

ABSTRACT

Title: EXAMINING DEVELOPMENTAL STAGES
OF LEADERSHIP FOR COLLEGE
STUDENTS: A VALIDATION STUDY OF
THE LEADERSHIP IDENTITY
DEVELOPMENT MODEL

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The purpose of this study was to confirm or disconfirm the leadership identity development (LID) model (Komives, Longersbeam, Owen, Mainella, & Osteen, 2006). The LID model identified six stages in the development of a leadership identity. Although used widely to inform the design of leadership development programs, it has not been validated by further research. This study used Q methodology to classify subjects with similar views of leadership into groups. The resulting groups were congruent with the stages of the LID model that are most frequently experienced during the college years.

Thirty-nine subjects described their points of view about leadership and themselves as leaders through a 64-item card sort, placing the cards into piles along a continuum from strongly disagree to strongly agree. Principle components analysis was used to classify subjects into groups based on similarities in the card sorts. The way each of the four resulting groups described leadership was interpreted by examination of an aggregate card sort representing the views of the students in that group. These descriptions were compared to the stages of the LID model.

Factor one from this study was similar to stages four through six of the LID model. There was no evidence distinguishing these three stages from each other in this subject sample. Factor two was similar to stage three with an independent view of self with others. Factor three was similar to stage three with a dependent view of self with others. Factor four had only a single subject, whose description did not readily fit into the LID model.

Further research is needed to examine the LID stages experienced pre-college, as well as further exploration into whether LID stages four through six are truly distinct. However, the findings of this study do provide support for the existence of the stages of development most often experienced during the college years (stages three and four) as described in the LID model.

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by

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Dedication

This work is dedicated to “my epidural,” Susan Komives, who both eases the pain and pushes me to accomplish more than I ever could without her.

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Everyone who hears the list of names on my dissertation committee responds the same way, "Wow! What an excellent committee!" It certainly was. Thank you so much to all of them for supporting and challenging me to get to this finished point.

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CHAPTER ONE: INTRODUCTION

Thirty years ago, typical collegiate leadership development programs offered workshops on topics such as: public speaking, etiquette, how to run effective meetings, and how to motivate followers. Leadership development meant adding to a student's set of skills or leadership "toolbox." In the interim, a paradigm shift has occurred in how leadership educators think about leadership development and its ultimate aims. Today, leadership scholars are increasingly conceptualizing leadership development as an aspect of personal development, connecting increases in cognitive, interpersonal, and intrapersonal complexity with improved ability to do leadership with others (Avolio & Gibbons, 1989; Daloz Parks, 2005; Kegan & Lahey, 2009; Komives, Owen, Longerbeam, Mainella, & Osteen, 2005; McCauley, Drath, Palus, O'Connor, & Baker, 2006). Additionally, some leadership scholars are describing an approach to leadership as an aspect of one's identity, rather than as a set of behaviors or skills or the position that a person holds (Day & Harrison, 2007; Hogg, 2001; Hall, 2004; Lord & Brown, 2004; Lord & Hall, 2005; Van Knippenberg, Van Knippenberg, De Cremer, & Hogg, 2004; Van Knippenberg, Van Knippenberg, De Cremer, & Hogg, 2005).

Recently, a grounded theory study (Komives et al., 2005) of student leaders resulted in a stage-based model of leadership identity development (LID) that has been found to be useful to many leadership educators as a framework for educational programming, courses, and the development of learning outcomes and assessment (Komives, Longerbeam, Owen, Mainella, & Osteen, 2006). Further research has been needed to validate LID, which was the purpose of this study.

Purpose of this Study

The purpose of this study was to provide evidence for further validation of the leadership identity development model (Komives et al., 2006). The study used Q methodology to classify the subjects into groups based on their descriptions of leadership. The way each resulting group of subjects conceptualized a leadership identity was examined to determine whether these descriptions resembled the stages of the leadership identity development model.

Background and Context

The approach to leadership development has been largely influenced by how leadership itself was defined at the time. Centuries ago, leadership was believed to be a trait only a special few were born with, so leadership development involved providing high quality education to a carefully selected few who would become the great leaders (Wren, 1995). When leadership came to be systematically studied in the early 1900s, the goal was to identify the traits that leaders must have to be successful (Northouse, 2007). Soon, leadership began to be defined as having certain skills: technical skills around one's content area, the human skills or the ability to work well with people, and conceptual skills like creating and communicating a vision and strategic plan (Northouse). By the 1950s, approaches to leadership expanded to include leadership styles and later, situational theories, that focused on finding the optimal match between type of group and the style of the leader (Northouse). Approaches to leadership during this time were later labeled "industrial" and characterized by one or more of three definitions: leadership as being the best, leadership as that which is done by those in positions of authority, and leadership as what one person does to a group of others,

presumably followers (Rost, 1993). Leadership research and practice at that time has been described as having three characteristics: 1) it focused on leaders and studied leaders as individuals; 2) it examined power and hierarchy; and 3) it aimed to find universal characteristics to explain why some leaders were successful and others were not (Kezar, Carducci, & Contreras-McGavin, 2006). Given this approach to leadership, leadership development involved training people in leadership positions in order to help them acquire these skill sets or to understand differences in leadership style. The content and goals of these efforts were primarily focused on skills building (Komives et al., 2005).

Beginning with Burns' (1978) new conceptualization of leadership that divorced leadership from authority, a paradigm shift occurred in the 1980s. Leadership was increasingly thought of as a process among the actively engaged members of a group, rather than the action of a single authority figure (Rost, 1993). The resulting understanding of leadership is aptly described by Rost's (1993) four part definition: (1) leadership is people actively working together in groups, (2) in influence relationships that are noncoercive and multidirectional, (3) with the intention of creating substantive change, (4) toward mutual purposes that have been developed by the group members together. In this approach, the word *leadership* is not something the person in authority *does to* his or her followers, rather it describes the *process* that group participants *engage in together*. Several unique theories and approaches share this general approach to leadership, each with their own labels: post-industrial (Rost, 1993), leadership as meaning making in a community of practice (Drath & Palus, 1994), collaborative (Chrislip & Larson, 1994; Higher Education Research Institute, 1996), shared (Pearce &

Conger, 2003), and relational (Komives, Lucas, & McMahon, 2007). It is this approach to leadership that will be assumed here whenever the word *leadership* is used.

Simultaneously, approaches to leadership that remained leader-centric have continued to evolve, including approaches such as transformational (Bass & Avolio, 1994), charismatic (House, 1976) and authentic (Avolio & Gardner, 2005). Although many contemporary approaches might still be described as trait or skills theories (Kouzes & Posner, 2002; Rath & Conchie, 2008), they represent a revisited approach to traits such that attention is given to how a wide variety of traits and skills can be useful, such that everyone engaged with a group can make an important contribution to the leadership process, not just the positional leaders. Emphasis is now put on the diverse traits and skills that contribute to a good leadership process, rather than earlier trait theories, that emphasized a more limited list of traits without which one cannot lead (Northouse, 2007). This also represents an important shift.

Writing specifically for a college student audience, Komives, Lucas and McMahon (1998) described the relational approach to leadership as, “a relational process of people together attempting to accomplish change or make a difference to benefit the common good” (p. 21). One major impact of this shift on leadership development regarded *who* should be the recipient of leadership development efforts. Not only those in formal leadership positions, but anyone engaged in working toward a common goal with others could learn to engage in that leadership process more effectively (Komives et al., 1998; Rost, 1993). Particularly in higher education, in the 1990s leadership development programs began to be open to any student interested in learning about leadership.

Another shift that occurred around this time related to how people understand organizations and how to create change in groups and communities (Daloz Parks, 2005; Kezar et al., 2006; Komives & Dugan, 2010). The conceptualization of organizations as made up of independent parts, independent of outside influences, that can be controlled from a single point of authority was replaced by one in which organizations are a systemic whole, such that a disturbance in one area affects other areas in sometimes unpredictable ways. In a system with so many interrelationships, constantly changing dynamics rather than stability are the norm. These organizations can be influenced, but they cannot be controlled (Allen & Cherrey, 2000; Weick, 2001; Wheatley, 1999). This resulted in approaches to leadership that emphasized the need to be adaptive rather than expecting to operate from a rulebook. In such approaches, leadership development focuses on building students' self-awareness of their strengths, moods, and assumptions and students' awareness of how they impact others when working together to face new challenges (Daloz Parks, 2005; Day & Lance, 2004; Heifetz, 1994; Senge, 1990).

Finally, a third shift occurred when leadership scholars became interested in how concepts from the educational psychology and adult development field could inform leadership development. Research investigating links between personal development and effectiveness in leadership began to emerge (McCauley et al., 2006). These scholars believe leadership development is fostered by facilitating cognitive, interpersonal, and intrapersonal development (Day, Zaccaro, & Halpin, 2004; Kegan & Lahey, 2009), areas that the student development field has focused on for decades (Baxter Magolda, 1998; Kegan, 1982).

One example of this shift is the relatively recent application of Kegan's (1982) work on adult development to the leadership studies field by Kegan and Lahey (2009). Kegan's theory of adult development concerns the increasing complexity of the meaning-making systems people use to understand events around them. Growth occurs when an experience reveals the limitations of a person's current system of meaning-making, and a new system is adopted. Using a measure of the levels of developmental mental complexity created by Kegan and Lahey, research has been able to confirm that development of more complex meaning-making systems correlates with increased effectiveness in leadership of CEO's and middle managers (Kegan & Lahey).

There are also several examples of leadership scholars focusing on the concept of identity development as it relates to leadership (Day & Harrison, 2007; Hogg, 2001; Reicher, Haslam, & Hopkins, 2005; Stryker & Burke, 2000; Van Knippenberg et al., 2005). Identity development refers to the processes through which a person comes to have an enduring sense of who he or she is. This includes how people make meaning of their unique personal characteristics and values as well as how they make meaning of the groups they share affinity and similarity with (Abes, Jones, & McEwen, 2007; Erikson, 1980; Stryker & Burke, 2000). Leadership identity, then, refers to how a person comes to have a sense of who he or she is as a leader, and how he or she makes meaning of involvement in groups through various roles (Lord & Hall, 2005; O'Connor & Day, 2007).

These three influences: 1) a changed definition of leadership as a process between people rather than the actions of a person with authority; 2) a shift in how organizations and change are understood; and 3) the introduction of adult development theory to the

leadership field have resulted in a paradigm shift in leadership development. Leadership development is no longer seen as an additive process of acquiring more and more skills for one's leadership "toolkit" (note: that term is in itself an symbol of the industrial mindset). Rather, it is seen as having much more in common with the qualitative changes that occur in the process of personal development (Daloz Parks, 2005; Day & Lance, 2004; Hall, 2004; Helms, 2004; McCauley et al., 2006). Growth into a more advanced stage represents a qualitative shift in how the person is able to perceive and think about events, and increased maturity in understanding the complexity of relationships and the importance of being inclusive. It was within this context that the LID research team began its study in 2000.

The Leadership Identity Development (LID) Model

The grounded theory study that resulted in the LID model was conducted to understand leadership development as an intersection of student development and leadership (Komives et al., 2005). Thirteen students identified through intensity sampling procedures as practicing a relational approach to leadership participated in three, 1-2 hour individual interviews about their life history regarding how they came to see themselves as leaders, exploring the experience deeply and reflecting on the meaning of the experience (Komives et al). Analysis of these interviews resulted in *leadership identity* as the primary issue at hand, with six stages in the development of one's leadership identity (Komives et al., 2006).

Briefly, the stages of the model are:

- Awareness (Stage One): becoming aware that there are leaders “out there” who are external to self like the president of the United States, one’s mother, or a teacher;
- Exploration/Engagement (Stage Two): a period of immersion in group experiences usually to make friends; a time of learning to engage with others (e.g. swim team, boy scouts, church choir);
- Leader Identified (Stage Three): viewing leadership as the actions of the positional leader of a group; an awareness of the hierarchical nature of relationships in groups;
- Leadership Differentiated (Stage Four): viewing leadership also as non-positional and as a shared group process;
- Generativity (Stage Five): a commitment to developing leadership in others and having a passion for issues or group objectives that the person wants to influence; and
- Integration/Synthesis (Stage Six): acknowledging the personal capacity for leadership in diverse contexts and claiming the identity as a leader without having to hold a positional role (Komives, et al., 2005).
(Komives et al., 2009, p. 14)

Statement of the Problem

McEwen (2003b) noted that theory development is often a result of paradigm shifts. The generation and further development of theory is a constantly evolving process following an identifiable cycle, “a new theory leads to research and new forms of practice which in turn inform the existing theory, which is then modified or changed.” (p. 167). A validation study of the LID model should therefore be an expected step at this time.

Despite the lack of confirming evidence of the grounded theory study, the response from leadership educators in higher education has been swift. Applications of the LID model in leadership programs have been presented at the ACPA national conference (Komives et al., 2009b) and the Leadership Educator’s Institute (Komives et al., 2008). The model is described in several leadership publications, including two different chapters of *Connecting Adult Development, Identity, and Expertise* (Day, Harrison, & Halpin, 2009), in *Deeper Learning in Leadership* (Roberts, 2007), *Handbook for Student Leadership Programs* (Komives, Dugan, Owen, Slack, & Wagner, 2006), and *Concepts and Connections* (Komives, Owen, Longerbeam, Mainella, & Osteen, 2004; Ritch, 2007), a publication for leadership educators by the National Clearinghouse for Leadership Programs. An article outlining the role of leadership instructors in each LID stage is also available (Roper, 2009). The International Leadership Association used the model as the basis for the development of guidelines for leadership teaching and learning (Ritch, 2009). These guidelines address student needs and priorities at different levels of leadership identity development, and appropriate learning outcomes and teaching methods at each stage in the model. The LID model has already been used to inform three studies (Gonda Jr., 2007; Renn & Bilodeau, 2006; Shepherd, 2009). To date

only one study has been designed to replicate the LID findings (Durham, unpublished study).

Such widespread use of the LID model in practice and program design is problematic given that the model itself has not been tested for validation. This study will either provide supporting evidence for the LID model, allowing practitioners to be guided by it with confidence, or it will provide disconfirming evidence, so practitioners will know that altering program design is premature and more information about leadership identity development is needed.

Summary of Methods

The goal of this study was to classify subjects into groups based on how they conceptualized leadership and to compare those groups to the stages of the LID model. Q methodology was used for this purpose. Q methodology is appropriate when the researcher wants to know the relationship between one person's overall viewpoint on a topic and another person's. In studying a range of people's subjective points of view, Q methodology identifies groups of people with a similar perspective on the topic. (Brown, 1980; McKeown & Thomas, 1988).

Sixty-four statements representing a range of views expressed by students in various stages of development along the LID model were created and printed on individual cards. A nomination process identified 51 subjects representing the range of points of view represented in the LID model, as well as a range of experiences with leadership and leadership education. Subjects sorted the cards on a continuum from strongly agree to strongly disagree. In order to conduct an analysis of instrument reliability, the subjects completed the card-sort again four to eight weeks later. Subjects

also completed a brief survey to indicate their experience with leadership, some demographic items, and the Leadership Attitudes and Beliefs Scale – III (intended to be used to compare results for evidence of validity). The results of the card sort were analyzed using Principal Components Analysis (PCA) with Varimax rotation. PQMethod, a Q methodology software package calculated the statistical analysis, including the computation of rounded factor scores (a normalized score for each item on the card sort for each group of subjects identified by the PCA process) to produce a composite card sort to represent each group of subjects. These composite sorts were analyzed in order to describe each group of subjects' point of view regarding leadership. Finally, these descriptions were compared to the LID model stages to look for parallels.

Significance of Study

Lawler (2001) called today's organizational climate the "era of human capital" (p. 15). The success of any organization is now being recognized to lie within its people and their ability to work together toward shared goals. The LID model is a representative example of a new paradigm of leadership development that is focused on the process of having increasingly complex ways of thinking, knowing the self, and interacting with others. It describes leadership development as adapting qualitatively different ways of thinking, being, and doing rather than as adding to a long list of skills. As student development themes and issues begin to permeate the field of leadership development, more research will be needed to understand how personal development and leadership development overlap and diverge. Although some research studies have linked leadership effectiveness and outcomes to adult development (McCauley et al., 2006), LID was the

first published empirical stage-based model within this new paradigm. A validation study of the LID model is therefore important at this time.

The LID model has the potential to provide a framework to inform leadership development workshops and courses to meet the needs of students in different stages of leadership identity development. It can provide criteria to help make decisions about which leadership development program offerings would be of greatest benefit to student learning. Further confirmation of the findings would lend additional credibility to the model and support its widespread use.

Conclusion

The intention of this study was to gather self-referent descriptions of subjects' approaches to leadership and use Q methodology factor analysis to group those descriptions into types. A review of the relevant literature is necessary to provide a context for this study. Chapter Two reviews the literature related to leadership and leadership development, and the literature related to the connection between student development theory and leadership development, including cognitive development theory, identity development theory, and social identity. This chapter also includes a detailed description of the LID model itself, particularly each of its stages, with a series of charts that informed the selection of both subjects for the study and items in the card-sort instrument. Finally, the principles and assumptions of Q methodology are described in order to provide the theoretical grounding behind the techniques used in the study.

Chapter Three presents the methods used to collect the data. Chapter Four presents the results of the statistical analyses, including the principal components analysis, test-retest reliability analysis, and other analyses related to validity and further

supporting evidence for the LID model. Chapter Five describes how the results of the factor analysis were used to interpret the point of view of each group of subjects resulting from the principal components analysis. Chapter Six concludes by comparing and contrasting the descriptions of the groups resulting from this study with the LID model stages, and identifies the study limitations and implications for future research and practice.

CHAPTER 2: A REVIEW OF THE LITERATURE

This chapter is divided into four major sections. The introductory section describes the context for this study, in particular the definition of leadership and current approaches to leadership development. The next section examines the intersection of student development theory and leadership development, including cognitive development theory, identity development, and social identity. In the third section, the leadership identity development (LID) model is described in detail. The final section describes the principles and assumptions of Q methodology, which will be used for this study.

Definition of Leadership

The leadership identity development model was developed specifically using the approach to leadership described by the relational leadership model (Komives et al., 2007). Leadership within this model is viewed as, “a relational and ethical process of people together attempting to accomplish positive change” (Komives et al., p. 74). The titular term, *relational*, emphasizes the primary importance of relationships among people in this approach to leadership. Leadership is understood to be the processes among people who work together – not the behaviors of individuals in positions of authority. The development of leadership then does not revolve around what “the leader” does, but on what everyone in the leadership relationship does with each other. Other critical aspects of this approach include an emphasis on balancing individual and collective values and on collaboration among individual actors rather than influence of leaders unto followers.

The relational leadership model includes five components: purposeful, empowering, inclusive, ethical, and process-oriented (Komives et al., 2007). Being

purposeful refers to the building of collective commitment toward a common goal or mission, developing shared goals within the group and a common sense of the group's purpose for existing. Being *empowering* means sharing responsibility, authority, information and power. It also relates to developing capacity and leadership in others and valuing their contributions to the group rather than trying to solely control the group's direction. Being *inclusive* refers to welcoming different people, different perspectives, and understanding where one's own perspective comes from in order to fully appreciate that of others. Being *ethical* refers to having a commitment to socially responsible behavior and decisions, being authentic, responsible, trustworthy and congruent with one's values. Being *process-oriented* means understanding that the process of how the group arrives at an outcome is as important as the outcome itself. It means understanding a systemic perspective of organizations and change, and being able to engage others in relational processes such as reflection, feedback, collaboration, controversy, and on-going learning.

A final important aspect of relational leadership is that leadership development in this approach must address the acquisition of content (knowing), the development of appropriate attitudes and beliefs about working with others and what leadership is (being), and skills development along with motivation to take action (doing) (Komives et al., 2007).

Definition of Leadership Development

For over 25 years, leadership educators in student affairs have been guided by distinctions among leadership *training*, *education*, and *development* (Roberts, 1981). The field of Leadership Studies has been guided by similar terminology as well. In

Brungardt's (1996) review of the research in leadership development, he similarly divided this research into two clear categories: leadership development and leadership education.

In both sources, leadership development was described as the broadest category, encompassing both formal, structured experiences and informal, unstructured environments, and including both intentionally designed and unplanned experiences that foster growth resulting in increasingly complex understanding of and capacity for leadership (Roberts, 1981; Brungardt, 1996). Both also defined leadership education more narrowly, as only the environments and activities that are intentionally created to enhance leadership abilities, such as courses or seminars. In this definition, leadership education is a component of leadership development, and is usually more formal and structured (Brungardt; Roberts). The third term, *training*, described leadership related education targeted for a particular role (Roberts), such as the interpersonal leadership skills related to customer service training for student employees.

Although not completely different, Day and Halpin (2004) offered another perspective on the distinction between training and development from the corporate context. *Training* described activities that present people with tested solutions to known problems, and *development* described experiences that prepare them to analyze and understand the environment in order to be able to learn as they go, improvising given the situation and the available resources. Training was often a short-term intervention such as a workshop, whereas development was an on-going prospect with a long-term perspective on personal development expectations.

Leader Versus Leadership Development

Two other terms that are clarified in the literature are *leader development* and *leadership development*. Although leader development, leadership development, and even management development are concepts that have overlaps and parallels, the key difference reflects the field's current focus on defining what leadership is. Leadership development focuses on improving the group's collective capacity to work together, to engage in interpersonal processes, to learn together as they collectively face complex, unpredictable problems. It speaks to group members with or without formal authority, assuming all will have a role to play in the process of working together in meaningful ways (Day, 2001; Dixon, 1993; Keys & Wolfe, 1988; McCauley, Moxley, & Van Velsor, 1998; Roberts, 2003). Leader development by contrast, focuses on increasing the individual's capacity to be effective participants in group processes in a variety of roles (Day, 2001; Day & Halpin, 2004). Leadership development requires a social context, with the whole group involved in the development in an on-going way (Day & Halpin, 2004), and the content focused on the development of reciprocity, mutual trust, and respect (Drath, 1998). Leader development would focus on building individual capability, self-awareness, self-regulation, and self-motivation (McCauley, 2000). One view of leader development implies that these programs retain an assumption that leaders are born rather than made, by targeting developmental efforts at only selected individuals who already demonstrate signs of inborn leadership traits (Roberts, 2003). Describing leadership development as transcending leader development, Day (2001) made a point to emphasize that both leader development and leadership development are useful, and that making a distinction between them should not imply that a choice is to be made for one

or the other.

A parallel with this approach can be found in the student affairs leadership education literature in the social change model of leadership development (SCM) (Higher Education Research Institute, 1996). This conceptual model of leadership development categorizes leadership values around individual dimensions for growth (consciousness of self, congruence with one's own values, and developing commitments) as well as around group dimensions for growth (learning to be collaborative, handle controversy with civility, and develop a common purpose). In contrast with the above literature, the SCM rejects a hierarchy between the two, claiming instead that growth in one leads to growth in the other. The SCM also has a third dimension missing in the corporate literature, the community value of citizenship.

Earlier approaches to leadership development reflected an additive model. Based on the assumption that leadership is what the person in the position of leadership does, leadership development then was facilitating the acquisition of skills that would be needed to fill that role. However, as was described in Chapter One, a shift occurred. Increasingly, leadership was seen as the ability to adapt to changing circumstances, to think through problems where not all information is available and simple solutions do not exist, to be inclusive of ideas and talent from all levels of the organization, and to be guided by a clear sense of personal values and principles as external standards become less clear (Daloz Parks, 2005; Heifetz, 1994; Komives et al., 2007; Senge, 1990; Vaill, 1998). As Vaill said, "Coming to terms with the existential fluidity and uncertainty that has evolved in our culture calls for a very high order of process skills" (p. 166). As leadership came to be seen as a relational process between people in a group, rather than

the behaviors of the person in a position of authority, and as organizations and facilitating change came to be seen as more complex, a shift in what was needed from leadership development became more clear. Leadership development practitioners began to see their work as connected to the work of facilitating adult development, particularly in terms of cognitive development and psychosocial development (including interpersonal, intrapersonal and identity development) (Kegan & Lahey, 2009). Given this shift, it is important to be clear about the foundational principles of student development theory, which will be discussed further in the next section.

Some approaches to leadership development have focused on the individual's increasingly complex conception of groups. Simple concepts of groups involve stable structures with a single appointed leader who holds authority for decision-making and vision setting. A more complex conception recognizes that organizations involve complex relationships among all members. There is acknowledgement that organizations and the environments they operate in are not static, but constantly changing, constantly affecting and being affected by each other and by the members that make them up. The need for all group members to be able to adapt to constant change rather than follow a static plan dictated by a person in authority becomes clear. All group members need to be committed to on-going personal development, and the organization needs to be committed to learning as a unit. Nurturing strong, trusting relationships and giving attention to the processes of leadership replace selecting a strong leader and committing to an unchanging strategic plan.

Student Development Theory

Several sources of literature from the leadership studies field bring attention to the need to understand student development in order to facilitate leadership development. Increasingly, it is being recognized that people make sense of what leadership is in different ways, depending on their level of developmental complexity (Avolio, 2004; Day & Lance, 2004; Halpern, 2004). Approaches to leadership that were once generally thought to be simply different (e.g., dominance, influence, facilitation of a process), are now seen as being reflective of increasing developmental complexity in the leader (Day & Lance, 2004; Drath & Palus, 1994). “The principles of adult development and learning are as critical in the design of leadership programs as they are in fostering any other learning outcome” (Halpern, 2004, p. 127).

Development theories offer a guide to help understand the leader’s perspective, not a prescription for what should be done. Therefore, it is an important value in student development that many theories be integrated to offer a more rounded understanding of the full complexity of the student experience (McEwen, 2003b), rather than pigeon-hole students into a single stage in a single theory and operate from the assumptions that theory implies. After some brief background about student development theory and the nature of stage-based theory, several families of theory will be reviewed here, including cognitive theories, theories about identity and identity development, and social identity theories.

In student development scholarship, development is understood to involve increasing *complexity*, “development is about becoming a more complex individual (with, for example, a more complex identity, more complex cognition, or more complex

values)” (McEwen, 2003a, p. 155). Development reflects a qualitatively different state of being, not just having more of the same kind of knowledge or attribute (like growing in height) (Day & Lance, 2004; McEwen, 2003a). King and Kitchener (1994) described development nicely,

Developmental changes, such as those many student development theories attempt to describe, are typically changes that are assumed to serve an adaptive function: they reflect not just a different perspective, but a more mature perspective. Developmental changes are characterized by greater complexity...
(p. 415)

Piaget (1978) conceptualized development as a continual cycling through of differentiation and integration. Differentiation describes the ability to recognize several different aspects within a single perspective or issue. Integration refers to being able to put those different pieces back together again in a way that makes a more complete, complex, and more meaningful whole.

Kegan (2009) described adult development not as a straight line going from less to more complex as people mature, but as a series of “discernibly distinct levels” (p. 14) that represent periods of stability between periods of growth. His descriptions of those periods of stability are described as *orders* and many describe them as stages. Not all student development theories are stage-based. For those that are, theorists vary in the use of terms such as scheme, position, or stage. These theorists claim subtle differences among the terms, but they all share some commonalities. They describe the developmental issues, level of complexity, assumptions, and perceptual filters that are currently being used by the individual to make sense of events and understand the world

around him or her (Evans, Forney, & Guido-DiBrito, 1998; McEwen, 2003b). Issues related to stage-based development theory are discussed further below.

Sanford was among the first to address student development and the role of the college environment (Evans et al., 1998). His work (1967) contributed important insights about the processes of development that continue to ground the work of student development and are relevant to leadership development as well. Sanford described three conditions for an individual's development: readiness, challenge, and support. Readiness results from either internal processes such as maturation, or from an environment that creates the right conditions. Such an environment is one that provides the optimal levels of challenge and support. When people have too little challenge, they do not develop. When faced with too much challenge, they are overwhelmed and cannot adapt and develop but instead retreat or become defensive of their current development state. The level of challenge that a person can tolerate is a function of how much support the environment provides (Sanford, 1967). Kegan and Lahey (2009) described this environment as the *holding environment*, that challenges and supports meaning-making systems, by fostering reflection of deeply held assumptions and considering new ways of social interaction.

There are clear parallels between student development literature, particularly Sanford's (1962; 1967) work and some of the developmentally focused leadership studies literature. Recognition of the cognitive, behavioral, and social complexities involved in developing leadership capacity has led to the awareness of a "tight connection between expanding individual leadership capacity and enhancing complexity" (Day & Lance, 2004, p. 45). These authors described leadership development methods such as feedback

and *stretch assignments*, or assignments with the right kind and amount of challenge to learn to approach problems in new ways, as methods that address the need to learn to think and behave with more complexity. Similarly, Avolio (2004) used the term *developmental readiness* as a construct that he related to an individual's evolving self-awareness, cognitive processes, level of moral reasoning, and learning orientation toward goals. Experiences that promote development, or "trigger events" (p. 84) were said to need an optimal balance between reinforcing previous experience and encouraging the person to attempt more difficult experiences. The Center for Creative Leadership (CCL) claimed that any leadership program can be improved by assuring that it includes elements of support, challenge, and assessment (Van Velsor & McCauley, 2004). The parallels between stretch assignments, trigger events, and the CCL's model for leadership program design and Sanford's (1962) concept of challenge and support are clear.

Stage-based Student Development Theory

Like some other student development models, the LID model is stage-based. It is useful therefore to fully understand what a stage-based theory does and does not imply. There is disagreement about the fixed to flexible nature of stage-based theories. Some describe most stage-based theories as being fixed, such that stages are expected to occur in a particular order, one at a time, while acknowledging that in some psychosocial theories the order is more flexible (McEwen, 2003b). These scholars would acknowledge that the rate at which an individual experiences the stages, and the length of time one might stay in any one particular stage, varies (Evans et al., 1998). They would also allow that some theories make allowances that certain environments or circumstances will result in a retreat to a formerly used stage (Perry, 1981). Kegan (1982) described

development as a helix, alternating back and forth between periods of stability and transition, revisiting similar tasks or issues but each time seeing them from a more complex level.

However, other scholars argue against this *simple stage* (Rest, 1979) model of development, claiming that although development was portrayed this way years ago, the last 25 years of research have not supported this kind of progression in either cognitive or moral development (King, 1994). These scholars claimed that development has been shown to vary. When a task is too complex to be grasped by some students, or if the student happens to be undergoing stress, fatigue, or other distractions based on their unique situation, they may not behave in ways that a single stage would predict (King).

For example, in his theory of moral development, Kohlberg (1976) described the stages as hard, meaning that people experience the stages one at a time, in order, and they exhibited characteristics of the stage regardless of context or situation. Although researching stages of moral development, Rest (1979) argued that more complex stage models were needed. Rest found that students tended to rely heavily on one particular stage but that they also drew from other stages, typically those just prior to and those just after, that current, primary stage. Rather than identifying a subject's stage as though it is a single, fixed stage, Rest identified what proportion of the subject's reasoning was at each particular stage. This is particularly critical information to consider in measurement, as it may not be reasonable to expect that a student in a particular stage will respond to all scale items in ways that are consistent with that stage.

Regardless of whether stages are thought to be hard and fixed or not, stage-based theories describe a process of development such that each stage typically incorporates

aspects of the previous stage, so later stages involve more complexity than earlier ones (Evans et al., 1998; King, 1994; McEwen, 2003b). Growth, or movement from one stage to the next, results from an experience of disequilibrium. New information or a new experience does not fit within students' existing structure or way of understanding the world. If the student is at a point of readiness for development when the experience occurs, he or she can either integrate this new information into the existing structure, or modify the existing structures in order to accommodate the new information. The stages therefore are understood to be periods with feelings of equilibrium, where current structures for understanding the world and knowing how to respond seem to work (Evans et al., 1998; McEwen, 2003b). Development or growth then, is understood to occur during the transitions between the stages, when the student's readiness meets the environment's press and the student is in the process of modifying those existing structures. Perry (1981) suggested, "Perhaps development is all transition and 'stages' only resting points along the way" (Perry, 1981, p. 78).

An important consideration for the measurement of stage-based theories is the concept of plus-one staging, which Knefelkamp, Widick, and Stroad (1976) described as the ability of students to understand the worldview and reasoning of a stage that is one level higher than their current stage. In many cases students find the structure of this higher stage appealing, but are not yet capable of operating from it in practice. This was found to be true for the subjects of the LID study as well (Komives et al., 2006). An alternative explanation to plus-one staging proposes that students operate within a range of developmental stages, described as ranging from a functional or typical level to their personal optimal level (the highest level the individual is currently capable of). Students

operate at their optimal level when in a supportive environment (Fischer, 1980 as cited in King, 1994).

Stage-based theories of social identity share some commonalities with cognitive-structural theories, but also important differences. Growth is still identified as movement through an identified set of ways of being, with gains in complexity with each step, and transitions characterized as occurring from the disequilibrium of current models no longer working with new information. At least one key difference exists however. In identity models of development, individuals are not assumed to be operating from only one status at a time (Evans et al., 1998). In fact, Helms' models of White identity development and Black racial identity attitudes identify the resting points of equilibrium as status rather than stage to reflect this distinction (Helms, 1990; Helms & Carter, 1990). These theories involve emotional and attitudinal aspects of the individual as well as cognitive structures, which perhaps explains why a person might operate structurally at one status, but still have emotions and attitudes that reflect an earlier status.

Cognitive Development Theory

Leadership development scholarship has frequently applied cognitive development theories to inform this work. Several theories that fall within that category will be reviewed here in the context of how they have informed leadership development. Cognitive development theories describe the increasingly complex ways that people construct meaning. Examples include theories of how people construct how they know (Baxter Magolda, 1992; King & Kitchener, 1994); the structures they use to resolve moral issues (Gilligan, 1993; Kohlberg, 1976), and the structures they use to address questions of faith and spiritual belief (Fowler, 1981). Each stage in a theory can be

described by a set of assumptions or a cognitive *structure* that affects how people reason, make meaning, and perceive the world (Evans et al., 1998). Each stage grows from the previous one, incorporating aspects of it, yet is distinct and more complex (Evans, 2003). Development from one stage to the next occurs through a process of assimilation and accommodation. Assimilation describes the process of integrating new information from life experiences and social interactions into the existing structure. However, when new information does not fit into an existing structure, the person experiences a sense of disequilibrium and a new structure must be created to accommodate the new information (Evans).

How people construct what they know and how they make meaning of moral and spiritual issues has implications for leadership development. Leadership scholar David Day (2004) pointed out, “Individuals at higher levels of development are able to use a greater number of knowledge principles to construct their experiences (differentiation) and to make more interconnections among these principles (integration). Individuals thus develop a broader perspective on how things are interrelated (inclusiveness)” (p. 43). In other words, the way leaders construct meaning, or know, guides their perceptions and actions.

Kegan’s (1994) constructive-development theory is a useful example to illustrate a cognitive-structural theory that is often linked with leadership development in the literature (Allen, 2008; Avolio, 2004; Daloz Parks, 2005; McCauley et al., 2006). The theory describes how individuals interpret experiences and construct meaning of the world (Kegan, 1994). The theory describes discrete orders (i.e., stages) of development, but also focuses on the processes and challenges involved in transforming from one order

to the next, including how the social context affects development. A person's current order determines what he or she is able to be aware of, think about, and therefore, change. Each order is defined by the system or principles used to construct meaning of the self and the world. Each order is considered to be more complex than the last, meaning it supports understanding that is more comprehensive.

Development in Kegan's (1994) theory involves the person's becoming aware of the existence of the system being used to make meaning. With that awareness, the person gains the ability to reflect upon that system and take control of it. What was once the whole system of meaning making becomes just one part of a new whole (differentiation). At that point, the meaning-making system is said to have shifted from being *subject* to being *object*. The person is not subject to the meaning-making system, rather, the meaning-making system is an object that he or she can use and make a part of the new system (integrated). Once a system shifts from being subject to being object, a new meaning-making system becomes subject, a system of which the person is not aware.

It is useful here to examine specifically how others have integrated leadership theory and cognitive development theory. Two scholarly works (Day & Lance, 2004; Kuhnert & Lewis, 1987) have applied Kegan's theory to Burns' (1978) classic leadership theory, that differentiates between a transactional and a transforming leadership style. A transactional style is one in which leaders achieve follower compliance with their goals through exchanges (such as job promotions, pay raises, or increases in power). The transforming leadership style involves leaders and followers engaged in a process such that followers and leaders each raise each other to a higher level of motivation (such as a morally worthy goal, rather than an increase in pay). As is the case with many leadership

theories, application of cognitive development theory informs how leadership development from a transactional to a transformational style might occur. At Kegan's (1994) *imperial stage*, people are focused on their own needs and goals. Kuhnert and Lewis as well as Day claimed that at this stage, it is only possible for leaders to lead with a transactional style, a style centered around meeting goals through compliance from others, and focused on dominance and influence over others through rewards and punishments. At this stage, the leaders' personal agendas are subject. The leader does not have the capacity to reflect on the fact that his or her attitudes about leadership are related to gaining compliance from others. Kuhnert and Lewis suggested that a transforming leadership style only becomes possible in Kegan's fourth or *institutional stage*, when leaders have developed a self-identity and standards that are consistent across contexts. Rather than a personal agenda, leaders are aware of having principles and values that reflect both their needs and the needs of others (Kuhnert & Lewis). Allen (2008) pointed out that learning about Kegan's and other adult development theories can help guide a person's reflections about leadership and improve self-awareness. In fact, Kegan himself recently co-authored a book aimed at helping leaders of organizations be reflective of the meaning-making systems to which they are subject in order to help them overcome resistance to change (Kegan & Lahey, 2009).

McCauley et al. (2006) provided a review of many research studies linking leadership development with cognitive development frameworks. Generally, the research has focused on the leader's order of development and his or her effectiveness in a leadership or management role. Thirteen studies related to Kegan's (1994) model were reviewed by the authors, examining questions such as whether an individual's order of

development relates to leader effectiveness, whether followers' order of development effects how they evaluate leaders, and those addressing how to design leadership programs as developmental holding environments. Another constructive-development theory reviewed included Loevinger's (1976) framework of ego development, which was applied by Torbert (1987) to the organizational context, resulting in several research studies that generally found that: a person's order of development influences how managerial tasks are approached, leaders in later orders of development more effectively lead transformative change, action inquiry methods of leadership development are effective, and development of whole organizations can also be understood from the perspective of constructive-development (McCauley et al.). Kohlberg's (1976) theory of moral reasoning was used in several research studies that sought to link cognitive moral development with ethical leadership, ethical actions in organizations, and leadership style, although the findings of these studies have been less conclusive (McCauley et al.).

Identity and Identity Development Theory

Since LID is a theory of identity development, it is useful to review identity and identity development theory in addition to cognitive theory. Erikson (1980) described identity as a not permanently fixed, but consistent way of defining and seeing oneself. Erikson emphasized both an internal relationship with oneself as well as the external relationships with others in his exploration of the development of identity. In his view, identity "connotes both a persistent sameness within oneself (selfsameness) and a persistent sharing of some kind of essential character with others" (p. 109). With life experience, a person becomes increasingly committed to having a consistent, established identity. Although identity development is considered a lifelong task, it has also been

identified as a central aspect of adolescence and early adulthood (Chickering & Reisser, 1993; Erikson, 1980;). Erikson also emphasized continuity, that while not permanently fixed, one's identity has some consistency from situation to situation.

Recent scholarship on identity (Stryker & Burke, 2000) has been described as having two strands that relate to the internal and external relationships described by Erikson (1980). For the first, described as emphasizing *external mechanisms*, identity refers to a group-based self, or the way people have a sense of self in relation to the groups they are a part of and the roles they play in those groups. This approach recognizes that people have as many selves as there are groups of people with which they interact, and they organize these identities into a hierarchy representing the varying salience of that identity in comparison with other identities. The second strand of scholarship emphasizes *internal mechanisms*, or the ways in which people internally construct meaning about the self. Cognitive processes are involved in how people construct how a person with a given identity should behave. They then make comparisons between the constructed ideal behavior and the real behavior, which either verifies the sense of having that identity or signals a discrepancy. While seen by many as two separate strands, these examples show that there are good arguments (Stryker & Burke) for reconceptualizing the strands as complements of each other – to help form a more full understanding of how external social structures as well as internal cognitive processes shape a person's identity development.

Identity salience is an important issue given the recognition that identity is perhaps best described as how a person makes meaning of multiple identities. Identity salience shapes the individual's role choices (Stryker & Burke, 2000). For example,

research has shown that religious identity salience predicts time spent in religious activities; salience of a woman's identity as a mother predicts her willingness to accept the burdens of motherhood; and salience of one's identity as a blood donor predicts the frequency of blood donations (Stryker & Burke). Another study found that performance in a certain area can be negatively affected when people believe their sociocultural group is negatively stereotyped in that area (Shih, Pittinsky, & Ambady, 1999).

When leadership is conceptualized as a social identity, the concept of identity salience has important implications. Identity and identity salience have been shown to be reasonably stable over time, however they do adapt, for example, in situations where people are prevented from being part of a group with which they identify and they begin to identify with a new group. This potential for adaptation suggests the possibility that certain environments might have an influence on leadership identity becoming more salient.

Most relevant to the concept of leadership identity is the connection between identity salience and increased likelihood to engage in activities related to that identity, "the concept of identity salience implies that persons are more likely to define situations they enter, or in which they find themselves, in ways that make a highly salient identity relevant" (Stryker & Burke, 2000, p. 289). If a student's leadership identity is highly salient, he or she will be more likely to engage in activities that provide opportunities to develop leadership knowledge and competencies. Leadership identity salience may increase the likelihood that a student would enroll in a leadership course or retreat. Additionally, as students negotiate their multiple identities and the varying salience of each, their socialized beliefs about whether their various identities can co-exist may come

quite important. For example, students may have doubts about whether people of certain genders or ethnicities make good leaders. If they themselves have those identities, the salience of leadership for their own identity may be less strong because of it.

Social Identity Theory

Because each individual has multiple identities, it is important to explore the ways in which leadership identity and aspects of social identity, such as race, gender, religion, or others intersect.

In applying the LID model, leadership educators must also acknowledge the ways leadership identity intersects with other dimensions of identity such as race, culture, sexual orientation, gender, religion, and social class. A challenge in using the LID model is recognizing this intersectionality (Collins, 1998) and how students' multiple identities shift in relative salience depending on context and relationships (Abes, Jones, & McEwen, 2007). If, as social constructionist approaches to identity development posit, identity is socially, historically, politically, and culturally constructed (Weber, 2001), these factors must be considered in LID application and research. (Komives et al., 2009a, p. 24)

Komives et al. (2009a) noted, "There is a growing body of research that relates racial and cultural factors to leadership development (Arminio et al., 2000; Balón, 2003, 2005; Harper & Quaye, 2007; Hoppe, 1998; Kezar & Moriarty, 2000; Liang, Lee, & Ting, 2002). Students of color may experience the LID stages differently than their White peers" (p. 24). Indeed, when conducting the LID grounded theory, the research team noted that the descriptions of leadership identity development for several participants of color differed from the White students. For example,

For some students of color, there was no independent experience of hierarchical leadership. Rather, there was an understanding of leadership as a positional, leader-centric phenomenon in the western world around them, but these students were able to move more quickly through Stage Three to arrive at relational views of leadership more congruent with their cultural backgrounds. (Komives et al., 2009a, p. 24)

The LID research team also found gender and sexual orientation to influence the experience of leadership identity development (Komives et al., 2009a). Several of the students interviewed identified that it was the desire to challenge gender stereotypes that motivated them to take on leadership roles. The Multi-institutional Study of Leadership, a large-scale, national research study on college student leadership, found that women had higher scores on measures of socially responsible leadership than did men. However, they had significantly lower scores on a measure of leadership self-efficacy (Dugan, Komives, & Associates, 2006). Similar findings resulted from a case study of five early to mid-career professional women who demonstrated a relational leadership approach (Gonda, 2007). This study found that all five women consistently resisted labeling themselves as leaders. Their leadership identity was articulated more in their descriptions of qualities they connected with leadership, such as being conscientious or compassionate. The researcher suggested that women are more likely to attribute their power to personal characteristics than to their status within an organization. Komives (2007) has noted that historically, women have put a greater emphasis on relationships in leadership, and non-hierarchical perspectives on those relationships in particular. Further research may find

that this tendency results in their having a different experience than men in developing a more relational leadership identity.

The Renn and Bilodeau (2006) study mentioned earlier, for which the researchers interviewed 15 LGBT-identified students, reported that these subjects described their leadership development experience in ways that were consistent with the stages of the LID model. The authors found that for these LGBT students, their identity as activists and their involvement in organizations that address LGBT issues positively influenced their identity as leaders as well as positively influencing their LGBT identity development.

The above scholars use the term *social identity* to describe how students make sense of their race, class, gender and sexuality as aspects of the self that exist within a social context. In this use of the term, the social identities are understood to influence the student's relationship to others within socially constructed systems of dominance and oppression (Hall, 2004; McEwen, 2003b). However, according to Ruderman and Ernst (2004), the original definition of social identity was by Henry Tajfel, who described it as both the knowledge of belonging to a certain group and that belonging having value or significance to the person in some way. Stryker and Burke (2000) also used the term *social identity* to refer to other social categories or constructed social groups. These definitions would therefore include leadership identity as a social identity as well. The college student development literature refers to this as social identity in the "global" sense, meaning it refers to, "an overall sense of self or sense of being" (McEwen, 2003b, p. 205).

This conceptualization of the term social identity is perhaps clearer when presented as a differentiation from personal identity. Personal identity is a self-created meaning-making system of personality attributes that are not shared with other people, like seeing the self as responsible, authentic, or reserved (Hogg, Abrams, Otten, & Hinkle, 2004). Social identity has a sense of kinship with others around the attribute. It is acknowledged that relationships and experiences in groups provide a context in which personal identities are formed, however this is quite different from social identities, in which the identity is connected to a sense of belonging with a certain group because of similarities shared with members of that group (Hogg et al.). “People have as many social identities and personal identities as there are groups that they feel they belong to or personal relationships they have. Identities vary in subjective importance and value, and chronic and situational accessibility” (Hogg et al., p. 252).

Recently Abes, Jones, and McEwen (2007) published a model that depicts aspects of personal identity as a core nucleus, surrounded by many aspects of social identity, simultaneously expressed. Current environmental conditions, peers, family and other “contextual influences” (p. 7) on the individual are interpreted through each individual’s way of making meaning, and influence the individual in unique ways. This model brings to light important issues that illustrate the complexity of understanding individual identity. Although students may belong to readily identifiable social groups and exist in certain observable environmental conditions, each person will have a unique and evolving core sense of self, and a less or more complex way of making meaning of how the aspects of the context influence the sense of self. Although these scholars did not include leadership identity in this model, the LID research team considered leadership to

be a social identity (Komives et al., 2009a), and would presumably conceptualize leadership identity as orbiting the core nucleus with the other social identities depicted in the Abes, Jones, and McEwen model.

Identity and Leadership Development

The link between identity and leadership development is increasingly being explored in the literature from the leadership studies field (Day & Harrison, 2007; Day, Harrison & Halpin, 2009; Hall, 2004; Hogg, 2001; Shamir & Eilam, 2005; van Knippenberg et al., 2004). O'Connor and Day (2007) described identity as how one answers the question, "who am I?" They in turn described leadership identity as how one answers, "Who am I in relation to leadership?" (p. 66). Day, Harrison, and Halpin (2009) also emphasized that leader identity is not necessarily related to formal leadership roles but rather on, "how an individual comes to think of oneself as a leader" (p. 185).

An important theme in the leadership studies literature that preceded the current interest in leader identity is a general call for leadership development to occur through experience in addition to instruction (Bass, 1990; Moxley & Wilson, 1998; O'Neil & Fisher, 2004;). Increasingly, leadership development programs are occurring in the context of the work-related projects, helping people learn how to learn from their work experiences rather than in training sessions or conferences that remove employees from their work in order to learn about leadership (Day, 2001).

The research now is finding that identifying oneself as a leader increases the likelihood that the person will engage in leadership experiences, thus providing them with more developmental opportunities. Having a leader identity is very important to forming what Day, Harrison, and Halpin (2009) call "identity-development spirals" (Day,

Harrison & Halpin, 2009, p. 186), meaning that if people see themselves as leaders, they are more likely to seek out leadership opportunities. Those opportunities give them leadership experiences, that provide experiences that further inform their leadership identity. O'Connor and Day (2007) concurred, saying that when people begin to think of themselves as leaders, they tend to undertake more challenges, expose themselves to skill-building experiences and consider situations from the leader's point of view.

Lord and Hall's (2005) model of leadership development describes identity, meta-cognitive processes, and emotional regulation as the critical factors involved in developing leadership expertise. Their model built on previous work (Lord & Brown, 2004) which described three identities that might be active for a person: individual level (a focus on how one is unique from others), relational identity (identity based on one's roles with others), and a collective level of identity (defining the self in relation to the qualities of the groups one is a part of). Lord and Hall described leaders as moving from "novice to expert" (p. 592) as they move from an individually defined to collectively defined identity. Novice leaders are likely to be motivated by being seen as leaders by others, and are focused on their own individual identity, wanting to distinguish themselves as different from the rest of the group. Expert leaders are motivated by the goals of the group that have become an aspect of their own identity.

Leadership Development and Personal Development

Hall (2004) acknowledged that much of leader development is actually personal development work, with a major aspect of that being self-awareness. Of personality characteristics, Hall claimed identity is the most important aspect of leader development. Hall defined this identity as being a combination of cognitive development, the development of interdependence, and having a clear sense of the self that includes seeing oneself as a person who can and does do leadership.

Noting that few leadership theories have addressed the related processes of personal development involved in their approach to doing leadership, Avolio and Gardner (2005) conceived of their model of leadership, termed authentic leadership, with considerations for the processes of developing authentic leadership from the beginning. The core principle in this leadership approach is that through increased self-awareness, self-regulation, and positive modeling for others, authentic leaders will facilitate the development of authenticity in followers. The authors described authentic leadership as not so much another leadership theory, but a concept that is foundational to other forms of positive leadership, such as servant leadership, spiritual leadership, or transformational leadership (Avolio & Gardner).

A leadership development model developed by Luthans and Avolio (2003) and expanded upon in Avolio (2004) also puts an emphasis on personal development. In this model, the process of leadership development begins with self-awareness, including meta-cognition, meta-emotions, and the development of a self-concept or sense of identity. With self-awareness, individuals can learn to self-regulate their thinking,

behavior, and emotional expression. From self-regulation comes the capacity for self-development (cognitive and emotional) and the development of leadership style.

The link between cognitive development and identity development for leadership development has also been identified in the literature. One leadership model (Briscoe & Hall, 1999) identified self-awareness and adaptability as the two overarching competencies or antecedents needed to be able to learn to do effective leadership. Each of these two meta-competencies are shown to be built on a foundation of increasing cognitive, social, and behavioral complexity. For example, for a person to gain self-awareness, the cognitive complexity to characterize oneself with many categories is needed; the social complexity to navigate social situations is needed to understand why others respond as they do and to determine one's most optimal role in the group; behavioral complexity is needed to understand how one's role is differentiated across leadership situations but is integrated into one understanding of the self as a leader (Day & Lance, 2004).

Referring to the Briscoe and Hall (1999) model above, Hall (2004) addressed specifically the self-awareness meta-competency, actually describing identity as a type of cognition, "cognition about the self, or 'metacognition'" (p. 154), such that the literature on cognitive development can be applied to the development of identity. "Identity is a complex and multifaceted construct, which relates to the way an individual perceives himself or herself in relation to 'others' in the environment." (p. 154). Hall described one's sense of oneself working in groups with others, perhaps as a leader, as one identity a person has. Leadership development is expanding that sense of identity. Discussing the influence of one's various roles (such as sister, employer, consumer, CEO), Hall

described leader development as occurring when the person's leader identity, "grows more complex and becomes more differentiated" (p. 157). Meaning people first differentiate their identity as a leader from their other identities and then integrate that identity back in with their other identities. For example, becoming aware of having a leadership role in a certain context, a person responds to role expectations and his/her understanding of the meaning of leadership becomes more complex and identification with the leader role increases. Then that leadership identity is integrated back in with the person's other roles. Although Hall (2004) used leader-centric language, such as references to the development of a leader rather than of leadership, and an emphasis on having a leader role rather than being a part of a leadership process, much of his contributions about leaders and identity relate nicely with the LID model.

Hall (2004) also emphasized the critical influence of relationships on leader identity development, describing processes that foster growth in self-awareness, such as role transitions, rites of passage, and socialization, he noted that they all are inherently relational, "Because processes like leadership and self-awareness are intrinsically interactional (i.e., leaders need followers, and the best way to test the accuracy of one's self-awareness is against the perceptions of others), relationships play a powerful role in the growth of a leader's self-awareness" (p.166).

A recent study on leadership identity (Whitney, 2007) investigated business leaders' experiences of coming to identify themselves as leaders, focusing on issues of identity, self-efficacy, and resilience. Like Hall (2004), and the LID model, the findings in this study pointed to the importance of self-awareness and the role of relationships, particularly with mentors and peers in leadership, in coming to see the self as a leader.

This study also resulted in subjects eventually focusing more on their passion for the change they are trying to foster, and the desire to leave a legacy or make a lasting difference, over attaining recognition for being identified as a leader. In the Whitney study, the subjects' way of labeling themselves and observing their process of development as leaders occurred within the context of observing the other leaders around them.

The Leadership Identity Development Model

The LID research team (Komives et al., 2006) described student leadership development as an intersection between both relational leadership and student development theory, "Both psychosocial and cognitive developmental stages have elements that are congruent with the developmental processes necessary to establish leadership identity" (p. 402). The leadership identity development (LID) model describes six stages in which individuals define leadership and see themselves as leaders in increasingly complex ways (Komives et al., 2006). In this section, the development of the model and the critical elements of the LID theory and model will be described. Finally, follow-up studies, and studies using the LID theory and model to interpret findings are reviewed.

Recognizing that there was a lack of scholarship about how leadership develops, a research team consisting of Susan Komives, Julie Owen, Susan Longerbeam, Felicia Mainella, and Laura Osteen was formed to study the topic. The purpose of the study was, "to understand how a leadership identity develops" (2005, p. 594). The team based their study on the relational definition of leadership described above (Komives et al, 1998). The grounded theory methodology was chosen, as it is an appropriate fit for generating a

theory that describes the experience and perceptions of study participants (Creswell, 1998).

Using purposeful sampling procedures, the team selected subjects that would reveal the development of relational leadership in an intense but not extreme way (Patton, 1990). Students considered to be exemplary examples of the relational approach to leadership were nominated by higher education professionals who had the opportunity to observe them in leadership situations (Komives et al., 2005). From the pool of nominated students, 13 were selected. The student group represented a diversity of ethnic backgrounds, genders, religious affiliations, sexual orientations, and majors. With two exceptions, participants were 4th or 5th year seniors or recent alumni.

Each student participated in three individual interviews of 1 to 2 hours each, with the same interviewer from the research team. Interviews followed a structured protocol to ensure continuity. The first interview asked students to describe their lives to the present, reflecting on how they became who they are. The second interview focused on the students' experiences with leadership and working with others. The third interview explored how the student's view of leadership had changed over time and what the influences of that change were (Komives et al., 2005). Through the students' descriptions of their leadership journey and reflections on the ways they had previously conceptualized leadership up to their current approach to leadership, the research team came to understand the students' experiences.

The Categorical Influences of Developing a Leadership Identity

The LID research team analyzed their interview transcripts using a constant comparative method and standard coding procedures for a grounded theory study, open,

axial, and selective coding (Komives et al., 2005). This coding resulted in a central category, developing a leadership identity, with five categories, that influence the central category. Development through the stages of leadership identity is influenced by five categories: essential developmental influences, developing self, group influences, the changing view of self with others, and a broadening view of leadership (Komives et al., 2005). According to Strauss and Corbin (1998), each category has *properties*, or characteristics. These properties change in *dimension* as development occurs from stage to stage. Since the dimensions help identify the stage from which a person is operating, both properties and dimensions will be described here.

Developmental influences. This category has four properties: adult influences, peer influences, meaningful involvement, and reflective learning.

Adult influences. Parents, teachers, scoutmasters, other adults in the students' communities, and national role models influenced development of a leadership identity. In the early stages, adults served as role models, and raised the students' awareness of their leadership potential by recognizing their successes and encouraging them to take on leadership roles. Later, there was less need for affirmation from adults, and the role model role deepened to a more personal mentorship role. Adults continued to serve as models and mentors during the college years, but also helped students to understand their experiences and make personal meaning from them. Some relationships with adults evolved into friendships at this stage.

Peer influences. Peers include those who are either the same age or, often, are slightly older than the student. In early stages, peers are role models serving two functions: providing the opportunity to learn from observing another's behavior and

experience and increasing the student's self-efficacy (if she can do it, I can do it), and motivation to get involved too. Eventually peers can provide support and encouragement for the student to get involved or deepen their involvement. As the student gets more experience working in groups, peers support each other's developmental journey as students both support and challenge each other, and make meaning of their experiences together.

Meaningful involvement. Actual experiences working with others provided opportunities to learn about themselves and others, to try out new skills, and clarify their interests and convictions. In early stages, involvements were a way to meet and connect with others. Later, the motivations to become involved became more complex. Students got involved in order to accomplish a goal by working with others, or to develop personal skills. From these later involvements, students learned to balance individual achievement with supporting others to maximize group achievement.

Reflective learning. Talking with others or journaling about experiences resulted in students discovering their passions, deepest held beliefs, and perceptions of themselves as people who engage in leadership with others. Early on, these conversations occur with parents and siblings, but eventually also include other adults and peers. For some students, structured experiences like leadership trainings or courses provide opportunity to put terminology to what they have learned through experience that may or may not change their understanding of themselves as leaders.

Developing self. This category has five properties: deepening self-awareness, building self-confidence, establishing interpersonal efficacy, applying new skills, and

expanding motivations. Each of these properties refers to aspects of personal growth that develop as students move through the stages of developing leadership identity.

Deepening self-awareness. Having a sense of who one is, what one values and believes, and what one can contribute are all aspects of increasing self-awareness. In early stages, the student's sense of self is vague, and characteristics attributed to oneself by others, including adults and peers, form a sense of identity. Later, students' sense of self came from their own perceptions. One's social identifiers, such as gender, race, or sexual orientation become salient aspects of understanding the self and how one connects with others. For some students from underrepresented groups, barriers based on these factors can be a meaningful experience that shapes the nature of involvements and interactions with others. In later stages, a sense of integrity and congruence with personal values become increasingly important.

Building self-confidence. Feeling as though one matters and is a person who has something worthwhile to contribute is an important aspect of developing a leadership identity. In early stages, students seek approval from others, and family and school setting help them feel as though they matter. Experience helps build confidence in their abilities and confidence that their self-perceptions about their strengths and weaknesses are accurate. In later stages, self-confidence allows students to take stances based on their convictions, with less worry about disapproval from others.

Establishing interpersonal efficacy. This property refers to confidence in one's ability to work with others. Early on, student's gain confidence by learning to make new friends and form a connection with others in various ways. Later, learning to work together with people who were different from oneself in terms of perspective, viewpoint,

priorities, or social identity helps build a sense of interpersonal efficacy. In some cases, students from underrepresented groups develop a particular sense confidence in their ability to be empathetic and sensitive to others. Working with others toward a goal rather than making purely social connections represents a new level of efficacy for many, as having to delegate tasks to peers or negotiate through controversy helps to build trusting relationships with others.

Applying new skills. Working with others toward goals develops an awareness that new skills are needed, such as listening to the perspectives of others, trusting others, delegating, being organized, or public speaking. Involvements give students opportunities to observe role models and practice new skills themselves. These skills, like other properties in the grounded theory, changed in dimension during development – meaning the student focused on different skills at different stages. For example, listening to others’ ideas, trusting others, and delegating tasks are skills from early stages that lay a foundation for the skills of later stages, such as collaborating with others on what should be done and facilitating contributions from everywhere in the group. Over time, students recognize the skills they can contribute to groups, and new skills they need to continue to work on.

Expanding motivations. One’s motivations to get involved or do leadership become more complex over time. Early on, making friends or getting to experience something interesting are primary motivators. Later, choices to get involved become more limited to groups whose purposes are meaningful or connect with one’s personal values. The desire to be connected to something larger than oneself, to make a broader

impact by working with others rather than alone becomes a motivating factor for involvement in leadership.

Group influences. This category has three properties: engaging in groups, learning from membership continuity, and changing perceptions of groups. This category interacts with the developing self category as development in each category is dependent upon development in the other.

Engaging in groups. The conditions under which students will decide to participate in a group change over time. Early on, students seek a place to belong, to feel they are welcome, accepted and safe. In time, students interests narrow and they become more selective in what they will participate in. They also begin to align their beliefs and convictions with those of the groups, sometime leaving groups that do not reflect their values. The group culture of organizations influences the student's self-perception and how they think of themselves as leaders.

Learning from membership continuity. Over time, students narrow down their involvements to the few that are most meaningful to them, freeing up time to give those involvements more depth. Although students may continue to be a participant in several groups, many will have a primary group in which they become deeply involved. Committing to a group over time provides opportunities to develop leadership skills and outlooks that are more complex than short-term involvements, such as dealing with conflict, transitions, and sustainability of projects. Relationships with other group members will have a long-term history, meaning that the student will need to create working relationships with people they may not have always gotten along with. Long-

term commitments eventually mean that students realize they are an “elder” member of the group, which they feel brings certain responsibilities to mentor younger members.

Changing perceptions of groups. Students’ perceptions of groups change from being simply a gathering of friends to having a mission to accomplish through shared effort. Eventually the group itself is seen as an entity in itself that needs to be developed, which they take on as a responsibility of leadership. Later, they see how their group is connected to other organizations in a system, and they seek out partnerships and coalitions to help reach goals while becoming more aware of why change can be difficult in a complex system of groups and stakeholders.

Changing view of self with others. The developing self and group influences categories interact and impact how students change how they see themselves in relation to other people. This category’s only property describes a gradual change from a perception of being dependent upon others, to one of being independent and able to be responsible for oneself while also being dependent in some contexts to one of understanding that one is interdependent with others.

The developmental process into Stage Three has two potential paths, independent or dependent. On the independent path, students are motivated to have the positional leadership role or want to change something in the group. On the dependent path, students want to be a part of an effective group, but, believing the person with the leadership role is solely responsible for success or failure, do not want to have the leadership role. Some students function on both pathways but in different organizations or different contexts, seeing themselves as independent in one situation and dependent in another. The latter three stages involve students seeing themselves in a state of

interdependence with others. Interdependence describes a state in which the student realizes that a person must both rely on others and be reliable for others to depend upon.

Broadening view of leadership. Students' changing view of self with others influences how they define leadership. This category's only property describes how students construct meaning of what leadership is and who leaders are and are not. Development in this category is defined by a shift in ascribing leadership as something others do, to something that people in hierarchical positions do, to a process that many people in the organization engage in. Early on, leadership is not constructed as a personal identity, but is ascribed to others, first adults, such as parents or national figures, then older peers. Later, leadership is constructed as holding a position in the hierarchical structure of an organization, or the position at the front of the room that the followers attend to. The leader is the person with control, who tells everyone else what to do and they do it. The leader is therefore the person who is considered solely responsible for the group's success or failure. When students hold this hierarchical position, they consider themselves a leader. When they do not, they do not consider themselves a leader but identify as a follower.

Eventually, students' view of self with others shifts to recognize that positional leaders are dependent upon followers as well as the reverse. No single person can do all the work, and the multiple perspectives that others bring help make better group decisions. Their construction of leadership changes in a way that differentiates leadership from the position of leader. Leaders were people who participated in the process of the group's reaching its goals and sustaining itself as a cohesive group – regardless of where they stood in the hierarchical structure. At this point, leadership is an

identity that one can ascribe to the self regardless of whether one holds a formal leadership position. A leadership identity becomes stable and constant, not fluctuating based on which organization or context the self is in. In the end, leadership becomes integrated into a person's self-concept along with other attributes.

LID Stages

In the grounded theory study (Komives et al., 2006), a leadership identity was found to develop in six stages, with periods of transition between each. As the developing self interacted with group influences, the students' view of the self with others changed, which broadened their view of leadership, all within the context of the developmental influences. The six stages are described here briefly.

In stage one, *Awareness*, there is recognition that leaders exist, and that they are other people, particularly adults. In stage two, *Exploration/Engagement*, there is a period of getting involved and experiencing groups. Students take on some responsibilities and get involved in a wide variety of groups. Motivation to be involved is largely based on friendships and belonging, but it is also a time when leadership skills were observed in others, laying the groundwork for one's own participation in leadership. In stage three, *Leader Identified*, groups are observed to have clearly distinguishable leaders and followers, based on whether one holds the formal leadership position. Students see themselves as leaders only when they hold a leadership position. During this time, participants become more intentional about the groups they choose to join, narrowing their interests and getting more deeply involved in just a few groups. Given the complexity of this stage, two phases were identified: an *emerging* phase in which students initially move into the stage and realize that new ways to relate to others in a

group and new leadership skills are needed. With experience, students gain confidence and take on leader and follower roles in various contexts and groups, indicating an *immersion* phase. During the immersion phase, students begin to show signs of readiness for the transition to stage four.

In stage four, *Leadership Differentiated*, students recognize a difference between being a leader and holding a leadership position. They realize that everyone in the group is dependent on everyone else, and that anyone can make a difference in the group, regardless of whether they have the leadership position. They realize that leadership is a process between individuals, not a position. Those who hold leadership positions will share responsibility and invite participation from others. Those who do not hold positions will look for the ways that they can best contribute to the group. This stage also has two phases, an *emerging* phase in which the student constructs leadership in this way and tentatively tries acting upon it, and an *immersion* phase where the student confidently practices leadership in ways that are congruent with this view of it. In stage five, *Generativity*, students come to see themselves as group “elders” with a responsibility to mentor younger members. They become committed to the causes they believe in and to the groups and people who address them. They choose groups based on alignment with their goals and values. In stage six, *Integration/Synthesis*, leadership is seen as a consistent aspect of the student’s self-concept. They are confident that they can contribute to new groups they may join (Komives et al., 2006).

A study at Texas A&M (Durham, unpublished) sought to further analyze the experiences of students who had reached stage four. Ten students identified as being relational leaders (stage four or higher) participated in a group interview and two follow-

up interviews. The researcher concluded that the students had several similar experiences. First the role of mentors was substantial and included both adults such as advisors and teachers, and peers such as other student leaders and friends. Second, the students had faced a significant challenge during the key transition to stage four. In fact, in some cases, the students seemed to have no option but to be more interdependent in their work with others. Students' beliefs about how to influence change and their ability to do so were affected by these experiences. Finally, students who had reached this LID stage all demonstrated the ability and proclivity to reflect on their experiences, process them with others and make meaning of the experience for their future approach as leaders.

As is true for most stage-based adult development theories, the point of transition between stages is important to note and understand. Transitions mark the point where the views held in the current stage are no longer useful for making meaning of a person's experience. For the LID model, the key transition is at the end of stage three, *leader identified*, in which students begin to value working interdependently with others rather than having a dominant leader with followers.

Although the categories of the LID theory describe distinct constructs, there is an interaction among them such that development in one category will influence development in another. For example, aspects of the *developing self*, such as self-awareness may lead to greater commitment to the goals of a particular group, influencing the *group influences* category. The combination of development in both of these categories may influence how one sees the self as being mutually dependent on others for success, which influences development in the *changing view of self with others* category (Komives et al., 2005). The interaction of the categories creates a leadership identity that

develops over time, in six recognizable stages. Each stage of the LID model is identified by growth in each of the above categories. To inform this Q methodology study, particularly the creation of card-sort items, the following tables were created. In the following tables, each stage is described in terms of the dimensions of the property indicated.

Table 2.1

LID Stage One: Awareness

LID Category	Description of Stage One
Broadening view of leadership	Leadership is attributed to an external other, adults are leaders.
Developing self	Little self-awareness or sense of personal identity. Are not motivated to be involved in organized activities other than those that are imposed on them by parents or teachers.
Group influences	Largely uninvolved in groups. Any membership in groups is based on friendships and wanting to belong, and tends to be short-term. Interests are broad.
Developmental influences	Certain adults contribute to feelings of being special or confident. Adults role model involvement and leadership, and convey social norms about how one works with others.
Changing view of self with others	Dependent. Students see themselves as dependent upon adults in their lives and in their involvements. Believe leadership is something adults do, not them.

Table 2.2

LID Stage Two: Exploration/Engagement

LID Category	Description of Stage Two
Broadening view of leadership	Leadership is attributed to an external other, adults and older peers are leaders. The leader are the people with control, who can tell followers what to do.
Developing self	Early motivations to get involved are based on interests and aimed at seeking friendships. Early involvement begins to build self-awareness, self-confidence and skills. Interpersonal self-efficacy grows. Begin to recognize their leadership potential, which is often reinforced by approval from adults and older peers, by being given special responsibilities or by being labeled a “leader.”
Group influences	Some desire to be involved in groups, defined as gatherings of friends. Any membership in groups is based on friendships and wanting to belong, and tends to be short-term. Interests are broad.
Developmental influences	Certain adults teach life lessons and hold the student to a high standard. Older peers act as role models, influencing learning through observation as well as increasing self efficacy.
Changing view of self with others	Dependent. Students continue to see themselves as dependent upon others, older peers now join adults as those upon whom they are dependent. Leadership is something adults and older peers do, not them.

Table 2.3

LID Stage Three: Leader Identified

LID Category	Description of Stage Three
Broadening view of leadership	Leadership is attributed to a hierarchical position. The person in the leadership role does leadership. When the student holds that role, they identify as a leader, otherwise they do not.
Developing self	Identify themselves as either “the” leader or “just” a follower. Can vary in different situations (here I am the leader, here I am not). They believe the follower’s role is to follow the leader. In some cases, the motivation to be involved is to be “the” leader, in order to have that identity. Others are motivated to be just a follower in order to avoid having the pressure of being solely responsible for a group’s failure.
Group influences	Aware of group structure and group goals. See groups as hierarchical organizations, aware of roles and processes to accomplish goals. Students recognize when a group’s mission and values align with their own and this becomes an important determinant of their participation. Students begin to narrow the number of group involvements and commit to a few that matter. For some students, one group becomes a core involvement.
Developmental influences	Adults act as mentors and coaches. Older peers with whom students can identify are increasingly important as role models, as students learn how to get goals accomplished in groups. Students learn to relate to more diverse peers. Learning leadership language to articulate their experiences facilitates student reflection on experience and beliefs.
Changing view of self with others	<ol style="list-style-type: none"> 1. Students feel independent when they hold a leadership position. 2. Students feel dependent when they hold a follower position. When in a follower role, they cannot do leadership. They believe their role is to be dependent on the leader. When in a leadership role, others cannot do leadership, the follower’s role is to be dependent upon them.

Table 2.4

LID Stage 4: Leadership Differentiated

LID Category	Description of Stage Four
Broadening view of leadership	Leadership is differentiated from the position of leader in the hierarchical structure. It is attributed to anyone who contributes to the functioning of the group. Leadership is an identity that one can ascribe to the self regardless of whether one holds a formal leadership position.
Developing self	Aware of the ability to make an impact with or without the leadership title. Learning teamwork, developing trust, learning how to develop talent in others. Are aware of being more aware of themselves than they once were. Experience working with diverse others leads to greater self-awareness and more confidence the ability to be effective in a diverse group.
Group influences	Understand how their group fits into a larger system and can begin to consider collaboration and seek coalitions. Commitment to a group has developed new skills – trust, working with people whose views are different from yours, learn to network and collaborate.
Developmental influences	Students turn to peers and adults as someone to reflect on experience with and make meaning of experiences.
Changing view of self with others	Students begin to become aware of the interdependence of people working together. The leadership role begins to be thought of as separate from one's identity as a person who does leadership.

Table 2.5

LID Stage Five: Generativity

LID Category	Description of Stage Five
Broadening view of leadership	Leader is any person who participates in the process of leadership. Being a leader is now a stable aspect of one's identity, rather than shifting depending on whether one holds a leadership position or not.
Developing self	Aware of the beliefs and values imbedded in their actions. Can articulate their passion for causes and long term goals. Awareness of values and strengths. Are aware of being an older member and feel a sense of responsibility to mentor younger members.
Group influences	See themselves as having a different role in groups now – not active in day-to-day processes, but serving as a mentor and providing history to younger more active members.
Developmental influences	Reflecting with and receiving feedback from adults and peers is recognized as valuable. Begin to serve as mentors to other peers. Are reflective of what their impact has been, and what will happen in their groups when they are gone. Are reflective of how their experience and leadership values will transfer to the next context.
Changing view of self with others	Students deepen their commitment to fostering a group that recognizes interdependence, all members of a group are depended upon (and therefore dependent upon each other) for the success of the group.

Table 2.6

LID Stage Six: Integration/Synthesis

LID Category	Description of Stage Six
Broadening view of leadership	Leader is any person who participates in the process of leadership. Being a leader is now a stable aspect of one's identity, rather than shifting depending on whether one holds a leadership position or not.
Developing self	Are aware of what they bring to new contexts are able to assess how to be most helpful. Are aware of having much to learn from others, and are committed to on-going self-development as a way of life.
Group influences	See the complexity of organizations across different contexts. Able to use this to determine how to be most helpful to the group. As they move on and choose new involvements, they seek to identify each potential group's mission and values.
Developmental influences	Students value being able to process experiences with others. In new contexts, they seek others who share their values around leadership, they seek out opportunities to get involved and make a contribution, and are very reflective of their ongoing leadership experiences.
Changing view of self with others	Students now recognize interdependence of groups in a system as well as of individuals in a group.

Alignment of the LID Model with Select Student Development Theories

Several of the key categories of the LID model are discussed in the student development literature. For example, the *view of self with others* key category is well explored in Chickering and Reisser's identity development theory in terms of movement from dependence to independence to interdependence (1993).

The LID model also has many alignments with Kegan's (1982) constructive-developmental theory as are described in Table 2.7. Since developing this theory, Kegan has examined constructive-development in the context of leadership development (2009).

Both sources are used in this table to explore the connections between Kegan's theory and the LID model.

Table 2.7

Comparison of Kegan's Orders of Consciousness and the LID Stages

Kegan, Orders of Consciousness	LID Stages (Komives et al., 2006)
	<p><i>1: Awareness</i></p> <ul style="list-style-type: none"> • Little self-awareness or sense of personal identity. Involvement is orchestrated for them by adults. They are learning social norms about leadership and behavior in relationships and groups from adult role models.
<p><i>Second Order of Consciousness (Kegan, 1982)</i></p> <ul style="list-style-type: none"> • A self-concept develops as children recognize they are individuals with their own characteristics. They begin to classify themselves or fit themselves into a "type" who belongs in certain groups with similar others. • Primarily, the pursuit of one's own interests rather than common interests with others dominate motivations. Actions are determined based on the context of one's own point of view, however, how others will react to their actions is of major consideration. 	<p><i>2: Exploration / Engagement</i></p> <ul style="list-style-type: none"> • Involvement in groups is motivated by personal interests and desire to be around friends. Early involvement builds early self-awareness and self-confidence – some may classify themselves as being responsible and the leadership type, based on positive feedback from teachers or from identifying with older peers.
<p><i>Third Order of Consciousness (Kegan, 1982)</i></p> <ul style="list-style-type: none"> • Individuals become able to put a common good interest before their own wants or needs. They are able to put aside what they want in recognition that another course of action would benefit a relationship or important other. • People now recognize that others have a perspective, and that they may need to find a common ground between 	<p><i>3: Leader identified</i></p> <ul style="list-style-type: none"> • Students who identify as leaders when they hold a leadership position are learning how to recognize that others have different needs and might be motivated in different ways. • Students who identify as followers believe that the follower's role is to follow the leader. They are able to set aside their own wants or needs in order to align with those of others in the group. A good follower does what the

Kegan, Orders of Consciousness	LID Stages (Komives et al., 2006)
<p>their own perspective and that of others.</p> <ul style="list-style-type: none"> Personal values, beliefs and ideals can now be thought of as constructed, or determined by the self. 	<p>leader says to do.</p>
<i>The socialized mind (Kegan, 2009)</i>	
<ul style="list-style-type: none"> People are shaped by the expectations in their environment. The sense of self is constructed by how it aligns and remains loyal to the people and ideas with which it identifies. Preserving this alignment is considered critical. 	
<i>Kegan's metaphor: getting myself included in the car so I can be driven</i>	
<p><i>Fourth Order of Consciousness (Kegan, 1982)</i></p> <ul style="list-style-type: none"> People become aware of the system they are using to make meaning. Through interactions with others who have different systems, they become aware of having one themselves. 	<p><i>Stage 3-4 Transition</i></p> <ul style="list-style-type: none"> Recognizing that a single leader cannot accomplish the goal alone, and that the perspectives and talents of others are valuable. Observing other leaders who are inclusive of contributions from the group rather than doing everything themselves contributes to a shift in the definition of leadership. Leadership eventually shifts from being the person who gets everything done, to a person who joins with others to accomplish a purpose that is shared.
<p><i>Fourth Order of Consciousness (Kegan, 1982)</i></p> <ul style="list-style-type: none"> Being aware of this system, and able to reflect upon it results in the ability to consciously create that system. Self-authorship, or the awareness that one is creating one's own life, emerges. Rather than simply having values, they can consciously reflect upon them and consciously consider how their values fit together. Deciding for themselves 	<p><i>4: Leadership differentiated</i></p> <ul style="list-style-type: none"> They are able to recognize that external relationships, like holding a position of authority, are not what determines whether they will have an impact on the group's functioning and goals. Rather this is something that they can decide for themselves to do or not do. Those without formal leadership positions are now prepared to put forward their own perspective to the

Kegan, Orders of Consciousness	LID Stages (Komives et al., 2006)
<p>when to disregard a value if it conflicts with a greater principle.</p> <ul style="list-style-type: none"> • Self-authorship creates a sense of identity that is on more solid ground, as it results from internal belief rather than external expectations. The person is more able to see that they have relationships rather than being defined by their relationships. <p><i>The self-authoring mind (Kegan, 2009)</i></p> <ul style="list-style-type: none"> • The person is able to separate the self from the social environment and create an internal set of criteria for judging situations and making choices. • The self develops its own belief system and is able to take a stand, set personal limits, and self-direct. • One's agenda may be conscious or unconscious. • The person's goals or plans may have many blind spots that go unexamined. <p><i>Kegan's metaphor: getting behind the wheel in order to drive.</i></p>	<p>group, even if it is not in alignment with where the leader or other group members were going.</p> <ul style="list-style-type: none"> • The realization that one can construct one's own meaning creates the desire to do so. Turning to peers and adults to reflect and make meaning of experiences becomes increasingly important. • Believing that every person in the organization, leaders and followers, have a valid, internal perspective opens up the need to be inclusive of input from everywhere in the group, not just the positional leaders. <p>5: <i>Generativity</i></p> <ul style="list-style-type: none"> • Reflecting and receiving feedback from adults and peers is valued. • They are aware of the system of values that leads them to their passions and desire to work with others toward shared goals. • The desire to continue work toward those goals leads to an emphasis on mentoring others.
<p><i>Fifth Order of Consciousness (Kegan, 1982)</i></p> <ul style="list-style-type: none"> • Relatively rare and not appearing until later adulthood (forties or beyond), the person becomes aware of their ability to see their whole identity system as object and are able to consciously create it and consider it in relationship to other systems. <p><i>The self-transforming mind (Kegan, 2009)</i></p> <ul style="list-style-type: none"> • The person is able to separate the self from his/her own set of criteria and be reflective of its limitations. • The person still has a filter for selecting information, but it a filter that he/she is capable of examining. • The person can now be aware that any 	<p>Focused on college students, LID did not examine development that may happen in later adult years.</p> <p>6: <i>Internalization/ synthesis</i></p> <ul style="list-style-type: none"> • A student at this stage could operate within the fourth order of consciousness. However some experiences in this stage may foster the transition to the fifth order. As students transition into new roles and new organizations, they may become increasingly aware that there is no one "right" way to do leadership. Rather than being paralyzed by lack of certainty, they would still be capable of operating from their approach to leadership, watching for signs when their approach may be incomplete.

Kegan, Orders of Consciousness	LID Stages (Komives et al., 2006)
<p data-bbox="331 233 688 300">single system is going to be incomplete.</p> <ul data-bbox="285 306 834 884" style="list-style-type: none"> <li data-bbox="285 306 834 411">• The person is aware that the world changes and what made sense today may not make sense tomorrow. <li data-bbox="285 417 834 590">• The person is capable of being comfortable and open with contradiction and can seek to hold onto many systems rather than projecting all systems onto one. <li data-bbox="285 596 834 768">• The self gains a cohesive sense of identity through the ability to not mistake consistency with completeness, and through integration of ideas rather than loyalty to one. <li data-bbox="285 774 834 884">• In addition to seeking information regarding their plan, the person seeks information about the plan. <p data-bbox="285 890 834 995"><i>Kegan's metaphor: capable of driving but aware of the possibility that one's map may be wrong.</i></p>	<p data-bbox="919 233 1365 373">They would be particularly open to feedback from others, seeking information that would reveal their blindspots.</p>

Follow-up Studies

Some scholarship has followed the initial grounded theory study. The qualitative study at Texas A&M (Durham, unpublished), in which 10 students participated in group and individual interviews has already been mentioned. Gonda, Jr. (2007) in her dissertation, sought to further explore the LID theory and model, with particular focus on the processes that women experience as their awareness of leadership abilities develops. The study used case study and life narrative research techniques with five subjects who were early to mid-career professional women who demonstrated a relational leadership approach. The study found some support for the stages described by the LID model, particularly stages two through four. A lack of evidence for the experience of stages five and six was thought to reflect that the subjects had no formal leadership education or

training. Although the subjects might have actually been operating from these last stages, they may have lacked the language to describe to the researcher their experience in ways that would be reflective of these later stages. The other major differences between Gonda's study and the original LID study (Komives et al., 2006) were regarding the key transition between the *leader identified* and *leadership differentiated* stages. In Gonda's study, the transition happened much later than for the subjects in the Komives et al. study, as much as ten years after college. It should be noted that the subjects of the original LID grounded theory were intentionally selected to be exemplars of the relational approach to leadership. It makes sense therefore that the subjects of that study had advanced to later stages earlier than did those in the Gonda study. Another finding of the Gonda study was that the subjects seemed to be able to simultaneously hold beliefs from these two stages – or in some cases the subject's approach depended on the context. Clearly more study of the experience of this key transition and what experiences facilitate it is needed.

A third research study using the LID theory and model focused specifically on the leadership development experiences of lesbian, gay, bisexual and transgender students (Renn & Bilodeau, 2006). Using grounded theory methodology, 15 LGBT-identified student leaders participated in interviews. The researchers applied the LID model to the findings. The researchers claimed there is more than sufficient data from their interviews to support the stages and developmental processes described by the LID model.

Finally, a large-scale, national study on college student leadership recently included several items relating to the LID model. Preliminary examination of the results indicated for those students who clearly scored in stage three and stage four, the stage

four students scored significantly higher on all eight measures of socially responsible leadership. The data suggested that having a non-positional definition of leadership and an interdependent approach to working with others contributes to the development of the values of socially responsible leadership (Komives, 2011).

Summary

The development of a leadership identity is a journey that is interwoven with cognitive development processes and identity development processes. Each person makes meaning of experiences with groups in ways that are both unique to them and connected to developmental level. The subjective nature of how a person defines leadership and how he or she constructs an identity as a leader presents a challenge to typical approaches to research. The next section describes Q methodology, which is particularly useful for finding patterns in the subjective, overall viewpoints of many subjects.

Q Methodology

The purpose of this study was to classify subjects into groups based on their overall viewpoint on leadership and to then compare those groups to the stages of the LID model. Q methodology was used to accomplish this. This section will describe some of the principles and assumptions of Q methodology that undergird the techniques that are described in the next chapter.

There are two statistical methods used to group subjects based on their responses, Q methodology and cluster analysis. Q methodology was selected in this case. Although there are some differences and similarities between the two options, one important difference is that the ultimate goal of cluster analysis is a resulting set of categories, such

that subjects in them have high within-cluster homogeneity and high between-cluster heterogeneity (Hair, Anderson, Tatham, & Black, 1998; Morf, Miller, & Syrotuik, 1976; Thomas & Watson, 2002). Cluster analysis assumes that subjects are associated with one cluster and not at all with others (Morf et al., 1976). The factors resulting in Q are more nuanced, allowing for the possibility that subjects might be moderately associated with more than one type (Morf, et al.). This is a very important consideration for a study validating a stage-based theory. Attempts to measure stage-based developmental theories have shown that subjects' attitudes that would be indicative of one particular stage will predominate, but the student will typically have at least some attitudes associated with earlier stages as well (Helms, 1990).

Q methodology is used to identify groupings of people or person types based on the comparable ways in which they make sense of the items given to them (Watts & Stenner, 2005). Subjects are typically given a number of statements and instructed to sort and rank order them into groupings indicating which statements are most like their point of view, most unlike their point of view, and which are either neutral or not relevant to the how they form an opinion on the topic of study. Then the data are entered such that the subjects are columns and the items are rows (an inversion of a typical factor analysis). In this case, Principal Components Analysis (PCA) was conducted at that point. This inverted PCA results in the identification of groups of subjects who ranked the statements in similar ways, rather than the more typical process of grouping items based on subjects ranking them in similar ways (Brown, 1980; Brown, 1986; McKeown & Thomas, 1988).

There are several aspects of Q methodology that have implications for every part of the research design. First, the sample, called the Q set, is considered to be the items

that subjects respond to. The population is the hundreds of statements that could potentially relate to the topic of study. Sampling is the selection of items from that population to include in the study. The primary objective of sampling is to provide enough breadth and variety of items in the sample that subjects can convey their unique point of view without being constrained by the researcher's point of view (Brown, 1980; Brown, 1986; McKeown & Thomas, 1988).

Most quantitative studies typically sample large numbers of subjects but use relatively fewer tests, Q methodology tends to have small numbers of subjects, called the Person-set, and more items (Brown, 1980). In fact it is typical for there to be more items than subjects (since the items represent the sample, and the subjects represent the measure). The goal of Q is to have more information about fewer subjects rather than a little information about many subjects (McKeown & Thomas, 1988). In fact, several Q methodology researchers argue that too many subjects can be problematic as complexity and subtle nuances can be missed (Watts & Stenner, 2005; Brown, 1980; Wingreen, 2000).

This is a typical summary of Q, but it is incomplete. Although many mistake Q methodology as simply a clever data collection technique and inverted factor analysis, Q represents a set of principles and assumptions that have important differences from typical research approaches. It has been described as a strategy that bridges qualitative and quantitative analysis (McKeown & Thomas, 1988), or that addresses some of the weaknesses of both qualitative and quantitative methods (Peterson, Owens, & Martorana, 1999). In fact, some describe it as *qualiquantological* (Watts & Stenner, 2005, p. 69) as they consider it a qualitative method with quantitative features. It is described as among

the first alternative methods to have been developed in the context of psychology (Stephenson, 1953).

Q methodology was developed by William Stephenson in the early 1930s. It was controversial and initially rejected by the field of psychology where it was originally introduced (Brown, 1997; Brown, 2006). However, as the field became more open to qualitative methods and to the social constructivist, critical, and feminist paradigms, Q methodology has been gaining ground once again (Watts & Stenner, 2005). There are examples of the method used in many fields within the social sciences, including communication, policy sciences, political science and philosophy, counseling and development, and many others (Brown, 1986; Jay, 1969; McKeown & Thomas, 1988). In fact, Brown (2006) described it as a methodology that was initially marginalized but is experiencing a “revival in interest” (p. 361).

There is fair criticism that many Q studies have not given attention to the grounding principles of the methodology, focusing instead on the techniques (McKeown & Thomas, 1988). It is my hope to avoid that error, so the methodological foundations of Q methodology will be described here.

Principles and Assumptions of Q methodology

The following sections address two major principles or axioms of Q methodology. Q methodology is contrasted with R methodology, which refers to the more predominantly used methods of correlation and factor-analysis to study relationships among objectively measured characteristics, traits, abilities, or attitudes. The term R technique refers to the use of Pearson’s product-moment correlation, r (Brown, 1980; Brown, 1986). The differences between Q and R signify fundamentally different

assumptions about epistemology and measurement that are important to understand the choice of Q for this study (McKeown & Thomas, 1988).

Operant subjectivity. R methodologies are useful for identifying the extent to which a person has a trait or characteristic, by using scales designed to measure that trait and comparing the subject's score on that scale. However, the use of the scale presumes that the traits being measured are objective characteristics that can be operationalized. In fact, in such studies it is an expectation that the researcher operationalize each variable under study during the process of creating the research plan. Before putting items before subjects of a study, the researcher defines the topic, determines which issues are the most salient in understanding it, operationalizes them, and in some cases creates factorially derived scales to measure the topic based on the operationalized definition (McKeown & Thomas, 1988). The aim of this process is *objectivity*, as care is taken to ensure that the research topic is defined in the same way for everyone (Brown, 1980).

McKeown and Thomas (1988) describe Q as providing researchers, "a systematic and rigorously quantitative means for examining human *subjectivity*. From the standpoint of Q methodology, subjectivity is regarded simply as a person's point of view on any matter of personal and/or social importance" (p. 7). Stephenson referred to Q methodology as *operant subjectivity*. The intention is to allow the respondent to express a subjective point of view operantly or in a way that is interpreted afterward rather than before (Brown, 1986). The respondent operationalizes the topic, from his or her own subjective perspective, rather than the researcher's.

Stephenson described the difference this way, in R, a sample of individuals has been measured by certain tests; in Q, a sample of tests has been measured by certain

individuals (Stephenson, 1935). The difference in the action verb illustrates the critical difference in the operant approach. The subject is not acted upon, but does the acting. The meaning of a set of items is not determined until after subjects have ordered them from their own viewpoints (Brown, 1986; Brown, 1997). Even in cases where both the items provided and the subjects chosen are determined based on a theory, it is still quite possible for an entirely different factor model to emerge than the theory would predict. Brown provided multiple specific examples of this very phenomenon occurring. For example, a group culture theory related to how people think about risk was used to create the Q set items in a doctoral dissertation studying people's viewpoints on wildfires, for subjects who live in areas that are prone to them (Danielson, 2007). This theory would predict four types of approaches, which are based on the extent to which the society is egalitarian or caste system based, and the extent to which ingroup-outgroup boundaries are distinct. The factors resulting from that study did not resemble those predicted by the group culture theory. The factors, instead, related to how closely wildfires are connected to each person's way of life.

The aim of Q technique is to collect the respondent's subjective impression of the research topic – the subject's unique way of defining the topic (Brown, 1980). Even though subjects are limited to the items provided, they are able to create a model that conveys how they uniquely construct the topic, by using only the items that have salience in the formation of their point of view. "It is one thing to 'put' something to a subject, as in the form of scale items; it is quite another to allow the subject to speak for himself" (Brown, p. 44-45). Brown (2006) described it as a particularly useful methodology for being able to gather perspectives from marginalized populations, as the process allows

the subjects to construct meaning from their own self-reference rather than simply responding to the meaning held by the majority or dominant group.

A series of studies on the effect of international study abroad on student attitudes provides an illustrative example (Sell & Craig, 1983). Previous studies, that sought statistically significant increases or decreases in specific, operationally defined attitudes such as ethnocentrism and “worldmindedness” (p. 27) concluded that study abroad had no effect on student attitudes. However, five Q methodology studies were able to demonstrate changes in student attitudes toward their own and other cultures. Students responded to the same Q methodology items prior to travel, during, and at the end. The ability of students to subjectively describe their own attitudes toward their host country, host nationals, and their own culture, rather than responding to the researchers’ definitions of these items was described by the researchers as a key factor in the ability of these studies to better describe how study abroad was affecting students.

Subjectivity is always self-referent. Q methodology is based on the premise that subjective points of view always come from a position of self-reference, the person’s “internal” frame of reference (McKeown & Thomas, 1988). Much of the Q methodology technique, including data collection and analysis, is aimed at ensuring that the assumption of self-reference is not compromised. It is essential that the researcher’s own frame of reference regarding the topic of study is not introduced in the attempt to measure it (McKeown & Thomas). It is up to the subject “to decide what is ‘meaningful’ and hence what does (and what does not) have value and significance *from their perspective*” (Watts & Stenner, 2005, p. 74).

In the R tradition, it is typical for the researcher to narrow the definition of the topic of study so that it can be operationalized into measurable variables. Sometimes the researcher uses a factor analysis process to reduce a list of survey items to find a select few that measure a latent variable. In Q methodology, the subjects do this. As wide a variety of items as possible is given to the subjects and it is up to them to choose the items that define the topic in the way that they would. Because subjects not only agree and disagree with items, but also respond to many of them neutrally, the subjects also do the item reduction, selecting the few statements that are most important to them to describe the topic being measured.

Measurement understood in context. In order to achieve objectivity in measurement, many of the techniques used in R methodology are focused on breaking down a phenomenon into its component parts and analyzing the relationships among them. The researcher wants to examine only the concept at hand, with other conditions or influences held constant. In contrast, the goal of Q is to understand the respondent's subjective viewpoints on the phenomenon, with the assumption that the component parts interact and affect each other such that they cannot be partialled out and studied separately. Q methodology examines the subjects' overall viewpoint, in its wholeness, in relationship to other subjects' overall viewpoints in order to uncover a structure that describes types of subjects (Brown, 1980).

This principle is illustrated in the data collection techniques used in Q. Rather than having subjects rate their level of agreement with each statement independently from the others, as a typical Likert scale survey would do, the Q sort technique requires subjects to respond to each item in the context of the other items. The differences that

distinguish one factor from another can only be understood in context of all the items with each other, not simply by identifying the placement of one or two statements in isolation of the others (McKeown & Thomas, 1988). This is described as a more holistic approach than other research methods, as it does not break the topic of study into themes, but shows how the subject constructs how the issues are related to each other (Watts & Stenner, 2005). One might say it lets the subject construct the themes, and then finds groups of subjects who construct the topic in the same ways.

A study examining how women graduating from law school constructed their social identities is a good example of this principle (Marshall, 1991). Previous studies had been unable to examine the intersection of gender and other social identities (such as race, age, or social class) as they related to the law school experience. An existing three-factor theory of social identity was being tested to investigate the ways in which gender identity is moderated by membership in other groups. In the Q methodology study, eight factors emerged, representing points of view that varied in terms of both social identity salience and positive or negative association with one's gender identity in the context of doing one's job as a lawyer. One factor emerged in which class was a more salient issue than gender in the context of the legal profession. Several factors emerged that described a positive association with the social mobility achieved by being part of the legal profession, interacting with gender identity in different ways. The three-factor theory of social identity being studied was described as being a less than comprehensive description of the many ways social identity might be constructed.

Generalizability

Generalizability, or external validity, refers to the extent to which the findings can be generalized beyond the study's particular circumstances to the larger population (Krathwohl, 2004). In R, this is accomplished by through subject sampling, considering both the size and the type of sampling procedure (Krathwohl; Thomas & Watson, 2002). It is on this basis that Q methodology is sometimes critiqued, because of the small number of subjects typically used and the use of nonrandom sample selection. (Brown, 1980). Although it is fair to counter that in Q, the items are the sample, and thus by comparison, it would seem that if R studies ask a few questions of many subjects, it is legitimate for a Q study to ask a few subjects many questions (Brown; Stephenson, 1953). However, the claim that a study is either generalizable to the larger population or it is useless remains (Brown).

Defenders of Q methodology respond by distinguishing between two views on generalization (Brown, 1980; Stephenson, 1953; Thomas & Baas, 1993). Thomas and Baas described this as the difference between "Generalization To vs. Generalization About" (p. 21). Generalization pertaining to "statistical inference" (Thomas & Baas, p. 22) refers to testing of random samples to make inferences about the larger population. Q is concerned with "substantive inference" (Thomas & Baas, p. 22) or generalization about the viewpoint of different types of people on the topic. Stephenson described Q as not being about predicting but about understanding (Stephenson, 1953). Put another way, "generalizations" in Q refer to being able to infer that certain types of people exist in the larger population and that the factor structure explains the subjective values behind their point of view. We can know that this type of person exists and we can make generalizations about how that type of person thinks about the topic of the study.

The important difference is that Q makes no generalizations about what proportion of people belong to each type, as R would (Brown, 1980; Thomas & Watson, 2002;). If in a Q study, only two subjects factored into a certain type, while many factored into others, it is not appropriate to generalize that a smaller percentage of the population of people belong to that type. Q makes no claim to have exhausted every possible type – every possible way that people view the topic of study, only that the factors that were found do indicate a perspective that exists in the general population and can be described in order to understand that type of person. What the Q study accomplishes is a greater understanding of how the people within each resulting factor construct their attitudes in comparison and in contrast with those in other factors. It is possible to understand the issues that shape their view (McKeown & Thomas, 1998; Stephenson, 1953). The number of subjects within each Q factor would not be a relevant or generalizable piece of evidence, as the lack of random selection negates the ability to generalize any assumptions about the number of people in the general population who hold that particular view on the topic.

It is rarely necessary in work of this kind to obtain large numbers of each type; five or six persons loaded significantly on a factor are normally sufficient to produce highly reliable factor scores, and it is in terms of the relationships among the factor scores that general statements about an attitude are made. (Brown, 1980, p. 67)

Despite emphasis on sampling size and random sampling related to external validity or generalizability, Krathwohl (2004) described replicability as the heart of external validity. Several Q studies have also addressed the issue of replicability in order

to address external validity of the method. For example, one study (Thomas & Bates, 1993) found that two different Q studies on the same topic, using different P sets and Q sets, resulted in the same factor structures (it found the same types of people). In addition to replicability across P sets and Q sets, another study (D'Agostino, 1984) addressed whether judgmental rather than objective (like varimax) factor rotation is replicable. As described above, the study found that the same data, rotated by two researchers who were guided by different theories had very similar results.

Social Desirability and Acquiescence

Related to validity are issues that arise when, for any number of reasons, subjects' responses to items are for reasons different than the intent of the measurement. One example is social desirability. Some individuals may be motivated to present themselves in a light that they perceive to be more socially acceptable. Another example is acquiescence, which describes a tendency in some subjects to respond to items in the affirmative - in other words, if items are worded differently such that an affirmative response indicates a different opinion on the topic, these respondents will still answer in the affirmative (Tourangeau, Rips, & Rasinski, 2000). In any study of human behavior, R or Q, the subject's responses are not always automatically accepted as a factual report (Brown, 1980), "Individuals are notoriously adept not only in deceiving others, but themselves as well" (p. 122).

The format of the Q sort continuum, which limits the number of items that can be placed under the "strongly agree" and "agree" distribution markers helps to address issues of acquiescence. Although subjects may want to agree with many of the items, they are required to give further consideration to the items with which they agree MOST.

The continuum format is also said to be useful in curbing the influence of social desirability (Edwards, 1957).

Conclusion

This chapter has reviewed the literature related to leadership and leadership development, and the literature on student development theory that can inform leadership development. It has described the LID model itself in detail and provided some of the important principles and assumptions of Q methodology. The next chapter will describe the methodology used to collect the data for the study.

CHAPTER THREE: DATA COLLECTION METHOD

This chapter describes the methods used to conduct this validation study of the leadership identity development (LID) model. First, the purpose of the study, research design, and description of the LID model will be briefly revisited. Then, the research methods will be described in depth, following the accepted steps of a Q methodology study. Finally, issues involved in measurement will be addressed, particularly how they differ slightly when using Q methodology, including reliability, validity, and assumptions about generalizability.

Purpose of the Study

The purpose of this study was to confirm or disconfirm the leadership identity development model through a factor analysis process. The study was intended to determine if subjects could be grouped, based on their descriptions of leadership, into factors that resemble the stages of the leadership identity development model (Komives, et al., 2006). The study used Q methodology for data collection and statistical analysis to classify subjects into groups based on the way they conceptualize leadership from their own subjective point of reference. The composite descriptions of leadership from each resulting factored group were compared to the descriptions of each LID stage to determine whether the evidence supported the descriptions of the LID model stages. Further, the age, class standing and leadership experience of the subjects classified into each grouping were examined to determine if the evidence supported the sequential order of development described by the LID stages.

Research Design

The overall goal of each aspect of the research design, in keeping with the principles of Q methodology described in the literature review, was to collect and analyze data in a way that minimized the influence of the researcher's frame of reference, so the respondent's own subjective, internal frame of reference would be revealed for interpretation. The methodological process for this study followed the established process of Q methodology study design (McKeown & Thomas, 1988), including: develop the items for the card sorts (Q set), identify the subjects (P set), and gather the data through card sorts. The card-sort process is the preferred method for data collection in Q methodology. Subjects are provided a set of cards with a statement on each. They sort the cards into piles indicating the degree to which they agree or disagree with the item on the card. These sorts are then recorded for statistical analysis that identifies the subjects whose card sorts are similar to each other. The statistical analysis will be described in Chapter Four. Since the technique involved in a Q methodology study varies from a traditional quantitative study, the traditional headings used in a methods chapter have been replaced with headings that reflect the steps involved in Q methodology.

The Leadership Identity Development Model

The model of leadership development being confirmed here was developed from a grounded theory study (Komives et al., 2006). The study investigated the development of a relational approach to leadership. The model includes six stages, summarized in Chapter Two, that describe an increasingly complex way of perceiving one's role doing leadership with others, and a broadening definition of leadership and who does it.

Q Methodology

The principles and assumptions of Q methodology are reflected in the techniques that are fundamental to the Q methodology. This section describes those techniques and the methods used in this study. These include: the creation of the Q set, the P set, and the administration of the Q sort to subjects.

The Q Set

In Q methodology, the sample, referred to as the Q set, is the collection of items to which subjects will respond (Brown, 1980). The population refers to the innumerable statements that could potentially relate to the topic of study. Sampling then, is the process of choosing which items from the population to include in the study, that would allow the subjects to convey their unique perspective on the topic without being constrained by an external point of reference (the researcher's) implicit given the items available to describe that perspective. Brown described Q set selection as more an art than a science, while still maintaining a guiding structure of scientific principles.

Brown (1980) addressed the importance of paying attention to language and style in creating items that will allow the subject to express a point of view from a self-referential position. Standardized and conventional ratings scales are not preferable as they represent an external frame of reference on the topic of study. One way to address the need to have stylistically as well as topically appropriate items was described in McKeown and Thomas (1988) as a *naturalistic* Q set type, in which Q samples are statements taken directly from the subjects, either through prior interviewing or from written narratives. The benefit of naturalistic Q samples is that they reduce any risk of respondents' confusing the meaning of the item or attributing meaning based on external

frames of reference. Brown clearly prefers the naturalistic approach when it is an option, favoring as little “tampering” (p. 190) by the researcher as can be helped. “Although edited, Q items are in no way revamped, as is done with scale items, so as to eliminate the kinds of ambiguities, conflicts, and inconsistencies that naturally occur in ordinary language” (Brown, p. 70).

The sample of items for this study was developed as a quasi-naturalistic item-set. Statements were drawn from interviews, but not from the subjects of the study at hand (McKeown & Thomas, 1988). In this case, statements were taken from transcripts of the interviews conducted with students in the grounded theory study that resulted in the LID model (Komives et al., 2005). Although keeping the goal of maintaining college students’ language as much as possible, most statements needed to be altered somewhat, whether to change from past to present tense, or to remove specific examples and replace with more general representations.

As has been described, a Q set should not be limited by the researcher’s own subjectivity on the topic, but be inclusive of as many points of view on the topic as possible (Brown, 1980; Watts & Stenner, 2005). Obviously it is not feasible to account for every possible representation of the topic that exists in the Q population. The aim in sampling is always to be as broadly representative as possible (Watts & Stenner, 2005) in order to, “ensure a reasonably comprehensive and representative selection of a particular population of stimulus elements” (McKeown & Thomas, 1988, p. 36). Brown recommends a structured sampling procedure to achieve this goal. This procedure was used in this study and will be described in Chapter Four.

McKeown and Thomas (1988) described two basic techniques for Q sampling: unstructured and structured. *Unstructured* sampling involves including any items assumed to be relevant to the topic of study, without making special effort to cover all possible aspects of it. This design runs the risk of introducing bias into the sample because some components of the issue will likely be oversampled based on the researchers own frame of reference about the topic. *Structured* samples on the other hand, are composed systematically based on theory. In a typical study, the theory would provide the basis for defining the topic and operationalizing the variables. In Q methodology, however, the theory provides the basis for an expansive number of items. It helps identify as many different possible responses as the theory might realistically suggest.

Although there are inductive design options, a deductive structured Q sample is a particularly good fit for the theory testing in this study. Typically, each point of view suggested by the theory is represented by a certain number of Q set items (Brown, 1980). Brown provided an example from a hypothetical study testing a theory with four different ways of viewing love. The researcher might select 10 items that represent each point of view, indicating a Q set with 40 items in it. Brown described this as a cell for each view in the theory being tested, and 10 items per cell. Further, Q sampling emphasizes the principle of heterogeneity within each cell, or which is aimed at producing the greatest amount of variety of statements from the Q population to be used in the Q set. This principle means the ten items about love to be included in each cell should be statements that are the most different from one another. A typical approach is to create many more

items per cell than will be needed and then select the items that are most heterogenous. That is the process that was used in this study.

Specific item statements were acquired by reviewing the work of the original LID research team. From the grounded theory study (Komives et al., 2005) the research team created a spreadsheet on which individual statements from the interview transcripts were coded by the LID stage each statement represented. To select statements for this study, the spreadsheet was sorted by LID stage in order to select items that represented a diversity of statements within each stage.

Since the LID model has six stages, the structured sampling had six cells. Initial sampling had approximately 30-40 items per cell, oversampling so that the items within each cell that were most different from each other could be selected. In the case of this particular model, many items are representative of more than one stage. For example, several statements address attitudes toward hierarchy. Stages one through three all have the same preference for hierarchy. So those items were noted as falling into multiple cells. However, each stage was intentionally given at least four items that would solely fit within that stage.

At this point, the LID theory and model provided a helpful way to systematically guide the item selection process. Tables 2.1 to 2.6 in Chapter Two, which described the perspective of each stage by the LID theory dimensions (broadening view of leadership, developing self, group influences, developmental influences, and changing view of self with others) were helpful ways to consider the items. Initially, items were selected such that each cell had a statement representing each dimension (and when applicable, statements representing multiple views based on that dimension). The final Q set does

not have an item reflecting every dimension in every stage as the final item selection process found some of these to be redundant. However, using this system proved to be a useful way to make sense of the unwieldy number of potential items available from the grounded theory spreadsheets.

Another useful systemic way of reviewing the potential items was to review the items in light of whether they represented a philosophical opinion about leadership in general, an opinion about what good leaders should be like, or a description of what the subject is like when doing leadership. Making sure that these types of items were evenly distributed across cells was another way to feel confident that each stage was being represented by as much variety as possible.

Once the statements in the Q set were reduced to a manageable but not final selection, the input of others was desired to ensure the greatest possible variety of statements for each stage were being included and not simply my perspectives on each stage. The members of the 2005 LID research team as well as leadership practitioners familiar with the model were asked to provide an expert review of the items. Each reviewer was given the list of 74 items and asked for two sets of feedback. First, in order to confirm that all the stages of the model were equitably represented by the available items in the Q set, reviewers were asked to indicate which LID stage he or she believed each item represented. This feedback was entered into a matrix and examined to be sure that each LID stage had at least four items that were a clear representative of that stage's perspective. Second, reviewers were asked to suggest additional items that would provide further variety of items within each LID stage. Some particularly helpful advice was collected regarding items to represent the transitions between stages as well as the

stages themselves, and these items were added to the pool. Since the stage three to stage four transition is identified as the key transition in the model (as it represents a shift to interdependence and non-positional definition of leadership), this resulted in a greater number of items in these cells than in the others.

The total number of items to include in the Q sample was carefully considered. In Q methodology, it is not a large number of subjects or random sampling that lends validity to a study, but a sufficiently diverse set of items such that the widest possible perspectives from the population of items have been represented. There is general agreement that between 40 and 80 statements is a good number of items (Brown, 1980; Watts & Stenner, 2005). In the end, 64 items were selected. Each was assigned a random number using a random number generator (www.randomizer.org). See Appendix A for the items.

The P set

Q methodology does not rely on large random samples, but on a relatively small Person-Set that is intentionally representative of the topic of study. In this case, the goal was to select subjects that would represent the six LID stages (at least 5-6 subjects per stage), as well as a diversity of experience engaging in leadership and exposure to leadership education. A diversity of gender and race/ethnicity was also preferable in order not to bias the results because of any differing perspective on leadership that might be linked to social identity.

As has been mentioned, the sample in Q is the set of items, or Q set. The creation of the Q set often receives the most attention. However the person-sample is important as well. The number of subjects to use in the P set is a subject of controversy. Some

scholars claimed minimum required sample sizes are required or that there must be a required ratio of subjects to items (Pallant, 2005). Others argued that the number of items in the Q set must be at least twice the number in the P set, plus two (Thompson, 1981) in order to have a more stable estimate of the relationships between subjects, and thus more stable factors extracted from that matrix. (Thompson). Although guidelines like these are cited in research textbooks, many Q methodology researchers claimed this is a more complex issue that depends on the nature of the study. A primary consideration of these researchers is how high the communalities are. Communalities indicate how similar each subject's card sort is to the other subject's sorts. A low communality indicates that subject sorted the items very differently from other subjects. So when the subjects' communalities are higher, at least .7, that indicates that the subjects card sorts were more similar to each other, so the influence of the size of the sample decreases (MacCallum, Widaman, Preacher, & Hong, 2001).

Stephen Brown (April, 23, 2009, personal communication) argued that the typical conventions indicating the number of subjects necessary for the study do not apply to Q. In Q studies, items and subjects are not independent. Subjects are not chosen at random, but are intentionally selected to represent heterogeneity along the theory being explored. It is not the size of the P set that is an indicator of the strength of the study, but high communalities. Brown argued that even though a large number of subjects is statistically acceptable, this is unnecessary from a practical standpoint. Having more people load on a factor does not make it more credible, "in such a study, one quickly reaches the point where the testimony of great numbers of additional informants provides no further validation" (Benedict, 1946 as cited in Brown, 1980 p. 194). Brown acknowledged that

additional subjects do help assure that multiple perspectives that might create an additional factor have been included, but argues that “no more than 40 [subjects are necessary] to assure the comprehensiveness of the factors and the reliability of the factor arrays” (p. 92).

In a personal communication, Brown (April 23, 2009) suggested that 5-6 people per factor are enough to have clear estimates of the factor loadings, and that having communalities that are high is a more important indicator of the stability of the factors. For this study, it was determined that because there could be as many as six factors, one for each LID stage, to estimate 6 people per factor, at least 36 subjects would be needed.

Pilot test. The Q set items were printed onto a set of cards, such that each item appeared on its own card, with the random item number printed on the back of the card to enable subjects to record their completed sorts. Five subjects, identified by a nominator as representing LID stages 3-5, were selected to pilot test the card-sort process (details of the card-sort are described below). The pilot test provided the opportunity to practice and refine the way the card-sort process was communicated to address subjects’ questions or uncertainty. After completing the card sort, subjects were asked if any items were confusing or unclear. None were mentioned by any subjects.

Selecting subjects. The selection of subjects for the P set was intentional and systematic (Brown, 1980). The subjects in a Q study should be selected because they are theoretically relevant to the topic of study (Brown; McKeown & Thomas, 1988). Brown recommended a factorial structure for the selection of the P set.

The design of P sets is intended to serve as a formula for purposes of selecting persons expected to have viewpoints pertinent to the problem under investigation.

As a general rule, the Q sort is administered to persons who, on a priori grounds, are expected to define a factor. Whether they in fact do so or not is an empirical matter brought to light by factor analysis (Brown, p. 194).

By using a factorially designed process for selecting the P set, the researcher is being clear about his/her criteria to sample people that are of interest given the theory being tested. Additionally, the characteristics of P set selection can be used during data analysis and factor interpretation (McKeown & Thomas, 1988).

As with the Q set, heterogeneity within each cell was the guiding principle for selecting the P set. For example, for this study it would be a goal to have the gender diversity be balanced. It would be possible for the entire P set to be 50% women and 50% men. However, if all of the women subjects are those estimated to be in LID stages 5 and 6, that could affect the validity of the study. The factorial process is intended to ensure that the diversity of subjects desired is spread across the categories of the theory being tested. Although Brown (1980) suggested that it is ideal to include subjects that represent different social classes, genders, and ages, he also was clear that it is not necessary to achieve a completely balanced P set. In this study, care was taken to find subjects such that each cell represented people of various backgrounds. Given the LID researchers' interpretation that women and students of color may experience the LID stages differently (Komives et al., 2009), diversity by gender and race was an included aspect of diversity within each cell in addition to leadership experiences, leadership education experiences, age, and class rank.

Subject nomination. Data was collected primarily at the University of Nebraska, University of Maryland, and George Mason University. These institutions were selected

for several reasons. Primarily, I had good relationships with the leadership educators at each one and trusted their familiarity with the LID model. Second, these institutions had a convenient geographic location given where I was residing at the time. Finally, they introduced an element of heterogeneity within cell based on whether LID was explicitly being used at the institution or not. Leadership educators at the University of Maryland are using the LID model to intentionally design their programs and courses, in fact some of the graduate student subjects there already knew the model. But educators at the University of Nebraska and George Mason University are not yet using LID in program design.

To select students for the study, leadership education practitioners were asked to suggest students and recent alumni they believed demonstrated the various stages. In some cases, additional student affairs practitioners (particularly at the University of Nebraska) who were not familiar with the LID model were nominators as well. In these cases, nominators met with me in person to go over the stage descriptions (including a handout) and talk over some of the students they would nominate and what behaviors or beliefs the students had that suggested a stage to the nominator. Through a collaborative process in which the nominator described the student and the research described the LID model, several subjects were nominated that I felt confident represented the stage indicated. To include subjects representing later LID stages, some leadership educators, and university and community leaders were selected to be subjects as well.

At this point in planning, the subjects representing stages one and two were combined into a single cell. Although the LID model is not age-specific, students would be expected to be operating from stages one and two in elementary school through high

school. Because the Q set items were based on college student quotations, elementary school subjects would be unlikely to make meaning of the language used in many of these items. Nominators were asked to suggest junior high school students that exhibit aspects of a LID stage one perspective, such as involvement being limited to groups that parents or teachers required them to participate in. However, it was recognized at this point that there would not be a sufficient set of subjects to fill a P set cell for LID stage one.

To include subjects representing earlier stages, members of community youth groups including a 4-H club, Rainbow (a Masonic organization for young girls), and a church youth group in Northern Virginia were contacted. The same collaborative process between nominator and researcher helped identify subjects that represented some aspects of LID stage one, and other subjects that seemed to clearly represent LID stage two.

In addition to identifying subjects by LID stage, nominators were asked to help identify students representing diversity in terms of: amount experience with leadership, type of leadership experience (e.g., student governance, orientation leaders, sports teams, student organization leaders), participation in leadership education, gender and ethnicity. Although the subjects indicated this information for themselves during the data collection process, acquiring this information from nominators helped to plan data collection, particularly toward the end of the process when it was clear that more subjects of a certain type were needed to provide heterogeneity within each cell. The communication used with these nominators is provided in Appendix B, however in-person communication followed to ensure understanding of the LID stages and the subjects that were needed.

As subjects were nominated, their names were entered into a matrix to monitor the diversity of subjects within each LID stage. An on-going, iterative process emerged to determine which of the nominated subjects provided the representation needed in each cell. These subjects were then contacted by email to participate in the study. The language of that email is included in Appendix C.

The Q Sort Design

With both the P set and Q set established, the remaining decisions were related to the range and curve of the continuum on which subjects could sort their cards during the Q sort process. Typically, along with the Q set items on cards, subjects are seated at a table with distribution markers of the continuum being used, for example -5 to +5 to represent the range of strongly disagree to strongly agree. The number of cards that subjects can place at each distribution marker is limited by the researcher.

The range, or the width of the continuum, should generally be greater with a larger Q set, such as the one in this study. Brown (1980) provided a general rule that for Q sets with fewer than 40 items, a range of +4 to -4 is used. For up to 60 items, a +5 to -5 range is used. Given that this study had 64 items in the Q set, the +5 (strongly agree) to -5 (strongly disagree) range was used.

To determine the number of items allowed in each pile along the continuum, Brown (1980) indicated that the criteria for this decision should be based on the subject matter of the study. If the respondents are expected to be relatively uninformed or uninterested in the subject matter, a normal distribution curve is appropriate, as subjects will likely have few strong opinions and therefore many statements in the middle of the range. However, with controversial issues, fewer of the Q set items will provoke a neutral

reaction, so a more flattened distribution should be used. Given that for most people, leadership is not a controversial topic, a normal distribution curve is an appropriate determinant of how many items should be included per distribution marker. See Table 3.1 for the number of items allowed to be sorted at each point along the continuum. For example, students could select only three items with which they most strongly disagreed. They could place eight items into the completely neutral (0) pile.

Table 3.1
Card Sort Distribution

Score	-5	-4	-3	-2	-1	0	+1	+2	+3	+4	+5
# of cards	3	4	6	7	8	8	8	7	6	4	3

Q Sort Process

The Q sort involves sorting the Q set items (printed individually onto cards) into piles that represent a continuum of strong agreement to strong disagreement. The aim of the Q sort is to allow the subject to model his or her own point of view on the topic of study by rank-ordering the Q sample items along a continuum. The *conditions of instruction* are what guide this process, focusing in on specifically what the researcher wants to know about the subject's point of view (McKeown & Thomas, 1988). For example, the conditions of instruction might have the respondent, "sort the items according to those with which you most agree (+5) to those with which you most disagree (-5)" (p. 30), or they might be, "sort the items according to those that are most like object/person X (+5) to those most unlike that object/person (-5)." (p. 30). For this study, subjects were asked to sort the items by those with which they most agreed to those with which they most disagreed.

Brown (1980) stressed that “psychological significance” (p. 198) is the important dynamic that the Q sort process facilitates. Through the sorting process, subjects are not only indicating their agreement or disagreement, but also which items are most salient or significant to their point of view given the conditions of instruction. It is for this reason that most Q sort continuums range from “most” to “most” rather than from “like me” to “not like me.” The absence of a characteristic is very different from a strongly felt negative viewpoint. Stephenson clearly indicated that it is important that the 0 marker on the continuum represent items that do not matter or are not salient to the issue being described (1974 as cited in Brown, 1980). Brown explained that this issue is essential in correlation theory, as means are assumed to be equivalent. McKeown and Thomas (1988) pointed out that this aspect of the Q sort also serves to create a common unit of measurement, “self-significance” (p. 48) which is necessary to be able to conduct meaningful factor analysis.

Data Collection

Human Subjects Review Board protocols were strictly followed. Before beginning with the Q sort process, subjects were provided a Consent Form (see Appendix D). The researcher verbally explained the background and purposes of the study, what they could expect from participation and what steps would be followed to maintain confidentiality of the Q sorts and survey data. For students who were minors, parents completed a Parental Permission Form (Appendix E) and the participants themselves completed an Assent Form (Appendix F), along with the same verbal explanations about participation in the study.

The instructions for the card sort process followed the procedure described in Brown (1980) and McKeown and Thomas (1988). Each subject was given a set of cards with the explanation that quotes from other students about leadership were printed on each card. Subjects first reviewed all the cards. Then they divided the cards into three piles: agree, disagree, and neutral (either do not know or simply do not care about). At this point, a set of continuum markers in the form of large cards indicating the value of each pile and how many cards were allowed in that pile were placed on the table. For example, the card farthest left on the table read, “-5 (3 cards).” The card just to the right of it read, “-4 (4 cards).” The card farthest to the right read, “+5 (3 cards).” Additional cards were placed above the +5, -5 and 0 continuum markers that read, “I strongly agree,” “I strongly disagree” and “neutral/I don’t care.”

Subjects were then instructed to examine their agree pile, choose the three items they most strongly agreed with and place them under the +5 marker. Then, they turned to the disagree pile to choose the three items they most strongly disagreed with. Then, they returned to the agree pile, and of the remaining cards, chose the four they most strongly agreed with. This process continued back and forth until they had eight remaining cards, which they felt neutral or did not care about. These were placed under the 0 marker. At this point, subjects were free to review their Q sort, move items around at will, until they were satisfied that the sort represented their view.

Subjects were given three reminders before beginning. 1) There are no right or wrong answers and the model being tested does not have a “good” or “bad” kind of leader, just different ways of thinking about it. 2) Some items are opinions but others describe one’s own leadership. For the latter, it is important to try to be thoughtful and

honest about one's real rather than ideal self as a leader. 3) The numbers on the backs of the cards were randomly assigned by a computer, so there is no pattern to them.

Subjects were told that the continuum had no fixed point where "agree with" items become "disagree with" items. The placement of all items was in relation to their other items. Some subjects had quite large "agree" piles after the initial three-pile sorting process. Some of these "agree" items therefore ended up under the -1 range markers. It was emphasized to these subjects that this does not indicate disagreement, just that everything to the right has stronger agreement.

Subjects were able to complete the card-sort process in 30-45 minutes. It is interesting to note that in general, the pre-college students completed the card-sort faster than the other subjects did. Some subjects met with the researcher individually for this process, but in some cases two to four subjects completed the Q sort process at the same time, each with their own set of Q sort cards and range markers.

Once respondents completed the sort, the cards were turned over and each item/card number was entered onto a Q sort report form (see Appendix G). Some subjects entered the item numbers on the form themselves and in other cases I did it for them while they completed the survey.

Survey Items

After completing the card-sort, subjects received a two-part survey (see Appendix H). The first part gathered information regarding gender, race/ethnicity, age, class standing, and experience with leadership roles and leadership education. Age and class standing served as proxy-indicators of maturity, and leadership experience and education were measures to indicate the extent to which the subject had opportunities for leadership

development. These data were collected in order to have information that could confirm the developmental sequence of the stages. The language for these items was an adaptation of the Multi-Institutional Study of Leadership questionnaire (unpublished).

To indicate experience with leadership and leadership education participants both self-reported their level and verbally described to the researcher examples of their campus or community involvement. These two indicators were later combined into a single score on a scale of 1-5 to represent little to high involvement in leadership and a scale of 1-4 to represent their experiences with leadership education. Appendix I provides the information collected: The nominator and researcher's best estimate of the LID stage, gender, race/ethnicity, education level, age, exposure to leadership education programs or courses, experience with leadership (including involvement in campus or community organizations), and the subject's location (Nebraska, Maryland, or Northern Virginia).

The second part of the survey was included in order to conduct an analysis of validity. The Leadership Attitudes and Beliefs Scale (LABS-III) is a 28-item survey (see Appendix J). Actually two scales, the LABS-III measures hierarchical thinking and systemic thinking. Hierarchical thinking reflects the extent to which subjects prefer stable, hierarchical, organizational structures and roles, and control and authority from people in leadership positions. For example, one item on this scale is, "A leader must control the group or organization" (Wielkiewicz, 2000). Systemic thinking describes a more ecological than mechanical understanding of how organizations work. It emphasizes the need for flexibility and adaptability, a recognition that a variety of interconnected factors contribute to problems and their solutions, and the need for shared

responsibility of all group members. An example of an item from this scale is, “An organization needs flexibility in order to adapt to a rapidly changing world” (Wielkiewicz, 2000). Each of the two scales has 14-items with a 5-point response (5=strongly agree to 1=strongly disagree). In a recent study, the alphas for these scales were .86 (hierarchical thinking scale) and .78 (systemic thinking scale) (Thompson, 2006).

There are two issues that the LID model and LABS-III share in common, including whether subjects operate from a dependence, independence or interdependence paradigm, and level of preference for hierarchy or a view that leadership is defined by positions within that hierarchy. Because of their definition of leadership as a position within hierarchy and their not having yet reached an interdependent view of self with others, students in LID stages 1-3 would be expected to have low LABS-III scores for hierarchy and systemic view of leadership. Students in stage 4-6 would be expected to have high scores for both of these scales. Further description of how the LABS-III was used to address validity is provided in that section below. To review the results of each subject’s LABS-III, see Appendix I.

Reliability

The reliability of a measure indicates its consistency, or whether a subject completing the measure today will complete it the same way tomorrow, given that nothing between the two times of data collection has occurred that would change the subject’s perspective on it (Mertens, 2005). Typically, test-retest reliability coefficients are used to measure the extent to which a subject is consistent with him or herself (Brown). For example, each subject’s first Q sort is compared to the second Q sort

created approximately four weeks apart, using a coefficient of correlation between the two profiles. The mean of these coefficients indicates the consistency across the two sessions. Several Q methodology studies have found strong evidence for test-retest reliability (Davidson & Logan, 1998; Fairweather, 1981), and Brown reports that the reliability coefficient of a person with him or herself is typically .80 or higher.

In Q methodology, the population and sample refer to the items the subjects sort. These items are a sample of all the items that might represent a point of view on the topic at hand. This has implications for the type of reliability that is of most concern. Rather than examining whether the items are responded to in the same way, it is appropriate to examine whether the subjects are grouped in the same way. This is called *factor reliability*. The higher a factor's reliability, the lower the amount of error associated with its factor scores, which are used to interpret the factors (Brown, 1980). Reliability is strengthened by using a sufficiently high number of items in the Q set. For example, Kerlinger (1986) recommended that at least 60 items be used for this reason.

In order to analyze the test-retest reliability and factor reliability in this study, subjects completed the Q sort twice. Brown (1980) recommended a four-week distance between the first and second Q sorts. As an incentive to complete both the first and second Q sort, all subjects who completed both sorts were entered into a drawing for one of five \$25 cash awards. All but eight subjects completed the second Q sort. The time lapse between the first and second sorts was between four and eight weeks.

Validity

For this study, it is critical to be clear about issues of validity because Q methodology approaches validity in a very different way than typical quantitative studies.

First of all, the term validity actually refers to three different forms: internal validity, test validity, and external validity (Krathwohl, 2004). External validity refers to the characteristics of the entire study and how to demonstrate that it is appropriate to generalize the findings to the larger population (Krathwohl). Generalizability in Q methodology research has already been addressed in Chapter Two.

Test validity refers to the measurement aspects of the study and whether the test used (survey items or scale) measures what it was intended to measure (Krathwohl, 2004). Brown (1980) argued that since the Q set measure is intended to reveal the person's self-referenced point of view, and it is not possible to have external criteria for a subject's own point of view, the very concept of internal validity is not an issue in Q methodology. However, he stressed that researchers should avoid the extreme of claiming that reliability and validity are "utterly inconsequential or absolutely essential" (p. 49) and instead consider the circumstances of the study at hand. In some cases, replication lends needed credibility, despite the belief that Q methodology does not require it.

Internal validity refers to basic characteristics of an entire study, and how to demonstrate that the evidence has been interpreted appropriately and that the variables do represent what they are purported to (Krathwohl, 2004). This study addressed internal validity by comparing the resulting groups of subjects with their responses to the LABS-III. As has been described above, the LABS-III has some constructs in common with the LID stages, such as attitude toward hierarchy and systemic/interdependent thinking. If the groups that result from this study are identified as representing certain LID stages, then those groups should have LABS-III scores that are reflective of what one would

expect for that LID stage. The examination of this evidence will be discussed in Chapter Four.

Summary

This chapter has described the data collection methods used for this study, including the creation of the Q set and P set, the card sort process, and the collection of additional data to be used to further interpret the results and conduct analysis for reliability and validity. The next chapter presents the procedures used for statistical analysis and the results.

CHAPTER FOUR: STATISTICAL ANALYSIS

This chapter describes the statistical analysis and presents the findings. This includes a description of Person-set, how the principal components analysis was conducted, and the calculation of communalities. Finally, the chapter describes the computation of factor scores and a composite factor array for each factor. These factor arrays were used to interpret the perspective of the subjects in each factor (which is described in Chapter Five).

Purpose of the Study

As was described in chapter one, the purpose of this study was to examine the leadership identity development model through a Q methodology factor analysis process to confirm or disconfirm the stages of the model. The study used Q methodology for data collection and factor analysis to classify subjects into groups based on the way they conceptualized leadership from their own subjective point of reference using a card sorting technique called a Q sort. This chapter will report the results of the factor analysis conducted on the collected data.

Description of the Person Set

As is recommended for Q methodology (Brown, 1980), a matrix was created to maximize the heterogeneity within each cell. In this case, each cell refers to the categories being validated in this study, the LID stages. Heterogeneity within each cell therefore means that not only is overall diversity desired, but diversity within each estimated LID stage is desired as well. In this case, the heterogeneity was desired in terms of the following characteristics: gender, race, education level, age, location, and experience with leadership and leadership education.

This matrix should be used as a conceptual guide rather than as a strict mathematical model (Brown). A perfectly balanced ratio is not necessary to achieve a P set that provides useful perspective on the topic. Appendix K describes the overall characteristics of the Person sample by cell.

At this point of the study, LID stages 1 and 2 were combined. Since the model predicts most LID stage 1 students would be in elementary school, these subjects would likely be too young to grasp the meaning of many of the card-sort items. However, some nominators did identify some junior high school students who they felt demonstrated LID stage 1 characteristics.

Test-Retest Reliability

Since the 64 cards for the Q sort process represent a new instrument, it was necessary to test its reliability, in this case, using the test-retest process. Subjects were asked to complete the Q sort twice, four weeks apart, then a coefficient of correlation was computed to compare the two sorts. Table 4.1 presents the correlations between the first and second sorts.

Table 4.1

Correlations Between First and Second Card Sorts

Survey #	Education Level	Correlation between 1st/2nd sort
7038	junior high	0.01747
5643	junior high	0.26856
6095	junior high	0.46288
3651	high school	0.04803
7634	high school	0.10044
1317	high school	0.28821
5040	high school	0.28821
6481	high school	0.29258
7185	high school	0.29258
0766	high school	0.36245

Survey #	Education Level	Correlation between 1st/2nd sort
2115	high school	0.37118
2787	freshman	*
4415	freshman	0.20087
8567	freshman	*
8893	freshman	.65066
6475	sophomore	*
8580	sophomore	0.67686
9353	sophomore	0.78821
0523	junior	0.73581
0777	junior	0.81659
1706	junior	0.83843
2602	junior	0.77729
3641	junior	0.77729
4053	junior	*
5258	junior	0.47817
0816	senior	0.37555
1110	senior	0.85371
1555	senior	0.84498
2881	senior	0.48035
3562	senior	*
4169	senior	0.81223
5226	senior	0.90611
6086	senior	0.82314
8775	senior	0.71616
8784	senior	0.76856
9507	senior	*
9775	senior	0.82533
4164	college grad	*
9895	college grad	0.88428
2300	grad stdt	0.55022
3622	grad stdt	0.82533
6282	grad stdt	0.74454
7657	grad stdt	0.81659
9906	grad stdt	0.81659
9087	grad student	0.74017
0595	advanced degree	*
2506	advanced degree	0.56769
5111	advanced degree	0.55895
1309	advanced degree	0.81004
1414	advanced degree	0.73362

* Subject did not complete the second Q sort.

The table is presented sorted in order of educational progress to demonstrate a pattern the researcher found. The correlations for the pre-college subjects was much lower than most of the other subjects. Although the LID model goes back to pre-college attitudes toward leadership, the primary audience for this study's finding is leadership educators in the higher education setting. At this point, it was determined that the study should focus on the college and post-college subjects. Given the low reliability of the pre-college subjects, any results reported on their sorts would be highly suspect given the poor reliability of their first and second sorts. The pre-college subjects were removed.

Of the remaining subjects, the mean of the correlation coefficients indicated the consistency across the two sessions. Several Q methodology studies have found strong evidence for the reliability of the Q sort process (Davidson & Logan, 1998; Fairweather, 1981). Brown (1980) reports that a .80 correlation can typically be expected from a Q sort test-retest process. With the junior high and high school subjects removed, the mean correlation is 0.72. However, it is worth noting the handful of remaining outliers with very low correlations. The median correlation is .78.

Factor Analysis

PQMethod, computer software designed to conduct Q methodology studies, was used to conduct the statistical analysis. This begins with a correlation matrix and factor analysis (extraction of factors and rotation). A factor array, a composite or model Q sort, is then created for each factor. For each Q sort, a *factor loading* is computed to indicate how similar or dissimilar each Q sort is to the composite factor array for each factor (McKeown & Thomas, 1988). An *eigenvalue* is computed for each factor, which represents the percentage of the total variance that is accounted for by the factor.

Communality is calculated in a similar way, and represents the percentage of a subject's Q sort that is associated with the other subjects in the study. For example, a subject with a low communality has created his/her Q sort in a way that is unique, this Q sort has little in common with the rest of the Q sorts (Brown, 1980). Factor scores along with the factor arrays are used to describe each factor.

Correlation Matrix

A correlation matrix (see Appendix L) was created calculating Pearson's product-moment correlation coefficient, the metric recommended by Brown (1980), between each pair of subjects' Q sorts. Although Brown (1980) indicated that no analysis of the correlation matrix is needed, Pallant (2005), indicated that at least some correlations of $r=.3$ or higher must exist for the data set to be considered suitable for factor analysis. Many $> .3$ correlations existed, so factor analysis was determined to be suitable.

Principal Components Analysis

Although dedicated Q methodologists (Brown, 1980) prefer the centroid method of factor analysis, many researchers recommend principal components analysis. In practice, the results are often the same using either method (McKeown & Thomas, 1988), and many recommend the simplicity of more mathematical models for this reason (Watts & Stenner, 2005). It should be noted, that for a principal components analysis, the more appropriate term for the resulting groups of subjects should be *component* rather than *factor*. Principal components analysis has similarities to factor analysis, but they are distinct. However, despite the fact that principal components analysis is commonly used in Q methodology, the term "factor" is still used in that community's literature. In order to not cause confusion or suggest a difference between this study and any other Q

methodology study, the term “factor” will be used here as well (Hancock, personal communication, January 26, 2011).

Determination of the Number of Factors to Extract

To determine the number of factors to extract, it is generally advised to consider several indicators rather than just one decision-making criterion. Although R-method factor analysis often has the aim of extracting as few factors as possible, for this study factor extraction was approached with a preference for retaining as many factors as were meaningful to the topic of the study.

One indicator considered was the eigenvalues that were > 1.00 , a typical indicator used in factor analysis. The first 7 factors had eigenvalues that were > 1.00 (see table 4.2).

Table 4.2

Eigenvalues of the Unrotated Factors

Factors	Eigenvalues	% Explained Variance
1	17.9450	46
2	2.9911	8
3	1.9655	5
4	1.5145	4
5	1.3799	4
6	1.2089	3
7	1.1120	3
8	0.9123	2

Another decision-making criteria to consider is that Brown (1980) recommended extracting 7 factors for Q methodology studies and examining them after rotation to determine which are meaningful and should be retained. Hair et al. (1998) argued that for a study confirming a theory, it is appropriate to use the number of factors predicted by the theory itself. In this case, the LID model has six stages, however since the pre-

college subjects were removed from analysis, the theory would predict four factors. Finally, other researchers (Pett, Lackey, & Sullivan, 2003) argued that since today's statistical software makes factor extraction and rotation so simple, it is increasingly common and quite acceptable for the researcher to run the factor analysis and rotation multiple times with varying numbers of factors extracted in order to examine which factor structure results in the most meaningful description of the data.

Taking all of this advice into consideration, Principal Components Analysis with Varimax rotation (the rotation analysis available in PQMethod) was conducted, extracting 2 to 8 factors, in order to compare which factor structure was most informative. Appendix M compares the results. Subjects were placed into a factor if their factor loadings indicated they were solely and significantly loading onto that factor. For the factor loadings used to flag subjects into these factors, see Appendix N.

Elimination of factor structures with more than five factors. Noting that largely the same subjects loaded onto the first two factors in all of the factor structures, factors in which only one subject was solely and significantly loaded onto it were closely considered. Examining first the eight and seven-factor structures, both of these models have four factors in which only one Q sort load. It is noteworthy that several of these single loading subjects had very low reliability correlations. For example, subjects 25 and 26 are single loading subjects for the seven and eight factor models. Their reliability correlation coefficients were .37555 and .55022 respectively. The five and six-factor structure also had multiple factors with a single subject loading. In this case, two of the subjects (37 and 39) did not complete a second card sort, so the reliability of these Q sorts cannot be known. Given that these Q sorts are not reliable or not known, using a

structure in which these are the sole subjects defining a factor would put any interpretive description of that factor in a questionable light. So all of these factor structures were eliminated as meaningful options.

Elimination of factor structures with two or three factors. The three-factor structure had no factors with a single subject loading, which may seem appealing. However, it is important to note that in Q methodology studies, it is perfectly acceptable to retain a factor with only one subject loading on it if that factor provides meaning that is important for understanding the topic of study. For example, subject 30 remains in a single loaded factor whether four or eight factors are extracted. This subject had a high reliability correlation at .88428, and is a unique participant being the only post-college subject who practices leadership in the community rather than the university campus setting. He is also one of the few post-college subjects who practices leadership but has not made a study of leadership theory. Because of this uniqueness the researcher was inclined to keep this factor, so the three-factor structure was eliminated. Since the goal of this study is to seek as many factors as are meaningful, the two-factor structure was ruled-out.

Selection of a four factor structure. In the end, a four-factor structure was chosen for several reasons. First, it is the factor structure that the theory being tested would predict, given that the pre-college subjects have been removed from the analysis. Second, it has only one factor with a single subject loading, and that subject has been deemed a meaningful one to keep separate for interpretation. The four-factor structure here is the most likely to have a meaningful and reliable interpretation of the subjects' responses to the Q sort activity.

Comparison of Orthogonal and Oblique Rotation

One problem with making use of the software created to do the analysis for a Q methodology study is that the only options for factor rotation are hand-rotation or Varimax, which is an orthogonal rotation. The analysis of this study clearly calls for an oblique rotation. The theory being tested has developmental stages, so the factors that would result would not be independent of each other but related – stages close to each other (e.g., stage two and stage three) would be more similar to each other than stages further apart (e.g., stage two and stage five).

To address this problem, the correlation matrix was entered into SPSS to see if Principal Components Analysis with an oblique rotation, in this case Oblimin, would result in factors similar to those that resulted from the Varimax rotation (Hancock, personal communication, January 26, 2011). If the results of both analyses were the same, then it would be acceptable to continue to use the output from the PQMethod software for the remainder of the analysis. Since the PQMethod output provides a unique set of tables used for factor interpretation that are particularly useful for Q methodology, this would be a significant advantage for the study.

The Oblimin analysis resulted in similar factors. First, the Component Correlation Matrix table was examined (see table 4.3, below). This table describes the strength of the relationship between each factor. If these correlations are low, it is reasonable to expect similar factor solutions from Varimax or Oblimin.

Table 4.3

Component Correlation Matrix

Component	1	2	3	4
1	1.000			
2	.452	1.000		
3	.303	.312	1.000	
4	-.055	-.008	-.028	1.000

The Component Correlation Matrix shows correlations that are low to very low, with the exception of some degree of correlation between factors one and two.

Regardless, factors that have a correlation greater than .3 indicate that it is necessary to report the results of the Oblimin rotation (Pallant, 2005).

The next step then, was to compare the factors resulting from the PQMethod's Varimax rotation with those resulting from the SPSS Oblimin rotation.

The PQMethod software automatically indicates which subjects' Q sorts are "pure" representations of a certain factor and flags them. Loadings are flagged to a certain factor only if: 1) the factor explains more than half of the common variance and 2) the loading is significant at $p < .05$ (Schmolck, 2002). The SPSS software relies on the researcher to select subjects for the factors based on the loadings reported in the Pattern Matrix (see Appendix O). Pallant (2005) recommended that a loading of .300 or above indicates a subject loads onto a factor. However, in some cases, subjects have a loading of .300 or higher on more than one factor. In these cases, the subject was not included on a factor.

The Pattern Matrix and Structure Matrix tables from the Oblimin rotation are provided in Appendix O. Table 4.4 provided in this section reports the subjects that are in each factor as a result of either the Varimax rotation or the Oblimin rotation. The columns represent the way the subjects were grouped (the four factors). The subjects

factoring differently in Varimax or Oblimin are noted in bold.

Table 4.4

Comparison of Factors resulting from Varimax and Oblimin Rotations

Note: The columns represent each resulting factor (e.g., F1 = Factor One)

Varimax Factors	F1	F2	F3	F4	Oblimin Factors	F1	F2	F3	F4
Subjects	1	2	19	30	Subjects	1	2	12	30
	3	4	25			3	4	19	
	6	7	26			6	7	25	
	10	8	29			10	8	26	
	15	9	37			13	9	29	
	16	11	39			15	11	37	
	17	32				16	32	39	
	18					17			
	20					18			
	21					20			
	22					21			
	23					22			
	27					23			
	28					24			
	31					27			
	33					28			
	34					31			
	35					33			
	36					34			
						35			
						36			
						38			

As one can see from a comparison of the two tables, the factors resulting from these two rotations were nearly identical. For all four of the differently factored subjects (subjects 12, 13, 24, and 38), the difference was that Varimax did not place them in a factor because the loadings were too evenly distributed across a couple of factors. However in every case, the highest loading in Varimax was on the same factor that Oblimax placed the subject in. For example, the Varimax analysis did not put subject 12

into a factor as loadings were more equally distributed across factors two, three, and four, however, the highest loading was on factor three. The Oblimax analysis placed subject 12 on factor three.

From this comparison it was deemed acceptable to continue using the PQMethod for the statistical analysis. Table 4.5 provides the factor loadings and indicates which subjects were flagged as defining sorts, which means they were included in creating factor array and calculating the factor scores. As was described above, the Q sorts that are considered “pure” representations of a factor are automatically flagged to be included as a “defining” sort, or a sort that clearly represents that factor. The loading of each Q sort is flagged as a defining sort if: 1) the factor explains more than half of the common variance and 2) the loading is significant at $p < .05$ (Schmolck, 2002). The defining sorts are noted below with an X.

Table 4.5

Factor Matrix, using Varimax Rotation, with an X Indicating a Defining Sort

Subject	Factor One	Factor Two	Factor Three	Factor Four
1 9906	0.7299X	0.2144	0.1648	0.2331
2 9353	0.2225	0.7695X	0.0202	-0.0515
3 1555	0.6110X	0.4348	0.1856	0.3359
4 0523	0.5482	0.6186X	0.0079	0.0870
5 9087	0.3420	0.3834	0.2966	0.1634
6 4169	0.6819X	0.2770	0.2347	0.3243
7 4415	0.0732	0.6861X	0.1774	0.3317
8 8784	0.5285	0.6622X	0.1446	0.1256
9 8775	0.1356	0.7149X	0.1934	0.3086
10 6086	0.6660X	0.3432	0.0383	0.3038
11 8580	0.1717	0.5595X	0.1485	0.1059
12 2881	0.2472	0.3546	0.5186	0.3643
13 1706	0.4647	0.3969	0.3533	0.1380
14 5226	0.4988	0.5160	0.1921	0.2909
15 6282	0.5993X	0.2881	0.3159	-0.2010
16 0777	0.7773X	0.4193	0.0061	-0.0640
17 7657	0.8890X	0.0989	0.0169	-0.0265
18 2506	0.8263X	0.1466	0.0071	0.2463
19 1110	0.0058	0.0257	0.5081X	0.0991
20 9775	0.8302X	-0.0616	0.1232	0.2651
21 3622	0.7783X	0.2981	0.0574	0.0747
22 2602	0.7137X	0.1758	0.1884	0.0397
23 3641	0.6084X	0.2396	0.2341	0.3649
24 5111	0.5962	0.1917	0.2042	0.5295
25 0816	0.3826	0.2797	0.6176X	-0.1809
26 2300	0.2660	0.1496	0.5914X	0.4266
27 1414	0.6870X	0.0918	0.3151	0.1087
28 1309	0.8212X	0.1872	0.0752	0.1540
29 5258	0.3599	0.1105	0.6217X	-0.1840
30 9895	0.3628	0.1495	0.1253	0.6931X
31 8893	0.6166X	0.0791	0.3199	0.0516
32 6475	0.1411	0.6512X	0.2457	-0.1827
33 8567	0.7227X	0.2602	0.2326	0.1529
34 4053	0.7838X	0.3110	-0.0364	0.0784
35 0595	0.6430X	0.2623	0.2695	0.3766
36 3562	0.8031X	0.1715	0.1350	0.0296
37 9507	-0.0168	0.4055	0.5688X	-0.0389
38 4164	0.5319	0.2369	0.4638	0.2786
39 2787	-0.0384	0.0739	0.6232X	0.3223

Summary of Principal Components Analysis

In summary, 39 subjects were subjected to principal components analysis using PQMethod. Inspection of the correlation matrix confirmed the suitability of the data for factor analysis. Multiple decision-making criteria led to the extraction of four factors, which explained a total of 63% of the variance. Table 4.6 reports the important characteristics of this four-factor structure.

Table 4.6

Factor Characteristics

	Factor One	Factor Two	Factor Three	Factor Four
Number of Defining Variables	19	7	6	1
Composite Reliability	.987	.966	.960	.800
Percent Explained Variance	32	14	10	7

Communalities

According to Brown (1980) the reported variance is relatively meaningless in Q technique factor analysis because it relies too much on the number of subjects who are one factor type or another. Instead, communalities are an important indicator of the quality of the study. *Communality* represents the percentage of each subject's Q sort that is associated with the other subjects in the study. For example, a subject with a low communality has created his/her Q sort in a way that is unique or has little in common with the rest of the Q sorts (Brown, 1980). Statistically, the communality is the sum of the squared factor loadings, and can be expressed as a percentage (Pallant, 2005). See table 4.7 for the calculated communalities.

Table 4.7

Communalities

Subject	Factor 1	Factor 2	Factor 3	Factor 4	Communality (sum of squared loading)
1	0.7299	0.2144	0.1648	0.2331	0.66021602
2	0.2225	0.7695	0.0202	-0.0515	0.64469679
3	0.6110	0.4348	0.1856	0.3359	0.70964821
4	0.5482	0.6186	0.0079	0.0870	0.69082061
5	0.3420	0.3834	0.2966	0.1634	0.37863068
6	0.6819	0.2770	0.2347	0.3243	0.70197119
7	0.0732	0.6861	0.1774	0.3317	0.6175871
8	0.5285	0.6622	0.1446	0.1256	0.75450561
9	0.1356	0.7149	0.1934	0.3086	0.66210689
10	0.6660	0.3432	0.0383	0.3038	0.65510357
11	0.1717	0.5595	0.1485	0.1059	0.3757882
12	0.2472	0.3546	0.5186	0.3643	0.58850945
13	0.4647	0.3969	0.3533	0.1380	0.51734059
14	0.4988	0.5160	0.1921	0.2909	0.63658266
15	0.5993	0.2881	0.3159	-0.2010	0.58235591
16	0.7773	0.4193	0.0061	-0.0640	0.78414099
17	0.8890	0.0989	0.0169	-0.0265	0.80109007
18	0.8263	0.1466	0.0071	0.2463	0.76497735
19	0.0058	0.0257	0.5081	0.0991	0.26868055
20	0.8302	-0.0616	0.1232	0.2651	0.77848285
21	0.7783	0.2981	0.0574	0.0747	0.70348935
22	0.7137	0.1758	0.1884	0.0397	0.57734398
23	0.6084	0.2396	0.2341	0.3649	0.61551354
24	0.5962	0.1917	0.2042	0.5295	0.71427122
25	0.3826	0.2797	0.6176	-0.1809	0.63876942
26	0.2660	0.1496	0.5914	0.4266	0.62487768
27	0.6870	0.0918	0.3151	0.1087	0.59149994
28	0.8212	0.1872	0.0752	0.1540	0.73878432
29	0.3599	0.1105	0.6217	-0.1840	0.56210515
30	0.3628	0.1495	0.1253	0.6931	0.65006179
31	0.6166	0.0791	0.3199	0.0516	0.49145094
32	0.1411	0.6512	0.2457	-0.1827	0.53771843
33	0.7227	0.2602	0.2326	0.1529	0.6674805
34	0.7838	0.3110	-0.0364	0.0784	0.71853496
35	0.6430	0.2623	0.2695	0.3766	0.6967081
36	0.8031	0.1715	0.1350	0.0296	0.69348302
37	-0.0168	0.4055	0.5688	-0.0389	0.48975914
38	0.5319	0.2369	0.4638	0.2786	0.63176762
39	-0.0384	0.0739	0.6232	0.3223	0.4991913

Communality is important for several reasons. First, during rotation, the factor loadings change because they represent the subject's relationship to the various factor groups. But since communality represents each subject's relationship with all the others, it will not change (Brown, 1980). Secondly, communalities are an indicator of the strength of the study. Q studies do not use large numbers of subjects, so one criticism of them is that there is not a high enough cases-per-variable ratio to ensure that the data has not been overfit, or that the resulting factors have little generalizability because they are so specific to the study sample (Hair et al., 2003). Writing of results of their R-methodology studies, MacCallum et al. (1999) indicated that the importance of the sample size varies in relation to the communalities:

Both studies showed that rules of thumb are not valid and that the minimum level of N is dependent on other aspects of design. Level of communality has an especially strong interaction with N such that when communalities are high, good recovery of population factors can be achieved with relatively small samples.

However, when communalities are low, recovery of population factors is difficult to achieve unless N is extremely large (p. 612).

In this case, all but five communalities were above .5, and the mean was 0.626, positive indicators of the strength of the study. In a discussion about the small sample sizes typically used in Q methodology, MacCallum, Widaman, Preacher and Hong (2001) noted that a 0.7 communality is an indicator that the subjects' sorts are similar enough to each other that the influence of the same size is less important. The communality for this study was not quite that high. The five communalities that were not above .5 were as low as .26 and .37, which brought the overall mean down below .7.

Factor Reliability

As was mentioned in the literature review, factor reliability is an important consideration in Q methodology. The higher a factor's reliability, the lower the amount of error associated with factor scores, which are important as they are used to interpret the meaning of the factors (Brown, 1980). To examine factor reliability, the factors from the two data collections, taken four to eight weeks apart, were compared. Four factors were extracted and Varimax rotation was conducted. A table of the factor loadings for the second sort is in the Appendix P. Table 4.8 compares the factor make-up of the first and second sorts.

Table 4.8

Comparison of Four Factor Structure from Q sort one and Q sort two

1 st Q Sort					2nd Q Sort				
Factors	1	2	3	4	Factors	1	2	3	4
Subjects	1	2	19	30	Subjects	1	2	25	5
	3	4	25			3	4	29	9
	6	7	26			6	7		19
	10	8	29			8	11		26
	15	9	39			10	12		
	16	11				15			
	17					16			
	18					17			
	20					18			
	21					20			
	22					21			
	23					22			
	27					23			
	28					24			
	33					27			
	34					28			
	35					31			

The hand rotation function available in PQMethod make it to plot subjects onto a graph such that the X and Y axes represent two factors. The researcher can then use the keyboard's arrow keys to shift the subjects in space in order to locate them more directly onto one of the axes. Several attempts were made to hand rotate the factors in order to produce a structure in which subject 30 loaded onto a single factor, but with no success.

The next approach was to extract only three factors, to determine if a factor structure similar to the first Q sorts, but lacking subject 30 on a fourth factor, would emerge. This extraction and Varimax rotation resulted in a factor structure that does resemble that of the first Q sorts, see Table 4.9.

Table 4.9

Comparison of Four to Three Factor Structure from Q sort one and Q sort two

1 st Q Sort					2nd Q Sort			
Factors	1	2	3	4	Factors	1	2	3
Subjects	1	2	19	30	Subjects	1	2	5
	3	4	25			3	4	19
	6	7	26			6	7	25
	10	8	29			8	9	29
	15	9	39			10	11	
	16	11				14	12	
	17					15		
	18					16		
	20					17		
	21					18		
	22					20		
	23					21		
	27					22		
	28					23		
						24		
	33					27		
	34					28		
	35					31		

To further determine whether the factors are reliable, a Pearson product-moment correlation coefficient was calculated to compare the factor arrays from the first Q sorts to the factor arrays from the second Q sorts, see Table 4.10.

Table 4.10

Pearson Correlation Between Factor Arrays from Card Sort Time One and Card Sort Time Two

	Factor 1	Factor 2	Factor 3	Factor 4
Factor 1	0.94978	0.55022	0.52183	0.47162
Factor 2	0.56114	0.82096	0.48908	0.49127
Factor 3	0.32969	0.42795	0.64847	0.30349

The correlation between factor one from the first and second sorts were very good indicators of the reliability of the factors. The correlation between the third sorts was less strong, and of course there was no fourth factor on the second sort.

Calculation of Factor Scores

In Q methodology, interpreting the meaning of the factors is based on *factor scores* (Brown, 1980; McKeown and Thomas, 1988). Using PQMethod software, a *factor array* was created for each factor. The factor array functions as a composite card sort, using only Q sorts that were solely and significantly loaded onto that factor in creating the composite. Factor weights are used to account for the reality that, based on their loadings, some Q sorts are closer approximations of a factor than others. Each item then, was assigned a factor score (which is a z-score) for each factor array. See Appendix Q for each item and its associated factor score for each of the four factors.

From the factor scores, a rounded factor score was assigned. The rounded factor score is of more practical use for interpreting the point of view of the subjects in each

factor than the factor score itself (Brown, 1980). The rounded factor score was arrived at by selecting the items with the three highest factor scores for each item and for each factor array. Those three items were assigned the +5 rounded factor score (the highest score in the Q sort range for this study). The four next highest scores were assigned a +4 rounded factor score, continuing to the lowest three factor scores, which have a -5 rounded factor score. The rounded factor scores for each factor array could then be examined and compared to each other in order to describe the point of view represented by each factor. See Appendix R for a table reporting each item and the rounded factor score for each of the four factors.

Analysis of Validity: Factor by LABS-III

As was discussed in chapter three, one way to provide evidence for the validity of the Q sort instrument was to compare the subjects in each factor to their results on the Leadership Attitudes and Beliefs scale (LABS-III). This scale has indicators of both preference for hierarchy and view of leadership issues as systemic, which have much in common with some of the differences among LID stages. Because of their definition of leadership as a position within hierarchy and their not having yet reached an interdependent view of self with others, students in LID stages 1-3 would be expected to have low LABS-III scores for the systemic view scale and high scores for the preference for hierarchy scale. Students in stage 4-6 would be expected to have the opposite.

Comparing the factors resulting from this study with the same subjects' LABS-III results provides limited evidence that the Q sort instrument was indeed an accurate way to measure students' attitudes about leadership. Table 4.11 below provides the LABS-III results for each subject, sorted by factor.

Table 4.11

Subjects' LAB-III Results

Subject	Factor	LABS-III
1	1	Low Hierarchy / High Systemic
3	1	Low Hierarchy / High Systemic
6	1	Low Hierarchy / High Systemic
16	1	Low Hierarchy / High Systemic
17	1	Low Hierarchy / High Systemic
18	1	Low Hierarchy / High Systemic
20	1	Low Hierarchy / High Systemic
21	1	Low Hierarchy / High Systemic
23	1	Low Hierarchy / High Systemic
28	1	Low Hierarchy / High Systemic
33	1	Low Hierarchy / High Systemic
35	1	Low Hierarchy / High Systemic
10	1	Low Hierarchy / Low Systemic
27	1	Low Hierarchy / Low Systemic
22	1	Low Hierarchy / Low Systemic
34	1	Low Hierarchy / Low Systemic
15	1	High Hierarchy / High Systemic
8	2	Low Hierarchy / High Systemic
11	2	Low Hierarchy / High Systemic
9	2	Low Hierarchy / Low Systemic
4	2	Low Hierarchy / Low Systemic
7	2	High Hierarchy / Low Systemic
2	2	High Hierarchy / High Systemic
26	3	Low Hierarchy / High Systemic
29	3	Low Hierarchy / High Systemic
39	3	High Hierarchy / High Systemic
25	3	High Hierarchy / High Systemic
19	3	High Hierarchy / Low Systemic
30	4	Low Hierarchy / High Systemic
31	N/A	High Hierarchy / High Systemic
12	N/A	High Hierarchy / Low Systemic
13	N/A	High Hierarchy / Low Systemic
32	N/A	High Hierarchy / Low Systemic
36	N/A	High Hierarchy / Low Systemic
37	N/A	High Hierarchy / Low Systemic
38	N/A	Low Hierarchy / High Systemic
5	N/A	Low Hierarchy / High Systemic
14	N/A	Low Hierarchy / High Systemic
24	N/A	Low Hierarchy / High Systemic

An initial look at these data reveal a few interesting patterns that would initially seem to support the validity of the card-sort instrument. In factor one (17 subjects), all but one subject on the LABS-III scored low on hierarchy and all but four scored high on a systemic view. This is in alignment with what would be expected for students representing LID stage 4: a dislike for hierarchy, a release of the need to label people in groups as “the leader” or “the followers” and a comfort with not necessarily knowing what would happen but confidence the group could work together and “figure it out.” This comfort with interdependence, flexibility and ambiguity rather than control are all aspects of a systemic view. Factor one clearly indicated the same attitudes about leadership on the card-sort and the LABS-III, good evidence for the validity of the card-sort instrument.

The patterns for the other factors were less clearly supportive. On factor two (6 subjects), four subjects scored low on hierarchy. The card sorts for factor two indicated preference for hierarchy but that it was not a salient issue. Factor two was evenly divided on the LABS-III systemic view, but their card-sorts seemed to clearly indicate a preference for control over flexibility.

On factor three (5 subjects), three subjects scored high on hierarchy and four scored high on systemic view. The card sorts for factor three also showed a strong preference for hierarchy and a similar pattern related to a systemic view, the preference for someone in the group to have the vision and control the group, rather than flexibility and adaptability.

Finally, the single subject on factor four scored low on hierarchy and high on systemic view. The card-sort for this factor shows a similar pattern on systemic views.

However, the card-sort for this factor was high on hierarchy rather than low.

Although the similarities between the card-sorts and LABS-III show some support, there were also some clear areas of contrast.

An attempt to describe the relationship between the card-sort and the LABS-III scores statistically through a chi-square analysis failed (see Table 4.12). Unfortunately, more than 80% of the cells had expected frequencies of less than five. So the chi-square analysis could not be continued.

Table 4.12

Chi-Square Test: Factor by LABS-III

	Value	Df	Asymp. Sig (2 sided)
Pearson Chi-Square	9.08	9	.43
Likelihood Ratio	10.25	9	.33
N of Valid Cases	33		

Note: 15 cells (93.8%) have expected count less than 5. The minimum expected count is .15.

Conclusion

This chapter described the statistical analysis for this study, including a description of the subjects (P set), correlation analysis of the first and second sorts to address reliability of the instrument, and the principal components analysis used to classify the subjects into groups based on their card-sorts. The next chapter describes how the factor scores obtained from the principal components analysis were used to interpret the meaning of each factor in order to describe the point of view of subjects in that group.

CHAPTER FIVE: INTERPRETATION OF FACTORS

As described in Chapter One, the purpose of this study was to examine the leadership identity development model through a Q methodology factor analysis process to confirm or disconfirm the stages of the model. The study used Q methodology for data collection and factor analysis to classify subjects into groups based on the way they conceptualized leadership from their own subjective point of reference using a card sorting technique called a Q sort.

The preceding chapter described the principal components analysis that resulted in four factors. This chapter offers interpretation of meaning of those four factors. By examining, for each factor, the factor score of each item in the card sort, the point of view of the subjects in each factor will be described. Finally, the characteristics of the subjects in each factor will be reviewed in order to shed more light on the perspectives of subjects in each group.

Factor Interpretation

Watts and Stenner (2005) described factor interpretation as a “series of summarizing accounts, each of which explicates the viewpoint being expressed by a particular factor” (p. 82). This process typically starts by analyzing the items subjects felt most strongly about (the +5 and -5 items), however it is sometimes the case that looking at the items ranked nearer to the center is useful in understanding how the items at the extreme are being interpreted, as the items ranked nearer to zero indicate indifference and may clarify how the items at the poles are being interpreted.

What follows is a description of each of the four factors, based on analysis of the rounded factor scores. For each factor, the issues that appeared to be most meaningful to

the subjects in that factor are indicated. A table reporting the way each factor sorted the relevant items is provided with each section description to support the factor interpretation and allow comparisons among factors.

Factor One

Reflection on leadership and self-awareness. For subjects in this factor (see table 5.1), being reflective about personal values and purposes as well as about their leadership experiences is very important. They enjoy talking about leadership with others, getting feedback on their own effectiveness as leaders, and spending time thinking about their roles in groups. This tendency toward reflection may also be connected to a greater self-awareness of their values and life purposes as well as greater emphasis placed on self-monitoring an awareness of one's influence on others.

Table 5.1

Self-awareness and Reflection on Leadership

Item #	Item Description	F1	F2	F3	F4
32	I haven't really thought that much about what leadership is or what being a leader means.	-5	-4	-3	-2
62	I have come to know who I am in terms of my values and purpose in life. This plays an important role in my leadership because I can see my values and purpose influencing the type of leader I am.	5	1	1	2
48	I enjoy the time I spend talking to people about leadership and how to work more effectively in groups. Talking about what I should have done differently doesn't harm my confidence to be a leader in a group.	3	1	-3	0
58	I have spent a lot of time thinking about how I operate in groups, like the roles I play and how to determine how my particular strengths and skills could be best put to use.	2	2	0	-1

Item #	Item Description	F1	F2	F3	F4
46	Whether I have a leadership position or not, when I'm in a group, I monitor the things I do and say because I am aware of the affect it will have on others.	2	0	2	1
50	Most of the groups I'm involved in now are because my parents or teachers got me to do it. I was just kind of thrown into it.	-4	-4	-5	-3

Non-hierarchical leadership approach. Subjects in factor one prefer a non-hierarchical approach in organizations (see Table 5.2). Note particularly items 51 and 64 that show the factor one point of view in stark contrast with the subjects in other factors. Item 45 expresses a comfort with ambiguity and trust in group process, as opposed to feeling the leader should have a plan in order to tell followers what to do.

It is worth noting here, that although the point of view of many subjects in the study on the non-hierarchical perspective of leadership is clear (every item related to hierarchy confirms this interpretation), for most factors these items are still ranked relatively neutrally. Holding this perspective is not as important to them as their perspectives on other issues.

Table 5.2

Non-hierarchical Approach to Leadership

Item #	Item Description	F1	F2	F3	F4
51	In order to reach a major goal, groups need to be organized with a clear leader and chain of command so everyone knows what each person's job is.	-4	3	4	1
45	Being a person who gets involved in order to make a difference means that I often face challenging situations and don't know what to do. But I have confidence that by working with others, we can figure it out.	4	-1	2	2
64	I don't like assigning labels like "leader" or "follower" as if a person is one or the other. The reality of group work is much more fluid than that.	3	-2	-1	-2
35	An organization can't work effectively if it has too many leaders and not enough followers.	-2	1	5	1
54	The head of the group is ultimately responsible for whether or not the job gets done.	-3	-2	-1	5
52	A good leader will take charge and have a certain level of control over what is going on.	-1	2	4	1
40	When I'm not in the leadership position, I usually will follow what the leader says so everything will go according to plan.	-2	-1	3	-2

Non-positional view of leadership. That leadership is not tied to holding a position is a perspective on leadership that is very important to the subjects in Factor One (see Table 5.3). Their strongly felt perspective that anyone can learn to do leadership well (items 6 and 55) is also likely reflective of this non-positional view.

Table 5.3

Non-positional View of Leadership

Item #	Item Description	F1	F2	F3	F4
36	I believe a person can be a leader even though he/she doesn't have a title or an official position in an organization. I can be A leader in a group without being THE leader of the group.	5	3	3	3
64	I don't like assigning labels like "leader" or "follower" as if a person is one or the other. The reality of group work is much more fluid than that.	3	-2	-1	-2
44	Whether you'd call me a leader depends on the situation. I'd consider myself a leader when I'm doing stuff for [name of organization], because I'm the president. In other organizations though, I'm just a regular member.	-3	-2	-1	-4
40	When I'm not in the leadership position, I usually will follow what the leader says so everything will go according to plan.	-2	-1	3	-2
6	Leadership is a characteristic that some people have and others just don't.	-5	0	-2	-5
55	Anyone can learn to be good at leadership.	4	-3	0	5

Emphasis on building relationships rather than a directive leadership style.

Subjects in some other factors put emphasis on the role of leader as one who has the vision and is directive with followers, telling them what to do (or are compliant of leaders when they are in the follower role). Subjects in factor one (see Table 5.4) have a much more relational approach to leadership, preferring the group to find solutions by working together, rather than by looking to the leader for answers. Although reaching a goal is important, focusing on the relationships in order to maintain positive working relationships is seen as an equal indicator of a high functioning group and good leadership. Their disagreement with directive approach to leadership reflected in items

59, 10, 24, and 8 lends additional supportive evidence. Additionally, relatively strong disagreement with item 20 may also be reflective of the belief that leadership is more about relationships than tasks. Items 27 and 56 shed light on the type of relationships these subjects envision – those that nurture and help others develop their strengths, and because they involve trust, empower everyone in the group to contribute to decision-making, idea generation and other leadership processes.

Table 5.4

Focus on Relationships

Item #	Item Description	F1	F2	F3	F4
5	Building relationships with people in other organizations is an important part of what I do to help my organization be successful. We need to have coalitions and supports across the system in order to really make a difference.	4	2	2	2
45	Being a person who gets involved in order to make a difference means that I often face challenging situations and don't know what to do. But I have confidence that by working with others, we can figure it out.	4	-1	2	2
27	A good leader should empower all group members to be actively involved in the group's processes of decision-making, goal setting, delegating, etc.	5	5	5	-3
56	It is important for leaders to know how to develop other people's talents and strengths, and to trust and empower them to act for the group.	4	2	4	4
63	I have often said that simply reaching a goal doesn't necessarily mean a group was successful. How did they reach it? A good group process, everyone feeling good about how they worked together, is as important as what the group accomplished.	2	-1	1	1
59	People in positions of authority may often gather input from the people under them, but they are not obligated to.	-2	-2	-2	0

Item #	Item Description	F1	F2	F3	F4
10	A leader is the type of person who can get other people to do things.	-2	2	-2	2
24	When I think of leadership, I think of a person who has vision and shows direction, without giving in to pressure to do something else.	0	1	3	5
8	Good leaders know how to do things like run a meeting, make decisions, motivate others and communicate clearly when telling people what to do.	-1	4	2	1
20	Working in groups almost always results in one person doing most of the work. I would call that person the leader of that group.	-3	-3	-4	-1

Leadership identity. Like the subjects in the other factors, these subjects identify themselves as leaders, interpreted by their disagreement with items that would indicate they do not see themselves as leaders (see Table 5.5). However, unlike subjects in some other factors, identification of themselves as leaders was considered a more neutral issue, not an aspect of leadership that was important to them to convey as other issues (note items 28 and 61). Given that this group has a non-positional view of leadership and a preference for non-hierarchical relationships between leaders and followers, whether they self-identify as “a leader” is of less importance to them. The neutral rankings on the leadership identity items are therefore consistent with the other beliefs of this factor.

Table 5.5

Factor One and Identifying Self as Leader

Item #	Item Description	F1	F2	F3	F4
18	I don't really think of myself as a leader or a follower. I'm just kind of there.	-5	-4	-4	-5
57	When I think of the word leadership, I think of things adults do - like the mayor of a city, the head of a company, or teachers in school. I don't really see myself as a leader.	-4	-5	-3	-2
4	I'm involved in groups, but I'm not a leader. I'm just a member.	-2	-5	-1	-4
22	When I work in groups, I tend to avoid taking on leadership responsibility. I don't like having the pressure of the group's success or failure to be on me.	-4	-4	0	-4
9	I'm not really involved in many organizations or activities.	-3	-5	-4	-3
44	Whether you'd call me a leader depends on the situation. I'd consider myself a leader when I'm doing stuff for [name of organization], because I'm the president. In other organizations though, I'm just a regular member.	-3	-2	-1	-4
28	I am a leader. It is a part of how I see myself, just like my other roles and characteristics.	2	5	-2	4
61	I used to think of myself as a person who contributed to leadership in certain contexts (an organization, my job, school projects), but now I have confidence that I can be that way anywhere I choose to. I am always a leader, it just looks different in different situations.	1	3	-2	3

Summary of Factor One

In summary, the subjects in factor one have a preference for non-hierarchical organizations and less emphasis on who is “the leader” and who is “the follower” when working in groups. They have a relational approach to leadership, and readily identify

leadership as a personal characteristic that applies to them. They are self-aware and very reflective about their values, the meaning of their lives, the way they work best with others, and the roles they play in groups.

Factor Two

Leadership identity. Like the subjects in the other factors, these subjects identify themselves as leaders. However, for these subjects, this identity is more important to them than it is for other subjects as is evidenced by the strength of the rankings on these items compared to subjects on other factors (see Table 5.6). Item 28 (“I am a leader”) for example, is ranked much higher here than by any other subject, save the single subject on factor four, all three of their -5 rankings are related to leadership identity, and two of their -4 items are as well. The meaning one might draw is that it was more important to these subjects to convey leadership as a part of their identity than to convey other concepts provided in the cards. Their unique response to item 33 (ranked a +3 compared to the negative rankings held by subjects on other factors) is particularly indicative of the importance of this identity.

Considered in combination with the strong rankings of the leadership identity items, the negative ranking of being involved in just a few organizations (item 30) suggests that subjects are involved in as many activities as possible in order to be viewed by others as leaders. Likewise, taken in combination with the other items, the +4 ranking that what has been learned about leadership will apply in the next context (item 39) implies an expectation that they will be leaders in whatever future situations arise. Had it been paired with a more reflective attitude about leadership, that item would likely be interpreted to be a reflection of the subjects’ awareness of their learning and growth, but

in this case it seems to be more indicative of an expectation of holding leadership positions in whatever group they find themselves in.

It is noteworthy that factor two includes the only subjects to negatively rank that anyone can learn to do leadership (item 55). This may be reflective of a desire to protect the value of their leadership identity – they would want the leadership identity they claim to be something that cannot be claimed by just anyone.

Table 5.6

Leadership Identity

Item #	Item Description	F2	F1	F3	F4
28	I am a leader. It is a part of how I see myself, just like my other roles and characteristics.	5	2	-2	4
57	When I think of the word leadership, I think of things adults do - like the mayor of a city, the head of a company, or teachers in school. I don't really see myself as a leader.	-5	-4	-3	-2
4	I'm involved in groups, but I'm not a leader. I'm just a member.	-5	-2	-1	-4
9	I'm not really involved in many organizations or activities.	-5	-3	-4	-3
22	When I work in groups, I tend to avoid taking on leadership responsibility. I don't like having the pressure of the group's success or failure to be on me.	-4	-4	0	-4
18	I don't really think of myself as a leader or a follower. I'm just kind of there.	-4	-5	-4	-5
61	I used to think of myself as a person who contributed to leadership in certain contexts (an organization, my job, school projects), but now I have confidence that I can be that way anywhere I choose to. I am always a leader, it just looks different in different situations.	3	1	-2	3

Item #	Item Description	F2	F1	F3	F4
33	I enjoy being involved in organizations because others see me as a good leader and that is something I do want to be known for.	3	-1	-3	-3
30	I'm in just one or two organizations. I'm selective about only being involved in areas that really matter to me.	-3	-1	1	0
39	I think everything I've learned about leadership and how groups can work together effectively will apply when I find myself in a new situation (like my next project or job).	4	2	1	-3
55	Anyone can learn to be good at leadership.	-3	4	0	5

A hierarchical definition of leadership. The subjects in factor two preferred to have more hierarchical leader/follower relationships than subjects in other factors, but these beliefs were not strongly felt (see Table 5.7).

Table 5.7

Mild Preference for Hierarchy

Item #	Item Description	F2	F1	F3	F4
51	In order to reach a major goal, groups need to be organized with a clear leader and chain of command so everyone knows what each person's job is.	3	-4	4	1
31	When I am the leader, I'm not comfortable telling people what to do. Instead I'd rather gather everyone's ideas. We should decide together, not me directing everyone.	-3	0	2	1
52	A good leader will take charge and have a certain level of control over what is going on.	2	-1	4	1
54	The head of the group is ultimately responsible for whether or not the job gets done.	-2	-3	-1	5
64	I don't like assigning labels like "leader" or "follower" as if a person is one or the other. The reality of group work is much more fluid than that.	-2	3	-1	-2

A task-oriented and directive concept of leadership. When the subjects on factor two think about what leadership is, the tasks that fall to the leader are most salient (see Table 5.8). These include knowing how to run a meeting, motivate others, communicate clearly, and do decision-making (item 8). They strongly believe that being able to empower all group members to be involved in those processes is an important task that leaders do (item 27). However, they are also quite comfortable telling others what to do, and do not believe that leaders need to avoid being directive (item 31, 10, and 52). Although each agreement is not strong (+2) other factors have these neutrally to negatively ranked. Additionally, factor two were the only subjects to negatively rank item 31, which describes discomfort in directing others and a preference for a collaborative process. Although the subjects on this factor are more directive than other factors, these were not strongly ranked items, and their ranking of more relational approaches is either neutral or in agreement, but not strong (see items 5, 45, 56, and 63).

It is worth noting the items related to empowering group members (items 27 and 56) convey a contrasting view. Although this factor strongly agrees that a good leader should empower group members to be involved in the group's processes of decision-making and goal setting, it is the only factor that does not strongly agree that leaders should develop group member's talents in order to empower them to act for the group. Particularly in light of this factor's preference for hierarchy, item 27 should be interpreted quite differently here than it was in factor one. Rather than empowering group members to think of themselves as leaders with their own unique contributions to make, followers should be empowered to be involved in the group's processes as directed by the leader.

Table 5.8

Task-Oriented, Directive Leadership Approach

Item #	Item Description	F2	F1	F3	F4
27	A good leader should empower all group members to be actively involved in the group's processes of decision-making, goal setting, delegating, etc.	5	5	5	-3
8	Good leaders know how to do things like run a meeting, make decisions, motivate others and communicate clearly when telling people what to do.	4	-1	2	1
10	A leader is the type of person who can get other people to do things.	2	-2	-2	2
31	When I am the leader, I'm not comfortable telling people what to do. Instead I'd rather gather everyone's ideas. We should decide together, not me directing everyone.	-3	0	2	1
52	A good leader will take charge and have a certain level of control over what is going on.	2	-1	4	1
56	It is important for leaders to know how to develop other people's talents and strengths, and to trust and empower them to act for the group.	2	4	4	4
5	Building relationships with people in other organizations is an important part of what I do to help my organization be successful. We need to have coalitions and supports across the system in order to really make a difference.	2	4	2	2
45	Being a person who gets involved in order to make a difference means that I often face challenging situations and don't know what to do. But I have confidence that by working with others, we can figure it out.	-1	4	2	2
63	I have often said that simply reaching a goal doesn't necessarily mean a group was successful. How did they reach it? A good group process, everyone feeling good about how they worked together, is as important as what the group accomplished.	-1	2	1	1

Leadership as non-positional, with an emphasis on the role of followers. The combination of items related to factor two's view on the roles of leaders and followers points to a slightly different perspective than factor one (see Table 5.9). Although the subjects on factor two do agree that being a leader is not necessarily tied to holding a leadership position (see items 60 and 36), they also did not reject the use of labels like "leader" and "follower" in groups the way that factor one subjects did (item 64). Given their preference for hierarchy and a task-oriented and directive leadership style, subjects in this factor do seem to retain a distinction between leaders and followers.

In the context of assuming that leader/follower roles are maintained, several items then point to their view of the important role of followers. They had strong agreement that successful groups need actively involved, reliable members who are not afraid to disagree with the leaders from time to time (items 23, 43). Although initiative on the part of followers is appreciated (item 60), the hierarchical nature of this factor seems to indicate that the positional leaders should still be expected to maintain the group's direction (56).

Table 5.9

Non-positional View of Leadership With an Emphasis on Followers

Item #	Item Description	F2	F1	F3	F4
23	It is important to have group members who will risk stepping outside of the lines, to say “this group is going in the wrong direction.”	5	3	5	-1
43	Good members are just as important to the success of a group as good leaders. Having members who are actively involved and reliable is so important.	4	3	3	3
60	Just because you don’t have an official position in an organization doesn’t mean you can’t be a leader. Anyone can take the initiative to do something for the organization.	4	3	3	0
36	I believe a person can be a leader even though he/she doesn’t have a title or an official position in an organization. I can be A leader in a group without being THE leader of the group.	3	5	3	3
64	I don’t like assigning labels like “leader” or “follower” as if a person is one or the other. The reality of group work is much more fluid than that.	-2	3	-1	-2
56	It is important for leaders to know how to develop other people’s talents and strengths, and to trust and empower them to act for the group.	2	4	4	4

Summary of Factor Two

In summary, the subjects in factor two believe very strongly that they are leaders and like to be seen by others as such. They describe being a leader as a personality characteristic that not everyone has. The work of leadership is thought of as certain tasks, like running meetings and directing others. They clearly prefer hierarchy in organizations, but neither this nor reflection on how they do leadership is a salient issue for them.

Factor Three

Hierarchical and empowering. The primary characteristic of the subjects in factor three is their approach to leadership that balances a strong belief in the need for clear hierarchical relationships between leaders and followers with the equally strong belief that leaders should empower group members to be actively involved in the organization's processes (see Table 5.10). All of the top ranked items (+5 and +4 items, as well as a few +3s) fit into one of these two categories (see table). The subjects in this factor think that having active and involved followers is important, but that the leader must be in control.

Of the factors resulting in this study, this group has the most hierarchical view of leader/follower relations, strongly preferring a clear leader rather than many members seeing themselves as having a leadership role (items 35 and 51). They believe good leaders need to take charge and maintain some level of control over the organization and its activities, providing the group's direction without giving in to pressure (items 52, 24). When they are leaders, they have no concerns about being perceived as too controlling, because they believe that is the leader's role (item 11, -5). When they are in a follower role, they do as the leader directs in order to help the group be successful (item 40).

Table 5.10

Hierarchical and Empowering View of Leadership

Item #	Item Description	F3	F1	F2	F4
23	It is important to have group members who will risk stepping outside of the lines, to say “this group is going in the wrong direction.”	5	3	5	-1
27	A good leader should empower all group members to be actively involved in the group’s processes of decision-making, goal setting, delegating, etc.	5	5	5	-3
35	An organization can’t work effectively if it has too many leaders and not enough followers.	5	-2	1	1
51	In order to reach a major goal, groups need to be organized with a clear leader and chain of command so everyone knows what each person’s job is.	4	-4	3	1
52	A good leader will take charge and have a certain level of control over what is going on.	4	-1	2	1
56	It is important for leaders to know how to develop other people’s talents and strengths, and to trust and empower them to act for the group.	4	4	2	4
43	Good members are just as important to the success of a group as good leaders. Having members who are actively involved and reliable is so important.	3	3	4	3
24	When I think of leadership, I think of a person who has vision and shows direction, without giving in to pressure to do something else.	3	0	1	5
40	When I’m not in the leadership position, I usually will follow what the leader says so everything will go according to plan.	3	-2	-1	-2
11	Sometimes I worry that other people in my organization think I try to control them too much.	-5	-1	1	-1
64	I don’t like assigning labels like “leader” or “follower” as if a person is one or the other. The reality of group work is much more fluid than that.	-1	3	-2	-2

Non-positional. Despite having a hierarchical view of leader/follower relationships, subjects in factor three do not seem to always associate the role of leader with the leadership roles in the organizational structure (see Table 5.11). The strong agreement with item 12, particularly in light of its neutral ranking by all other factors is particularly interesting in light of the very strong hierarchical views of this factor. It suggests a perspective such that when the “official leader” is not getting the job done, if another member of the group is able to guide the group to a successful result, then they would be considered the ones doing leadership.

Table 5.11

Non-positional View of Leadership Roles

Item #	Item Description	F3	F1	F2	F4
12	When I think of leadership, I think of the people who actually get things done. They aren't necessarily an official leader of the group, and may work quietly in the background, but they do the work that makes the group accomplish the goal.	4	1	1	1
36	I believe a person can be a leader even though he/she doesn't have a title or an official position in an organization. I can be A leader in a group without being THE leader of the group.	3	5	3	3
60	Just because you don't have an official position in an organization doesn't mean you can't be a leader. Anyone can take the initiative to do something for the organization.	3	3	4	0

Lack of leadership identity. Unlike the other factors, subjects on factor three do not identify themselves as leaders (see Table 5.12). Although their negative response to “I don't really think of myself as a leader or a follower” (item 18) was similar to the other factors, this was the only group to negatively rank items 28 and 61, which claim

leadership as a personal characteristic. The neutral rankings on items 22, 4, and 44 in comparison to the stronger rankings by other groups provide further evidence that a leadership identity is not claimed by members of this group.

Describing their own leadership, the subjects on this factor had directly conflicting descriptions of their ability to trust group members in order to delegate (items 2 and 47). Considering they very strongly believe that leaders should empower group members to be actively involved, their perception of their skills in this area would be an important aspect of their seeing themselves as leaders.

Table 5.12

Lack of Leadership Identity

Item #	Item Description	F3	F1	F2	F4
18	I don't really think of myself as a leader or a follower. I'm just kind of there.	-4	-5	-4	-5
33	I enjoy being involved in organizations because others see me as a good leader and that is something I do want to be known for.	-3	-1	3	-3
28	I am a leader. It is a part of how I see myself, just like my other roles and characteristics.	-2	2	5	4
61	I used to think of myself as a person who contributed to leadership in certain contexts (an organization, my job, school projects), but now I have confidence that I can be that way anywhere I choose to. I am always a leader, it just looks different in different situations.	-2	1	3	3
22	When I work in groups, I tend to avoid taking on leadership responsibility. I don't like having the pressure of the group's success or failure to be on me.	0	-4	-4	-4
4	I'm involved in groups, but I'm not a leader. I'm just a member.	-1	-2	-5	-4
44	Whether you'd call me a leader depends on the situation. I'd consider myself a leader when I'm doing stuff for [name of organization], because I'm the president. In other organizations though, I'm just a regular member.	-1	-3	-2	-4
47	When working in groups, I often end up doing a lot of the work myself. I know I should delegate, but it isn't easy to trust other people to get things done or do them well.	-4	-2	0	2
2	When working in groups, I used to pretty much do everything myself because I wanted to make sure it was done right. I am better now about trusting other people and letting them do things differently than I would have.	-3	-1	1	-1

Unlike subjects on other factors, the items related to spending time being reflective about leadership and one's role in groups are either neutral or negative (see Table 5.13). This would seem to be related to these subjects not seeing themselves as leaders. They do not have confidence in themselves in that role, and thus do not enjoy discussions about how they could do this better.

Table 5.13

Reflection about Leadership and Group Roles

Item #	Item Description	F3	F1	F2	F4
48	I enjoy the time I spend talking to people about leadership and how to work more effectively in groups. Talking about what I should have done differently doesn't harm my confidence to be a leader in a group.	-3	3	1	0
58	I have spent a lot of time thinking about how I operate in groups, like the roles I play and how to determine how my particular strengths and skills could be best put to use.	0	2	2	-1
62	I have come to know who I am in terms of my values and purpose in life. This plays an important role in my leadership because I can see my values and purpose influencing the type of leader I am.	1	5	1	2

Motivations to get involved: It is unclear what motivates subjects in this factor to get involved (see Table 5.14), but it is fairly important to them to convey that it is not because their friends or parents influenced that involvement (items 16 and 50). Neither do they wish to get involved in order to create the impression of being a leader-type (item 33). The compelling nature of the issue being addressed by the organization is also not a motivator (item 3). Their neutral stance on any other motivating factor sheds little light on this issue as well. Item 7, indicating they would like to be more involved than they are is neutrally ranked (+1), however this is a higher ranking than any other factor has.

Perhaps subjects in this category, while not wanting to follow the crowd or their parent's suggestions, but also not yet motivated by a passionate interest of their own, are themselves unclear about how they will decide which groups they will commit to. Either that, or their reasons for getting involved were not options included on the items in this study.

It is fair to deduce that these subjects consider themselves to be very involved based on their strong disagreement that they are not involved (item 9) and a neutral ranking that they are selective about their involvement and only involved in a couple of organizations (item 30).

Table 5.14

Unclear Motivation for Involvement

Item #	Item Description	F3	F1	F2	F4
16	The organizations I'm involved in, I joined mostly because my friends are in them too.	-5	-3	-3	-4
50	Most of the groups I'm involved in now are because my parents or teachers got me to do it. I was just kind of thrown into it.	-5	-4	-4	-3
33	I enjoy being involved in organizations because others see me as a good leader and that is something I do want to be known for.	-3	-1	3	-3
3	I get involved because there are things that I find so important that I can't just sit by and not do something.	-3	1	0	2
7	I want to be more involved than I am.	0	-1	-2	-5
26	Lately I've been looking to be involved in something that matters to me. I'd like to feel like I'm a part of something that is meaningful and important - more than just the day-to-day stuff.	0	1	2	-3
1	Achieving our group goal is more important to me than an individual goal like a leadership award.	2	1	-1	3
17	I really want to stay true to what is important to me. I don't want to "sell out" in order to make the going easier.	-1	2	2	0
25	Lately I've been really frustrated by something I've noticed [in society or in my community] and I want to try to change it or make things better.	-1	0	0	-1
9	I'm not really involved in many organizations or activities.	-4	-3	-5	-3
30	I'm in just one or two organizations. I'm selective about only being involved in areas that really matter to me.	1	-1	-3	0

Summary of Factor Three

The subjects in factor three have a strongly held preference for hierarchical approaches in organizations. They define leadership as the person who takes responsibility and gets the job done. Although they value active followership, they expect leaders to maintain control over the group. They do not identify themselves as leaders. It is very important to them to be clear that they are not motivated to be involved because of parental or peer influence, however, their real motivations to get involved are unclear. They dislike spending time reflecting with others about how they can be more effective in groups. Reflection about their skills and purposes is not a salient issue.

Factor Four

Leadership identity. The subject in factor four has a strong identity as a leader, as a stable aspect of the self, and in multiple contexts (see Table 5.15). When considering self-identity, the subject believes very strongly that this identity is not something that sets a person apart, but that anyone who has the motivation to learn to do leadership well can do so (item 6).

Table 5.15

Strong Leadership Identity

Item #	Item Description	F4	F1	F2	F3
18	I don't really think of myself as a leader or a follower. I'm just kind of there.	-5	-5	-4	-4
28	I am a leader. It is a part of how I see myself, just like my other roles and characteristics.	4	2	5	-2
4	I'm involved in groups, but I'm not a leader. I'm just a member.	-4	-2	-5	-1
22	When I work in groups, I tend to avoid taking on leadership responsibility. I don't like having the pressure of the group's success or failure to be on me.	-4	-4	-4	0
44	Whether you'd call me a leader depends on the situation. I'd consider myself a leader when I'm doing stuff for [name of organization], because I'm the president. In other organizations though, I'm just a regular member.	-4	-3	-2	-1
61	I used to think of myself as a person who contributed to leadership in certain contexts (an organization, my job, school projects), but now I have confidence that I can be that way anywhere I choose to. I am always a leader, it just looks different in different situations.	3	1	3	-2
15	All organizations are complex and operate differently, but I can usually figure out what the organization needs in order to know what role I should play and what strengths I can contribute.	3	1	0	-1
6	Leadership is a characteristic that some people have and others just don't.	-5	-5	0	-2

Motivation. Motivation to be involved and do leadership is a signature feature of factor four (see Table 5.16). Although the subjects in the other factors responded neutrally to most of these items, many of them were very important to this subject. Rather than being motivated by parents, friends, or promoting an image of being a leader,

this subject is motivated to join organizations whose mission and values reflect his. Note item 7 and item 25, which would otherwise indicate a lack of interest in being involved to make a difference, are here because of their combination with other items (like item 9), fairly clearly indicating the subject is already quite involved, and that the desire to get involved in something that matters is not a recent development. Although a +2 response to item 3, related to getting involved because the issue at hand is compelling, is not a strong agreement, it is higher here than with any other factor.

Table 5.16

Motivation to Be Involved

Item #	Item Description	F4	F1	F2	F3
19	When I'm considering whether to get involved with a new group, their mission and values about how members work together are important considerations.	4	2	0	0
7	I want to be more involved than I am.	-5	-1	-2	0
1	Achieving our group goal is more important to me than an individual goal like a leadership award.	3	1	-1	2
26	Lately I've been looking to be involved in something that matters to me. I'd like to feel like I'm a part of something that is meaningful and important - more than just the day-to-day stuff.	-3	1	2	0
16	The organizations I'm involved in, I joined mostly because my friends are in them too.	-4	-3	-3	-5
50	Most of the groups I'm involved in now are because my parents or teachers got me to do it. I was just kind of thrown into it.	-3	-4	-4	-5
3	I get involved because there are things that I find so important that I can't just sit by and not do something.	2	1	0	-3
33	I enjoy being involved in organizations because others see me as a good leader and that is something I do want to be known for.	-3	-1	3	-3
25	Lately I've been really frustrated by something I've noticed [in society or in my community] and I want to try to change it or make things better.	-1	0	0	-1
9	I'm not really involved in many organizations or activities.	-3	-3	-5	-4

Less reflective about leadership. One notable aspect of this factor's sorts is that in large part, the items that one would use to describe a definition or approach to leadership (e.g., what good leaders should do, what the roles or expectations of leaders

and followers are) are ranked neutrally (see Table 5.17). The strong agrees and disagrees are largely focused on leadership identity and motivation to do leadership issues. The subject in this factor, when thinking about leadership, seems to focus on whether to be a leader and why – not on what that leadership should look like. The neutral to negative rankings on items relating to reflection on leadership may explain this phenomenon (item 48 and 58). Although the subject ranks item 32, about not having spent time thinking about leadership, as neutral disagreement, the other factors had much stronger reactions to this item.

Table 5.17

Lack of Reflection about Leadership

Item #	Item Description	F4	F1	F2	F3
48	I enjoy the time I spend talking to people about leadership and how to work more effectively in groups. Talking about what I should have done differently doesn't harm my confidence to be a leader in a group.	0	3	1	-3
58	I have spent a lot of time thinking about how I operate in groups, like the roles I play and how to determine how my particular strengths and skills could be best put to use.	-1	2	2	0
32	I haven't really thought that much about what leadership is or what being a leader means.	-2	-5	-4	-3

Hierarchy with empowerment. Although most of the items that would describe a leadership approach were ranked neutrally, there are a few noteworthy exceptions that shed light on this subject's perspective (see Table 5.18). Like factor three, this factor has a hierarchical perspective on leader/follower relationships, believing strongly that leaders have ultimate responsibility for the group and that they should have vision, provide the direction and not give in to pressure to change course (items 24 and 54). Although

preferring to maintain clear leader/follower roles (item 64), this subject also believes that leaders should empower followers to play an active role (items 38, 56, and 43).

However empowering, it is noteworthy that this factor is the only one to rank items 27 and 23 negatively, reinforcing the perspective that the leader is ultimately in charge and perhaps a belief that not “all” group members should be involved in processes like decision-making and goal setting.

This subject most strongly believes that the group’s success is ultimately the leader’s responsibility (item 54) which is almost certainly related to a reported struggle with trust and delegation to others (item 47). This is the only factor to show agreement with that item.

Table 5.18

Hierarchy and Empowerment

Item #	Item Description	F4	F1	F2	F3
24	When I think of leadership, I think of a person who has vision and shows direction, without giving in to pressure to do something else.	5	0	1	3
54	The head of the group is ultimately responsible for whether or not the job gets done.	5	-3	-2	-1
64	I don't like assigning labels like "leader" or "follower" as if a person is one or the other. The reality of group work is much more fluid than that.	-2	3	-2	-1
38	A good leader can direct people when they need it, but also allow people to direct themselves. They will stand up when somebody needs to, but aren't always out in front.	4	3	3	3
56	It is important for leaders to know how to develop other people's talents and strengths, and to trust and empower them to act for the group.	4	4	2	4
43	Good members are just as important to the success of a group as good leaders. Having members who are actively involved and reliable is so important.	3	3	4	3
27	A good leader should empower all group members to be actively involved in the group's processes of decision-making, goal setting, delegating, etc.	-3	5	5	5
23	It is important to have group members who will risk stepping outside of the lines, to say "this group is going in the wrong direction."	-1	3	5	5
47	When working in groups, I often end up doing a lot of the work myself. I know I should delegate, but it isn't easy to trust other people to get things done or do them well.	2	-2	0	-4

Leadership outside the organizational context. A few items taken in combination seem to be describing a view of leadership that isn't necessarily tied to formal organizations (see Table 5.19). This is the only factor to convey that thinking

about leadership does not necessarily mean thinking about leadership within the context of an organization.

This puts the interpretation of items 36 and 61 into a slightly different light. Being a leader without a title, particularly given the subject's preference for clear leader/follower roles, seems to mean leadership outside the context of an organization. Similarly, having a leadership identity that is stable rather than dependent on organizational affiliation reflects more on the conceptualization of leadership as happening outside of that context rather than a belief that one is a leader in all organizational settings.

Framing leadership as a personal characteristic rather than a position one holds, this position seems to believe a willingness to take responsibility is a particularly important aspect of that personality (items 54 and 22).

Table 5.19

Leadership Outside of Organizations

Item #	Item Description	F4	F1	F2	F3
21	When I think about leadership, I think of people around me who get things done, not necessarily about involvement in formal organizations.	3	0	-1	0
36	I believe a person can be a leader even though he/she doesn't have a title or an official position in an organization. I can be A leader in a group without being THE leader of the group.	3	5	3	3
61	I used to think of myself as a person who contributed to leadership in certain contexts (an organization, my job, school projects), but now I have confidence that I can be that way anywhere I choose to. I am always a leader, it just looks different in different situations.	3	1	3	-2
54	The head of the group is ultimately responsible for whether or not the job gets done.	5	-3	-2	-1
22	When I work in groups, I tend to avoid taking on leadership responsibility. I don't like having the pressure of the group's success or failure to be on me.	-4	-4	-4	0

Summary of Factor Four

The subject in factor four has a strongly held preference for a hierarchical approach to organizations. Leaders are thought to provide the vision and direction for the group and take responsibility for whether the goals are accomplished. He identifies as a leader, considering it a personal characteristic, not necessarily associated with belonging to organizations. That his motivation to get involved is based on the mission and values of the organization is strongly felt. He is involved in just a few groups and has no desire for additional involvement. Reflection on leadership or personal values is not a salient issue.

Analysis of the Subjects on Each Factor

The leadership identity development grounded theory described the leadership identity development model as developmental (students experience stage one before stage two, etc.). It also described development through these stages as connected to maturity, opportunities to gain experience with leadership by working with others toward goals, and with leadership and leadership education. Table 5.20 below presents these characteristics for each subject, sorted by factor.

Table 5.20

Characteristics of Each Subject, Sorted by Factor

Subject	Factor	Age	Education Level	Leadership Education	Leadership Experience
27	1	60	advanced degree	2	3
28	1	57	advanced degree	2	4
35	1	51	advanced degree	3	3
18	1	28	advanced degree	4	5
15	1	23	graduate student	2	4
21	1	22	graduate student	4	3
1	1	22	graduate student	4	5
17	1	21	graduate student	4	5
3	1	21	senior	3	5
6	1	20	senior	3	5
10	1	21	senior	4	5
20	1	21	senior	4	5
34	1	20	junior	2	5
16	1	19	junior	4	5
23	1	20	junior	3	5
22	1	20	junior	2	4
33	1	19	freshman	3	2
8	2	21	senior	3	5
9	2	21	senior	2	5
4	2	20	junior	2	5
11	2	20	sophomore	3	5
2	2	18	sophomore	2	5
7	2	16	freshman	1	2
26	3	31	graduate student	4	5
25	3	26	senior	2	4
19	3	21	senior	2	5
29	3	21	junior	2	2
39	3	19	freshman	1	2
30	4	49	college graduate	2	5
24		57	advanced degree	4	5
38		30	college graduate	2	4
5		24	graduate student	2	4
12		21	senior	3	5
14		21	senior	4	5
37		21	senior	1	3
13		20	junior	3	5
36		20	senior	3	5
32		19	sophomore	2	3
31		17	freshman	1	2

As was described in Chapter Two, the characteristics of the P set are typically used as relevant data in factor interpretation (McKeown & Thomas, 1988). However, it should be reiterated that Q methodology is not aimed at generalizability to a larger population in the traditional sense, so the characteristics of the subjects should not be considered to have a correlation with the factor. Rather, they are provided here only to further describe the factors that emerged from the study. These patterns are summarized below (see Table 5.21).

Table 5.21

Characteristics of Subjects on Each Factor

	Factor One (17 subjects)	Factor Two (6 subjects)	Factor Three (5 subjects)	Factor Four (1 subject)
Class year	All but two subjects were upper class (Juniors or Seniors) or post-college.	All of the subjects were still in college (Freshmen to Seniors).	Subjects included one freshman, one junior, two seniors and one graduate student.	College graduate
Age	Range: 19-51 Mean: 27.4	Range: 16-21 Mean: 19.3	Range: 19-31 Mean: 23.6	Age: 49
Leadership Experience	Mean: 4.29	Mean: 4.50	Mean: 3.60	5
Leadership Education	Mean: 3.12	Mean: 2.17	Mean: 2.20	2

Generally, subjects on factor one tended to be slightly older and with more college education than the other factors. They had more leadership experience and more leadership education (such as courses or training workshops) as well. Subjects in factor two were the youngest group, with all subjects still in college, ranging from freshman to

senior year. They had the most experience engaging in leadership in organizations, but not a lot of leadership education. Subjects on factor three were primarily still in college, and ranged from freshmen to one graduate student. They had the least leadership experiences of this group of subjects and not a lot of leadership education. The final factor, consisting of a single subject, was a 49 year-old college graduate with a great number of leadership experiences but little leadership education.

Conclusion

This chapter has described the characteristics of each factor using the rounded factor scores and P set descriptions. The next chapter will discuss the extent to which these factor descriptions resemble the stages of the LID model. It will also review the limitations of this study, as well as the implications of this research, and recommended areas of future study.

CHAPTER SIX: SUMMARY AND DISCUSSION

The purpose of this study was to examine the leadership identity development (LID) model (Komives, et al., 2005) through a Q methodology factor analysis process to confirm or disconfirm the model. Data was collected through a card-sort through which subjects expressed their unique point of view on leadership. The Q methodology approach to factor analysis then classified subjects into groups based on similarities in the way they conceptualized leadership in their card sorts. The way each resulting group (factor) described leadership was then compared to the leadership perspectives of students in the various stages of the LID model. This chapter briefly reviews the methodology and general findings of the study, discusses the findings in terms of their validation of the LID model, and describes the implications of these findings on practice and future research.

Overview of Methods and Analysis

Q methodology describes both the data collection technique and the type of factor analysis that results in subjects being classified into factors based on their overall viewpoint on the topic of study. Q methodology is primarily intended to be a means of maintaining operant subjectivity. This means the subjects rather than the researcher operationalize leadership from their own subjective internal frame of reference. The researcher's own way of operationalizing or defining leadership does not influence how subjects are able to respond. The Q methodology factor analysis examines all of these subjective responses on leadership and finds groups (factors) whose viewpoints are similar to each other. This effectively creates types, each with a different viewpoint on leadership that can be interpreted from the data. For purposes of model validation, the

factors can then be compared to the stages of the LID model to see if there are enough similarities to support the existence of the LID stages. Further, the characteristics of the subjects in the factors can be described to determine if there is evidence to support that the factors represent developmental stages rather than simply different types of subjects.

Categorized spreadsheets from the interview transcripts of the original LID grounded theory study were reviewed to select 64 statements reflecting a wide variety of views across all six stages of the LID model. These statements were printed on cards to be sorted by the subjects of the study into piles on a continuum from strongly agree (+5) to neutral (0) to strongly disagree (-5). The number of cards allowed in each pile created a normal distribution curve and therefore the same mean and standard deviation for every sort. It is through this Q sort process that subjects are able to describe their own unique way of thinking about leadership without being influenced by the researcher's viewpoint.

Subjects (N=51) were selected through a nomination process and theory-based matrix to represent a wide variety of attitudes toward leadership, experiences with leadership roles, exposure to leadership education, and general level of maturity (based on age and education level). Each subject completed the Q sort two times, within four to eight weeks of each other.

Analysis of correlations between the first and second Q sorts indicated that for the pre-college subjects, the reliability of the Q sort was so low that their inclusion in the factor structures would have little meaning. The Q sorts of the pre-college subjects were removed from the analysis, and the remaining 39 subjects had a median correlation of .78 between their first and second sorts, which is very close to the typical reliability of a Q sort, which is .80 (Brown, 1980).

These 39 Q sorts were analyzed using Principal Components Analysis with Varimax rotation. In Q methodology, it is the subjects that form factors, rather than the items, revealing subject “types” based on their responses to the Q sort. Multiple factor structures were considered, with a four-factor structure ultimately chosen as the best representation of the data. The four-factor structure explained 63% of the variance. The communalities, which in Q methodology are considered a better indicator of the quality of the study than the variance, averaged 62.6%, which, being greater than 50% provides supportive evidence of quality results.

To provide evidence of the reliability of the factor structure, the second set of Q sorts were analyzed using Principal Components Analysis and Varimax rotation, just as the first set had been. This analysis resulted in a three-factor structure that very closely approximated the structure from the first set of Q sorts (the subjects loading onto each factor were nearly identical). The correlation between factor 1 from the first set of Q sorts and the second was .95. For factor two the correlation was .82. For factor three the correlation was .65.

For each of the resulting four factors, a factor-array, or composite Q sort that is representative of all the subjects on that factor, was created. Rounded factor scores for each of the 64 statements were computed, which indicate the way the 64 items were sorted on the strongly agree to strongly disagree continuum for each composite factor array. These arrays were analyzed in order to describe each of the four factors. The main themes in each factor described in Chapter Four will be summarized here in table form in order to facilitate comparisons across factors. Additionally, the general characteristics of the subjects that loaded onto each factor are described in order to compare these findings

with the developmental nature of the stages described by the LID model. It must be emphasized that a Q methodology analysis should not be considered generalizable to the larger population. Including the subject characteristics here is not intended to suggest a correlation between them and the factors, but simply to describe this Q sample. See the Table 6.1 for a summary of the findings reported in Chapter Five.

Table 6.1

Summary of the Interpretation of the Four Factors

	Factor One	Factor Two	Factor Three	Factor Four
Composite Reliability	.987	.966	.960	.80 (only one subject)
Subjects	<ul style="list-style-type: none"> - 17 subjects total - Mean age: 27.4 - Primarily upper class college students and all but two of the post-college subjects. - LABS-III: the majority were low on hierarchy and high on systemic view. - Mean leadership experience: 4.29 - Mean leadership education: 3.12 	<ul style="list-style-type: none"> - 6 subjects total - Mean age: 19.3 - Subjects ranged from college freshman to senior. - LABS-III: the four subjects scored low on hierarchy. Three subjects scored high on systemic view. - Mean leadership experience: 4.50 - Mean leadership education: 2.17 	<ul style="list-style-type: none"> - 5 subjects total - Mean age: 23.6 - Subjects included one freshman, one junior, two seniors and one graduate student. - LABS-III: three subjects scored high on hierarchy, four scored high on systemic view. - Mean leadership experience: 3.60 - Mean leadership education: 2.20 	<ul style="list-style-type: none"> - one subject - Age: 49 - College graduate - LABS-III: the subject scored low on hierarchy and high on systemic view. - Leadership experience: 5 - Leadership education: 2

	Factor One	Factor Two	Factor Three	Factor Four
Hierarchy	<p>Prefer a non-hierarchical approach.</p> <p>Express comfort with ambiguity and confidence that by working together, the group can “figure it out.”</p> <p>Dislike the strict roles implied by the “chain of command” structure.</p>	<p>Clearly prefer a hierarchical approach, but this is not a particularly salient issue compared to other topics.</p> <p>Followership is emphasized, particularly the courage to speak up if the group is going the wrong direction.</p>	<p>Strongly held preference for a hierarchical approach.</p> <p>Believe actively engaged followers are vital. Believe leaders should empower followers to be involved, but remain in control of the organization and its direction.</p>	<p>Strongly held preference for a hierarchical approach.</p> <p>Believe that while leaders should develop others’ strengths and empower them to be involved, both leaders and followers should recognize the leader provides the direction for the group.</p>
Definition of Leadership as Positional	<p>Strongly believe that a person can be a leader whether or not they have a position in the group. Prefer to think of leader/follower roles as fluid, with everyone having a role to play in the process.</p> <p>Believe that anyone can learn to be good at leadership.</p>	<p>Define leadership as a personality characteristic (one that not everyone has) rather than holding a position in the organization.</p>	<p>Do not define leadership as positional, but would attribute it to whoever is getting the job done. When the titled leader is failing, the person who steps in is considered a leader without the title.</p>	<p>Do not connect leadership to holding a position in an organization. In fact, do not necessarily connect it to involvement in formal organizations at all. Define leadership as a personality characteristic.</p>

	Factor One	Factor Two	Factor Three	Factor Four
Leadership Identity	Readily identify as leaders, considering it to be a personal characteristic rather than an identification dependent on a role they are playing or a position they currently hold. However, this issue is not as salient as other issues.	That they see themselves as leaders is a very strongly held view. They enjoy being seen by others as leaders and do not believe that leadership is something that just anyone can learn to do.	Do not readily identify as leaders. Neither do they strongly claim they not leaders. This is not a salient issue for them.	Has a strong identity as a leader, considering it a personal characteristic and one that applies in multiple contexts. Also strongly believe that anyone can learn to do leadership well.
Self-aware and Reflective about Leadership	Very reflective about personal values and life purpose and connect those things to leadership experiences. Conscious of their behavior in group contexts. Enjoy feedback and reflecting with others about leadership and how to be more effective in groups.	Have thought about leadership and being a leader, but reflection is not a particularly important issue. Awareness of values and purpose, or self-monitoring behaviors are not salient issues.	Do not enjoy reflecting with others about leadership or how to be more effective. Being reflective about the roles they play in groups or how to apply their particular skills is not a salient issue, nor is having awareness of their values or life purpose.	Reflection on leadership is not a salient issue. Nor is awareness of personal values, life purpose, reflection or consciousness of how one behaves in groups.

	Factor One	Factor Two	Factor Three	Factor Four
What leaders do	Have a relational focus in describing what leaders do. This includes helping others develop their strengths, empowering them to act for the group, and building external as well as internal relationships in order to make a greater impact.	Have a task oriented/directive focus, describing leadership in terms of running meetings, setting goals, and making decisions. Are comfortable with directing others. Believe that knowing how to empower and motivate followers to be involved in these processes is an important leadership skill.	Believe leaders take charge and maintain control over what the group does. They describe leader as the person who gets the job done. They think good leaders empower group members and help them develop their strengths in order to take action for the group.	Believe leaders have the vision and provide direction for the group without giving in to pressure to change course. They think the leader is the person who takes responsibility for whether the job gets done.

To provide evidence for the validity of the Q sort instrument, the study intended to compare the subjects in each factor to their results on the Leadership Attitudes and Beliefs scale (LABS-III), which has indicators of both preference for hierarchy and view of leadership issues as systemic. Although some supportive patterns were observed, for example, nearly all the subjects on factor one, which had a preference for non-hierarchical leadership approaches, had a low hierarchy LABS-III result. The subjects on factors two and three, which preferred hierarchy, had more mixed results, but the majority of the subjects had a high-hierarchy LABS-III result. However, the sole subject

in factor four described a preference for hierarchy in this study, but had a low-hierarchy LABS-III result. Despite these patterns, conclusions about the Q sort validity cannot be drawn as the chi-square analysis was not possible to conduct given that more than 80% of the cells had expected frequencies of less than five, again, an assumption violation for chi-square analysis.

Discussion

Although this study did not, in the end, cover the breadth of the stages described in the LID model, it did: a) provide supportive evidence for the existence of stages three and four as described in the LID model, b) provide some initial evidence that these stages are developmental and not simply different types and c) provide new information about the way students frame the concept of positional or non-positional leadership that suggests a slight adjustment to the LID model might be needed.

Overview of the LID Model

As was described in Chapter Two, in the LID model's third stage, *Leader Identified*, students have an awareness that the groups they are in have clearly distinguishable leaders and followers (Komives et al., 2005). At this stage, they notice the complexity of the interactions among many group members and make sense of these complexities by framing them in terms of the organization's hierarchical structures.

In the LID model, there are two different ways students experience organizational involvement in stage three, depending on their sense of self in relation to others. Students have either an *independent* or *dependent* sense of self with others. When they are in the follower role, they feel dependent on others, believe their role is to wait for the leader to tell them what to do, and do not consider themselves to be leaders. Sometimes,

students with a dependent sense of self are motivated to be “just” followers in order to avoid what they imagine are the great pressures involved in having the responsibility of holding the leadership role.

Students feel independent when they hold the leadership position. It is in this independent, position holding role that students will finally identify themselves as leaders. In some cases, students’ motivation to be involved is to be “the” leader, in order to claim that identity, which they believe comes with prestige.

During LID stage three, students become more intentional about choosing the groups they are in, narrowing and deepening their involvement in fewer, select groups related to their own interests rather than involvement in a variety of groups that their peers or parents might influence them to join. Both LID stages three and four were found to have a high level of complexity and are described as having emersion and immersion phases. In the emersion phases, students tentatively experiment and try out new ways of thinking about and doing leadership. In the immersion phases they are comfortable with these things and had time to exercise the related skills and practices.

In the emerging phase of stage three, they are now seeing leadership as something they can do (rather than something adults or older peers do, an attitude reflected in earlier stages). They realize they need to learn ways to relate to others in a group and start to develop related skills. At this point, they see the leader as bearing responsibility for the success of the group. They describe what leaders do as getting the job done. When they are in this role, they take this responsibility to heart and often do most of the work themselves.

In the immersion phase of stage three, students have gained confidence from their experiences in groups, taking on leader and follower roles in various contexts. At this point they have experiences in which it is not feasible for the leader to do all the work alone. Instead, they come to see the work of leadership as directing and managing others in order to get things done. They believe good leaders know how to motivate followers to act, but also that the leader is still ultimately responsible for the success of the group. Students here recognize that there are important skills related to leadership, such as delegation and running meetings that coordinate the efforts of many followers.

Stage three immersion prepares the way for the model's key transition – the stage three to stage four transition – in which the independence/dependence view shifts to an interdependent view. In stage four, leadership is no longer linked to holding a position in the group, but instead to one's contributions to the leadership process regardless of hierarchy. Anyone in the group therefore, can be doing leadership. With independence or dependence replaced by interdependence, the need for clearly identified "leader" and "follower" roles is reduced. This new conceptualization of what leadership *is* requires rethinking of the self as a leader. Removing the positional nature of leadership means that identifying as a leader is no longer connected to those contexts in which they have positional role. A student will now identify as "a" leader regardless of whether he or she is "the" leader. Since the ways a person might do leadership is now considered much more broadly (not necessarily just top-down skills like delegation and running meetings), there is a period of learning new more collaborative skills. Those who were independent before, learn to let go of control. Those who were dependent before, come to believe they can make valuable contributions to the group without being an elected officer.

Stage five is marked by increased focus on being self-aware of one's values, style, and strengths, and being more reflective about what is learned from leadership experiences. This includes being receptive to feedback and reflecting with other peers and mentors about how to improve. Another change in stage five is that students think about the way their organization fits into a larger system. They can now consider the value of collaborating with other organizations to have a greater impact on the issues they address in common. Another important signal of stage five is generativity or moving on to the role of mentor, helping younger members to be able to continue to lead the organization, and seeing the development of other people's talents as part of their responsibility.

Stage six describes a way of being as a leader that continues indefinitely. Identity as a leader is a stable aspect of the self that is integrated with other personality characteristics. The way people "perform" that identity looks different in different contexts. They continue to be highly reflective about themselves as leaders in a way that facilitates life-long learning about effectiveness in groups. The way their leadership learning in one context might apply in another context (like a new job or leadership in organizations versus leadership in one's family) is a salient issue.

Alignment of the Q study Factors with the LID stages

This study does seem to provide supporting evidence that stages three and four described by the LID model are an identifiable group of students who hold viewpoints as the model describes.

LID stage three (dependent) and factor three. The description of factor three is quite reflective of the stage three, dependent view of self with others. These subjects do not claim leadership as an identity. They described a very strong preference for hierarchical leadership approaches. Although they think a good leader will encourage the active involvement of followers, they believe the leader is responsible for taking charge and maintaining control over what the group does. The leader is described as the person who gets the job done. These subjects do not have a lot of confidence in their own leadership yet and do not enjoy reflecting on feedback about how they can improve. That they are not choosing their involvements based on parental or peer influence indicates their shift away from stage two, and their lack of clarity on how they do select groups suggests they are experimenting and trying out a new way of being in that regard.

LID stage three (independent) and factors two and four. Factor two of this study bears several similarities to stage three students who have an independent view of self and others. They still have a hierarchical view of group relations, but it is a less salient issue. Their view on good followership goes beyond simply being an active member to the expectation that members have the courage to speak up if they feel the group is going in the wrong direction. A defining characteristic of this factor is that claiming an identity as a leader is very important to them. They believe others see them as leaders, and choose to be involved in organizations because they want to be known for that. They do not believe that just anyone can learn to do leadership, making their own leader identity all the more valuable, possibly explaining why it is so important to them. Their emphasis on leadership tasks and skills, like running meetings and making decisions, is reminiscent of the stage three focus on identifying new skills that are needed

to fill the leadership role and experimenting with/practicing these skills in their groups. Although they have done some reflection about leadership, neither that nor self-awareness of values, purpose, or self-monitoring skills are salient issues.

Factor four had much in common with factor two, and might be descriptive of the experience of LID stage three with an independent view. The strongly held preference for hierarchical structures and belief that the leader should have the vision, provide direction for the group, and be ultimately responsible for the group's success align with LID stage three. The lack of interest in reflection or self-awareness does as well. Like factor two, it is important to factor four that he identifies as a leader. However, subjects in factor four strongly believe that leadership is something anyone can learn to do, while the subjects in factor two do not. The lack of connection to leadership and involvement in formal organizations at all is also unique to factor four. Beliefs about leadership outside of organizations and about the learned nature of leadership are not addressed in the LID framework, so perhaps these distinctions between factors four and two are without meaning within that context, but they do signal an interesting difference in what a stage three leader might look like.

LID stage three emersion/immersion and factors two and three. Factors two and three are also distinct from each other in ways that parallel the differences between LID stage three emersion and stage three immersion. As was described in Chapter Two, in the emersion stage, students are gaining experience working in groups, trying on different approaches and styles and observing how others lead. In the immersion stage, students show signs of readiness for the transition to LID stage four. They may accept the concept of a group having co-chairs for example. They may talk about valuing team-

based approaches, but when they actually do group work they want to be able to believe there is someone in control, either themselves (independent stage three) or the leader (dependent stage three) (Komives et al., 2006).

A comparison of factors two and three reveals some parallels with LID stage three emersion and immersion. Factor three indicated a strong preference for hierarchy and the expectation that the leader show direction and take charge. Subjects in factor two agreed with items about hierarchy and the leader directing others, but these items were not what is most salient to them. They still highly rank items about the leader running meetings and directing others, but they rank items about the leader being in charge and taking control much lower than does factor three.

LID stages four, five, and six and factor one. Subjects in factor one seemed to reflect a combination of LID stages four, five and six. Like those in stage four, they preferred a non-hierarchical approach, registering a clear dislike for “chain of command” approaches to managing group relationships. They believed that everyone in the group should be empowered to contribute to the group’s processes and act for the group and found the terms “leader” and “follower” less relevant ways of framing group interactions.

Although there are many issues reflected in the ways each factor sorted the cards differently, the issue of interdependence is clearly a theme that reflects major differences between factor one and the other factors. The subjects on this factor were the only ones to reflect comfort with having fluidity between the roles of “leader” and “follower.” They do not see the work of leadership as one person directing others, but as people working together as a team. Having an identity as a leader is not an issue that had salience for this group. This would seem, at least in part, to be attributable to the fact that

people in this group do not see themselves as “less than” when they are not in the leader role – a clear sign of interdependent thinking.

The most distinctive aspect of factor one, which is descriptive of LID stages five and six, was the much greater salience of reflection and self-awareness than any other factor. They gave a top ranking to their having self-awareness of their values and life purposes and that those things influence the way they practice leadership. They strongly agreed that they appreciate opportunities to get feedback and reflect with others about their leadership effectiveness. Another viewpoint that is descriptive of LID stage five subjects, was that they were also the only ones to mention the importance of building relationships with people in other organizations in order to form coalitions. As would be descriptive of LID stage six, the subjects on this factor readily identify as leaders, but consider it to be a stable personal characteristic that manifests in different ways in different contexts, rather than connected to a role they play in any specific organization.

Characteristics of Subjects and Evidence of Development

Q methodology creates groups of subjects based on the similarity of their card sorts. It is up to interpretation, based on consideration of the characteristics of the subjects in each factor, whether these groups represent developmental stages or merely different types of people. Age and level of education were gathered as proxy indicators of maturity, along with the amount of experience subjects had being involved in leadership activities and leadership education such as training workshops or leadership courses. The measure for the latter variables is a score that is a combination of a self-report ranking and the researcher’s own ranking based on a brief interview with the subjects about their involvements and experiences. While not a perfect measure of development, a subject

with a greater amount of experience and education with a topic has had more opportunity to develop along that topic than a subject with less experience.

Consideration of the characteristics of the subjects in each factor provides some initial evidence to support the developmental nature of LID stages three and four. Factor one, which aligns with stage four has subjects that are older and at a higher education level, and had more leadership education. They also had more leadership experience than the subjects in factor three. The subjects in factors two and three, which align with LID stage three, are younger and have less experiences with leadership education. This evidence is not conclusive, but it does lend some level of support that these groups indicate development.

Results that Did Not Align with the LID model

Lack of a Positional Leadership Viewpoint

Some of the results from this study were less confirming of the LID model's stages as currently described and may signal a need to revisit the model. One of these is that none of the factors defined leadership as positional. Although factors two, three, and four bore a resemblance to LID stage three in several ways, including a preference for hierarchical organizational structures, a student in this stage would be expected to describe leadership in terms of the person holding a position. Instead, factors two and four defined leadership as a personality characteristic, on par with a person's other traits and roles. Factor three attributed leadership to the person who is in charge and getting things done, with a moderate agreement that leadership is not positional seeming to

acknowledge that sometimes that take-charge person is not one of the group's titular leaders.

One adjustment to the LID model this study may suggest is that, given the alignment with the expected views on hierarchy but not on positional leadership, perhaps a better description of the stage three viewpoint is that leaders and followers are still seen as distinct roles. The leadership role is often aligned with those who hold a position, but in this stage there is some acknowledgement that sometimes the leader role is not being filled by the person who holds the position. Although not linked to positional leadership, this stage three leader/follower dichotomy is still quite different from the shift made in stage four, which aligns with factor one's description of more fluid leader/follower roles and non-hierarchical ways of being, such that leadership is defined as the contributions everyone in the group makes to the process. This way of describing leadership is reminiscent of Rost's (1993) description of post-industrial leadership in which the terms "leader" and "follower" are replaced with "collaborators." Further study that includes subjects in LID stages one and two may confirm that these students do define leadership in terms of position, and the transition to stage three signals the awareness that the person holding the position is not always the person filling the leader role through their behavior.

Amount of and Motivations for Involvement

Another aspect of this four factor structure that did not align with the LID model is connected to the amount of involvement and motivations to be involved that subjects described. A key attribute of factor four was that the motivation to be involved is based on alignment with the mission and values of the organization. The subject in factor four also had no interest in being involved in more than the few meaningful groups he was

currently with. In the LID model, aligning involvement with personal values and passions is connected to stages much later than stage three, which factor four resembled in most other ways. Additionally, LID stage three is described as signaling a time when the number of involvements are reduced to a few such that the student gets more depth of involvement rather than shallow involvement in many groups. However, subjects in factors two and three did not seem to be reducing their involvements. In fact, those in factor two seemed to enjoy having a lot of involvement and were motivated by being seen by others as a leader in as many groups as possible.

Lack of Differentiation among LID Stages Four, Five, and Six

Finally, an important difference between this four-factor model and the LID model was the lack of differentiation among LID stages four, five, and six. It is important to note before moving on to this point, that the study's lack of evidence for LID stages one and two is linked to a lack of subjects that would theoretically represent those stages. The subjects that would have theoretically aligned with LID stages one and two, the pre-college subjects, were removed from the study because the differences between their first and second Q sorts demonstrated these responses were not reliable. Therefore, any factors including those sorts would not be reliable either.

The lack of evidence to differentiate stages four, five, and six is very a different issue. There were a good number of subjects carefully and intentionally selected because the researcher and subject nominators had reason to believe they reflected the perspectives of those stages. Nominators described their LID stage five selections as consistently demonstrating a mentoring approach to working with other students, having keen interest in leadership peer mentor programs, and making reflective observations

relevant to the generativity that is a key characteristic of stage five. Similarly, the subjects nominated for stage six were in some cases college leadership educators themselves, or were campus or community leaders who had many years of a demonstrated relational style of leadership. However, none of these subjects factored differently than many subjects selected to represent stage four.

Thus, even though there was no evidence to confirm stages one and two because of the subjects removed from the study, there did seem to be some evidence to suggest that stages four, five, and six are really a single stage. This single stage reflects very distinctive attitudes. These students have an interdependent view of self with others, a non-hierarchical, collaborative rather than positional conception of ideal group work, and highly value reflection for self-awareness and life-long learning about leadership in multiple contexts.

Generativity

Reviewing the data, it was interesting to note how subjects ranked the items that were intended to represent the LID stages that did not result in a factor. The subjects in factor one had high rankings for items that had been created to be representative of the three later stages (four, five, and six). Many of these items were also neutrally ranked, but none of them had a rank lower than 0. Negatively ranked items were those that had been intended to represent a variety of beliefs reflective of stages one through three. This seems to lend support for the Q sort's ability to signal a clear viewpoint. Though there were no subjects that formed a factor that looked like LID stages one or two, the strong disagreement with these items (rather than neutral rankings) seems to indicate the subject's awareness that this is no longer a perspective they hold, though they once did.

The items indicating generativity however were largely left in the neutral pile. Subjects did not disagree with them, but did not find them relevant to their approach to leadership. Perhaps they do not think of mentorship as necessarily connected to leadership. Perhaps the mentor role is sometimes a part of what they do as leaders, but not an important enough part to rank it more highly than other items at their disposal.

One possible explanation for this finding is that perhaps generativity is not a stable aspect of a leadership identity, but is connected to specific contexts. Seniors who have played an active role in a particular organization may find issues of generativity highly salient in that context. But, they may not find themselves drawn to mentor others in other contexts, like a senior year internship. It may be that stages four, five and six are reflective of a single final stage, with the distinct salient issues the original LID team found ebbing and flowing as people practice leadership in different contexts.

New Insights Revealed on the Meaning of Positional Leadership

The concept of positional versus non-positional definitions of leadership is a very important distinction for leadership educators working with students. Leadership education programs are often discussed as being targeted toward “positional leaders” or not. This concept is also considered by the LID model to be a critical issue in the stage three to stage four transition.

One unexpected outcome of this study was that every factor agreed to very strongly agreed (+3, +4, +5) with at least one item that conveyed that a person can be a leader even if they do not hold a leadership position in an organization. This is not in alignment with the LID model, which describes a non-positional leadership view to be a key issue differentiating stages four, five, and six from the first three. In order to

understand this unexpected result, the factor arrays were reviewed again in light of this particular issue. By examining these items in combination with the rankings of all the others items, it seemed clear that each factor means something different by their agreement with that statement and that this meaning is reflective of their fundamental understanding of leadership.

LID stage four, represented here by factor one, described a view of non-positional leadership that is typical of what the LID model implies by the term: everyone in the group is doing leadership, whether they hold a leadership title in the group is not a prerequisite to be involved in the leadership processes. The Q sort for this factor clearly indicated a preference for nonhierarchical ways for leaders and followers to relate, so who holds the leadership title is less relevant than how people are relating to each other. Whether they consider themselves or others to be a “leader” has little to do with who sits on the executive team or chairs the committees. Everyone is working together interdependently, regardless. So, everyone is “doing leadership.”

Subjects in LID stage three independent, represented here by factor two seem to agree that leadership is not related to position because they view leadership as an identity or personal characteristic rather than as the fulfillment of the expectations of a specific role in an organization. Subjects in this factor feel more strongly than anything else that they are leaders and that this is a stable personality trait, not one that depends on whether they hold a title in an organization or not. This identity is very important to them. This was the only factor to believe that leadership is not something that just anyone can do - so not everyone has the personality characteristic that they do.

Subjects in LID Stage three dependent, represented here by factor three, described leadership as non-positional in recognition that sometimes the official leaders of the group are not getting the job done and someone else needs to step in and take over control. Subjects in factor three have a strong preference for hierarchical organization structures, prefer a clear leader and chain of command, and expect the vision and direction for the group to be top-down. They gave a +5 rank to item 35, “An organization can’t work effectively if it has too many leaders and not enough followers.” However, this factor also ranked several “leadership is not-positional” items fairly highly (+4 and +3). The highest of these was item 12, “When I think of leadership, I think of the people who actually get things done. They aren’t necessarily an official leader of the group...” Other highly ranked items confirmed that getting the job done is the number one leadership priority (as opposed to other views that value relationship maintenance over task). Additionally, this factor gave a +5 ranking to item 23, which conveys the importance of having group members who are willing to speak out when they believe the group is going in the wrong direction. The combination of these items provides strong evidence to support that these students want clearly identified leaders and followers (definitely not the free-for-all preferred by factor one), but they are also keenly aware that sometimes the official leaders of the group are not the people who are getting the job done. The person who takes the initiative to take control of the group and lead it to success are the true leaders of that group.

The subject on factor four did not describe leadership as tied to a position because he or she did not necessarily link leadership with involvement in organizations. This subject saw leadership as a personal characteristic just like the other traits and roles a

person might fill (although unlike factor two, he or she believed that anyone can do leadership if they choose to). This subject also had a strong preference for hierarchical organizational structures, but this was the only factor to have a view of leadership that is not necessarily connected to organizations at all. This description seems to be acknowledging those occasions when there is no organization to join but there is a common purpose to be met. So for this person to agree that leadership is not always positional, is to recognize that sometimes a person is a leader because he or she took initiative and took the lead in a setting where there was no organized effort. That person was not elected or selected to a group's leadership position. There was no group and no position there. But that person still fits within factor four's image of the leader as the person with vision, willing to accept responsibility for success or failure, and who can empower others to act while maintaining control.

Study Findings and Student Development Theory

While age and class standing in school were only proxy indicators of maturity, the findings here provide some evidence to confirm that interdependence is a state that is achieved later (factor one) than dependence or independence (factors two and three). This is an assertion made by the LID model and is in alignment with student development theory such as Chickering and Reisser's (1993) identity development theory, which indicates interdependence emerges after dependence and autonomy.

In chapter two, the parallels between the LID model and Kegan's (1982) constructive-developmental theory were explored. LID stage 4 was shown to align with Kegan's Fourth Order of Consciousness. Factor one from this study, which has been shown to align with LID stage 4, also aligns with Kegan's Fourth Order. The awareness

of one's own values and ability to consciously reflect on them in order to intentionally construct a meaningful life for oneself is an element of the Fourth Order of Consciousness that clearly aligns with the self-awareness and enjoyment of reflection described by the subjects in factor one. Similarly, factors two and three from this study, which align with LID stage 3, also have the alignment with Kegan's Third Order of Consciousness that one would expect. In the third order, the sense of self is constructed by how it aligns with other people's expectations, and it is very important to students at this level to preserve that alignment. For subjects in factor two, the belief that others see them as leaders is the critical factor in their describing themselves as such, and they strive to maintain that external confirmation of this identity. Subjects in factor three do not identify themselves as leaders, largely it would seem, because of the roles they play in organizations and their belief that others do not see them in this way. The role of external expectations shaping one's sense of self in Kegan's Third Order of Consciousness is also reflected in the preference for hierarchy in organizations that subjects in factors two and three maintain. Hierarchies create roles and a clear picture of what others expect of a person's behavior.

Another area of student development literature explored in Chapter Two involved how students make meaning of multiple social identities and the role of identity salience. In this study, subjects who readily identified themselves as leaders, factors one and two, were also those who enjoyed reflecting on leadership. They also had more opportunities to practice leadership and more leadership education/training experiences. One conclusion here might be that it is the leadership experience and education that led students to identify as leaders. However, the literature on identity salience suggests an

alternative interpretation, that it is because subjects already identify as leaders that they expose themselves to more opportunities to do leadership and learn more about it.

Study Findings and other Leadership Identity Theories

One of the themes identified in the leadership identity literature was growth from an independent to collective view of self with others, or as the LID model describes, a dependent/independent to interdependent view (Komives, et al., 2006; Lord & Hall, 2005). The difference between factors one, two, and three in this study supports these concepts, with factor three representing a dependent view, factor two representing an independent view, and factor one representing an interdependent view.

The LID model does not as directly address the importance of being identified as a leader by others. For the subjects in factor two of this study, this was a highly salient issue, with being seen as a leader by others being a motivator to be involved. This issue is directly addressed in Lord and Hall's (2005) leadership identity theory (discussed in Chapter Two). In this theory, being motivated by wanting to be seen as a leader is a key aspect of the *novice leader* identity. As one might assume from the name, the novice leader would align in other ways with the LID model's earlier stages.

LID stage five does specifically address the students' being increasingly motivated to be involved because of their passion for the goals of the group (which aligns with Lord and Hall's *expert leader* identity). So while this aspect of factor two has only indirect evidence to support a parallel with LID stage three, it does provide clear evidence that the factor does not align with LID stages five or six.

Another theme in the leadership identity development literature was the concept of the identity development spiral (Day, Harrison, & Halpin, 2009). The more people

have an integrated identity of themselves as leaders, the more likely they are to engage in leadership experiences, which give them opportunities to gain more leadership competencies and further inform their leadership identity. Factor three seems to provide supporting evidence of this. These subjects do not identify as leaders and they also do not seek more involvement. In fact they indicated they prefer to avoid taking leadership roles because they want to avoid the responsibility.

A third theme in the leadership identity literature was the strong link between developing self-awareness and leadership development (Hall, 2004). This seems to be supported by factor one from this study. What has been identified here as the most developed of the factors is also the factor that felt most strongly about being self-aware of values and life purposes, and for whom the importance of reflection on experience is the most important.

Limitations of the Study

The study had several limitations that will be discussed here. These include: an uneven distribution of subjects, an uneven time distance between the first and second Q sorts, a lack of Q sort items directly related to process, the inability to include subjects that might represent LID stages one and two, the lack of differentiation among LID stages four through six, and Q methodology as an exploratory rather than confirmatory methodology.

Uneven Distribution of Subjects.

Particularly regarding the goal of achieving a variety of education and leadership experience levels, it proved difficult to identify subjects with little or no campus or community involvement experiences because that lack of involvement meant neither the

researcher nor the nominators would have had the opportunity to meet them. Toward the end of data collection it was clear that the primary areas needing more representation were subjects with low involvement and freshmen and sophomores in general. Although an on-campus employer was able to nominate a good number of students who had no involvement outside of their on-campus job, the few who eventually agreed to participate in the study were all juniors or seniors, increasing the lopsided ratio of upper-class to lower-class students. Although enough subjects representing LID stage three emerged to make reliable factors representing this viewpoint, a greater number of subjects from that pool may have provided more insight into how students at this level think about leadership.

Uneven Time Distance Between the First and Second Q sorts

The study design was for each subject to complete the Q sort twice, four weeks apart. In reality, most subjects were five to six weeks between sorts and some were as far apart as eight weeks. The reliability of the Q sort method itself is likely the primary factor to attribute the still quite good correlations between the two sorts. Oddly, the subjects that did not correlate strongly between their first and second sorts (the pre-college subjects) were not the subjects with lengthy time lag between sorts. Perhaps because parents and guardians were involved, these subjects were actually quite responsible about scheduling the second sort by the four-week timeline.

Lack of Q Sort Items Directly Related to Process

As the items were being made, statements directly describing leadership as a process among people rather than as a position were removed. The rationale at that time was that other items already existed describing leadership as positional, so the ability to

disagree with those items would allow the subject to convey their attitude on that issue. During the process of interpretation however, the students' beliefs about process might have helped distinguish some of the later stages or lent further evidence to interpret the unexpected results about leadership as a position.

Inability to Include Subjects that Might Represent LID Stages One and Two

The low reliability of the pre-college subjects' Q sorts was a disappointment. Preliminary principal components analysis on the full set of subjects included factor structures in which these subjects were all classified together in one to three factors (depending on the overall number of factors extracted). That the pre-college students factored together seemed to be supporting the overall LID model, but when the reliability from the second sorts was found to be unacceptable, it was clear that it would be misleading to draw any interpretations from these Q sorts.

Q set items Did Not Differentiate Among LID Stages Four Through Six

The P set very clearly had a good number of subjects that were representatives of what should theoretically be LID stages five and six. However, these subjects did not factor differently from stage four. It is less clear that the Q set items needed for these subjects to convey an attitude that is different from stage four. Both stage five and six were represented by at least four items that should have been distinct to them, but those items were not strongly ranked (as was described in the section on generativity). The possibility remains that other items might have distinguished these groups.

Q Method as an Exploratory Rather than Confirmatory Method

Despite the fact that the aim of this study was to confirm the LID model, Q methodology is not a confirmatory factor analysis. Although the evidence this study

provides is supportive, the data analysis cannot provide any statistical indication of the strength of that support. There is no way to claim the evidence is statistically significant. Confirming conclusions can only be deduced by each person who reviews the data and decides whether he or she agrees with the conclusions made here.

Suggestions for Further Research

While the low reliability from the test/retest correlations of the pre-college subjects led this researcher to conclude the measure was not a reliable one for this population, it is possible that this is a period of rapid growth and development in terms of thinking about leadership identity. This would also explain large differences between the first and second card-sort. Further research on the viewpoints of pre-college students would both continue to inform the field and confirm the LID model. Having a better understanding of students' viewpoint on leadership prior to college could prove quite useful to college leadership educators as they design programs, particularly for entering freshmen.

The evidence that the resulting factors in this study represent stages of development rather than simply different types is based on interpretation of descriptive data alone. Further research using inferential statistics would provide stronger evidence that, as the LID model describes, the groups described are describing stages that are experienced in a developmental order.

The findings of this study suggest that LID stages four, five, and six are actually just one group. Further study focused particularly on the differentiation between these three stages might help further explain this study's finding. The challenge of measuring the final stages of a human development theory is not new to this study. For example, in

the development a valid and reliable instrument to measure Kohlberg's seven stage theory of moral development, researchers concluded with only measuring up to stage five (Colby, Kohlberg, Gibbs & Lieberman, 1983).

A follow-up study with more subjects and in particular more balance in terms of subject age/education level and leadership experience could lead to the use of Q methodology as an assessment tool. Examples were provided in Chapter Two of factor arrays used as a way to represent the views of each factor. These can be applied as an assessment tool by using the Q sort process to collect the viewpoint of the students and determining which factor-array the students most closely correlate with. The availability of an assessment would create a broad number of ways to study college environmental factors that contribute to subjects factoring into one group or another.

An important area of research that a Q-sort based LID model assessment instrument would make possible, is the way that leadership identity integrates with various aspects of an individual's social identity. As was discussed in chapter two, the original LID grounded theory study (Komives et al., 2005) found some initial evidence that students of color may experience their path through the LID stages slightly differently than White students. It has been suggested that other forms of social identity, such as gender or sexual orientation, may also lead to a different experience through the LID stages (Komives, Longerbeam, Mainella, Osteen, Owen & Wagner, 2009).

Another line of research with important implications for practice would be to examine the correlation between the LID stage the subject was predicted to be operating from during the nomination process and the stage indicated by the group the subject factored into. The results of such a study would be important to practitioners wanting to

know whether their own assessment of a student's LID stage (based on interactions and reflection journals) is similar to what an assessment instrument would indicate. The existence of a Q-sort based LID assessment instrument would make this an easily researched question.

Implications for Practice

The findings here do provide support for stage three independent, stage three dependent and stage four of the LID model. They also provide evidence for an emersion and immersion phase of stage three, with one (factor two) showing more signs of readiness for the transition to stage four than the other (factor three). Since the LID theory identifies these stages as the primary perspectives during the college years, the findings are quite useful to college leadership educators who can use the LID model to design leadership development programs. Being able to understand students' current perspective is very helpful for designing programs with the right balance of support for current viewpoint and leadership style and skills with the challenge to think about leadership a new way – with all the new skills implicit in that conceptualization.

The evidence that the final three LID stages may not be as distinct from each other as the original model suggests is good information for leadership educators who may have focused too much attention on issues like the stage five focus on generativity and the stage six emphasis on leadership identity as a stable aspect of the self. Some practitioners may have encouraged students to be mentors when they were not necessarily interested in playing that role, solely because of the belief that this experience will foster their leadership growth and development. Although that practice might be supported in

the literature on the power of mentorship (Smith, 2009), it is not supported by the findings of this study.

Finally, this study provides examples of how student leaders' point of view and motives to be involved can be better understood by considering the intersection of leadership related issues. Understanding students' definitions of leadership (An identity? Filling a role? Participating in a process? Taking charge? Getting things done?) in light of their preference for hierarchy and sense of self as a leader can help educators better frame messages and more clearly understand how those messages are being interpreted differently by different groups.

In the end, this study represents a small step forward in the on-going story of the LID model. Validation stages three and four, including both independent and dependent experiences of stage three as the LID model would predict, is a useful finding given that these are the LID stages most likely to be observed in college-aged students. Further research will continue to inform leadership educators hoping to create environments that facilitate growth and development in leadership identity.

Appendix A

Final Q Set Items

LID Stage	Item
1	I'm not really involved in many organizations or activities.
1	I don't really think of myself as a leader or a follower. I'm just kind of there.
1	I haven't really thought that much about what leadership is or what being a leader means.
1	Most of the groups I'm involved in now are because my parents or teachers got me to do it. I was just kind of thrown into it.
1	When I think of the word leadership, I think of things adults do - like the mayor of a city, the head of a company, or teachers in school. I don't really see myself as a leader.
1/2	I want to be more involved than I am.
1/2/3	Leadership is a characteristic that some people have and others just don't.
2	I'm involved in groups, but I'm not a leader. I'm just a member.
2	The organizations I'm involved in, I joined mostly because my friends are in them too.
2	I see others my age that will speak up or volunteer to do projects or to be leaders of clubs. I see them as leaders.
2	I have a wide range of interests. I like to get involved in different types of groups and explore things I might like.
2	When I think about leadership, I think of people around me who get things done, not necessarily about involvement in formal organizations.
2	By getting involved in a few groups or projects, I'm starting to see that I am good at working with people.
2/3	Good leaders know how to do things like run a meeting, make decisions, motivate others and communicate clearly when telling people what to do.
2/3	A leader is the type of person who can get other people to do things.
2/3	Working in groups almost always results in one person doing most of the work. I would call that person the leader of that group.
2/3	When I work in groups, I tend to avoid taking on leadership responsibility. I don't like having the pressure of the group's success or failure to be on me.
2/3	When I think of leadership, I think of a person who has vision and shows direction, without giving in to pressure to do something else.
2/3	When I'm not in the leadership position, I usually will follow what the leader says so everything will go according to plan.
2/3	I didn't used to think of myself as a leader, but I've taken on some roles, like being team captain or an officer in an organization. So I can kind of see myself that way now.
2/3	I'm an officer of a certain organization (I have a leadership position), but I

	have to admit I don't really do that much.
2/3	In order to reach a major goal, groups need to be organized with a clear leader and chain of command so everyone knows what each person's job is.
2/3	The head of the group is ultimately responsible for whether or not the job gets done.
2/3/4	Lately I've been really frustrated by something I've noticed [in society or in my community] and I want to try to change it or make things better.
2/3	An organization can't work effectively if it has too many leaders and not enough followers.
2/3	A good leader will take charge and have a certain level of control over what is going on.
2/3	People in positions of authority may often gather input from the people under them, but they are not obligated to.
3	Sometimes I worry that other people in my organization think I try to control them too much.
3	Lately I've been looking to be involved in something that matters to me. I'd like to feel like I'm a part of something that is meaningful and important - more than just the day-to-day stuff.
3	I'm in just one or two organizations. I'm selective about only being involved in areas that really matter to me.
3	I enjoy being involved in organizations because others see me as a good leader and that is something I do want to be known for.
3	I used to see leadership as something that other people did. Now I see that I can take charge and get things done.
3	Whether you'd call me a leader depends on the situation. I'd consider myself a leader when I'm doing stuff for [name of organization], because I'm the president. In other organizations though, I'm just a regular member.
3	When working in groups, I often end up doing a lot of the work myself. I know I should delegate, but it isn't easy to trust other people to get things done or do them well.
3/4	It is important to have group members who will risk stepping outside of the lines, to say "this group is going in the wrong direction."
3/4	Good members are just as important to the success of a group as good leaders. Having members who are actively involved and reliable is so important.
3/4/5	It is important for leaders to know how to develop other people's talents and strengths, and to trust and empower them to act for the group.
4	When working in groups, I used to pretty much do everything myself because I wanted to make sure it was done right. I am better now about trusting other people and letting them do things differently than I would have.
4	When I think of leadership, I think of the people who actually get things done. They aren't necessarily an official leader of the group, and may work quietly in the background, but they do the work that makes the group accomplish the goal.
4	A good leader should empower all group members to be actively involved in the group's processes of decision-making, goal setting, delegating, etc.
4	When I am the leader, I'm not comfortable telling people what to do. Instead

	I'd rather gather everyone's ideas. We should decide together, not me directing everyone.
4	I believe a person can be a leader even though he/she doesn't have a title or an official position in an organization. I can be A leader in a group without being THE leader of the group.
4	Just because you don't have an official position in an organization doesn't mean you can't be a leader. Anyone can take the initiative to do something for the organization.
4	I have often said that simply reaching a goal doesn't necessarily mean a group was successful. How did they reach it? A good group process, everyone feeling good about how they worked together, is as important as what the group accomplished.
4/5/6	Achieving our group goal is more important to me than an individual goal like a leadership award.
4/5/6	I get involved because there are things that I find so important that I can't just sit by and not do something.
4/5/6	A good leader can direct people when they need it, but also allow people to direct themselves. They will stand up when somebody needs to, but aren't always out in front.
4/5/6	Whether I have a leadership position or not, when I'm in a group, I monitor the things I do and say because I am aware of the affect it will have on others.
4/5/6	Anyone can learn to be good at leadership.
4/5/6	I don't like assigning labels like "leader" or "follower" as if a person is one or the other. The reality of group work is much more fluid than that.
5	My leadership role in this organization is to being able to share the history of the group, how we used to do things and why we do them differently now. I can help members see how their involvement fits into the on-going story of our group. I think it helps them see their involvement as more meaningful.
5	My approach to leadership is mentoring people. Several people in my group would say that I helped them think about their strengths and encouraged them to take on more responsibilities in our group.
5	I really want to stay true to what is important to me. I don't want to "sell out" in order to make the going easier.
5	I used to be directly involved with everything my group worked on. Now I've stepped back to let younger members do things, hoping they will keep the group going strong after I'm no longer in it.
5/6	Building relationships with people in other organizations is an important part of what I do to help my organization be successful. We need to have coalitions and supports across the system in order to really make a difference.
5/6	I think everything I've learned about leadership and how groups can work together effectively will apply when I find myself in a new situation (like my next project or job).
5/6	I have spent a lot of time thinking about how I operate in groups, like the roles I play and how to determine how my particular strengths and skills could be best put to use.

5/6	I have come to know who I am in terms of my values and purpose in life. This plays an important role in my leadership because I can see my values and purpose influencing the type of leader I am.
6	All organizations are complex and operate differently, but I can usually figure out what the organization needs in order to know what role I should play and what strengths I can contribute.
6	When I'm considering whether to get involved with a new group, their mission and values about how members work together are important considerations.
6	I am a leader. It is a part of how I see myself, just like my other roles and characteristics.
6	Being a person who gets involved in order to make a difference means that I often face challenging situations and don't know what to do. But I have confidence that by working with others, we can figure it out.
6	I enjoy the time I spend talking to people about leadership and how to work more effectively in groups. Talking about what I should have done differently doesn't harm my confidence to be a leader in a group.
6	I used to think of myself as a person who contributed to leadership in certain contexts (an organization, my job, school projects), but now I have confidence that I can be that way anywhere I choose to. I am always a leader, it just looks different in different situations.

Appendix B

Example of Email Communication to the Subject Nominators

Dear *name*,

As you know, I am conducting a validation study of the leadership identity development (LID) model for my doctoral dissertation. I appreciate your offering assistance with my study by agreeing to nominate student subjects for the study. I contacted you in particular because I know you are both very familiar with this model and because you work directly with students and have had some opportunity to infer their LID stage based on observing their behavior and considering their reflections on their experience.

I will need approximately 40 subjects to conduct my study and they must represent the range of the LID model stages. It would be of great assistance to me if you could identify and nominate a few students whom you have solid reason to believe are operating from each of the various stages of the LID model. Know that I will be sampling outside of the college population for the early and late stages of the model, so if you are only able to identify with certainty students in stages three through five, you will be providing an invaluable service to me.

Given the limited number of subjects I will have in my sample and the nature of the study itself, the quantity of students you are able to nominate is less valuable than your utmost confidence that the students nominated are operating from the stage you indicate.

I have attached PDF's of the two original journal articles on the LID model, as well as a form through which you can indicate the students' name, contact information, LID stage, and a very brief summary of the student's leadership experience (remembering that leadership is defined here as participation in a process rather than as holding a position).

Thank you again for offering your assistance. Please let me know if you have any questions or need clarification. I will follow-up soon to schedule a time to meet to discuss your suggestions for subject nominations.

Sincerely,

Wendy Wagner
Doctoral Candidate
University of Maryland

Attached:
Form for Nominations

If the subject is under the age of 18, please also include contact information for a parent or legal guardian.

Name	Age	Gender	Race/ Ethnicity	LID Stage (your estimation)	Brief summary of leadership experience/education	Email	Phone

Appendix C

Example of initial email communication with nominated subjects

Dear [name],

I am a doctoral student studying college students and leadership development. I am completing my dissertation research this summer and [nominator] gave me your name as an excellent person for the study I am conducting. I am hoping you will be interested.

Participation will require about one hour of your time next week, and then a follow-up 30 minute meeting in four weeks. You will be given a stack of cards, each with a statement about leadership on it. Your primary task is to sort the items into piles indicating the level to which you strongly disagree, disagree, agree or strongly agree.

All subjects who complete both the initial and follow-up meeting will be entered in a drawing for cash prizes. This study does not have a large number of subjects (less than 50), so anyone's chances of being drawn are pretty good.

I will be on campus at UNL in the student union on July 8th and 9th (Thursday and Friday). I can meet any time on those days, including in the evening, in order to work with your schedule.

If you are willing to participate, could you please reply to this email and let me know if you could meet with me for an hour on Thursday or Friday and what time(s)? If next week is not good for you, we might be able to schedule a time later on as well, but since a four week follow-up is necessary, I do need to try to schedule this first round quickly.

Thank you for your time, I hope to meet you soon!

Wendy Wagner
University of Maryland
Doctoral Candidate

Appendix D

Consent Form

Study of Leadership Identity Development CONSENT FORM

Why is this research being done?

This is a research project being conducted by Susan Komives and Wendy Wagner at the University of Maryland, College Park. We are inviting you to participate in this research project because you were nominated by a faculty member or university administrator who identified you as a good fit for the purposes of the study. The purpose of this research project is to obtain additional data to confirm or disconfirm a theoretical model that describes the processes people experience as they come to think of themselves as leaders.

What will I be asked to do?

You will be asked to fill out a short questionnaire indicating your experiences with leadership as well as some demographic information. Then you will receive a stack of approximately 80 index cards, each with a statement about leadership. You will sort these cards into stacks to indicate the degree to which you agree or disagree with the statement on the card. The results will be recorded on a scoring sheet and the stack of cards will be collected and shuffled. The whole process should take no longer than 40 minutes.

What about confidentiality?

Every effort will be made to keep your personal information confidential. To help protect your confidentiality, the questionnaire, scoring sheets and this consent form will be stored in a locked file cabinet. These will be shredded within one year of the completion of the study. Your responses (both the questionnaire and the card-sorting score sheets) will be entered into a computer software program using an identification code rather than your name or any identifying information. The researcher is the only person who will have access to the identification code to be able to link your responses to your identity.

This data will be stored on a password-protected computer until one year after the completion of the study at which time it will be deleted. Any papers, reports or presentations on the results will protect the identities of all participants to the maximum extent possible. Your information may be shared with representatives of the University of Maryland, College Park or governmental authorities if you or someone else is in danger or if we are required to do so by law.

What are the risks of this research?

There are no known risks associated with participating in this research project.

What are the benefits of this research?

This study is not designed to help you personally. The results of the study will help the investigator learn more about how people define leadership and think about themselves as leaders. Leadership educators will benefit from an improved understanding of the various ways different individuals think about their leadership identity.

Do I have to be in this research? May I stop participating at any time?

Your participation in this research is completely voluntary. You may choose not to take part at all. If you decide to participate in this research, you may stop participating at any time. If you decide not to participate in this study or if you stop participating at any time, you will not be penalized or lose any benefits to which you otherwise qualify

What if I have questions?

This research is being conducted by Susan Komives at the University of Maryland, College Park. If you have any questions about the research study itself, please contact Susan Komives at 3214 Benjamin Building (Komives@umd.edu; 301-405-2870). If you have questions about your rights as a research subject or wish to report a research-related injury, please contact: Institutional Review Board Office, University of Maryland, College Park, Maryland, 20742; (e-mail) irb@deans.umd.edu; (telephone) 301-405-0678. This research has been reviewed according to the University of Maryland, College Park IRB procedures for research involving human subjects.

Statement of Age of Subject and Consent

Your signature indicates that: (1) you are at least 18 years of age; (2) the research has been explained to you; (3) your questions have been fully answered; and (4) you freely and voluntarily choose to participate in this research project.

NAME OF SUBJECT	
SIGNATURE OF SUBJECT	
DATE	

Appendix E

Parental Permission Form

Study of Leadership Identity Development PARENTAL PERMISSION FORM

Why is this research being done?

This is a research project being conducted by Susan Komives and Wendy Wagner at the University of Maryland, College Park. We are inviting your child to participate in this research project because he/she was nominated by a youth group leader who identified them as a good fit for the purposes of the study. The purpose of this research project is to obtain additional data to confirm or disconfirm a theoretical model that describes the processes people experience as they come to think of themselves as leaders.

What will my child be asked to do?

Your child will be asked to fill out a short questionnaire indicating his/her experiences with leadership as well as some demographic information. Then he/she will receive a stack of approximately 80 index cards, each with a statement about leadership. He/she will sort these cards into stacks to indicate the degree to which he/she agrees or disagrees with the statement on the card. The results will be recorded on a scoring sheet and the stack of cards will be collected and shuffled. The whole process should take no longer than 40 minutes.

What about confidentiality?

Every effort will be made to keep your child's personal information confidential. To help protect confidentiality, the questionnaire, scoring sheets and this consent form will be stored in a locked file cabinet. These will be shredded within one year of the completion of the study. Your child's responses (both the questionnaire and the card-sorting score sheets) will be entered into a computer software program using an identification code rather than your child's name or any identifying information. The researcher is the only person who will have access to the identification code to be able to link your child's responses to his/her identity.

This data will be stored on a password-protected computer until one year after the completion of the study at which time it will be deleted. Any papers, reports or presentations on the results will protect the identities of all participants to the maximum extent possible. Your child's information may be shared with representatives of the University of Maryland, College Park or governmental authorities if he/she or someone else is in danger or if we are required to do so by law.

What are the risks of this research?

There are no known risks associated with participating in this research project.

What are the benefits of this research?

This study is not designed to help your child personally. The results of the study will help the investigator learn more about how people define leadership and think about themselves as leaders. Leadership educators will benefit from an improved understanding of the various ways different individuals think about their leadership identity.

Does my child have to be in this research? May he/she stop participating at any time?

Participation in this research is completely voluntary. Your child may choose not to take part at all. If you decide to consent to participation in this research, your child may stop participating at any time. If your child decides not to participate in this study or if he/she stops participating at any time, neither you nor your child will be penalized or lose any benefits to which you otherwise qualify.

What if I have questions?

This research is being conducted by Susan Komives at the University of Maryland, College Park. If you have any questions about the research study itself, please contact Susan Komives at 3214 Benjamin Building (Komives@umd.edu; 301-405-2870). If you have questions about your child's rights as a research subject or wish to report a research-related injury, please contact: Institutional Review Board Office, University of Maryland, College Park, Maryland, 20742; (e-mail) irb@deans.umd.edu; (telephone) 301-405-0678. This research has been reviewed according to the University of Maryland, College Park IRB procedures for research involving human subjects.

Statement of Age of Subject and Consent

Your signature indicates that: (1) you are the parent/ legal guardian of the subject; (2) the research has been explained to you; (3) your questions have been fully answered; and (4) you freely and voluntarily consent to your child's participation in this research project.

NAME OF SUBJECT	
NAME OF SUBJECT'S PARENT/LEGAL GUARDIAN	
SIGNATURE OF PARENT/LEGAL GUARDIAN	
DATE	

Appendix F

Assent Form

Study of Leadership Identity Development ASSENT FORM

Why is this research being done?

This is a research project being conducted by Susan Komives and Wendy Wagner at the University of Maryland, College Park. We are inviting you to participate in this research project because you were nominated by a youth group leader who identified you as a good fit for the study. The goal of this research project is to learn more about how people come to think of themselves as leaders.

What will I be asked to do?

You will be asked to fill out a short form about you and your experiences with leadership. Then you will receive a stack of approximately 80 index cards, each with a statement about leadership. You will sort these cards into stacks to indicate how much you agree or disagree with the statement on the card. The results will be recorded on a scoring sheet and the stack of cards will be collected and shuffled. The whole process should take no longer than 40 minutes.

What about confidentiality?

Every effort will be made to make sure that no one knows how you responded to the questions or how you sorted your cards. All of this information will be stored in a locked file cabinet and on a password protected computer. The information entered on the computer will use a subject number rather than your name. The researcher is the only person who will have access to which subject number is yours. When the results of the study are presented, you will not be identified as a participant.

Your information may be shared with representatives of the University of Maryland, College Park or governmental authorities if you or someone else is in danger or if we are required to do so by law.

What are the risks of this research?

There are no known risks associated with participating in this research project.

What are the benefits of this research?

This study is not designed to help you personally. The results of the study will help the investigator learn more about how people define leadership and think about themselves as leaders.

Do I have to be in this research? May I stop participating at any time?

Your participation in this research is completely voluntary. You may choose not to take part at all. If you decide to participate in this research, you may stop participating at any

time. If you decide not to participate in this study or if you stop participating at any time, you will not be penalized.

What if I have questions?

This research is being conducted by Susan Komives at the University of Maryland, College Park. If you have any questions about the research study itself, please contact Susan Komives at 3214 Benjamin Building (Komives@umd.edu; 301-405-2870). If you have questions about your rights as a research subject or wish to report a research-related injury, please contact: Institutional Review Board Office, University of Maryland, College Park, Maryland, 20742; (e-mail) irb@deans.umd.edu; (telephone) 301-405-0678. This research has been reviewed according to the University of Maryland, College Park IRB procedures for research involving human subjects.

Statement of Age of Subject and Consent

Your signature indicates that: (1) the research has been explained to you; (2) your questions have been fully answered; and (3) you freely and voluntarily choose to participate in this research project.

NAME OF SUBJECT	
SIGNATURE OF SUBJECT	
DATE	

Appendix G

Q sort Report Form

CARD SORT RECORD

Last four digits of SSN# _____

-5	-4	-3	-2	-1	0	1	2	3	4	5
1.	1.	1.	1.	1.	1.	1.	1.	1.	1.	1.
2.	2.	2.	2.	2.	2.	2.	2.	2.	2.	2.
3.	3.	3.	3.	3.	3.	3.	3.	3.	3.	3.
	4.	4.	4.	4.	4.	4.	4.	4.	4.	
		5.	5.	5.	5.	5.	5.	5.		
		6.	6.	6.	6.	6.	6.	6.		
			7.	7.	7.	7.	7.			
				8.	8.	8.				

Appendix H

Survey Form

Last four digits of social security # _____

Please complete the following information and the brief survey on the back of this sheet.

**What is your current class level?
(Circle the response that best fits your
class standing)**

Junior High Student

High School Student

College Freshman/First-year

College Sophomore

College Junior

College Senior (4th year and beyond)

Graduate with a BA or BS

Graduate student (Masters or Doctoral)

Graduate with an advanced degree

What is your age?

_____ (indicate number)

What is your gender?

Female

Male

Transgender

**Please indicate your broad racial
group membership**

White/Caucasian

Middle Eastern

African American/Black

American Indian/Alaska Native

Asian American/Asian

Latino/Hispanic

Multiracial

Race/Ethnicity not included above

Please indicate the extent to which you have participated in programs designed to learn or develop leadership (such as leadership courses, conferences, retreats, workshops, or speakers).

Have never participated in a leadership development program

Have had minimal participation in leadership development programs

Have had moderate participation in leadership development programs

Have had a great deal of participation in leadership development programs

The following questions are designed to determine to what extent you have taken the opportunity to develop leadership through experience.

How often have you:

Been an involved member of a school or community organization prior to college?

Never

Once

Sometimes

Many Times

Much of the Time

Been an involved member of a campus or community organization during college (or after college if applicable)?

Never

Many Times

Once

Much of the Time

Sometimes

Held a leadership position (officer of an organization, chair of a committee, team captain, etc.)?

Never

Many Times

Once

Much of the Time

Sometimes

Please let me know if you would like to talk to me about your card sort.

Appendix I

Description of Subjects / Information Collected from Survey

Key

Education Level:

junior high (JH)
 high school (HS)
 college freshman (fresh)
 college sophomores (soph)
 college juniors (junior)
 college seniors (senior)
 college graduates (cg)
 graduate students (grad)
 advanced degree, university faculty, administrators (Adv)

Sex:

Male (M)
 Female (F)

Race:

African American (AfAm)
 Asian American (AsAm)
 American Indian (AmIn)
 Latino/a (Lat)
 White (Wh)

Location:

College Park, MD (CP)
 Fairfax, VA (Fairfax)
 Lincoln, NE (Lincoln)

LABS III:

H = Preference for hierarchy in organizations
 S = Systemic understanding of how organizations work

Ld Ed:

Leadership Education
 1 never
 2 minimal
 3 moderate
 4 a great deal

Ld Exp:

Leadership Experience
 1 never
 2 once
 3 sometimes
 4 many times
 5 much of the time

Subject #	Survey #	Educ Level	Sex	Race	Age	LABS III	Location	Ld Ed	Ld Exp
1	9906	grad	F	Wh	22	Low H / High S	Lincoln	4	5
2	9353	soph	F	Wh	18	High H / High S	Lincoln	3	5
3	1555	senior	F	Wh	21	Low H / High S	Lincoln	4	5
4	0523	junior	F	Wh	20	Low H / Low S	Lincoln	4	5
5	9087	grad	M	Wh	24	Low H / High S	Lincoln	3	3
6	4169	senior	F	AfAm	20	Low H / High S	Lincoln	4	5
7	4415	fresh	F	Lat	16	High H / Low S	Lincoln	2	3
8	8784	senior	M	Lat	21	Low H / High S	Lincoln	4	5
9	8775	senior	F	Wh	21	Low H / Low S	Lincoln	2	5
10	6086	senior	F	Wh	21	Low H / Low S	Lincoln	4	5
11	8580	soph	F	Lat	20	Low H / High S	Lincoln	4	5
12	2881	senior	F	Lat	21	High H / Low S	Lincoln	4	5

13	1706	junior	M	Wh	20	High H / Low S	Lincoln	4	5
14	5226	senior	M	Wh	21	Low H / High S	Lincoln	4	5
15	6282	grad	F	AsAm	23	High H / High S	Fairfax	3	5
16	0777	junior	F	AsAm	19	Low H / High S	CP	4	5
17	7657	grad	M	AfAm	21	Low H / High S	CP	4	5
18	2506	adv	M	AsAm	28	Low H / High S	CP	4	5
19	1110	senior	M	Wh	21	High H / Low S	CP	3	5
20	9775	senior	F	AsAm	21	Low H / High S	CP	4	5
21	3622	grad	F	AfAm	22	Low H / High S	CP	4	5
22	2602	junior	F	Lat	20	Low H / Low S	CP	3	3
23	3641	junior	F	AfAm	20	Low H / High S	CP	4	5
24	5111	adv	F	AfAm	57	Low H / High S	CP	4	5
25	0816	senior	M	Lat	26	High H / High S	Fairfax	3	4
26	2300	grad	M	AfAm	31	Low H / High S	Fairfax	3	5
27	1414	adv	M	Wh	60	Low H / Low S	Fairfax	3	3
28	1309	adv	F	Wh	57	Low H / High S	Fairfax	3	4
29	5258	junior	F	AfAm	21	Low H / High S	Fairfax	2	3
30	9895	cg	M	AfAm	49	Low H / High S	Lincoln	4	3
31	6475	soph	F	Wh	19	High H / Low S	Lincoln	3	3
32	8567	fresh	F	Wh	19	Low H / High S	Lincoln	4	2
33	4053	junior	M	Wh	20	Low H / Low S	Lincoln	3	5
34	0595	adv	F	Wh	51	Low H / High S	Fairfax	4	4
35	3562	senior	M	AfAm	20	High H / Low S	CP	4	5
36	9507	senior	M	Wh	21	High H / Low S	Fairfax	1	3
37	4164	cg	M	Wh	30	Low H / High S	Lincoln	3	4
38	2787	fresh	M	Wh	19	High H / High S	Lincoln	2	3
*	7038	JHS	M	Wh	14	High H / Low S	Fairfax	1	1
*	6095	JHS	M	Wh	13	High H / Low S	Fairfax	2	1
*	5643	JH	M	Wh	14	High H / Low S	Lincoln	2	1
*	7185	HS	F	Lat	17	High H / Low S	Lincoln	2	3
*	8893	HS	F	Wh	16	High H / High S	Lincoln	3	1
*	7634	HS	M	Wh	15	High H / Low S	Lincoln	3	3
*	0766	HS	M	AmIn	17	High H / High S	Lincoln	2	4
*	3651	HS	F	Wh	15	High H / High S	Lincoln	3	3
*	2115	HS	F	Wh	18	High H / High S	Lincoln	1	1
*	5040	HS	F	Wh	15	High H / Low S	Lincoln	1	1
*	1317	HS	F	Wh	18	Low H / Low S	Lincoln	2	2
*	6481	HS	M	Wh	15	High H / Low S	Fairfax	1	3

* Removed from study

Appendix J

Leadership Attitudes and Beliefs Scale

LABS-III

Please indicate the extent to which you agree or disagree with each statement by circling the response that best represents your opinion.
SA = STRONGLY AGREE; **A** = AGREE; **N** = NEITHER AGREE NOR DISAGREE; **D** = DISAGREE; **SD** = STRONGLY DISAGREE

	S A	A	N	D	S D	H	S
Individuals need to take initiative to help their organization accomplish its goals.	1	2	3	4	5		
Leadership should encourage innovation.	1	2	3	4	5		
A leader must maintain tight control of the organization.	1	2	3	4	5		
Everyone in an organization needs to be responsible for accomplishing organizational goals.	1	2	3	4	5		
Leadership processes involve the participation of all organization members.	1	2	3	4	5		
A leader must control the group or organization.	1	2	3	4	5		
A leader should maintain complete authority.	1	2	3	4	5		
A leader should take charge of the group.	1	2	3	4	5		
Organizational actions should improve life for future generations.	1	2	3	4	5		
The main task of a leader is to make the important decisions for an organization.	1	2	3	4	5		
Leadership activities should foster discussions about the future.	1	2	3	4	5		
Effective leadership seeks out resources needed to adapt to a changing world.	1	2	3	4	5		
The main tasks of a leader are to make and then communicate decisions.	1	2	3	4	5		
An effective organization develops its human resources.	1	2	3	4	5		
It is important that a single leader emerges in a group.	1	2	3	4	5		
Members should be completely loyal to the designated leaders of an organization.	1	2	3	4	5		
The most important members of an organization are its leaders.	1	2	3	4	5		
Anticipating the future is one of the most important roles of leadership processes.	1	2	3	4	5		

	S A	A	N	D	S D	H	S
Good leadership requires that ethical issues have high priority.	1	2	3	4	5		
Successful organizations make continuous learning their highest priority.	1	2	3	4	5		
Positional leaders deserve credit for the success of an organization	1	2	3	4	5		
The responsibility for taking risks lies with the leaders of an organization.	1	2	3	4	5		
Environmental preservation should be a core value of every organization.	1	2	3	4	5		
Organizations must be ready to adapt to changes that occur outside the organization.	1	2	3	4	5		
When an organization is in danger of failure, new leaders are needed to fix its problems.	1	2	3	4	5		
An organization needs flexibility in order to adapt to a rapidly changing world.	1	2	3	4	5		
Leaders are responsible for the security of organization members.	1	2	3	4	5		
An organization should try to remain as stable as possible.	1	2	3	4	5		

(Wielkewicz, 2000).

Appendix K

Person-Set Characteristics by Cell

	Entire P set	Estimated LID: 1/2	Estimated LID: 3	Estimated LID: 4	Estimated LID: 5	Estimated LID: 6
Subjects	50	12	10	12	9	7
Gender	28 female 22 male	7 female 5 male	6 female 4 male	8 female 4 male	4 female 5 male	3 female 4 male
Race/ Ethnicity	29 White (W) 9 African American (AfAm) 8 Latino/a (L) 4 Asian American (AsAm) 1 American Indian (AmIn)	10 W 2 L	6 W 2 L 1 AfAm 1 AmIn	5 W 3 AfAm 2 L 2 AsAm	5 W 2 AfAm 1 L 1 AsAm	3 W 2 AfAm 1 AsAm
Education Level	3 junior high (JH) 8 high school (HS) 4 freshman (F) 4 sophs (So) 6 juniors (J) 12 seniors (Se) 2 college graduates (CG) 6 graduate students (Gr) 5 advanced degree (Adv)	3 JH 7 HS 2 F	1 HS 1 F 3 So 1 J 4 Se	1 F 1 So 5 J 5 Se	3 Se 1 CG 5 Gr	5 Adv 1 Gr 1 CG
Leadership Education	14: never (nev) 16: minimal (min) 10: moderate (mod) 10: a great deal (gr)	11: nev 1: min	3: nev 3: min 4: mod	6: min 4: mod 2: gr	3: min 1: mod 5: gr	3: min 1: mod 3: gr
Leadership Experience	8: never (nev) 7: once (once) 5: sometimes (some) 7: many times (many) 23: much of the time (much)	8: never 4: once	2: little 2: some 6: much	1: once 1: some 2: many 8: much	1: some 3: many 5: much	1: some 2: many 4: much
Location	10: College Park (CP) 11: Fairfax (F) 29: Lincoln (L)	10: L 2: F	8: L 2: F	6: CP 1: F 5: L	2: CP 1: F 6: L	2: CP 4: F 1: L

Appendix L

Correlation Matrix Between Sorts (First Q Sort)

	1	2	3	4	5	6	7	8	9	10	11	12	13	14
1	100	40	71	50	48	64	24	55	32	58	30	40	54	53
2	40	100	45	59	37	29	41	61	46	42	49	30	43	44
3	71	45	100	73	46	59	47	70	49	66	26	55	54	67
4	50	59	73	100	38	56	49	67	50	59	34	43	43	68
5	48	37	46	38	100	50	38	51	41	43	42	44	33	35
6	64	29	59	56	50	100	36	57	46	67	42	53	61	58
7	24	41	47	49	38	36	100	53	71	44	34	44	35	53
8	55	61	70	67	51	57	53	100	62	55	45	40	60	69
9	32	46	49	50	41	46	71	62	100	33	40	49	46	49
10	58	42	66	59	43	67	44	55	33	100	38	50	48	53
11	30	49	26	34	42	42	34	45	40	38	100	36	22	38
12	40	30	55	43	44	53	44	40	49	50	36	100	41	38
13	54	43	54	43	33	61	35	60	46	48	22	41	100	54
14	53	44	67	68	35	58	53	69	49	53	38	38	54	100
15	46	37	41	45	38	51	34	48	34	57	34	38	41	34
16	62	40	67	65	40	61	34	71	37	61	29	40	51	67
17	66	25	59	54	35	64	16	52	20	63	21	32	49	45
18	69	35	64	47	42	72	23	57	26	71	32	38	50	45
19	12	18	13	7	16	10	19	9	5	15	7	30	11	16
20	67	16	57	44	33	64	17	43	23	60	13	29	40	49
21	57	44	64	59	38	64	28	61	35	67	28	38	49	55
22	59	27	49	41	50	63	27	51	36	55	24	29	46	44
23	61	28	60	46	38	59	41	56	49	71	36	49	41	55
24	54	32	60	44	41	67	38	59	39	61	32	45	55	59
25	39	25	41	43	36	42	36	50	27	31	25	39	43	50
26	48	26	52	22	37	44	32	48	36	32	23	51	48	41
27	61	21	56	43	36	58	22	55	36	44	24	38	44	46
28	70	30	67	66	38	62	22	54	30	60	31	43	41	65
29	29	15	30	34	34	37	26	31	26	29	24	33	36	32
30	52	16	49	42	29	53	35	34	34	50	25	40	35	53
31	59	31	57	47	23	40	11	43	19	40	18	38	37	47
32	36	49	35	43	29	29	38	44	43	28	31	30	43	37
33	66	33	71	61	37	66	38	64	28	58	32	38	53	64
34	63	37	57	65	38	67	28	62	34	60	32	35	56	56
35	67	32	69	55	36	70	30	66	44	58	35	52	58	62
36	60	28	52	50	50	70	23	53	34	61	26	35	54	53
37	13	34	30	18	16	23	16	34	35	9	35	45	41	31
38	50	30	62	46	40	60	33	51	45	55	38	52	61	61
39	17	-1	22	11	37	33	29	11	24	12	11	49	29	26

Appendix L Continued: Correlation Matrix Between Sorts (First Q Sort)

	15	16	17	18	19	20	21	22	23	24	25	26	27	28
1	46	62	66	69	12	67	57	59	61	54	39	48	61	70
2	37	40	25	35	18	16	44	27	28	32	25	26	21	30
3	41	67	59	64	13	57	64	49	60	60	41	52	56	67
4	45	65	54	47	7	44	59	41	46	44	43	22	43	66
5	38	40	35	42	16	33	38	50	38	41	36	37	36	38
6	51	61	64	72	10	64	64	63	59	67	42	44	58	62
7	34	34	16	23	19	17	28	27	41	38	36	32	22	22
8	48	71	52	57	9	43	61	51	56	59	50	48	55	54
9	34	37	20	26	5	23	35	36	49	39	27	36	36	30
10	57	61	63	71	15	60	67	55	71	61	31	32	44	60
11	34	29	21	32	7	13	28	24	36	32	25	23	24	31
12	38	40	32	38	30	29	38	29	49	45	39	51	38	43
13	41	51	49	50	11	40	49	46	41	55	43	48	44	41
14	34	67	45	45	16	49	55	44	55	59	50	41	46	65
15	100	47	61	53	19	46	62	51	55	41	48	26	59	51
16	47	100	75	68	-3	59	72	61	54	47	50	25	52	71
17	61	75	100	74	-5	63	74	62	51	59	34	30	61	73
18	53	68	74	100	0	73	77	61	61	69	25	42	65	64
19	19	-3	-5	0	100	16	14	12	21	16	31	27	3	6
20	46	59	63	73	16	100	61	64	71	61	37	40	60	77
21	62	72	74	77	14	61	100	58	63	62	31	32	49	67
22	51	61	62	61	12	64	58	100	55	52	48	31	58	57
23	55	54	51	61	21	71	63	55	100	60	43	43	50	66
24	41	47	59	69	16	61	62	52	60	100	23	58	59	56
25	48	50	34	25	31	37	31	48	43	23	100	38	45	42
26	26	25	30	42	27	40	32	31	43	58	38	100	48	26
27	59	52	61	65	3	60	49	58	50	59	45	48	100	54
28	51	71	73	64	6	77	67	57	66	56	42	26	54	100
29	44	33	33	24	23	33	31	30	33	30	53	41	39	32
30	15	29	26	41	15	51	29	35	48	56	29	44	38	50
31	40	47	51	48	20	58	48	38	51	44	42	40	54	71
32	36	38	15	18	12	15	26	27	23	14	39	32	17	22
33	47	70	63	68	19	66	66	51	50	54	57	48	62	67
34	43	76	69	67	5	64	70	66	50	55	31	22	50	69
35	47	56	59	64	23	55	65	53	64	67	44	50	58	69
36	54	70	77	68	2	68	66	71	50	57	35	31	54	68
37	21	20	5	10	15	-4	19	17	17	23	37	30	24	15
38	47	46	47	52	26	50	56	53	52	66	37	48	65	52
39	13	3	4	9	13	11	12	14	25	23	30	45	7	10

Appendix L Continued: Correlation Matrix Between Sorts (First Q Sort)

	29	30	31	32	33	34	35	36	37	38	39
1	29	52	59	36	66	63	67	60	13	50	17
2	15	16	31	49	33	37	32	28	34	30	-1
3	30	49	57	35	71	57	69	52	30	62	22
4	34	42	47	43	61	65	55	50	18	46	11
5	34	29	23	29	37	38	36	50	16	40	37
6	37	53	40	29	66	67	70	70	23	60	33
7	26	35	11	38	38	28	30	23	16	33	29
8	31	34	43	44	64	62	66	53	34	51	11
9	26	34	19	43	28	34	44	34	35	45	24
10	29	50	40	28	58	60	58	61	9	55	12
11	24	25	18	31	32	32	35	26	35	38	11
12	33	40	38	30	38	35	52	35	45	52	49
13	36	35	37	43	53	56	58	54	41	61	29
14	32	53	47	37	64	56	62	53	31	61	26
15	44	15	40	36	47	43	47	54	21	47	13
16	33	29	47	38	70	76	56	70	20	46	3
17	33	26	51	15	63	69	59	77	5	47	4
18	24	41	48	18	68	67	64	68	10	52	9
19	23	15	20	12	19	5	23	2	15	26	13
20	33	51	58	15	66	64	55	68	-4	50	11
21	31	29	48	26	66	70	65	66	19	56	12
22	30	35	38	27	51	66	53	71	17	53	14
23	33	48	51	23	50	50	64	50	17	52	25
24	30	56	44	14	54	55	67	57	23	66	23
25	53	29	42	39	57	31	44	35	37	37	30
26	41	44	40	32	48	22	50	31	30	48	45
27	39	38	54	17	62	50	58	54	24	65	7
28	32	50	71	22	67	69	69	68	15	52	10
29	100	14	35	25	42	35	23	44	19	49	32
30	14	100	37	18	52	41	55	32	6	42	22
31	35	37	100	26	52	41	61	45	28	52	5
32	25	18	26	100	29	29	23	26	36	20	11
33	42	52	52	29	100	66	66	55	20	58	12
34	35	41	41	29	66	100	57	76	7	51	9
35	23	55	61	23	66	57	100	56	35	69	18
36	44	32	45	26	55	76	56	100	9	51	25
37	19	6	28	36	20	7	35	9	100	43	36
38	49	42	52	20	58	51	69	51	43	100	25
39	32	22	5	11	12	9	18	25	36	25	100

Appendix M

A Comparison of Factor Structures for Various Extractions

This table indicates which factor each subject belonged to under the indicated factor structure.

Subject	Eight Factors	Seven Factors	Six Factors	Five Factors	Four Factors	Three Factors	Two Factors
1	1	1	1	1	1	1	1
6	1	1	1	1	1	1	1
10	1	1	1	1	1	1	1
15	1	1	1	1	1	1	1
16	1	1	1	1	1	1	1
17	1	1	1	1	1	1	1
18	1	1	1	1	1	1	1
20	1	1	1	1	1	1	1
21	1	1	1	1	1	1	1
22	1	1	1	1	1	1	1
23	1	1		1	1	1	1
27	1	1	1	1	1	1	1
28	1	1	1	1	1	1	1
33	1	1	1	1	1	1	1
34	1	1	1	1	1	1	1
36	1	1	1	1	1	1	1
7	2	2	2	2	2	2	2
9	2	2	2	2	2	2	2
11	2	2	2	2	2	2	2
32	2	2	2	2	2	2	2
39	3	3	3	5	3	3	2
25	4	4	4	3	3		2
29	4		4		3	3	2
26	5				3	3	2
37	6	6	6	3	3	3	2
19	7	5	4	3	3	3	2
30	8	7	5	4	4	1	1
3					1	1	1
4			2	2	2	2	1
5							2
8			2	2	2	2	1
12						3	2
13							2
14							1
24		1				1	1
31					1	1	1
35					1	1	1
38							1

Appendix N

Factor Loadings for a Variety of Factors Extracted

Factor Loadings for Two Factor Model

Subjects	Factor 1	Factor 2	Factor Subject Loaded On
1	0.77	0.26	1
2	0.27	0.55	2
3	0.68	0.47	1
4	0.60	0.44	1
5	0.38	0.48	2
6	0.74	0.38	1
7	0.17	0.69	2
8	0.58	0.57	1
9	0.23	0.71	2
10	0.73	0.30	1
11	0.22	0.52	2
12	0.31	0.65	2
13	0.50	0.51	2
14	0.57	0.53	1
15	0.57	0.32	1
16	0.79	0.24	1
17	0.88	0.01	1
18	0.86	0.11	1
19	0.01	0.36	2
20	0.85	0.03	1
21	0.80	0.21	1
22	0.72	0.20	1
23	0.67	0.36	1
24	0.68	0.35	1
25	0.36	0.53	2
26	0.32	0.56	2
27	0.69	0.24	1
28	0.84	0.16	1
29	0.32	0.41	2
30	0.47	0.32	1
31	0.61	0.23	1
32	0.15	0.58	2
33	0.75	0.32	1

Subjects	Factor 1	Factor 2	Factor Subject Loaded On
34	0.81	0.16	1
35	0.70	0.40	1
36	0.81	0.16	1
37	-0.01	0.65	2
38	0.57	0.49	1
39	0.00	0.53	2

Appendix N Continued

Factor Loadings for Three Factor Model

Subjects	Factor 1	Factor 2	Factor 3	Factor Subject Loaded On
1	0.75	0.21	0.22	1
2	0.21	0.77	-0.02	2
3	0.65	0.42	0.29	1
4	0.56	0.62	0.02	2
5	0.35	0.39	0.32	
6	0.72	0.27	0.33	1
7	0.12	0.67	0.30	2
8	0.54	0.66	0.16	2
9	0.18	0.70	0.30	2
10	0.70	0.33	0.14	1
11	0.18	0.56	0.17	2
12	0.28	0.35	0.61	3
13	0.47	0.41	0.36	
14	0.53	0.51	0.28	
15	0.55	0.32	0.17	1
16	0.76	0.43	-0.06	1
17	0.87	0.11	-0.03	1
18	0.85	0.14	0.08	1
19	0.00	0.04	0.50	3
20	0.86	-0.07	0.20	1
21	0.78	0.30	0.05	1
22	0.70	0.19	0.16	1
23	0.65	0.23	0.35	1
24	0.66	0.17	0.39	1
25	0.33	0.32	0.46	
26	0.31	0.15	0.71	3
27	0.68	0.11	0.30	1
28	0.83	0.19	0.10	1
29	0.31	0.16	0.46	3
30	0.46	0.11	0.40	1
31	0.61	0.10	0.29	1
32	0.10	0.67	0.13	2
33	0.73	0.27	0.25	1
34	0.79	0.31	-0.03	1
35	0.68	0.25	0.38	1
36	0.79	0.18	0.10	1
37	-0.04	0.43	0.49	3
38	0.55	0.24	0.52	
39	-0.01	0.08	0.70	3

Appendix N Continued

Factor Loadings for Four Factor Model

Subjects	Factor 1	Factor 2	Factor 3	Factor 4	Factor Subject Loaded On
1	0.73	0.21	0.16	0.23	1
2	0.22	0.77	0.02	-0.05	2
3	0.61	0.43	0.19	0.34	1
4	0.55	0.62	0.01	0.09	2
5	0.34	0.38	0.30	0.16	
6	0.68	0.28	0.23	0.32	1
7	0.07	0.69	0.18	0.33	2
8	0.53	0.66	0.14	0.13	2
9	0.14	0.71	0.19	0.31	2
10	0.67	0.34	0.04	0.30	1
11	0.17	0.56	0.15	0.11	2
12	0.25	0.35	0.52	0.36	
13	0.46	0.40	0.35	0.14	
14	0.50	0.52	0.19	0.29	
15	0.60	0.29	0.32	-0.20	1
16	0.78	0.42	0.01	-0.06	1
17	0.89	0.10	0.02	-0.03	1
18	0.83	0.15	0.01	0.25	1
19	0.01	0.03	0.51	0.10	3
20	0.83	-0.06	0.12	0.27	1
21	0.78	0.30	0.06	0.07	1
22	0.71	0.18	0.19	0.04	1
23	0.61	0.24	0.23	0.36	1
24	0.60	0.19	0.20	0.53	
25	0.38	0.28	0.62	-0.18	3
26	0.27	0.15	0.59	0.43	3
27	0.69	0.09	0.32	0.11	1
28	0.82	0.19	0.08	0.15	1
29	0.36	0.11	0.62	-0.18	3
30	0.36	0.15	0.13	0.69	4
31	0.62	0.08	0.32	0.05	1
32	0.14	0.65	0.25	-0.18	2
33	0.72	0.26	0.23	0.15	1
34	0.78	0.31	-0.04	0.08	1
35	0.64	0.26	0.27	0.38	1
36	0.80	0.17	0.14	0.03	1
37	-0.02	0.41	0.57	-0.04	3
38	0.53	0.24	0.46	0.28	
39	-0.04	0.07	0.62	0.32	3

Appendix N Continued

Factor Loadings for Five Factor Model

Subjects	Factor 1	Factor 2	Factor 3	Factor 4	Factor 5	Factor Subject Loaded On
1	0.69	0.21	0.20	0.33	0.02	1
2	0.21	0.77	0.13	0.03	-0.12	2
3	0.56	0.43	0.23	0.45	0.00	
4	0.52	0.62	0.11	0.19	-0.11	2
5	0.38	0.36	0.08	0.04	0.51	
6	0.68	0.26	0.09	0.29	0.36	1
7	0.08	0.68	0.03	0.26	0.34	2
8	0.51	0.65	0.18	0.20	0.03	2
9	0.14	0.70	0.05	0.24	0.33	2
10	0.66	0.33	-0.03	0.30	0.17	1
11	0.18	0.55	0.07	0.07	0.21	2
12	0.22	0.34	0.36	0.35	0.42	
13	0.44	0.38	0.32	0.18	0.20	
14	0.45	0.51	0.24	0.40	-0.00	
15	0.62	0.27	0.30	-0.18	0.19	1
16	0.77	0.41	0.10	0.02	-0.07	1
17	0.90	0.09	0.05	0.02	0.02	1
18	0.82	0.14	-0.02	0.27	0.10	1
19	-0.05	0.02	0.53	0.21	0.08	3
20	0.80	-0.07	0.13	0.34	0.05	1
21	0.77	0.29	0.08	0.13	0.04	1
22	0.73	0.16	0.12	0.03	0.24	1
23	0.58	0.23	0.17	0.40	0.21	1
24	0.57	0.18	0.09	0.54	0.27	
25	0.35	0.26	0.67	-0.06	0.13	3
26	0.21	0.13	0.47	0.47	0.36	
27	0.65	0.08	0.33	0.20	0.09	1
28	0.78	0.18	0.18	0.29	-0.12	1
29	0.37	0.09	0.54	-0.17	0.37	
30	0.30	0.14	0.06	0.74	0.12	4
31	0.53	0.07	0.53	0.30	-0.26	
32	0.13	0.65	0.32	-0.11	-0.01	2
33	0.67	0.25	0.32	0.30	-0.05	1
34	0.79	0.30	-0.03	0.10	0.05	1
35	0.58	0.25	0.31	0.51	0.02	
36	0.83	0.16	0.04	-0.01	0.27	1
37	-0.06	0.39	0.59	0.06	0.13	3
38	0.49	0.22	0.42	0.35	0.23	
39	-0.02	0.05	0.29	0.17	0.74	5

Appendix N Continued

Factor Loadings for Six Factor Model

Subjects	Factor 1	Factor 2	Factor 3	Factor 4	Factor 5	Factor 6	Factor Subject Loaded On
1	0.69	0.20	0.04	0.14	0.33	0.17	1
2	0.20	0.76	-0.10	0.04	0.03	0.19	2
3	0.55	0.41	0.03	0.13	0.45	0.23	
4	0.50	0.63	-0.10	0.17	0.24	-0.01	2
5	0.38	0.37	0.51	0.13	0.04	-0.04	
6	0.69	0.24	0.37	0.02	0.25	0.14	1
7	0.83	0.12	0.11	-0.11	0.22	0.13	1
8	-0.10	0.04	0.11	0.63	0.30	0.02	4
9	0.78	-0.06	0.06	0.22	0.38	-0.05	1
10	0.77	0.28	0.04	0.04	0.12	0.12	1
11	0.73	0.16	0.24	0.14	0.02	0.04	1
12	0.57	0.23	0.22	0.21	0.42	0.01	
13	0.58	0.15	0.30	-0.09	0.47	0.26	
14	0.31	0.28	0.14	0.71	0.02	0.19	4
15	0.21	0.10	0.41	0.24	0.42	0.43	1
16	0.66	0.06	0.11	0.17	0.17	0.35	1
17	0.76	0.19	-0.10	0.20	0.32	0.08	4
18	0.34	0.10	0.36	0.59	-0.13	0.12	5
19	0.29	0.14	0.16	0.06	0.76	-0.01	
20	0.51	0.06	-0.23	0.39	0.32	0.39	
21	0.11	0.65	0.00	0.29	-0.08	0.18	2
22	0.65	0.25	-0.03	0.30	0.33	0.16	1
23	0.79	0.31	0.04	0.01	0.10	-0.01	1
24	0.58	0.22	0.07	0.10	0.47	0.39	
25	0.84	0.15	0.26	0.07	-0.02	0.03	1
26	-0.05	0.33	0.17	0.13	-0.04	0.79	6
27	0.49	0.19	0.27	0.17	0.30	0.46	
28	-0.01	0.03	0.76	0.18	0.12	0.19	3
29	0.07	0.69	0.35	0.15	0.31	-0.17	2
30	0.51	0.64	0.05	0.07	0.19	0.24	2
31	0.15	0.69	0.36	-0.03	0.22	0.12	2
32	0.66	0.34	0.18	0.05	0.32	-0.09	1
33	0.19	0.53	0.23	-0.03	0.04	0.17	2
34	0.22	0.32	0.45	0.22	0.33	0.29	
35	0.46	0.35	0.23	0.06	0.12	0.46	
36	0.44	0.50	0.03	0.18	0.42	0.18	
37	0.60	0.28	0.18	0.34	-0.15	0.09	1
38	0.77	0.42	-0.08	0.11	0.03	0.07	1
39	0.90	0.08	0.01	0.03	0.00	0.09	1

Appendix N Continued

Factor Loadings for Seven Factor Model

Subjects	Factor 1	Factor 2	Factor 3	Factor 4	Factor 5	Factor 6	Factor 7	Factor Subject Loaded On
1	0.70	0.17	0.06	0.13	0.08	0.18	0.30	1
2	0.22	0.77	-0.18	0.05	0.10	0.22	-0.01	2
3	0.57	0.37	0.07	0.15	0.04	0.25	0.46	
4	0.49	0.57	-0.07	0.30	-0.03	0.01	0.33	
5	0.40	0.41	0.47	0.06	0.13	-0.03	-0.05	
6	0.71	0.25	0.37	0.01	0.00	0.15	0.19	1
7	0.08	0.69	0.36	0.13	0.11	-0.14	0.31	2
8	0.50	0.60	0.05	0.18	-0.05	0.25	0.22	
9	0.16	0.69	0.34	0.02	-0.05	0.14	0.21	2
10	0.70	0.39	0.12	-0.08	0.23	-0.06	0.19	1
11	0.23	0.60	0.12	-0.15	0.20	0.20	-0.11	2
12	0.26	0.34	0.45	0.05	0.28	0.31	0.21	
13	0.45	0.30	0.26	0.20	-0.15	0.45	0.16	
14	0.43	0.43	0.10	0.28	-0.04	0.19	0.50	
15	0.61	0.32	0.10	0.21	0.34	0.11	-0.28	1
16	0.73	0.35	-0.05	0.34	-0.18	0.06	0.14	1
17	0.89	0.07	0.00	0.12	-0.07	0.08	-0.01	1
18	0.86	0.15	0.07	-0.14	0.03	0.14	0.11	1
19	-0.04	0.08	0.08	0.18	0.79	0.07	0.12	4
20	0.80	-0.07	0.09	0.12	0.19	-0.05	0.32	1
21	0.79	0.30	-0.00	0.03	0.09	0.13	0.03	1
22	0.73	0.16	0.23	0.16	0.03	0.03	-0.01	1
23	0.61	0.26	0.20	0.00	0.35	0.04	0.28	1
24	0.64	0.18	0.28	-0.22	0.12	0.28	0.33	1
25	0.27	0.19	0.22	0.71	0.25	0.18	0.10	4
26	0.25	0.09	0.45	0.09	0.22	0.44	0.34	
27	0.67	0.04	0.12	0.13	0.10	0.35	0.10	1
28	0.77	0.14	-0.07	0.21	0.09	0.08	0.32	1
29	0.32	0.06	0.40	0.55	0.25	0.10	-0.12	
30	0.34	0.13	0.23	-0.07	0.15	0.02	0.73	7
31	0.52	0.01	-0.19	0.29	0.29	0.40	0.29	
32	0.08	0.59	0.02	0.42	-0.02	0.19	0.03	2
33	0.65	0.19	0.03	0.33	0.09	0.17	0.36	1
34	0.78	0.27	0.05	0.16	-0.15	-0.02	0.15	1
35	0.62	0.21	0.08	-0.00	0.17	0.41	0.38	
36	0.82	0.14	0.26	0.18	-0.11	0.01	-0.02	1
37	-0.04	0.31	0.17	0.16	0.02	0.80	-0.06	6
38	0.53	0.20	0.26	0.04	0.22	0.48	0.18	
39	-0.01	0.02	0.82	0.15	-0.00	0.17	0.12	3

Appendix N Continued

Factor Loadings for Eight Factor Model

Sub ject	Factor 1	Factor 2	Factor 3	Factor 4	Factor 5	Factor 6	Factor 7	Factor 8	Factor Subject Loaded On
1	0.67	0.18	-0.01	0.14	0.31	0.07	0.08	0.27	1
2	0.23	0.76	-0.20	0.03	0.02	0.25	0.12	0.02	2
3	0.56	0.36	0.08	0.10	0.23	0.19	0.05	0.46	
4	0.52	0.53	0.01	0.20	-0.14	0.10	0.00	0.43	
5	0.40	0.42	0.41	0.13	0.14	-0.08	0.12	-0.11	
6	0.71	0.25	0.34	0.04	0.25	0.08	0.00	0.14	1
7	0.08	0.72	0.30	0.12	0.13	-0.21	0.12	0.25	2
8	0.49	0.62	-0.03	0.18	0.26	0.16	-0.06	0.20	
9	0.16	0.72	0.28	0.03	0.24	0.05	-0.04	0.14	2
10	0.71	0.35	0.15	-0.09	0.04	-0.04	0.25	0.17	1
11	0.26	0.56	0.17	-0.14	-0.01	0.27	0.21	-0.12	2
12	0.28	0.29	0.54	0.04	0.11	0.35	0.29	0.21	
13	0.41	0.34	0.14	0.24	0.43	0.28	-0.18	0.11	
14	0.43	0.42	0.13	0.20	0.14	0.16	-0.02	0.54	
15	0.61	0.30	0.03	0.29	0.04	0.12	0.31	-0.26	1
16	0.75	0.32	-0.02	0.28	-0.07	0.11	-0.18	0.24	1
17	0.89	0.05	-0.01	0.13	0.07	0.08	-0.08	0.02	1
18	0.85	0.15	0.01	-0.10	0.28	0.05	0.03	0.05	1
19	-0.06	0.08	0.05	0.22	0.12	0.04	0.78	0.09	7
20	0.78	-0.07	0.04	0.14	0.24	-0.14	0.19	0.29	1
21	0.80	0.26	0.02	0.02	0.03	0.17	0.10	0.07	1
22	0.71	0.18	0.13	0.23	0.20	-0.06	0.01	-0.04	1
23	0.61	0.24	0.21	0.01	0.16	0.01	0.36	0.24	1
24	0.60	0.21	0.19	-0.16	0.51	0.09	0.12	0.18	
25	0.26	0.20	0.16	0.72	0.09	0.16	0.22	0.19	4
26	0.18	0.17	0.25	0.20	0.73	0.12	0.18	0.17	5
27	0.62	0.08	-0.05	0.22	0.50	0.14	0.06	0.03	1
28	0.78	0.08	0.04	0.13	-0.07	0.17	0.11	0.42	1
29	0.30	0.09	0.29	0.63	0.15	0.03	0.20	-0.10	4
30	0.31	0.14	0.22	-0.10	0.35	-0.12	0.17	0.62	8
31	0.50	-0.02	-0.16	0.25	0.16	0.40	0.29	0.36	
32	0.08	0.61	-0.06	0.42	0.08	0.15	-0.04	0.07	2
33	0.63	0.20	-0.03	0.31	0.25	0.07	0.08	0.37	1
34	0.78	0.25	0.06	0.13	0.01	-0.00	-0.14	0.19	1
35	0.60	0.19	0.09	-0.01	0.32	0.34	0.17	0.36	
36	0.82	0.13	0.23	0.21	0.08	-0.01	-0.12	-0.00	1
37	-0.03	0.27	0.23	0.16	0.16	0.82	0.00	0.00	6
38	0.50	0.20	0.20	0.09	0.41	0.36	0.20	0.12	
39	-0.00	0.02	0.86	0.20	0.15	0.15	-0.01	0.08	3

Appendix O

Results of Factor Analysis with Oblimin Rotation (SPSS)

Pattern Matrix Table

Subjects	Factor 1	Factor 2	Factor 3	Factor 4
1	.76	.06	.06	-.08
2	.06	.81	-.16	.11
3	.57	.33	.09	-.18
4	.46	.57	-.17	.04
5	.27	.32	.22	-.01
6	.69	.13	.15	-.15
7	-.09	.73	.14	-.23
8	.42	.60	-.03	.01
9	-.03	.75	.14	-.19
10	.67	.23	-.06	-.19
11	.05	.57	.05	-.01
12	.16	.29	.52	-.15
13	.40	.30	.24	.04
14	.43	.44	.10	-.14
15	.57	.15	.10	.36
16	.76	.29	-.23	.16
17	.97	-.10	-.17	.13
18	.89	-.03	-.10	-.14
19	-.04	-.03	.53	.06
20	.94	-.27	.05	-.13
21	.79	.15	-.12	.04
22	.74	.01	.04	.11
23	.61	.11	.18	-.20
24	.62	.06	.21	-.37
25	.31	.15	.45	.41
26	.23	.04	.64	-.19
27	.72	-.09	.21	.07
28	.87	.01	-.07	-.03
29	.32	-.03	.49	.41
30	.38	.08	.23	-.57
31	.65	-.09	.21	.12
32	-.02	.67	.06	.29
33	.73	.10	.10	.02
34	.80	.17	-.21	.01
35	.65	.12	.21	-.20
36	.85	-.08	-.03	.11
37	-.16	.40	.50	.22
38	.51	.09	.40	-.06
39	-.10	.03	.71	-.12

Extraction Method: Principal Component Analysis

Appendix O Continued
Structure Matrix Table

Subjects	Factor 1	Factor 2	Factor 3	Factor 4
1	.80	.42	.31	-.13
2	.37	.78	.10	.10
3	.76	.62	.38	-.22
4	.67	.72	.14	-.02
5	.48	.51	.40	-.04
6	.80	.49	.41	-.19
7	.30	.74	.35	-.23
8	.69	.79	.29	-.02
9	.36	.78	.37	-.20
10	.76	.51	.22	-.02
11	.32	.61	.25	-.02
12	.46	.52	.66	-.17
13	.60	.55	.45	.01
14	.66	.67	.37	-.17
15	.65	.43	.31	.33
16	.82	.56	.09	.13
17	.86	.29	.09	.08
18	.86	.35	.16	-.18
19	.11	.12	.51	.05
20	.84	.17	.26	-.18
21	.82	.47	.17	.02
22	.75	.36	.26	.06
23	.73	.44	.41	-.24
24	.73	.41	.43	-.41
25	.49	.43	.58	.38
26	.45	.35	.73	-.22
27	.74	.30	.39	.03
28	.86	.39	.20	-.07
29	.43	.27	.57	.38
30	.51	.32	.38	-.60
31	.66	.27	.37	.08
32	.28	.67	.25	.28
33	.80	.46	.35	-.03
34	.82	.47	.09	-.03
35	.77	.48	.45	-.24
36	.83	.36	.22	.06
37	.16	.47	.56	.22
38	.68	.45	.59	-.10
39	.14	.20	.69	-.13

Extraction Method: Principal Component Analysis
 Rotation Method: Oblimin with Kaiser Normalization

Appendix P

Factor Loadings (Q sort Time Two)

Factor Loadings for the Second Q Sorts: Four Factors Extracted
Factor Matrix with an X Indicating a Defining Sort

Subject	Factor 1	Factor 2	Factor 3	Factor 4
1	0.6363X	0.3350	0.1933	0.3146
2	0.3511	0.7081X	0.0809	0.2715
3	0.6848X	0.4586	0.0334	0.2663
4	0.4805	0.5469X	0.2185	0.1232
5	0.2339	0.0633	0.0110	0.8176X
6	0.6109X	0.3385	0.3219	0.2218
7	-0.1810	0.7157X	-0.2667	-0.0289
8	0.6586X	0.4309	0.1979	0.2585
9	0.2915	0.3731	0.0197	0.7136X
10	0.7166X	0.3654	0.1778	0.1963
11	0.2364	0.6166X	0.0166	0.2877
12	0.2774	0.6582X	0.3775	0.1013
13	0.4722	0.5274	0.2356	0.3255
14	0.6100	0.5050	0.3962	0.1675
15	0.6629X	0.0293	0.0435	0.3867
16	0.8003X	0.2913	0.0698	0.0121
17	0.8860X	-0.0158	0.0192	0.0506
18	0.8392X	0.1913	0.1825	0.0510
19	-0.2184	0.1424	0.2262	0.6545X
20	0.7813X	-0.0168	0.2118	0.2111
21	0.8630X	0.1711	-0.0488	-0.0157
22	0.6356X	0.2027	0.1278	0.3879
23	0.6815X	0.0709	0.1102	0.4338
24	0.5151X	0.3402	0.3183	0.2084
25	0.2476	-0.0150	0.7420X	0.0315
26	0.3508	0.2311	0.1191	0.5018X
27	0.6914X	0.3940	0.1255	0.2914
28	0.8476X	0.2644	0.1665	0.0977
29	0.0208	0.0841	0.8096X	0.1415
30	0.2918	0.4229	0.3653	0.3104
31	0.7267X	0.1762	0.1771	0.0228
% Explained Variance	34	14	8	11

Appendix P Continued

Factor Loadings for the Second Q Sorts: Three Factors Extracted

Subject	Factor 1	Factor 2	Factor 3
1	0.6405X	0.3893	0.3006
2	0.3557	0.7420X	0.1567
3	0.6790X	0.5143	0.1382
4	0.5013	0.5285X	0.1665
5	0.1935	0.3010	0.5605X
6	0.6315X	0.3475	0.3283
7	-0.1894	0.7031X	-0.2853
8	0.6676X	0.4631	0.2537
9	0.2625	0.5629X	0.4584
10	0.7254X	0.3861	0.2021
11	0.2334	0.6679X	0.1354
12	0.3167	0.6037X	0.2576
13	0.4840	0.5671	0.3212
14	0.6431X	0.4790	0.3250
15	0.6442X	0.1420	0.2774
16	0.8069X	0.2775	0.0037
17	0.8800X	0.0060	0.0265
18	0.8519X	0.1794	0.1211
19	-0.2273	0.2941	0.6043X
20	0.7851X	0.0249	0.2777
21	0.8578X	0.1724	-0.0882
22	0.6277X	0.2946	0.3196
23	0.6671X	0.1863	0.3524
24	0.5366X	0.3447	0.3189
25	0.3111	-0.1037	0.5452X
26	0.3385	0.3534	0.3968
27	0.6914X	0.4480	0.2281
28	0.8578X	0.2645	0.1335
29	0.0878	0.0109	0.6645X
30	0.3151	0.4444	0.4197
31	0.7407X	0.1563	0.1024
% Explained Variance	35	16	11

Appendix Q

Factor Scores

Factor Scores for each Factor Array

Item #	Item Statement	Factor 1	Factor 2	Factor 3	Factor 4
1	Achieving our group goal is more important to me than an individual goal like a leadership award.	0.641	-0.088	0.584	1.113
2	When working in groups, I used to pretty much do everything myself because I wanted to make sure it was done right. I am better now about trusting other people and letting them do things differently than I would have.	-0.144	0.624	-1.270	-0.371
3	I get involved because there are things that I find so important that I can't just sit by and not do something.	0.587	0.289	-1.145	0.742
4	I'm involved in groups, but I'm not a leader. I'm just a member.	-1.137	-2.096	-0.440	-1.484
5	Building relationships with people in other organizations is an important part of what I do to help my organization be successful. We need to have coalitions and supports across the system in order to really make a difference.	1.274	0.830	0.700	0.742
6	Leadership is a characteristic that some people have and others just don't.	-1.776	0.245	-0.609	-1.854
7	I want to be more involved than I am.	-0.532	-0.483	-0.129	-1.854
8	Good leaders know how to do things like run a meeting, make decisions, motivate others and communicate clearly when telling people what to do.	-0.271	1.317	0.673	0.371
9	I'm not really involved in many organizations or activities.	-1.153	-1.828	-1.387	-1.113
10	A leader is the type of person who can get other people to do things.	-0.920	10	-0.638	0.742
11	Sometimes I worry that other people in my organization think I try to control them too much.	-0.548	0.722	-1.514	-0.371
12	When I think of leadership, I think of the people who actually get things done. They aren't necessarily an official leader of the group, and may work quietly in the background, but they do the work that makes the group accomplish the goal.	0.382	0.474	1.388	0.371

Item #	Item Statement	Factor 1	Factor 2	Factor 3	Factor 4
13	My leadership role in this organization is to being able to share the history of the group, how we used to do things and why we do them differently now. I can help members see how their involvement fits into the on-going story of our group. I think it helps them see their involvement as more meaningful.	0.519	-0.813	0.576	-0.742
14	My approach to leadership is mentoring people. Several people in my group would say that I helped them think about their strengths and encouraged them to take on more responsibilities in our group.	0.658	-0.381	0.099	-0.742
15	All organizations are complex and operate differently, but I can usually figure out what the organization needs in order to know what role I should play and what strengths I can contribute.	0.549	0.257	-0.380	1.113
16	The organizations I'm involved in, I joined mostly because my friends are in them too.	-1.339	-1.282	-1.458	-1.484
17	I really want to stay true to what is important to me. I don't want to "sell out" in order to make the going easier.	0.776	0.796	-0.477	0.000
18	I don't really think of myself as a leader or a follower. I'm just kind of there.	-1.555	-1.725	-1.448	-1.854
19	When I'm considering whether to get involved with a new group, their mission and values about how members work together are important considerations.	0.724	0.079	-0.102	1.484
20	Working in groups almost always results in one person doing most of the work. I would call that person the leader of that group.	-1.292	-0.921	-1.343	-0.371
21	When I think about leadership, I think of people around me who get things done, not necessarily about involvement in formal organizations.	0.368	-0.141	-0.017	1.113
22	When I work in groups, I tend to avoid taking on leadership responsibility. I don't like having the pressure of the group's success or failure to be on me.	-1.474	-1.653	-0.047	-1.484
23	It is important to have group members who will risk stepping outside of the lines, to say "this group is going in the wrong direction."	1.038	1.371	2.392	-0.371
24	When I think of leadership, I think of a	0.258	0.381	1.211	1.854

Item #	Item Statement	Factor 1	Factor 2	Factor 3	Factor 4
	person who has vision and shows direction, without giving in to pressure to do something else.				
25	Lately I've been really frustrated by something I've noticed [in society or in my community] and I want to try to change it or make things better.	0.268	-0.038	-0.515	-0.371
26	Lately I've been looking to be involved in something that matters to me. I'd like to feel like I'm a part of something that is meaningful and important - more than just the day-to-day stuff.	0.488	0.735	-0.020	-1.113
27	A good leader should empower all group members to be actively involved in the group's processes of decision-making, goal setting, delegating, etc.	1.384	1.546	1.848	-1.113
28	I am a leader. It is a part of how I see myself, just like my other roles and characteristics.	0.783	1.559	-0.551	1.484
29	I used to be directly involved with everything my group worked on. Now I've stepped back to let younger members do things, hoping they will keep the group going strong after I'm no longer in it.	0.140	-0.822	-0.626	0.742
30	I'm in just one or two organizations. I'm selective about only being involved in areas that really matter to me.	-0.490	-1.310	0.150	0.000
31	When I am the leader, I'm not comfortable telling people what to do. Instead I'd rather gather everyone's ideas. We should decide together, not me directing everyone.	0.322	-1.440	0.591	0.371
32	I haven't really thought that much about what leadership is or what being a leader means.	-1.611	-1.802	-1.154	-0.742
33	I enjoy being involved in organizations because others see me as a good leader and that is something I do want to be known for.	-0.213	0.891	-1.230	-1.113
34	I used to see leadership as something that other people did. Now I see that I can take charge and get things done.	-0.287	-0.194	0.456	0.000
35	An organization can't work effectively if it has too many leaders and not enough followers.	-1.030	0.470	1.726	0.371
36	I believe a person can be a leader even	1.539	1.041	1.380	1.113

Item #	Item Statement	Factor 1	Factor 2	Factor 3	Factor 4
	though he/she doesn't have a title or an official position in an organization. I can be A leader in a group without being THE leader of the group.				
37	I see others my age that will speak up or volunteer to do projects or to be leaders of clubs. I see them as leaders.	0.116	-0.402	0.041	-0.371
38	A good leader can direct people when they need it, but also allow people to direct themselves. They will stand up when somebody needs to, but aren't always out in front.	1.045	1.098	1.302	1.484
39	I think everything I've learned about leadership and how groups can work together effectively will apply when I find myself in a new situation (like my next project or job).	0.876	1.256	0.158	-1.113
40	When I'm not in the leadership position, I usually will follow what the leader says so everything will go according to plan.	-1.103	-0.263	1.285	-0.742
41	I have a wide range of interests. I like to get involved in different types of groups and explore things I might like.	0.102	0.365	-0.117	0.000
42	I didn't used to think of myself as a leader, but I've taken on some roles, like being team captain or an officer in an organization. So I can kind of see myself that way now.	-0.796	-1.046	-0.453	0.000
43	Good members are just as important to the success of a group as good leaders. Having members who are actively involved and reliable is so important.	1.048	1.367	1.272	1.113
44	Whether you'd call me a leader depends on the situation. I'd consider myself a leader when I'm doing stuff for [name of organization], because I'm the president. In other organizations though, I'm just a regular member.	-1.239	-0.814	-0.534	-1.484
45	Being a person who gets involved in order to make a difference means that I often face challenging situations and don't know what to do. But I have confidence that by working with others, we can figure it out.	1.177	-0.139	0.569	0.742
46	Whether I have a leadership position or not, when I'm in a group, I monitor the things I do and say because I am aware of the affect	0.893	0.331	0.809	0.371

Item #	Item Statement	Factor 1	Factor 2	Factor 3	Factor 4
	it will have on others.				
47	When working in groups, I often end up doing a lot of the work myself. I know I should delegate, but it isn't easy to trust other people to get things done or do them well.	-0.818	0.007	-1.286	0.742
48	I enjoy the time I spend talking to people about leadership and how to work more effectively in groups. Talking about what I should have done differently doesn't harm my confidence to be a leader in a group.	1.074	0.458	-0.948	0.000
49	I'm an officer of a certain organization (I have a leadership position), but I have to admit I don't really do that much.	-1.187	0.005	-0.776	-0.742
50	Most of the groups I'm involved in now are because my parents or teachers got me to do it. I was just kind of thrown into it.	-1.503	-1.813	-1.993	-1.113
51	In order to reach a major goal, groups need to be organized with a clear leader and chain of command so everyone knows what each person's job is.	-1.358	0.914	1.420	0.371
52	A good leader will take charge and have a certain level of control over what is going on.	-0.791	0.834	1.544	0.371
53	By getting involved in a few groups or projects, I'm starting to see that I am good at working with people.	0.197	0.974	0.540	-0.371
54	The head of the group is ultimately responsible for whether or not the job gets done.	-1.143	-0.733	-0.367	1.854
55	Anyone can learn to be good at leadership.	1.226	-0.949	-0.007	1.854
56	It is important for leaders to know how to develop other people's talents and strengths, and to trust and empower them to act for the group.	1.365	0.766	1.558	1.484
57	When I think of the word leadership, I think of things adults do - like the mayor of a city, the head of a company, or teachers in school. I don't really see myself as a leader.	-1.516	-1.870	-0.903	-0.742
58	I have spent a lot of time thinking about how I operate in groups, like the roles I play and how to determine how my particular strengths and skills could be best put to use.	0.845	0.776	-0.160	-0.371
59	People in positions of authority may often	-1.058	-0.871	-0.616	0.000

Item #	Item Statement	Factor 1	Factor 2	Factor 3	Factor 4
	gather input from the people under them, but they are not obligated to.				
60	Just because you don't have an official position in an organization doesn't mean you can't be a leader. Anyone can take the initiative to do something for the organization.	1.120	1.274	1.373	0.000
61	I used to think of myself as a person who contributed to leadership in certain contexts (an organization, my job, school projects), but now I have confidence that I can be that way anywhere I choose to. I am always a leader, it just looks different in different situations.	0.685	1.143	-0.855	1.113
62	I have come to know who I am in terms of my values and purpose in life. This plays an important role in my leadership because I can see my values and purpose influencing the type of leader I am.	1.804	0.666	0.341	0.742
63	I have often said that simply reaching a goal doesn't necessarily mean a group was successful. How did they reach it? A good group process, everyone feeling good about how they worked together, is as important as what the group accomplished.	0.954	-0.186	0.008	0.371
64	I don't like assigning labels like "leader" or "follower" as if a person is one or the other. The reality of group work is much more fluid than that.	1.059	-0.636	-0.481	-0.742

Appendix R

Rounded Factor Scores for Each Factor Array

Item #	Item Statement	Factor 1	Factor 2	Factor 3	Factor 4
1	Achieving our group goal is more important to me than an individual goal like a leadership award.	1	-1	2	3
2	When working in groups, I used to pretty much do everything myself because I wanted to make sure it was done right. I am better now about trusting other people and letting them do things differently than I would have.	-1	1	-3	-1
3	I get involved because there are things that I find so important that I can't just sit by and not do something.	1	0	-3	2
4	I'm involved in groups, but I'm not a leader. I'm just a member.	-2	-5	-1	-4
5	Building relationships with people in other organizations is an important part of what I do to help my organization be successful. We need to have coalitions and supports across the system in order to really make a difference.	4	2	2	2
6	Leadership is a characteristic that some people have and others just don't.	-5	0	-2	-5
7	I want to be more involved than I am.	-1	-2	0	-5
8	Good leaders know how to do things like run a meeting, make decisions, motivate others and communicate clearly when telling people what to do.	-1	4	2	1
9	I'm not really involved in many organizations or activities.	-3	-5	-4	-3
10	A leader is the type of person who can get other people to do things.	-2	2	-2	2
11	Sometimes I worry that other people in my organization think I try to control them too much.	-1	1	-5	-1
12	When I think of leadership, I think of the people who actually get things done. They aren't necessarily an official leader of the group, and may work quietly in the background, but they do the work that makes the group accomplish the goal.	1	1	4	1
13	My leadership role in this organization is to	1	-2	2	-2

	being able to share the history of the group, how we used to do things and why we do them differently now. I can help members see how their involvement fits into the on-going story of our group. I think it helps them see their involvement as more meaningful.				
14	My approach to leadership is mentoring people. Several people in my group would say that I helped them think about their strengths and encouraged them to take on more responsibilities in our group.	1	-1	1	-2
15	All organizations are complex and operate differently, but I can usually figure out what the organization needs in order to know what role I should play and what strengths I can contribute.	1	0	-1	3
16	The organizations I'm involved in, I joined mostly because my friends are in them too.	-3	-3	-5	-4
17	I really want to stay true to what is important to me. I don't want to "sell out" in order to make the going easier.	2	2	-1	0
18	I don't really think of myself as a leader or a follower. I'm just kind of there.	-5	-4	-4	-5
19	When I'm considering whether to get involved with a new group, their mission and values about how members work together are important considerations.	2	0	0	4
20	Working in groups almost always results in one person doing most of the work. I would call that person the leader of that group.	-3	-3	-4	-1
21	When I think about leadership, I think of people around me who get things done, not necessarily about involvement in formal organizations.	0	-1	0	3
22	When I work in groups, I tend to avoid taking on leadership responsibility. I don't like having the pressure of the group's success or failure to be on me.	-4	-4	0	-4
23	It is important to have group members who will risk stepping outside of the lines, to say "this group is going in the wrong direction."	3	5	5	-1
24	When I think of leadership, I think of a person who has vision and shows direction, without giving in to pressure to do something else.	0	1	3	5

25	Lately I've been really frustrated by something I've noticed [in society or in my community] and I want to try to change it or make things better.	0	0	-1	-1
26	Lately I've been looking to be involved in something that matters to me. I'd like to feel like I'm a part of something that is meaningful and important - more than just the day-to-day stuff.	1	2	0	-3
27	A good leader should empower all group members to be actively involved in the group's processes of decision-making, goal setting, delegating, etc.	5	5	5	-3
28	I am a leader. It is a part of how I see myself, just like my other roles and characteristics.	2	5	-2	4
29	I used to be directly involved with everything my group worked on. Now I've stepped back to let younger members do things, hoping they will keep the group going strong after I'm no longer in it.	0	-2	-2	2
30	I'm in just one or two organizations. I'm selective about only being involved in areas that really matter to me.	-1	-3	1	0
31	When I am the leader, I'm not comfortable telling people what to do. Instead I'd rather gather everyone's ideas. We should decide together, not me directing everyone.	0	-3	2	1
32	I haven't really thought that much about what leadership is or what being a leader means.	-5	-4	-3	-2
33	I enjoy being involved in organizations because others see me as a good leader and that is something I do want to be known for.	-1	3	-3	-3
34	I used to see leadership as something that other people did. Now I see that I can take charge and get things done.	-1	-1	1	0
35	An organization can't work effectively if it has too many leaders and not enough followers.	-2	1	5	1
36	I believe a person can be a leader even though he/she doesn't have a title or an official position in an organization. I can be A leader in a group without being THE leader of the group.	5	3	3	3
37	I see others my age that will speak up or	0	-1	1	-1

	volunteer to do projects or to be leaders of clubs. I see them as leaders.				
38	A good leader can direct people when they need it, but also allow people to direct themselves. They will stand up when somebody needs to, but aren't always out in front.	3	3	3	4
39	I think everything I've learned about leadership and how groups can work together effectively will apply when I find myself in a new situation (like my next project or job).	2	4	1	-3
40	When I'm not in the leadership position, I usually will follow what the leader says so everything will go according to plan.	-2	-1	3	-2
41	I have a wide range of interests. I like to get involved in different types of groups and explore things I might like.	0	1	0	0
42	I didn't used to think of myself as a leader, but I've taken on some roles, like being team captain or an officer in an organization. So I can kind of see myself that way now.	-2	-3	-1	0
43	Good members are just as important to the success of a group as good leaders. Having members who are actively involved and reliable is so important.	3	4	3	3
44	Whether you'd call me a leader depends on the situation. I'd consider myself a leader when I'm doing stuff for [name of organization], because I'm the president. In other organizations though, I'm just a regular member.	-3	-2	-1	-4
45	Being a person who gets involved in order to make a difference means that I often face challenging situations and don't know what to do. But I have confidence that by working with others, we can figure it out.	4	-1	2	2
46	Whether I have a leadership position or not, when I'm in a group, I monitor the things I do and say because I am aware of the affect it will have on others.	2	0	2	1
47	When working in groups, I often end up doing a lot of the work myself. I know I should delegate, but it isn't easy to trust other people to get things done or do them well.	-2	0	-4	2
48	I enjoy the time I spend talking to people	3	1	-3	0

	about leadership and how to work more effectively in groups. Talking about what I should have done differently doesn't harm my confidence to be a leader in a group.				
49	I'm an officer of a certain organization (I have a leadership position), but I have to admit I don't really do that much.	-3	0	-2	-2
50	Most of the groups I'm involved in now are because my parents or teachers got me to do it. I was just kind of thrown into it.	-4	-4	-5	-3
51	In order to reach a major goal, groups need to be organized with a clear leader and chain of command so everyone knows what each person's job is.	-4	3	4	1
52	A good leader will take charge and have a certain level of control over what is going on.	-1	2	4	1
53	By getting involved in a few groups or projects, I'm starting to see that I am good at working with people.	0	3	1	-1
54	The head of the group is ultimately responsible for whether or not the job gets done.	-3	-2	-1	5
55	Anyone can learn to be good at leadership.	4	-3	0	5
56	It is important for leaders to know how to develop other people's talents and strengths, and to trust and empower them to act for the group.	4	2	4	4
57	When I think of the word leadership, I think of things adults do - like the mayor of a city, the head of a company, or teachers in school. I don't really see myself as a leader.	-4	-5	-3	-2
58	I have spent a lot of time thinking about how I operate in groups, like the roles I play and how to determine how my particular strengths and skills could be best put to use.	2	2	0	-1
59	People in positions of authority may often gather input from the people under them, but they are not obligated to.	-2	-2	-2	0
60	Just because you don't have an official position in an organization doesn't mean you can't be a leader. Anyone can take the initiative to do something for the organization.	3	4	3	0
61	I used to think of myself as a person who contributed to leadership in certain contexts	1	3	-2	3

	(an organization, my job, school projects), but now I have confidence that I can be that way anywhere I choose to. I am always a leader, it just looks different in different situations.				
62	I have come to know who I am in terms of my values and purpose in life. This plays an important role in my leadership because I can see my values and purpose influencing the type of leader I am.	5	1	1	2
63	I have often said that simply reaching a goal doesn't necessarily mean a group was successful. How did they reach it? A good group process, everyone feeling good about how they worked together, is as important as what the group accomplished.	2	-1	1	1
64	I don't like assigning labels like "leader" or "follower" as if a person is one or the other. The reality of group work is much more fluid than that.	3	-2	-1	-2

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