriate or fill in answer where requested.

1. Name:_____
2. Gender M / F
3. Age: _____
4. Ethnicity:_____
5. Are you a full time employee? Yes / No
6. Level of education: _____
7. Type of organization: Not for profit; Corporate; Private sector; Other_____
8. Number of years worked in current organization? _____
9. Have you received leadership training through your organization? Yes / No
10. What is your current position? _____
11. Which of the following categories describe your current position? Executive Leader_____ Middle manager/leader_____ Entry level/future leader_____
12. Have you been promoted in your organization? Yes / No
13. If Yes, from what position to what position? _____
14. Were you hired from outside of your organization? Yes / No
15. Do growth opportunities exist for you in your organization? Yes / No
16. If you answered No to question # 12, why? _____
    _____
    _____
    _____
    _____

APPENDIX F: INFORMED CONSENT: PARTICIPANTS 18 YEARS OF AGE AND OLDER

UNIVERSITY OF PHOENIX

INFORMED CONSENT: PARTICIPANTS 18 YEARS OF AGE AND OLDER

Dear Interracial Women's Leadership Roundtable and Zonta Club of Westchester member,

I am a student at the University of Phoenix working on a Doctor of Management in Organizational Leadership. I am conducting a research study entitled the Impact of Thinking and Leadership styles on the Advancement of Women. The purpose of the research study is to determine to what extent a relationship exists between the mental models of female leaders and the advancement of their careers. The purpose of this study is to examine the extent to which a relationship exists between leadership styles and thinking styles as a basis for establishing mental models that lead to leadership selection and advancement of women to executive leadership positions.

Your participation will involve the completion of three questionnaires. The expected time allotment for the completion of these questionnaires is approximately 1 hour and 45 minutes. Your participation in this study is voluntary. If you choose not to participate or to withdraw from the study at any time, you can do so without penalty or loss of benefit to yourself. The results of the research study may be published but your name will not be used and your results will be maintained in confidence.

In this research, there are no foreseeable risks to you. Although there may be no direct benefit to you, the possible benefit of your participation is in the potential identification of strategies that could assist organizations in the facilitation of a more diversified leadership.

If you have any questions concerning the research study, please call me at the number provided.

Sincerely,

Beverly Carter

Dear participant

Beverly Carter, a doctoral student at the University of Phoenix and an independent researcher, has been given permission by the Interracial Women's Leadership Roundtable and the Zonta Club of Westchester to conduct a research study on the impact of thinking and leadership styles on the advancement of women.

Participant:

I, _____, a member of the Interracial Leadership Roundtable (IWLR) or the Zonta Club of Westchester have volunteered to participate in this research study. My participation in the study is entirely voluntary and my participation or non-participation will not be reported to the IWLR or Zonta Club of Westchester. I understand that:

1. I may refuse to participate and/or withdraw at any time without any consequences.
2. Research records and list of participants will be held confidential.
3. Personal anonymity will be guaranteed.
4. Results of research data will be used for presentations and publications without the use of names. The results will be presented in sample groups.
5. I will be invited tot complete 3 survey tools.
6. All copies of the survey must be returned to the researcher, whether I choose to participate or not.
7. If I have any questions regarding this research, I can address them to Beverly Carter at.

There are no other agreements, written or verbal, related to this study beyond that expressed in this consent and confidentiality form. I, the undersigned, understand the above explanation and give my consent to voluntarily participate in this research.

Signature of participant_____ Date_____

Signature of researcher_____ Date_____

APPENDIX G: SPECIAL PERMISSION

Dr. Alice Kienholz, President
Inquiring Organizations Canada, Inc.
1700 Varsity Estates Dr. N.W
Calgary, AB T3B 2W9
Canada

2/19/2006

Dear Beverly,

This letter is to grant permission to Beverly Carter to adapt Table 1 from my 1999 article, Systems Thinking: An Inquiring Systems Approach to the Art and Practice of the Learning Organization, published in Foundations of Information Systems, on the condition that full and proper credit is cited concerning my authorship of same.

Kind regards,

Dr. Alice Kienholz