An Analysis of Peer Leadership Competencies and Skills

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AN ANALYSIS OF PEER LEADERSHIP COMPETENCIES AND SKILLS

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AN ANALYSIS OF PEER LEADERSHIP COMPETENCIES AND SKILLS

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AN ANALYSIS OF PEER LEADERSHIP COMPETENCIES AND SKILLS

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A significant leadership challenge exists while leading others without legitimate or formal authority. Leading without legitimate authority may require different and limited leadership skills and competencies, especially when leading peers. This quantitative study analyzed the leader competencies and skills needed for effective peer leadership.

A literature review identified four competencies cited frequently as important: (a) communication; (b) support; (c) mental/hard work ethic; and (d) reflection/feedback. Analysis of an ROTC leadership assessment database provided convergent validity for the literature review while adding one additional competency, physical. The lack of existing instruments measuring peer leadership competencies and skills necessitated the development of an influence survey. The resulting influence survey included a frame of reference scenario, two stem questions and 40 specific peer leadership skill questions. The final survey allowed data collection from 1084 undergraduate students.

A principle component analysis verified validity and identified the best model based on 18 of the 40 questions in the survey. The four components identified included Assist, Reflect, Participate, and Presence based on the thematic nature of the questions comprising the factors. The multiple-regression model of male and female participants for the four peer leadership competencies indicated significant contributions of
competencies to the regression model in the same order of importance. An ANOVA of college levels found no significant differences between the four levels.

Multiple regression analysis conducted on each peer leadership competency defined in this study identified the most important peer leadership skills. Analyzing the questions comprising the Participate competency indicated that peers prefer peer leaders who communicate effectively, listen effectively, encourage them, and included them when making decisions. The Assist competency included peers skills that demonstrated a positive attitude, provided assistance in defining goals or making decisions, and made a sincere effort to reach consensus with the peer. The Presence competency focused on the peer leader having a physical presence with the peer. The Reflect competency consisted of peer leader actions that caused the influenced peer to analyze the situation, learn from the situation, and reflect and meditate to better understand the situation.
CHAPTER I: INTRODUCTION

A significant leadership challenge is to lead when not in a position of legitimate or formal authority. Legitimate authority, or a formal position of leadership, allows leaders to use a diverse set of skills and competencies to influence others and lead to accomplish goals (French & Ravens, 1959). Leading without legitimate authority may require different and limited leadership skills and competencies, especially when leading peers. Relatively few studies have addressed effective skills and competencies needed for peer leadership. Loughhead and Hardy (2005) stated, “…very little research has focused on peer leadership...” (p. 305).

Anecdotal observations over seven years as a Professor of Military Science revealed a predictable cycle of leader failure in senior Reserve Officer Training Corps (ROTC) Cadets leading their peers while attempting to accomplish required tasks during an undergraduate academic school year. Senior ROTC cadets assigned to positions with legitimate authority operated effectively as leaders for approximately four weeks into an academic semester. However, after approximately one month, the seniors with legitimate authority lost leadership effectiveness over other senior cadets who lacked legitimate authority; resulting situations required ROTC instructors’, (cadre), intervention. ROTC cadre had to provide increased intervention as the semester progressed as senior ROTC cadets with legitimate authority become increasingly ineffective. Many variables could account for the ineffective leadership of senior ROTC cadets who had legitimate authority, but one possible factor, from anecdotal observations, was ineffective peer leadership.
Peers have a significant impact on college student development. Brown (1972) focused on the impact peers have in student development. Adelman (2002) identified Astin, Newcomb, Brown, Heath, Chickering, Pascarella, and Terenzini as having contributed to the body of knowledge regarding peer leadership. Peer leadership is closely linked to both emergent and team leadership, but distinct differences exist. The research questions for this study focused on identifying leader competencies and skills needed to enhance peer leadership. The present study explored and analyzed the leadership skills and competencies needed to lead peers effectively. This study intended to provide people who teach and develop student leaders a more defined set of peer leadership skills and competencies to enhance leadership programs.

**Definitions**

Defining team, emergent, and peer leadership reduces confusion when discussing the relationship among these leadership approaches. A discussion regarding the relationship that exists among team, emergent, and peer leadership occurs later in this chapter. Understanding the relationship and definitions of team, emergent, and peer leadership provides a starting point for readers to understand the focus of the present study hypotheses.

Curtin (2004) defined emergent leaders as “a person who emerges and maintains a position of leadership within a group” (p. 75). Hollander (1961) stressed that emergent leaders were innovators, setting themselves apart from others in the group while adhering to the group’s norms. Emergent leaders can surface in various contexts including those that have legitimate leaders appointed to those scenarios where no defined leader exists. Many aspects of emergent leadership exist in peer leadership.
Morgenson, DeRue, and Karam (2009) defined team leadership as a process that satisfies critical team needs and increases team performance. Bass (1990) defined team leadership as influencing the attitudes and behaviors of individuals and the interaction between and within groups to achieve goals. Johnson and Johnson (1994) defined team leadership as a group of people aware that they have a, "positive interdependence as they strive to achieve mutual goals, interact while they do so, are aware of who is and is not a member of the team, and have specific roles or functions to perform" (p. 503). The three team leadership definitions lack aspects of formal or legitimate authority and, like Rost’s (1991) definition, emphasize shared leadership responsibilities.

Ender and Winston (1984) definition of peer leadership emphasized students helping other students to accomplish goals or solve problems. Adelman defined peer leadership as "the process by which group members engage with one another so that the group of peers comes together to operate and make decisions and accomplish their goals" (p. 7). Adelman’s definition focuses on process, is vague, and does not provide insight to possible leader skills or competencies needed by students to gain influence over other students in order to make decisions and accomplish goals.

The present study required a more detailed description of the term peer leadership while incorporating the key aspects of leadership skills and competencies. A peer is defined as "a person or thing of the same rank, value, quality, ability, etc." (Webster, 1997, p. 996). Leadership has many definitions and authors usually define leadership according to the context of their discussion or analysis. Northouse (2010) defined leadership as "a process whereby an individual influences a group of individuals to achieve a common goal" (p. 3). The U.S. Army (2006) defined leadership as "the process
of influencing people by providing purpose, direction, and motivation while operating to accomplish the mission and improving the organization" (p. 1-2). Rost (1991) examined 587 publications spanning a 90-year period for definitions of leadership focused on a leadership definition for the 21st century. Rost defined leadership as “…an influence relationship among leaders and followers who intend real change that reflects their common purposes” (p. 102). Northouse, Rost, and the U.S. Army, as with most authors, include influence as a central theme in their definition of leadership.

The present study combined the definitions of peer and leadership to define peer leadership as *influence over another person of equal status and abilities*. In this definition of peer leadership equal status encompasses background, age, and social status while abilities include qualifications. Hare and O’Neill (2000) also define peer leadership by defining peer groups as “…consisting of members who are essentially similar in skills and abilities and /or social status and power” (p. 24).

Conger and Ready (2004) define leader competencies as a set of behavioral dimensions. McClelland (1973) defined competencies as outcomes-relevant measures of knowledge, skills, abilities, and traits and/or motives. Hollenbeck, McCall, & Silzer (2006) defined leader competencies as the traits, abilities, and behaviors of a leader. Dubois, Karoly, & Doubs (1994) provide examples of leader competencies that include interpersonal skills, collaboration and teamwork, problem solving and decision making, ethics, self-direction and motivation. Leader competencies include an overarching construct comprised of individual skills. Skills are present in most discussions of leader competencies and addressed as an aspect that contributes to competencies.
Mumford, Zaccaro, Connnelly, and Marks (2000) define leadership skills as an interaction between traits and experience. Katz (1955) argued that traits define leader characteristics whereas skills represent what leaders can accomplish. In further research, Mumford, Campion, and Morgenson (2007), define leadership skills as capabilities that one can develop. Leadership skills literature illustrates the wide array of specific actions leaders can develop to lead given a specific context or situation.

The definition similarities between leader skills and leader competencies suggest that competencies exist at a macro level compared to skills. Kouzes and Posner (2007) illustrate the competency and skill hierarchal structure in their model of effective leader practices. Their research identified five practices, or competencies, for effective leaders. Each leader practice consists of several leaders skills.

This study assumes a definition of leader skills as specific actions that leaders take to effect leadership. Leader competencies consist of a group of related specific leader skills. A review of the relationship among peer, emergent, and team leadership illustrate the distinct nature of peer leadership as analyzed by this study.

**Relationship Among Peer, Emergent, and Team Leadership**

Emergent and team leadership appear similar in that they both exist within groups. Peer leadership, although containing many elements of both emergent and team leadership, differs from team and emergent leadership in that peer leadership functions on an individual level.

Peer leadership relates to both team and emergent leadership. All three forms of leadership focus on leaders who do not have legitimate or formal authority. Emergent leadership may occur in a context where a leader was appointed or elected, but fails to
win the group’s confidence. In such instances, a leader emerges who has certain skills and competencies that promote group norms while perceived by the group as one that can advance the group to accomplish established goals. Team leadership promotes ideals similar to emergent leadership and operates most effectively by utilizing the leader with the best skills and competences needed for the given context and goal accomplishment. Peer leadership exists in both instances of team and emergent leadership as leaders earn confidence and trust with others. However, with team and emergent leadership the leader influences the entire group. The group may consist of equals and those of greater abilities, skills, or maturity. Peer leadership focuses on one or several members of the group of equal status and abilities.

Figure 1 provides a model illustrating the relationship among peer, emergent, and team leadership. I developed this model to assist readers in better understanding peer leadership. In my review of literature, I found peer leadership often discussed when studying team and emergent leadership. Defining peer leadership without providing readers an understanding of the relationship peer leadership has to team and emergent leadership can confuse readers regarding the intent of this study.

The three primary circles defined by the number 1, 2 and 3 represent team, emergent, and peer leadership respectively. The intersecting areas of the primary circles in Figure 1 illustrate a generic relationship between team, peer, and emergent leadership. The size of the intersecting areas varies depending on the context and leadership situation. Situations may also exist that exclude one of the three types of leadership eliminating one of the primary circles.
The most complex and difficult areas to define and understand are those intersection areas defined by the numbers 4, 5, 6, and 7. Circle 3 defines peer leadership where all leaders within this group are of equal status and abilities. Circles 1 and 2 represent team and emergent leadership where all leaders have varying status and abilities. The areas defined by numbers 5, 6, and 7 represent the similarities among peer, emergent, and team leadership where leaders have gained the confidence and trust of the members within a team or group of equal status and abilities. Area 4 represents leaders who potentially have varying abilities and who emerge from the team or group to actively pursue a leadership role for altruistic motives. The difference between those leaders in area 4 and those leaders in area 1 or 2 is intent; those in area 4 actively seek leadership roles whereas those in 1 or 2 fulfill leadership roles as needed by the team or as opportunities occur. Area 6 represents leaders of equal status and abilities in team leadership positions. Area 7 represents leaders that emerge from that portion of a group that have equal leadership skills and status. Area 5, the intersection of all three forms of leadership, represents leaders of equal status and ability who are viewed by others as having skills and
competencies more desirable than other leaders, regardless of the context. Although equal in ability and status, leaders in area 5 may have charismatic qualities.

This study analyzes the area represented by that portion of circle 3 minus the intersections of team and emergent leadership. Circle 3 (Peer Leadership) minus the intersections of team and emergent leadership represents leaders of equal status and ability regardless of the context or situation.

**Hypothesis and Methodology**

The focus of this study was to analyze the leader competencies and skills needed for effective peer leadership. From this focus, two hypotheses emerged:

\[ H_1 \] No specific leadership competencies exist that enhance peer leadership.

\[ H_2 \] No specific leadership skills exist that enhance peer leadership.

Leadership in various situations and contexts require different leadership skills and competencies. Most leadership education and development programs focus on providing participants a wide range of leadership skills and competencies to accommodate a multitude of leadership challenges. A limited focus exists on the development of specific leadership skills and competencies needed to lead peers effectively.

The methodology for this study incorporated data analysis from an external data base that provided convergent validity for a literature review. The leadership competencies and skills identified from the data base analysis and the literature review provided the constructs needed to develop a survey instrument that allowed data gathering from undergraduate students at a medium sized, public university located in the upper south-central region of the United States.
The survey instrument developed consisted of 40 questions, 8 questions for each competency identified by the literature review and data base analysis. Peer leadership skills consist of specific behaviors or actions and emerge after defining peer leadership competencies. The 40 survey questions represented peer leadership skills. Competency retranslation and pilot tests of the survey instrument provided a final survey that had acceptable psychometric measures as discussed in Chapter III.

A literature review in Chapter II identified 15 peer leadership competencies. Four competencies were cited most frequently as important: (a) communication; (b) support; (c) mental/hard work ethic; and (d) reflection/feedback. A data analysis of leadership assessments conducted on U.S. Army Reserve Training Officer Corps (ROTC) cadets provided convergent validity to the literature review and defined another possible peer leadership competency.

**ROTC Leader Assessment Process and Definitions**

During the summer between the junior and senior years of undergraduate studies at four-year universities, with few exceptions, U.S. Army ROTC cadets attend a leadership assessment and development course held at Fort Lewis, located approximately 50 miles south of Seattle, Washington. The name of this leadership assessment and development course changed over the time period of this study, initially known as National Advanced Camp from 1997 to 2002; National Advanced Leadership Camp from 2002 to 2004; and as the Leader Development Assessment Course (LDAC) from 2004 to 2009. This study refers to the course from 1999 to 2009 as LDAC. This study analyzed leadership assessment data collected during each summer from 1999 to 2009. A small minority of graduate students, Junior Military College cadets, and nursing cadets also attended the
course each year. Regardless of a cadet's status, each cadet studied and trained to the same standards for the leadership assessments while on campus prior to attending LDAC. The consistent level of leadership development preparation provided for a homogeneous sample set.

Cadet assessments occurred over approximately 30 days of training and observation that included evaluations of leadership and other military-specific tasks including physical fitness, land navigation, marksmanship, and other technical tasks. The assessments ensured that ROTC cadets had achieved the requisite development level in assessed tasks and leadership competencies needed to function successfully as an officer in the U.S. Army. Cadets earn their commission in the U.S. Army after completing requirements for an undergraduate degree and successfully completing LDAC.

Each cadet received leadership assessments based on 16 leader competencies that the Army termed leadership dimensions (see Table 1). The leader skills associated with each of the 16 leadership competencies/dimensions consisted of specific behaviors or actions that defined the competency/dimension. The Army assessment system does not provide a list of specific behaviors or actions defining the leader skills, but provides a narrative illustrated in Table 1 as the description. Army assessors at LDAC receive extensive assessor training and calibration that further defines leader skills from the descriptors for each competency/dimension.
<table>
<thead>
<tr>
<th>Dimension</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mental (ME)</td>
<td>Possesses drive, will, initiative, and discipline</td>
</tr>
<tr>
<td>Physical (PH)</td>
<td>Maintains appropriate level of physical fitness and military bearing</td>
</tr>
<tr>
<td>Emotional (EM)</td>
<td>Displays self-control; calm under pressure</td>
</tr>
<tr>
<td>Conceptual (CN)</td>
<td>Demonstrates sound judgment, critical/creative thinking, moral reasoning</td>
</tr>
<tr>
<td>Interpersonal (IP)</td>
<td>Shows skill with people: coaching, teaching, counseling, motivating, and empowering</td>
</tr>
<tr>
<td>Technical (TE)</td>
<td>Possesses the necessary expertise to accomplish all tasks and functions</td>
</tr>
<tr>
<td>Tactical (TA)</td>
<td>Demonstrates proficiency in required professional knowledge, judgment and war-fighting</td>
</tr>
<tr>
<td>Communicating (CO)</td>
<td>Displays good oral, written, and listening skills for individual and groups</td>
</tr>
<tr>
<td>Decision Making (DM)</td>
<td>Employs sound judgment, logical reasoning, and uses resources wisely</td>
</tr>
<tr>
<td>Motivating (MO)</td>
<td>Inspires, motivates, and guides others toward mission accomplishment</td>
</tr>
<tr>
<td>Planning (PL)</td>
<td>Develops detailed, executable plans that are feasible, acceptable, and suitable</td>
</tr>
<tr>
<td>Executing (EX)</td>
<td>Shows tactical proficiency, meets mission standards, and takes care of people/resources</td>
</tr>
<tr>
<td>Assessing (AS)</td>
<td>Uses after-action and evaluation tools to facilitate consistent improvement</td>
</tr>
<tr>
<td>Developing (DE)</td>
<td>Invests adequate time and effort to develop individual subordinates as leaders</td>
</tr>
<tr>
<td>Building (BD)</td>
<td>Spends time and resources improving teams, groups, and units; fosters ethical climate</td>
</tr>
<tr>
<td>Learning (LR)</td>
<td>Seeks self-improvement and organizational growth; envisioning, adapting, and leading</td>
</tr>
</tbody>
</table>

The U.S. Army leadership dimensions corresponded with the approved doctrine found in FM 22-100 (1999), *Army Leadership, Be, Know, Do*, and FM 6-22 (2006), *Army Leadership, Competent, Confident, and Agile*. The 16 leadership dimensions emerged
from research and development by various agencies within the U.S. Army prior to the release of FM 22-100 in 1999. The Army used the same 16 leadership dimensions in their leadership development model during the time frame of this ROTC data analysis.

The assessors conducting leadership evaluations were cadre (Army instructors) from ROTC programs located at universities across the United States and territories. Leadership assessor consisted of commissioned or non-commissioned officer in the U.S. Army. Most assessors conducted leadership assessments on their campus during the school year prior to assessing at LDAC using an identical system. Before conducting leadership assessments at LDAC, each assessor attended a five-day training and calibration course provided by LDAC cadre.

The leadership assessment training and calibration course consisted of in-depth explanations of the sixteen leader dimensions, discussions regarding the assessment scale, and multiple calibration exercises. The calibration exercises consisted of viewing videotaped leader scenarios from popular movies (Remember the Titans, Glory, etc.) then writing leadership assessments of the assigned leader. Comparisons of assessments to approved assessment ratings provided calibration needed to ensure assessors understood the differences between leadership dimensions and ratings. LDAC used a nominal rating scale of N, S, E to assess leader dimensions; N represented Needs Improvement, S represented Satisfactory, and E represented a rating of Exceeded Standards.

Each cadet participating in LDAC received at least six evaluations of the 16 leader dimensions. Cadets participated in leadership scenarios that consisted of multiple contexts ranging in duration from 4 to 24 hours. Assessors documented only the dimensions observed during each leadership scenario. Varying leadership scenarios
provided assessors opportunities to observe all 16 dimensions over the course of the minimum six evaluations. Immediately following each leadership scenario, assessors and cadets discussed the leadership scenario and assessment ratings the cadet earned during a debriefing and cadet reflection session that promoted two-way communication. After participating in the six (or more) evaluations, an average of the 16 dimensions for each cadet provided a final rating for each leader dimension.

An overall leader rating resulted from the final 16 leader dimension ratings. Cadets receiving at least one rating of Needs Improvement received an overall rating of Needs Improvement. Cadets receiving eight or more ratings of Exceeds Standards received an overall rating of Exceeds Standards. Cadets not receiving a Needs Improvement or less than eight Exceeds Standards received a Meets Standards overall rating. Cadets receiving an overall rating of Needs Improvement in any of the 16 leader dimensions were considered deficient in leader development and subject to retraining and repeating LDAC as the Army required all cadets to earn an overall rating of Meets Standards in leadership assessments to complete LDAC successfully.

**Common Leader Dimensions and Literature Review**

The leader dimensions of Executing (EX), Physical (PH), Mental (ME), and Communicating (CO) consistently emerged as important leader dimensions in descriptive statistics and reliability with deleted items analysis discussed in Chapter IV. The consistent importance of the four leader dimensions provided insight to important leader skills and competencies identified in the literature review.

The leader competencies/dimensions identified by the literature review and ROTC data analysis include communication (identified by both literature review and ROTC
analysis), support (literature review) and executing (ROTC), hard work/ethic (literature review) and mental (ROTC). Reflection/feedback was the third most cited competency during the literature review, but does not have a specific ROTC data counterpart. The leader dimension of physical (ROTC) does not correlate to any of the most cited leader competency identified by the literature review, but does relate indirectly to several tangential discussions in the literature. A discussion further clarifies the relationship between the literature review competencies and ROTC dimensions.

The communication competency was identified by both the ROTC data analysis and literature review. Communication, as described in the literature review and by the Army, encompasses verbal, non-verbal, written, and listening skills. The leader competency of support in the literature review includes the skills a leader has or develops to provide better positive sustainment to peers. The positive sustainment depends on the needs of the person influenced and capabilities of the leader. In most instances, positive sustainment consists of social encouragement, logistical needs, technical skills lacking in the influenced person, and advice in difficult situations. The ROTC leader dimension of executing has similarities to the literature review competency of support as the ROTC leader provides tactical and technical skills to support other cadets in the LDAC environment. Additionally, the ROTC dimension of executing provides advice or social encouragement to other cadets similar to the literature review competency of support as both focus on accomplishing tasks and assisting others with their aspirations.

The ROTC mental leader dimension relates to the literature review hard work/ethic competency as both focus on persistence and an internal drive to accomplish goals while maintaining initiative and discipline. The ROTC mental dimension does center more on
self-discipline than the literature review hard work/ethic competency, but both have a sense of controlled accomplishment and a focus on persistence. Additionally, both have a consistent theme of determination to accomplish goals.

Although the ROTC leader dimension of physical does not correlate directly to competencies identified by the literature review, the importance of the ROTC physical leader dimension identified during the ROTC data base analysis was both intriguing and worthy of investigation. The physical leader dimension, as defined by the Army (1999), focuses on health and mental fitness as well as professional bearing. A cadet physically fit and presenting himself/herself to their peers in a professional and confident manner tend to command more respect and influence then cadets who appear disheveled and uncertain. The physical presence of a cadet was an additional factor that could influence other cadets providing a sense of security and comfort. Although not supported by the literature review, I decided to include the ROTC physical dimension as part of this study.

The competency of reflection/feedback identified during the literature review does not have a counterpart ROTC leader dimension, but is a critical aspect of the ROTC leadership assessment process. Immediately after each ROTC leadership assessment, assessors meet individually with each cadet assessed and assist the cadet to reflect on the completed leadership assessment while providing feedback. Prior to the reflection/feedback session, the assessed cadet reflects on the assessment and records perceived strengths and weaknesses. The written comments on strengths and weaknesses provide additional, critical feedback to both the cadet and assessor. Although this process is not an identified leader dimension in the ROTC assessment, reflection and feedback
occur throughout the leadership assessment process and the third most cited leadership competency identified in the literature review.

The following definitions provided clarity for developing the survey instrument used to gather data regarding peer leadership skills and competencies: (a) communication: the written, verbal, nonverbal, and listen skills needed to convey information from one person to another person; (b) support/executing: a person who, through his/her actions, provides positive sustainment for another person’s social, mental, and physical needs and desires; (c) mental/hard work ethic: persistence and drive to accomplish goals while maintaining initiative and discipline; (d) physical: a person’s level of physical fitness, conditioning, and appearance; the ability to instill confidence in others through his/her presence; and (e) reflection/feedback: careful consideration, analysis, and meditation of recent events; information provided by a person on another person’s recent actions.

An influence survey developed by this author consisting of 40 questions provided a means to focus on the importance of the peer leadership competencies and skills identified by the literature review and corresponding ROTC leader dimensions. Proposed survey questions provided an initial measure of peer leadership competencies and skills. A retranslation of competencies to questions, pre-pilot, and pilot tests enhanced validity and reliability of the influence survey and refined student understanding of survey questions. 1084 undergraduate students at a south-central comprehensive university provided responses to the influence survey. Student responses to the influence survey allowed quantitative analyses of peer leadership competencies and skills.
Assumptions

I made several assumptions while conducting this study to facilitate data collection and data analysis. First, I assumed that participants provided honest, accurate ratings of survey questions, without which the validity of the influence survey remains suspect and might provide inaccurate data contributing to misleading conclusions. A large sample mitigates the possibility of inaccurate ratings and enhances the validity of the influence survey.

The second assumption I made focused on participants clearly understanding the survey scenario and the survey questions. This study required a specific scenario and two unique stem questions for the influence survey to collect data needed for analysis. The stem questions on the influence survey coincided with the survey scenario and allowed participants to answer the survey questions. The retranslation, pre-pilot, and pilot tests of the influence survey provided feedback on the survey validity and provided increased confidence that participants clearly understood the construct of the survey. The questions measuring the competencies were assumed accurate based on competency definitions.

The construct of questions constituting the influence survey had to accurately represent the assessed peer leadership competencies. The retranslation process, pre-pilot, and pilot processes increased question accuracy, but the lack of any pre-existing, valid and reliable influence survey to compare the new survey created assumptions regarding the validity of the newly constructed influence survey.

I assumed that the ROTC data collection occurred consistently and accurately over the 11 year period that the Army collected the leadership data. The ROTC data involved a complex and thorough data collection process. Any large, complex, longitudinal data
gathering process might create biases and inaccuracies. Assessors received assessment training and calibration each year from different ROTC instructors providing for possible bias in the assessor training and calibration. Factors that tended to mitigate the potential bias and inaccuracies of the ROTC data collection included the extremely large number of assessments, the consistent replication of the training and calibration for assessors over the study period, and a consistent theoretical leadership assessment construct over the study period.

**Limitations and Delimitations**

The limitations of this study pertain primarily to the participants and influence survey. The participants consisted of undergraduate students from a regional public university that has a significant part-time population (20.52 percent). The varied life-experiences students have might impact perceptions and reflect a possible bias not found in a more traditional student population.

The maturity level of the participating students varied as ages ranged from 17 to 62 (995 of 1050 were under the age of 30). Varying ages might provide different levels of maturity impossible to account for creating potential survey question response bias from varying maturity levels that could influence data analysis. Although a limitation, the focus of this study required an aggregate sample of undergraduate students designed to allow analyses of peer-leadership competencies and skills across maturity levels.

The majority of students participating in the influence survey originated from the same geographic region of the United States. The university where this study gathered data focuses on recruiting a diverse student population, however, 82 percent of the student population originated within the home state of the university. Potential influences
from the culture of the study university geographic region could bias the influence survey data and findings of this study.

Various survey participant characteristics including academic disciplines, race, family environment, and ethnic groups could provide additional bias in the collected data. Participants included a large number of academic disciplines, race, and ethnic group populations to ensure a representative sample of the undergraduate student population at the study university. The data gathered represented a cross-section of undergraduate students rather than stratified sampling that collects within specific parameters to mitigate bias. The limited number of survey responses from students representing specific academic disciplines, the wide variety of family environments, and limited number of ethnic groups represented in the data could prohibit quantitative analyses. However, the potential bias any specific group of participants may provide based on academic discipline, race, family environment, or ethnicity, remains unknown.

The ROTC database, although diverse, consists of like minded cadets. Most cadets assessed at LDAC had a bias created by the common factor of selfless public service resulting from his/her desire to pursue an initial career in the U.S. Army. The ROTC data gathered by assessors occurred in various contexts, but most assessed cadets did possess the selfless public service bias.

The influence survey is new and untested which may create a potential limitation. Although psychometric measures were used to ensure accuracy, no comparable influence survey exists. Lack of a benchmark survey offers an increased risk of biased results or inaccurate findings that might lead to faulty conclusions during analysis. An existing influence survey focused on the same or similar peer leadership competencies would
provide additional convergent validity and reliability of the influence survey developed for this study.

Delimitations for this study include the influence survey scenario and applicability to populations other than undergraduate students. The influence survey scenario developed focused on undergraduate students who have had adequate life experiences in high school or in higher education. The survey did not focus on professional contexts or populations consisting of mainly non-traditional students. A new scenario that more strongly relates to professional people or students with extensive life experiences outside higher education might provide accurate results. In such instances, a review of questions and psychometric analysis of pilot studies would provide needed verification of accuracy.

Including other populations of students or other professional people might allow the generalization of this study. The influence survey and methodology of this study could provide information for early leadership development programs or specific, targeted leadership programs in professional settings. Developing the ability to influence peers is an important component in various leadership development contexts and participant populations; data from an adapted study based on this study would provide insights needed to further refine and focus curricula for effective leadership development.

**Significance of this Study**

This study focused on providing curricular and pedagogic enhancements to undergraduate leadership education and development programs. Peer leadership is an area of leadership often overlooked or assumed within the context of other leadership conversations. As such, educators and authors have not seriously considered it as a separate leadership focus and have not taken advantage of the tremendous leadership
laboratory available to students while attending institutions of higher learning. Students who interact with other students of relative equal status and abilities often encounter the leadership challenge of gaining influence with them to accomplish a task or achieve a goal. However, the literature is void in defining the leadership competencies and skills needed for effective peer leadership education and development. Peer leadership skills and competencies also provide for both formative and summative program evaluations.

Most leadership programs on campuses consist of many quality aspects that focus on preparing students for leadership challenges that await them upon graduation. Leadership program development usually occurs by adopting or modifying a pedagogic model from other institutions or programs that closely mirrors the intended learning objectives at their university. Most appear similar yet measuring the outcomes and effectiveness is vague and in most instances, not achieved effectively. The campus environment provides a means for students to experiment and experience peer leadership competencies, to apply what was learned in the classroom then learn from mistakes on campus without impacting potential career possibilities better preparing students for professional leadership challenges.

Peer leadership possibly provides the most demanding and difficult leadership challenge as a person attempts to gain influence over other people without formal or other sources of authority or power. Peer leadership, similar to other forms of leadership, requires leaders to establish effective relationships and to develop a sense of personal commitment within the people they choose to influence towards a common purpose. Leaders who understand how to develop a sense of commitment within people that have equal status and ability that they want to lead can use the same process to gain influence
and to develop a sense of commitment from larger groups. Most undergraduate leadership curriculums do not fully utilize on-campus experiences to develop undergraduate leaders in leadership, especially peer leadership. This study provides insight to effective peer leadership competencies and skills that may assist leadership educators and curriculum developers in providing more effective peer leadership pedagogy.

Where Chapter I provided the framework for this study, Chapter II reviews the literature that has contributed to the study of peer leadership. Chapter III defines the methodology used to determine better specific peer leadership competencies and skills. Chapter IV describes the results of this study while Chapter V presents the data analyses and conclusions.
CHAPTER TWO: LITERATURE REVIEW

A significant leadership challenge is leading one’s peers. Peers are influential on campus and contribute to leader development in many situations and contexts. Brown (1972) stated:

One of the most potent environmental influences on student development in college is the peer group. While the faculty may play some role in the development of intellectual attitudes and perhaps in vocational choice, the dominant and single most important force remains the peer group. (p. 31)

An important aspect of student development includes developing leadership. Most leadership programs evolve from curriculum focused on leading in a divergent range of contexts to equip students better for leadership challenges while on campus, and more importantly, beyond the campus. Leading one’s peers creates a significant challenge as both leader and follower have equal status and abilities and the leader is not in a position of formal or legitimate power. Without formal or legitimate power, peer leaders must rely on other skills and competencies to earn credibility and gain the ability to influence those whom they desire to lead.

Adelman (2002) defined peer leadership as, “…the process by which group members engage with one another so that the group of peers comes together to operate and make decisions and accomplish their goals” (p. 7). However, limited research addresses the leadership skills and competencies needed for effective peer leadership. Loughhead and Hardy (2005) described peer leadership as a relatively neglected topic of inquiry. Komives, Mainella, Owen, Osteen, and Longerbeam (2006), found support and mentoring as factors that impact peer leadership. Specific definitions of peer leadership,
in terms of skills and competencies, have not served as a focus of past or current research. To direct more attention to peer leadership skills and competencies, two hypotheses emerged:

\[ H_1 \] No specific leadership competencies exist that enhance peer leadership.

\[ H_2 \] No specific leadership skills exist that enhance peer leadership.

A significant leadership challenge occurs when attempting to lead without a basis of social power. French and Ravens (1959) cited five bases of social power including referent power, expert power, legitimate power, reward power, and coercive power. Many contexts in higher education provide students with formal roles within an organization allowing students the ability to use a form of social power to influence and lead. However, students in formal leadership roles still must influence and lead their peers regardless of the hierarchal or systematic structure of the organization. A review of literature provides insight into peer leadership and associated leadership skills and competencies.

**Framework of Literature Review**

I examined three major areas in the leadership literature to provide a comprehensive theoretical understanding of peer leadership. Social Learning Theory provided the overarching construct to understand the impact of peers on student development and student learning. Social Learning Theory also provided insight to student leadership and leader development. A review of leadership development literature focused on emergent, team, and peer leadership theories and models. Much research describes emergent and team leadership, but limited literature exists regarding peer leadership. These three theories of leadership provide a bridge between Social Learning Theory and the specific
leadership focus of this study. A review of these theories and models also provides a
more defined focus on leadership from the Social Learning Theory. Literature on leader
development provides potential leadership skills and competencies for analysis.
Examining known leader skills and competencies from an examination of these
leadership theories and models provides multiple leader skills and competencies for
possible inclusion in this study.

**Social Learning Theory**

Many researchers (e.g. House (1996), McClelland (1973), Bass (1990)) have
studied human behavior and believed that motivation forms the principle force behind
displayed behaviors. Motivation came from within an individual and explained their
actions. Other researchers (Marmor (1962), Bandura (1977), Avolio and Luthans (2006))
have reviewed these theories both conceptually and empirically and offered other views.
Marmor (1962) stated that each psychodynamic approach appears to have its own
preferred set of inner causes and its own particular brand of insight. One central criticism
has been the tremendous variations in frequency and strength of behaviors in given
situations. Bandura (1977) conducted research on the impact of the environment on
behaviors, specifically, how one learns in a social context. According to Bandura,
behavior, personal factors and environmental factors all mutually influence each other in
the social learning process. Specifically, people are not driven by inner forces, but by a
reciprocal interaction of personal and environmental determinants.

focuses on learning primarily through observation. Behaviorists advocate that a person
learns by trial and error; that one must participate in experiential learning. Bandura
logically concluded that one could not live long enough using a trial and error method of learning to shape his or her’s behaviors. A child does not learn what he/she does during the first two years of life through trial and effort (Svinicki, 2004). Learning and developing behaviors by observing others allows a person to develop behaviors more quickly that, in turn, provides more opportunities to change and develop new behaviors. Although Bandura (1977) advocated observational learning, he also agrees that experiential learning develops behaviors through the consequences of practicing the observed behaviors.

Bandura (1977) based his Social Learning Theory on three broad phases: (a) attention, (b) retention, and (c) learning. In the attention phase, the learner becomes aware of the critical behaviors needed to complete the action and develops a mental model of the behaviors. Models that create lasting impressions on learners assist the second phase of retention. After creating a model and storing it mentally, the learner begins the learning stage and engages in generating behaviors from the stored model. Bandura noted that motivation was a common theme throughout the social learning process and needed to complete any phase successfully.

People are not born with a collection of pre-established behaviors but learn them from either direct participation or observation. Bandura (1977) acknowledges the influence of biological factors but subjugates them to experiential learning in a social context. Modeling appropriate behavior contributes to the ability of one to learn from his environment and social context. People learn from modeling the information they receive by observing behaviors of other people. Without such observations and modeling, learning in social context would prove ineffective. Retention of modeled behavior
information takes place primarily through symbols representing the modeled behavior. Rehearsals and reinforcement also assist in behavior retention as a person mentally rehearses and received positive feedback for the modeled behavior. Once retained, one must then recall behaviors converting the symbols into appropriate actions. Feedback and repetitive processes refine actions that lead to desired behaviors obtained from the social learning processes. Regardless of the medium, words, pictures, or actions, the modeling process remains relatively constant in spite of the variations of the various mediums.

Social learning theory views moral judgments as a result of social decisions based on many factors that justify the person’s actions. The person involved, the act, and the long-term ramifications all contribute to a social learning theory perspective of moral actions. Adaptive behavior results from a self-reflective analysis of actions and from feedback obtained from external sources. Adaptive behavior can result from moral action feedback. Associated with moral judgments are actions that people take in response to environmental stimuli. Bandura stated that humans do not just respond to stimuli, but interpret stimuli and then act accordingly producing behaviors that, over time, become predictable.

Bandura (1977) found four sources of personal efficacy: (a) performance accomplishments, (b) vicarious experiences, (c) verbal persuasion, and (d) emotional arousal. Personal efficacy impacts social learning that, in turn, can influence peer leadership as people are attracted to and from loyalties to behaviors that they desire. Of these four personal efficacies, performance accomplishments and verbal persuasion could qualify as effective peer leader skills or competencies. Positive performance accomplishments illustrate success that might enhance the perception of others and create
a means to influence peers. As noted earlier, modeling behavior impacts the perception of others, similar to positive performance as others desire to emulate accomplishment behaviors. Verbal persuasion reinforces previous studies that highlight the importance of effective communication skills in regards to leader effectiveness. Bandura stressed the importance of correct speech as an integral component of social learning and a means to gain influence. The key aspect of correct speech is communicating correctly given the context and environment.

Social contracting provides a powerful relationship skill that assists or hinders one’s ability to influence others and affect quality leadership. Rewards and punishments are bases of social power as defined by French and Raven’s (1959) earlier research. Positive incentives early in the development phase of any relationship enhance the probability of developing a positive, beneficial relationship. Leaders who intent to influence their peers with rewards, positive encouragement, and modeling desirable behaviors can enhance the early development of a social contract with these positive incentives. Intrinsic motivation provides influential development of effective social contracts; however, internal motivation can prove challenging to develop and inherently difficult to evaluate. Likewise, personal change is also difficult to achieve without self-administered, tangible reinforcements; concepts equally difficult to assess.

Verification of behaviors is essential to effective development of peer leadership skills and competencies. Bandura (1977) discussed four ways to verify effective behaviors. First, direct experimentation provides for instantaneous feedback that reinforces effective behavior. Second, vicarious experiences allow one to observe behaviors and their resulting effect. Third, comparing one’s judgment with the judgment
of others allows feedback to occur without directly involving oneself. Last, logical
deduction allows one to evaluate cognitively if behaviors were effective. Critical to
effective verification is correctly assessing the feedback verification provides.
Verification is a naturally occurring phenomenon that, if leveraged properly, allows peers
to understand better effective skills and competencies given the context, environment,
and desired outcome.

Very similar to the Social Learning Theory is Authentic Leadership as proposed by
Avolio and Luthens (2006). Positive and negative moments in life can profoundly shape
leadership development if individuals understand how to maximize these moments and
move their future leadership to the present. Key life moments provide the best vehicle
for individual leadership development focused on the goal of Authentic Leadership. By
observing, reflecting, then acting on the key life moments, leader development advances
effectively and efficiently. The authors contend that measuring the effectiveness of most
leadership development programs is difficult.

Researchers have expanded Bandura’s (1977) Social Learning Theory to include
components necessary to create a Cognitive Apprenticeship Model (CAM) focused on
developing thinking skills (Svinicki, 2004). CAM differs from the Social Learning
Theory as CAM focuses more on cognitive theoretical processes assisting the learner in
developing clear mental images of effective behaviors. Like authentic leadership (Avolio
& Luthens, 2006), CAM is most effective while leveraging life’s moments for reflection,
building a mental map of the concept, then applying that concept experientially for
deeper meaning and development.
Sims and Manz (1982) conducted a literature review focused on the impact and effectiveness of leadership modeling. Sims and Manz focused on Bandura’s (1977) Social Learning Theory to highlight leadership modeling as an important source of learning new behaviors and successful behavioral change in organizations. Leadership modeling occurs as followers attempt to emulate the behaviors of a leader within the organization. This is very similar to referent power, one of the five Bases of Social Power defined by French and Raven (1959). Modeling occurs frequently as followers constantly learn from role models in their organization; this makes modeling an important aspect of leader influence and potential leader development. Luchin and Luchins (1966) provided an example of modeling with college students required to complete a technical task. When provided only positive feedback, the students committed over 1000 errors while attempting to complete the technical task. When provided a model that demonstrated the task, errors decreased dramatically. Providing behavioral cues also reinforces behaviors. As an example, if a manager praises one worker for good customer service while another watches, the cue provided is likely to produce the same positive customer service behavior in the observing worker.

Sims and Manz (1982) reviewed previous research that focused on training that included modeling. Previous research reviewed by Sims and Manz indicated that modeling increased efficiency and productivity when compared to control groups that did not receive model-focused training. Modeling also proved very effective in reinforcing behavior when leaders and trainers provided public rewards where other subordinates could observe the consequences of desired behavior.
Positive role modeling as described by Sims and Manz (1982) closely relates to Kouzes and Posner’s (2007) leader practices of Model the Way and Encourage the Heart. Both focus on leader behaviors and the importance of providing positive behaviors for followers to observe and consider incorporating into their leadership. Although this review focused on the effects that modeling has on training, Sims and Manz linked modeling to effective leader behaviors that increase a leader’s ability to influence those whom they choose to lead. Modeling may impact peer leadership as peers may place greater importance on observed peer behavior than observed behavior from other leaders.

Astin’s revision (1993) of *Four Critical Years* (1977) included new data provided by the Higher Education Research Institute (HERI) at the University of California, Los Angeles. Astin’s original work examined how various types of institutions of higher learning and different educational experiences impact students. HERI utilized data obtained from the Cooperative Institutional Research Program (CIRP), a new source of data [at that time] consisting of responses from incoming freshmen focused on possible outcome measures, self-predictions about possible future outcomes, and personal characteristics. CIRP obtained data obtained from a questionnaire mailed to students after graduation and from cognitive measures from post secondary tests; Law School Admission Test (LSAT), Medical College Admission Test (MCAT), Graduate Record Examination (GRE), and National Teacher Examination (NTE).

Astin (1993) provides a conceptual framework model titled, *Input-Environment-Output Model*. The model operates on the premise that students arrive on campus with many characteristics—inputs. Many environmental factors impact students including
faculty, curriculum, where students live, extracurricular activities, athletics and peers.

The result of the environment on the initial input is described as the output

Behavioral scientists usually classify human behavior into cognitive and noncognitive domains, described in Astin’s (1993) model as outputs. Higher order mental processes that use reasoning and logic relate to most student educational objectives. The noncognitive outputs, also called affective outputs, focus on extracurricular related aspects of a student’s life. Peer influences generally fall into the affective domain.

Astin (1977), Feldman and Newcomb (1969), and Pascarella and Terenzini (1991) concur that the majority of literature examining the impact of the college experience on student development identifies the peer group as one of the most important influential factors. A peer group, as defined by Astin, consists of individuals that a student identifies and affiliates with whom the student seeks approval and acceptance. The degree to which a peer group exerts influence on its members depends on the norms and expectation of the peer group. At face value, it is understandable that peers have a profound influence on other students. Although peers are acknowledged as having an important impact on student development, little is known on specific ways that peers impact other students.

In summarizing the environmental effects on student outcomes, the author stated, Perhaps the most compelling generalization from the myriad findings…is the pervasive effect of the peer group on individual student’s development--cognitive and affective, psychological and behavioral--is affected in some way by peer group characteristics, and usually by several peer characteristics. Generally, students tend to change their values, behavior, and academic plans in the direction of the dominant orientation of their peer group. (Astin, 1977, p. 363)
To reinforce the findings of this research effort, Astin also stated that, “...the student’s peer group is the single most potent source of influence on growth and development during the undergraduate years (p. 398).”

In regards to leadership, Astin (1993) provided data from the CIRP that indicates student leaders in high school who excelled in speech, debate, and studied with other students were more likely to win athletic letters and hold elected offices. Leaders on campus tended to favor military science, pre-law, religious studies, and communications and followed their interests into careers in these specific fields upon graduation:

But by far the strongest effect is associated with student-student interaction: students who interacted most frequently with peers show a net increase of +13.2 in the percentage qualifying as Leaders, whereas those who have the least degree of interaction with peers show a net decrease of -3.6 percent. (Astin, 1993, p.123)

Maturity did not appear significant as the age of students entering college was not significantly associated with changes in leadership scores.

Gellin (2003) conducted a meta-analysis of the literature pertaining to college and university student involvement and critical thinking during the 1990s. Peer interaction had a positive effect on student critical thinking and was the only effect consistent with research conducted through 1990. Gellin’s findings are consistent with Pascarella and Terenzini’s (1991) findings and further indicate the impact peers have on student development through the free exchange of ideas and involvement in student clubs and activities.

Terenzini, Pascarella, and Blimling (1996) conducted a review of empirical literature examining the effects of student out-of-class experiences on academic,
intellectual, or cognitive learning outcomes. A student’s academic and cognitive growth is usually viewed as the responsibility of academicians while student affairs concentrate on enhancing a student’s affective growth. The authors define learning as any gain in cognitive or academic ability. Out-of-class experiences refer to structured and unstructured activities or conditions that are not directly part of an institution’s formal programs.

Terenzini et al. (1996) also found no statistical significant difference between resident and commuter students during their literature review of residence and commuter out-of-class experiences. Students participating in a living learning community produced significant increases in the academic, intellectual, and cognitive growth due to suspected increased peer and faculty participation. Student participation in Greek life generally indicated a weak but negative influence on growth and learning. The most negative influences were found in homogeneous and white fraternities and sororities. Fraternities of color displayed a slightly positive influence while there was no analysis of sororities of color. The results are somewhat expected as white, male students tend to fall into a “group think” mentality while fraternities of color provide its members support and increased self esteem. Terenzini et al.’s review indicates that peers impact students in many extracurricular activities.

Intercollegiate athletics, from Terenzini et al.’s (1996) review, generally showed a negative effect on student learning and development, especially during the first year in college. The student-athletes primarily affected participated in football and basketball. When male football and basketball players are not factored into the analysis, there is no significant impact of intercollegiate athletics, suggesting that negative effects on learning
and growth may be sport specific. Steps taken early are needed to mitigate the negative effect, especially for football and basketball players. Peer influence on intercollegiate athletics was not mentioned, but assumed present due to the amount of time students spent together participating in athletics.

Employment had mixed results regarding cognitive and affective growth. Full-time employment generally had a negative impact on grade-point average (Astin, 1993). Part-time off-campus work had a positive influence on virtually all areas of self-reported cognitive and affective growth. In both instances, the opportunity for peer interaction and influence diminished and adults may have had a greater impact on student growth.

Other extracurricular activities encompassed a wide array of clubs and organizations in most studies. Due to the wide variety of activities, most studies could not establish close linkages between the activity and student cognitive and affective growth. The literature does indicate that peers and adults do have at least an indirect effect on students due to the contact and associations developed while participating in other extracurricular activities.

“The evidence is generally clear, however, that when peer interactions involve educational or intellectual activities or topics, the effects are almost always beneficial to students” (Astin, 1977, p. 165). Peers have a positive impact on student learning and growth, especially in conceptual content. Students generally benefited most from contacts outside social or formal contexts. Social contexts and excessive time spent with the same peer, usually in volunteer activities, adversely effected student development. Diversity had a positive influence on student growth and socializing with students of different cultures enhanced cognitive and affected growth. Overall, Astin determined the
whole out weighs the parts and with peers being the single most important influence on most campuses.

Whitt, Edison, Pascarella, Nora, and Terenzini (1999) examined student peer interactions, both curricular and extracurricular, while in and out of the classroom. Approximately 3,000 students participated in a three-year longitudinal study that encompassed both four-year and two-year colleges from various states. This study also examined student cognitive outcomes during the first three years of college and was able to examine peer interaction conditional effects based on sex or race. Cognitive measures based on standardized tests defined the dependent variables with student responses to peer interaction questions as independent variables. Results reinforce the role of peer interactions as the single most important aspect of student development. Increased student peer interactions improve cognitive growth, both in and out of the classroom. Residence lacked a significant impact on cognitive growth from peer interactions as those living on campus experienced similar cognitive growth as those that lived off campus. “This study is one of many that, when added together, demonstrate strong positive effects of peer interactions on college students’ learning and development” (Whitt et al., p. 75).

Although evidence indicated the positive influence peers have on cognitive learning, Whitt et al.’s (1999) study could not provide details on how peer leadership influenced cognitive learning; “...we cannot provide detailed descriptions of the interactions nor explain why we obtained these results” (Whitt et al., p. 74). Specific skills and competencies noted included studying (peer interaction), talking—communicating, teaching, and reflection. Reflection emerged as a key component of peer interaction in regards to positive cognitive development. However, students are usually
not taught how to properly reflect on peer interactions or reflection in relationship to leadership development.

Love (1995) examined the impact student affairs and other non-faculty professionals have on student development. Much literature and research focuses on faculty, curriculum and peers, but does not address student affairs professional (defined here as all non-faculty professionals). Astin (1993) and Chickering (1969) have studied the importance of learning outside the classroom, where student affairs personnel impact student development significantly. Informal interactions between students and faculty impacts student development and informal interactions between students and student affair professionals may have the same effect. Love also noted a decrease in faculty interact with peers and posited that student affairs professionals and peers may fill the void created by decreased faculty interaction with students.

Student affairs professionals and peers have more contact with students than faculty due to residence halls and the amount of time students spend outside the classroom. Love (1995) examined the nature of peers through a review of literature and found peers representing collective groups at many levels of peer interaction. For this study, Love categorizes “true” peers as those peers who have more developed relationships with certain other students of equal status and ability or students going through the same experiences. Love defined “non-peers” as those students of different rank or experiences. Direct influences consist mainly of the interaction between true peers and faculty. Indirect influences consist of residence halls, group activities, and other non-intimate relational activities. Direct influences have been the focus of much research while there is little research examining the indirect influences. Love argues that
student affairs professionals have a greater impact and are more prevalent in direct influences than the research indicates.

Peers appear to have a definite effect on student development that translates into a definite impact on student leader development. The effect of peers on other students appears significant, but the specific leader skills and competencies are not well researched and understood. From an examination of Social Learning Theory and other closely related theories focused on student learning and development, the next body of literature examined focuses more directly on leadership. Within this realm, emergent, team and peer leadership best focus on the influence peers have on leadership and leader development.

**Emergent and Team Leadership**

Research of emergent and team leadership provides insights to the importance of peers in the leadership process and leader development, though there is a relative lack of research in these areas. Emergent and team leadership implies that in most instances processes focused on leader selection by peers as groups collaborate to identify and support the chosen leader(s). Group processes encompassed by Social Learning Theory highlighted the importance of peers in both emergent and team leadership processes. However, the study of peer leadership is somewhat limited. Loughhead and Hardy (2005) stated, “Given that very little research has focused on peer leadership…” (p. 305). Middlehurst (2008) stated, “There has been less attention addressed to ‘informal and emergent leadership’ - that is, leadership exercised by individuals and groups outside designated positions” (p. 327). A review of emergent, team, and peer leadership provided needed awareness to the impact peers have in the leadership process.
Anderson and Wanberg (1991) developed a Talk Assessment Survey that examined the relationship between self-perceived leadership (SPL) and observer-perceived leadership (OPL) assessments of emergent leadership. Having similar independent variables for SPL and OPL provided for construct validity. Anderson and Wanberg examined the similarity and different construct validity between SPL and OPL. Researchers identified communication as an important factor in emergent leadership. Mullen, Salas, and Driskell (1989) stated “generally, the tendency for the individual with the highest level of verbal participation to be chosen as the leader was significant and of strong magnitude” (p. 545). The authors used the Talk Assessment Survey developed by Anderson and Wanberg (1991) to examine SPL and OPL emergent leadership. Results using correlations and regression analysis for both primary and secondary SPL and OPL factors indicate that in certain contexts leaders emerge who are not hesitant to speak, are supportive and concerned regarding the welfare of others, view power as shared, and utilize the diversity of others to serve the team better. Those emergent leaders with the most advanced communications skills were also most able to lead or at least persuade others of their ability to lead. Regarding peer leadership, the significant factors of communication, support, and concern for others indicate possible competencies needed for effective peer leadership.

Kickul and Neuman (2000) examined personality and cognitive ability in determining behaviors in emergent leaders in regards to the knowledge, skills, and abilities of teams. Kickul and Neuman examined the relationship between personality and emergent leader behaviors and the relationship between personality traits of emergent leaders and the knowledge, skills, and abilities (KSAs) impact on the performance of
teams. The authors also examined personality traits of emergent leaders augmenting team performance and KSAs. Previous studies had not examined the specific influence certain personality traits have on effective teamwork.

Kickul and Neuman (2000) also examined the influence that extroversion or openness of the leader had on team leader effectiveness. Leaders who were willing to consider diverse ideas, had the ability to communicate effectively, and who actively engaged their cognitive abilities with others functioned as more effective team leaders than leaders who did not engage in these practices. Team members positively regarded those leaders who had the ability of leaders to engage others with team problem solving and made deliberate efforts to enhance relationships.

Kickul and Neuman (2000) determined that extroversion, open mindedness, and intelligence as significant predictors of emergent leadership. Cognitive ability and conscientiousness emerged as predictors of effective team leadership. Studies by Guzzo and Salas (1995) and Lord and Hall (1992) corroborated the results of Kickul and Neuman also illustrating the importance of intellect, interpersonal, and administrative abilities to emergent and team leader effectiveness. Kirkpatrick and Locke (1991) identified achievement, tenacity, and initiative as necessary traits for emergent leaders to influence their group. However, cognitive ability did not emerge as a significant predictor of teamwork KSAs. Participants viewed interpersonal abilities, including conflict resolution, collaboration, and effective communication, as more essential to effective teamwork than cognitive ability. The ability to establish effective teamwork appears closely related to peer leadership, as leaders must first establish effective teamwork before accomplishing the group task.
Carson, Tesluk, and Marrone (2007) investigated the dynamics of shared leadership within teams. The premise that leadership is critical to successful teams becomes more imperative as organizations become flatter in structure and rely more on a team organizational structure. “Despite this transition in leadership responsibilities from formal managers to team members, relatively little research has addressed the implications of this evolutionary shift to internally distributed forms of team leadership” (Carson, et al., 2007, p. 1217). The authors focused on antecedent conditions that lead to shared leadership and the influence shared leadership has on team performance.

Carson, et al. (2007) defined shared leadership as an emergent team characteristic that resulted from leadership distributed to multiple team members. The conditions, or antecedents, that foster effective shared leadership include both internal and external conditions. Internal conditions included shared purpose, social support, and voice. External conditions focused on supportive coaching available to the team.

An increase in internal leadership networks increases the ability of the team to share leadership. Increased internal networks result from the reliance team members have on each other to help solve issues or gather information. Internal networks do not evolve from helping each other accomplish tasks or share in workload, but focus on higher levels of interaction. Team members viewed leader cognitive constructs as distinctly different, serving other team functions, and not involved in developing shared leadership.

The antecedent condition of shared purpose occurs when team members have the same primary objectives and work toward accomplishing collective tasks. Shared purpose fosters motivation, empowerment, and commitment. Social support evolves from team members providing each other emotional and psychological strength that brings about a
sense of safety, inclusion, consideration of differing views, and accomplishment recognition. Voice is a relative term that Carson et al. (2007) defined as leaders fostering participation, input, a sense of effective communication, and effective listen. The three antecedent conditions mutually support each other and assist in creating an environment positively influencing shared leadership.

Supportive coaching is an external antecedent condition fostering shared leadership. Supportive coaching includes encouraging, reinforcing, rewarding, and developing a sense of self-competence that has a positive effect on leaders within a team. Having an external supportive coach also assists team members in understanding the strengths and weaknesses of other team members that may not realize without the assistance of the coach. The positive influence produced by supportive coaching assists team members in building commitment and accomplishing tasks, thus supporting internal antecedent conditions.

Regression analysis conducted by Carson et al. (2007) identified both internal team environment and external coaching as significant in regards to shared leadership. A hierarchical regression analysis identified team performance as significant to shared leadership; shared leadership was a strong, positive predictor of team performance. The results indicate that the team internal conditions consisting of shared purpose, social support, and voice increase team performance. Effective, supportive external coaching also positively impacts team performance, especially for teams that do not have supportive internal conditions. This study supports findings research by Komivis et al. (2005, 2006), Adelman (2002), Erez, Lepine, and Elms (2002), Whitt et al. (1999), Andersen and Wanberg (1991), Mullen et al. (1989), Tagger and Ellis (2007), and
Loughead and Hardy (2005), who also found similar results when studying similar internal and external aspects impacting shared leadership.

Stone and Cooper (2009) argued that leaders emerge from within groups in multiple ways. Situations exist where emergent leaders constantly take advantage of or create leadership opportunities. In other situations, leaders consistently contribute and emerge as the leader by providing credible solutions to problems. Another path to leadership lies in filling voids created in failed leadership. The authors re-examined the idiosyncrasy credit (IC) emergent leadership theory first posited by Hollander (1958) and identified several methodological issues detracting from the theory, but also provided ways for research to enhance Hollander’s theory. IC focuses on a leader creating credibility within a group by his or her positive contributions to the group.

A literature review by Stone and Cooper (2009) noted several trait analyses that identified intelligence as a predictor of emergent leadership. The Big Five personality traits by Judge, Bono, Ilies, and Gerhardt (2002) also predicted emergent leadership. The Big Five personality traits include agreeableness, openness to change, extraversion, conscientiousness, and neuroticism. Hollander (1958) examined the paradox within emergent leadership where one must conform to the group to gain acceptance yet has to deviate from group norms to lead the group. The primary question emerging from Hollander’s analysis was concerns regarding deviation from group norms without group sanctions. Hollander concluded that emerging leaders transact to build credit with group members that allows emergence to occur. Stone and Cooper contended that Holland developed his IC theory during the late 1950s after many leadership researchers were frustrated with trait theory and looked to the behavioral approach. As time progressed,
the IC was overshadowed by transformational and charismatic leadership. Burns (1978) in his work, *Leadership*, stated that transactional leadership is needed for effective transformational leadership and sees a continuum of leadership rather than discrete types, such as laissez faire, transactional, and transformational. Avolio and Locke (2002) also agreed with the premise that social exchange is foundational to transformational leadership. Emergent and team leadership literature provides a foundation for better understanding peer leadership.

Erez et al. (2002) investigated the effects of rotated leadership on team functioning and effectiveness. The authors reported limited research regarding the implications of team design and effect team design had on team functioning and effectiveness. The specific hypotheses that resulted from the two design foci included: (a) the use of peer evaluations in self-managed teams will be positively associated with workload sharing, level of voice on the team, cooperation, team performance, and member satisfaction, (b) the use of rotated leadership will be positively associated with levels of workload sharing, levels of voice on a team, cooperation, team performances, and member satisfaction, and (c) the relationships between the team designs and the indices of team effectiveness will be partially mediated by the team processes.

The authors chose a quasi-experimental method to investigate the stated hypothesis. The experiment included 114 undergraduate students enrolled in a required human resources management course. The results of this research indicate that peer evaluations or rotated leadership promotes team effectiveness as indexed by team performance and member satisfaction. The effects appeared to be at least partially mediated by three team processes: workload sharing, voice, and cooperation. The
research results indicate that relatively simple team designs can have important effects on

team processes and team effectiveness. Peer evaluations can promote workload sharing,

voice, and cooperation that translate into higher levels of performance and member

satisfaction. Rotating leadership responsibilities appeared less important than peer
evaluations on team processes, but did positively impact voice and cooperation. Although
the research focused on team processes, the peer group had additional incentives to

perform well as a group as each team member had an impact on the other member’s

grade. Reward power is a significant influence and without it, the dynamics of peer

leadership shift and other factors may influence effective team leadership.

**Peer Leadership**

Brown (1972) looked at predictions and proposals for student development in

higher education, reviewed student development research, and made recommendations

for the future of student development. Brown’s research focused on the importance of the

peer group in student development and stated,

One of the most potent environmental influences on student development in
college is the peer group. While the faculty may play some role in the
development of intellectual attitudes and perhaps in vocational choice, the
dominant and single most important force remains the peer group. (p. 31)

Other factors that impact student development include the living unit, the faculty, and the
classroom experience. Terenzini et al. (1996) and Brown (1972) agree that a holistic

approach enhances student development. Every aspect of a student to include educators,
athletic coaches, club advisors, others directly involved in student development
contribute to a student’s development. Peers also play a significant role in student
development and logically impact a student’s leadership development illustrating the need to understand the impact peers have in developing student leadership.

Astin (1996), in a review of a cooperative longitudinal study of cognitive and affected learning by undergraduate students, concluded that the most important generalized finding focused on the influence peer groups had on student development. Peer groups provided a more intense learning experience than activities conducted with student affairs or academic studies.

Adelman (2002) examined a theoretical foundation for peer leadership based on influence and suggests methods for developing curricular or extracurricular peer leadership programs at universities. Emergent leadership provides the majority of literature regarding influencing peers due to limited peer leadership literature. However, Komivas and Adelman (2002) defined a model that includes peer leadership based on power and structural dimensions. The Peer Leadership Model (PLM) consists of two axes, the horizontal axis representing influence and power and the vertical axis representing task structure (see Figure 2).
The authors illustrated with their model that the most effective peer leadership occurs in a vertical parabolic area originating from influence and progressing towards authority. The least effective peer leadership occurs at the extremes of the task axis and at the authority end of the influence and task axis. Collaboration decreases from the center of the model to the corners of each quadrant. The PLM does provide clarity and organization for purposes of illustrating peer leadership in a general context based on two aspects effecting peer leadership, but does not explain the reasons for the effective area defined by the parabolic area they designate as team leadership; the area of most effective peer leadership. The PLM is encompassing theoretically but does not address specific skills and competencies needed for effective peer leadership.
Research by McDaniels, Carter, Heinzen, Candrl, and Weiberg (1994), Cuseo (1991), Astin (1968 and 1985), and Roberts (1996) indicated that peer interactions provided for enhanced cognitive development and allowed for the application of peer leadership skills. Adelman commented on his observed realities regarding the dynamics of peer leadership and concluded that peer relations are dynamic and peers are rarely equal.

Ladyshewsky (2006) conducted qualitative research to examine the use of peer coaching creating deeper learning and to promote the transfer of theory into practical application. Ladyshewsky also explored the process features and relationship attributes that support successful peer coaching.

To conduct this qualitative research, each student selected another student from their learning unit to form a peer coaching team. Each team was required to meet at least weekly. Most meetings were face-to-face, but not all, as some, due to necessity, interfaced by email or phone calls. Each student received a peer coaching guide and one hour of instruction by the author regarding peer coaching and its relationship to management education and professional development. The duration of the peer coaching relationship was for one semester (12 weeks) except for the 11 students in the Master in Leadership and Management course who participated in this peer coaching relation for 24 weeks.

Each student submitted a reflective journal on the peer coaching relationship. A total of 71 peer coaching reports were submitted as the master students were required to submit two reports. The author provided a list of guiding questions for each student that
formed the basis of the reflective journal. A software program called N-VIVO© was used as a database manager to assist in the coding of the reflective journals.

The results from the reflective journal coding analysis revealed three conceptual dimension of the peer coaching experience. The first dimension related to enhancing critical thinking and meta-cognition; the second related to the process features of peer coaching; and the third related to relationship factors between the participants.

The research identified five aspects of critical thinking including knowledge expansion, perspective sharing, knowledge verification, cognitive conflict, and alternative perspectives. Knowledge expansion occurred for both participants in the team and those in the coaching role gained more knowledge through the peer coaching dialogue. Perspective sharing occurred as both participants shared similar perspectives on issues that served to solidify knowledge. Knowledge verification occurred when either participant verified knowledge already possessed. Cognitive conflict occurred when either participant questioned the other participant's existing knowledge framework that led to a deeper level of inquiry and learning to determine the truth. Alternative perspective is leveraging the diversity of thought brought about through the peer coaching interaction.

Through the cognitive conflict aspect, both participants in the peer coaching relationship experienced moments of double or triple loop learning (Argyris, 1991). Most learning experiences are single-loop where a student learns from analysis, but does not go beyond the initial learning process. In double or triple loop learning, students made discoveries that they “…did not know what they did not know” as students had more cognitive time for analysis (p. 76). The structured conflict between the participants
increased each other’s understanding of the concept under debate and often led to fundamental shifts in perspective. Cognitive conflict appears as an influential aspect of peer involvement and important aspect of peer leadership. Cognitive conflict may provide peer leaders with a means to engage other peers, win their confidence by taking risk, and gain influence over other peers.

The process of peer coaching focused on commitment, peer coaching selection, learning journals, learning objectives, formality, and coaching skills and techniques. Formality formed an interesting aspect as most peers saw the need for an organized and well-planned peer coaching session that had established goals and a structure to guide them through the process. Coaching skills and techniques provided the most promising aspect in the process of peer coaching in relationship to peer leadership. Participants noted specific skills and techniques exist that improved the peer coaching process. Qualities most desired in peer coaches focus on the basics of good communications and include active listing, empathy, open-ended questions, probing, paraphrasing, encouraging reflection, summarizing, and providing acknowledgement. Participants felt that these skills were especially important as peer coaching is a non-evaluative process that encourages effective communication and relationship building.

Relationship factors included relationship (empathy, respect and support), social support, trust, self-confidence and self-efficacy, and coaching attributes. The establishment of trust was a basis for social support that, in turn, promoted safety in the learning environment. Trust is the basis of relationships and the Ladyshwesky’s finding supports the critical nature of establishing relations on trust. Coaching attributes involve approachability, availability, enthusiasm, friendliness, intelligence, honesty, and
commitment to the peer coaching process. The coaching attributes identified by Ladyshwesky appear similar to leadership traits and may also support effective peer leadership.

Although limited in scope and different context (graduate versus undergraduate student), the research provided by Ladyshwesky provides great insight to factors that may influence peer leadership. The coaching attributes and skills and techniques identified in this research as important to the peer coaching process may provide a basis to construct assessment instruments possibly needed to gather data on analyzing the factors most important to effective peer leadership. The discussion regarding trust is also valuable as it reinforces other research that indicates the importance of trust when establishing and developing relationships from which leadership influence can emerge.

Bowers and Seashore (1966) conducted quantitative leadership research in the mid 1960s that examined the impact of both supervisory and peer leadership on employee satisfaction and factorial performance measures. The theoretical construct of their research included four factors believed at that time to contribute to effective leadership; support, goal emphasis, interaction facilitation, and work facilitation. Bowers and Seashore defined support as leader behavior that enhances the sense of personal esteem of group members. Goal emphasis occurs when leaders advance the mutual interests of the group. Interaction facilitation focuses on developing effective relationships to enhance group effectiveness. Work facilitation occurs when leaders help remove obstacles and manage environmental factors that inhibit group goal attainment.

Bowers and Seashore (1966) highlight an important aspect of leadership progression up through the mid 1960s. Until the later half of the 20th century, most
leadership contexts used a hierarchal structure and patterned the leadership structure after two influential social entities, the church and the military. Beginning in the early 1960s, leadership thought began to recognize the impact of group dynamics and the realization that others within a group could lead. Bowers and Seashore focused on non-hierarchal leadership structures focused specifically on peer and supervisory influence consisting of the four previously cited constructs.

Using correlations, Bowers and Seashore (1996) analyzed data collected from surveys submitted to 40 randomly selected agencies within one insurance company. The analysis found significant correlations between both peer and supervisory leadership and all four leadership factors. Bowers and Seashore concluded from the correlations that there is a significant relationship between peer and managerial leadership characteristics. In most instances, an increase in peer leadership resulted from increased managerial performance or combining managerial characteristics associated with the corresponding peer characteristic. The authors conclude that peer leadership characteristics seem important and peer leadership relates closely to managerial leadership.

Fredricks and Eccles (2005) focused on the relationships that exist within school-based extracurricular participation focusing on pro-social peers and student development. Although this research is on high school participants in grades nine through 12, the findings suggested several aspects of peer leadership that may provide insight to the skills and competencies needed for success as a peer leader in higher education.

Extracurricular activity data previously studied by Eccles and colleagues at the University of Michigan provided descriptive statistics, correlations, and regression analysis. Gender, grade-level, parent education, and grade point averages defined
covariates. Results indicated higher student participation with pro-social peers in school involvement activities consisting of performing arts and academic clubs and a marginally higher participation rate with team sports. These results indicate that peers appear to have a stronger impact on student activities when students have more of a collegial environment to develop relationships and engage in deeper conversations.

Fredricks and Eccles (2005) used regression analysis to examine the significance of pros-social perceptions to time spent participating in school clubs, time in organized sports, and indicators of adjustments to school. All pro-social peer group regression models indicated significance and generally supported the hypothesis proposed by the authors. In most instances, the findings of this quantitative research supported the proposed mediation model of activity participation developmental outcomes suggested by the authors.

Kellett, Humphrey, and Sleeth (2006) examined the relationships between leader empathy and leadership attributions from peers. Research indicates that leaders can impact subordinate attitudes and feelings of frustration and optimism that can impact subordinate performance and group or team goals. Kellett et al. addressed the need for further research regarding the relationships between emotional abilities and different leadership styles by examining the interaction between three basic emotional abilities and two leadership behaviors. The three emotional abilities included empathy, ability to identify others’ emotions, and ability to express one’s own emotions. The two basic leadership behaviors included relation-orientation and task-orientation. The analysis produced a model that analyzed the relationships between the three emotional abilities and two leadership behaviors.
Empathy provides a central theme to Kellett et al. (2006) research. Many definitions for exist for empathy. A review of the literature defines empathy as, “the ability to comprehend another’s feelings and to re-experience them oneself” (Salovey & Mayer, 1990, pp. 194-195). Through empathy, the leader displays personal involvement and creates a greater relationship that affects that leader’s ability to influence and lead. Empathy also tends to enhance a leader’s credibility and foster cooperation and trust. Leaders perform better at problem-solving, making decisions, and accomplishing personal goals when employing these three aspects of empathy.

Limited research exists that examines the relationship between team leader behavior and behaviorally-based team performance, specifically, perceived team effectiveness, productivity, and learning. Criticism that exists focuses on leadership theories and the lack of studies that examine a leadership theory or model in a more complex context, preferring to evaluate the effectiveness of that theory in a clinical setting. Burke et al. (2006) conducted a meta-analysis that investigated the relationship between behaviorally based team performance and the impact of leader behavior. In essence, the authors wanted to know if leadership behavior in teams matters.

In assessing leader behavior, Burke et al. (2006) considered only those studies that focused on transformational, transactional, initiating structure, consideration, boundary spanning, and motivational and empowering behaviors, in more applied environments. A literature review provided the studied behaviors and a model for analysis. The author’s meta-analysis identified over 1000 articles from various electronic searches that evolved into 231 published and unpublished studies included in the analysis. Two industrial/organizational psychologists used a coding scheme on the
selected articles to quantify study characteristics. The resulting data set contained 50 empirical studies with 113 effect sizes.

Results indicated that task-focused leader behavior accounted for 11% of the variance in team behavior-base effectiveness and 4% of the variance of team productivity. Person-focused leader behavior accounted for 13% of the variance of team behavior-base effectiveness and 8% of the variance of team productivity. A sub-group analysis revealed that empowerment explained 22% of the variance in perceived team effectiveness while boundary spanning explained 24% of the variance. Empowerment behaviors explained 31% of the variance in team learning.

Salas, Sims, and Burke (2005) conducted research to define teamwork and proposed a practical model of teamwork based on empirically evidence. A review of literature pertaining to teamwork over the past 20 years provided more than 138 models that explained teamwork. A thematic analysis of the models revealed five important aspects of teamwork: team leadership, mutual performance modeling, backup behavior, adaptability, and team orientation. The authors titled the five aspects of teamwork, “the Big Five” (p. 558); they differ from other taxonomies as the authors considered only components that have the greatest effect on teamwork and found in almost all definitions of teamwork. The authors discussed three aspects needed for the five aspects in Salas et al’s model to work: development of shared mental models, achievement of mutual trust, and engaging in closed-loop communication.

The five dimensions provide insight to effective peer leadership. The dimensions, although team dimensions, allow for individual leader skills and competencies to emerge.

Specific skills and competencies proposed for further analysis include communication
skills, adaptability, and team orientation. Providing feedback and guidance to team members also increases mutual performance modeling and increases team effectiveness. Regardless, this research concluded that effective teams require a complex mix of individual and organizational support, and teamwork.

Limited research exists that examines the leader's impact on establishing norms within a team. Tagger and Ellis (2007) examined the role of leaders in shaping and developing team norms by conducting an empirical study with third year honors business students in an Ontario university. The primary emphasis of this study examined newly formed teams and the impact staff and team leaders had on negotiated and agreed upon team norms for problem solving.

Team norm development occurs during the early stages of team formation and usually based on individual consensus. Clear and effective communication impacts norm formation within the team. From this process, team norms develop that facilitate team survival through punished nonconformance, provide for predictability of behavior, help protect member self-images, and provide an identity to that team. Most teams establish norms early when forming rather than occasionally during the life cycle of the team.

Tagger and Ellis (2007) proposed and tested a model based on team norms that would predict individual team member behaviors. The model consisted of five team norms including conflict resolution, collaborative problem solving, communication, goal setting and performance management, and planning and task coordination. Results indicated that initial team member expectations prior to entering into a team were not significantly related to their subsequent behaviors indicating that member actions were controlled by team norms. Results also indicated that the expectations that leaders and
staff have are important in the team norm forming process. Leaders with high expectations can compensate for a staff that has lower expectations. Collaborative problem solving team norms also impact individual behavior.

The five team norms provide possible insight to potential skills and competencies needed to effect positive peer leadership. Communication is a common theme in studies regarding effective emergent and team leadership and identified here as an explicit team problem solving norm. Conflict resolution, collaborative problem solving, planning/task coordination, and goal setting/performance management all impact team problem solving norms and may prove significant when analyzing skills and competencies needed for effective peer leadership. From the review of team and emergent leadership, a review of resulting leadership skills and competencies illustrate potential peer leadership skills and competencies.

Social Learning Theory provides the structural framework to better understand emergent, team and peer leadership. However, a review of literature regarding emergent, team, and peer leadership indicates the presence of peer skills and competencies, but the literature remains relatively silent on peer skills and competencies needed to allow peers to effectively influence other peers.

**Leader Skills and Competencies**

Many authors have provided research on the impact peers have on the development of other students and the subsequent leadership effectiveness of peer leadership (Astin 1968, 1977, 1984, 1985, 1993; Newcomb 1967; Brown, 1972; Heath, 1968; Chickering, 1969; Pascarella & Terenzini, 1991, 2001). In most instances, the authors emphasized the interactions of the peers with other students and the impact the
environment, or context, has on peer leadership. Most authors do not address the skills or competencies needed for effective peer leadership. The importance peers have on student development remains a consistent theme in the leadership literature. Research, including Adelman’s (2002) monograph, generally do not address peer leader skills and competencies, or does so in passing as an extension of the current research.

Mumford, Campion, and Morgeson (2007) constructed a summary of leadership skills from previous research and defined four broad categories: (a) cognitive, (b) interpersonal, (c) business, and (d) strategic. The organizational context of Mumford et al.’s research did not provide a direct link to peer leadership skills, but did provide a general framework to further understand possible peer leadership skills.

Adelman (2002) commented on the essential leadership skills needed by effective peer leaders. The essential skills cited by the author include communication and interpersonal skills, self-awareness and confidence, a sense of civic and social responsibility, critical thinking, and reflective abilities. Although the author mentions these skills, he does not provide a further explanation or association to peer leadership.

The Adelman (2002) study illustrates the lack of research conducted to date on the specific skills and competencies of effective peer leadership. The PLM previously discussed provides insight to two important aspects of peer leadership and describes, in a general sense, the evolution of peer leadership to team leadership.

Smith and Foti (1998) used a multi-variable pattern approach with the three variables of dominance, intelligence, and general self-efficacy to analyze emergent leadership within groups. Pattern approach first identifies variables then characterizes each participant according to the patterns defined by the selected variables. The last step
in the pattern approach is to group participants based on their personality patterns and attempt to identify sub-groups.

Smith and Foti’s (1998) study built on previous research conducted by others analyzing traits and emergent leadership. Previous research identified intelligence and dominance as traits highly correlated with emergent leadership, but did not correlate general self-efficacy. The authors identified self-efficacy as the expectation that a leader can perform specific behaviors necessary to bring about a certain or intended outcome. The pattern approach suggests that a specific pattern of leadership traits rather than individual traits identify emergent leaders.

The multi-variable pattern research consisted of 160 male undergraduate participants from a large, public university in the southeast (this study used only male participants as women failed to emerge as leaders in mixed-sex situations based on previous research). Results revealed that significant differences surfaced between the participants with high ratings in three variables (HHH) and those with low ratings in the three variables (LLL). All three variables correlated significantly to leadership ratings. Participants with HHH characteristics emerged more frequently as leaders than other participants. LLL participants were not chosen significantly less than other participants. Lastly, HHH participants emerged more significantly as leaders than LLL participants.

The research by Smith and Foti (1998) indicated no significance for two-way interactions. Three-way interactions indicated significance among the three variables. The overall results reinforce previous research done on these specific traits of intelligence, dominance, and self-efficacy.
Smith and Foti’s research indicated significance of the three traits on peer leader skills and competencies. The methodology provided an example of analysis that may provide insight to determining the significant skills and competencies for effective peer leadership. Intelligence, dominance, and self-efficacy emerged as three important variables in peer leadership and may provide insight to the skills and competencies needed for effective peer leadership.

Holmes, McNeil, Adorna, and Procaccino (2006) used a blended approach to explore collegiate student athlete preferences and perceptions regarding leadership both on and off the field. Specific questions asked consisted of the perceptions of peer leadership and those qualities and attributes essential to team leaders. The second question of this study explored the effects of participant characteristics such as scholarship monies, gender of the student athlete, class year, and ethnicity on perceptions of peer leadership.

Holmes et al. (2006) used the Revised Leadership Scale for Sport (RLSS) for preferred leadership and two open-ended questions to evaluate collegiate student preferences regarding leadership. The open-ended questions focused on student athlete perceptions of peer leadership on and off the field. Specific open-ended questions asked included, “Please nominate 3 players who are leaders on the field. Why were they nominated? Please name three leaders who were leaders off the field. Why were they nominated?” (p. 343).

The significant finding in this pilot study focused mainly on gender differences in perceptions regarding peer leadership. Men viewed autocratic leadership significantly more effective than women who had a lesser opinion regarding the effectiveness of
autocratic leadership. For the open-ended questions, men and women both viewed "working hard" as important in selecting those student leaders on the field. "Leads by example" was the second most common response observed in the study for on-field leaders (Holmes et al., 2006, p. 344, 345). Overall, women preferred working hard, being vocal, encouraging the team and leading by example while men preferred working hard, leading by example, and performance.

Gender differences impacted off-field leader characteristics. Women preferred personality traits: being a good student, being a good role model, and being vocal. Men preferred personality traits: being a good role model, and being a good student.

However, no instrument exists that measures the attitudes and beliefs of students who perceived themselves not in leadership positions. Wielkiewicz (2000) developed the Leadership Attitudes and Beliefs Scale (LABS), designed to measure the aforementioned aspects of leadership. Wielkiewicz focused on developing an instrument that measured student attitudes and beliefs regarding the nature of leadership. Specifically, Wielkiewicz developed an instrument to determine, “...what college students and others think about leadership processes and how they expect leaders to function” (p. 337). Wielkiewicz suggested that many leadership assessment instruments existed that measured the attitudes and beliefs of students in leadership positions, but no instrument existed to measure the leadership perceptions of the overall student population.

The original LABS contained four dimensions; Authority, Relationship Orientation, Ethics, and Learning Orientation. Four additional dimension emerged from research for the LABS-R; Change-Centered, Systemic Thinking, Positional Leadership Dependence, and Cooperative Leadership Processes. A renamed LABS-III evolved from further
revisions and consisted of 28 items. LABS III consisted of 14 items that represented a Systematic Thinking dimension and 14 items representing a Hierarchical Thinking dimension. The author’s development of the LABS-III instrument provided insight to potential leadership skills and competencies for effective peer leadership.

Petzel, Johnson, and Bresolin (2001) examined the effect of situational variables and gender on peer leader selection and likability. There exists a large body of literature and research regarding sex role stereotypes among Americans. However, there exists limited research regarding sex role stereotypes and peer selection as leaders. This study examined the relationship between situational variables and gender in regards to leader selection, the frequency that male and female subjects spoke, and likability. Two different contexts focused participants on completing an impersonal and personal task. Six mixed gender groups totaling 37 participants completed either an impersonal or personal task. Each group consisted of three male and three female participants; one group had four female and three male participants. Three groups completed an impersonal NASA exercise designed to compare individual decision making with the decisions of the group. The second three groups completed a similar exercise but personal in context.

After completing the task, all participants completed forms that asked them to designate the leader(s), the most likable group members, and to rank each member in terms of the importance of his or her contribution to the group product. Participants chose males more frequently as leaders for the impersonal task while choosing females more frequently as leaders for the personal task. Participants chose females as more likable in both task groups. No significant differences existed between female and male participants.
on individual performance in any of the task groups, but males received higher rankings for their contributions in the impersonal group while the same occurred for females in the personal group. Male participants spoke more frequently than females in the impersonal groups while females spoke more frequently than males in the personal groups. Both groups did not like talkative females. The research indicates gender has an influence in peer leadership in different contexts; females emerge as more effective leaders in personal contexts while participants perceive males as more effective in impersonal situations.

Hare and O’Neill (2000) focused their research on three aspects of small, academic peer groups: (a) shared vision, (b) leader-follower roles, and (c) organizational culture and structure. Groups perceive vision as a critical leadership aspect as it allows the group to develop a common goal and provides direction. Defining roles assists groups in establishing parameters for accountability, gatekeeper functions, and norms. The degree of commitment or acknowledgement of the group regarding the perceived culture determines the extent that culture impacts the group.

The authors conducted 14 one-hour interviews with a faculty peer group to determine their perceptions of their group’s shared vision, roles, and organizational culture. Qualitative research methods used codes for responses in the three areas of shared vision, leader-follower roles, and organizational culture and structure. Most comments regarding a shared vision reflected typical perceptions of groups or organizations that may have a codified vision or mission, but not shared among constituents. The outcomes resulted in a thoroughly misunderstood vision (mission), confusion and chaos occurs, inefficiencies, and long-term degradation.
Results indicated that leader-follower roles suffer in the areas of leadership, management, and communications. Group members wanted their leaders to have leadership training before assuming a leadership role to reduce confusion and chart a path into the future to act as a guiding compass. Most group members desired management skills and saw these skills as important in achieving the stated vision and reducing inefficiencies within the group. Most participants perceived communication as a critical leader function as well as a reciprocal follower responsibility and attributed ineffective practice or disorganization to poor communication between leaders and group members.

Participants struggled to articulate their perceptions of culture and the authors had difficulty determining cultural trends. Most agreed that the culture appeared vague and very fragmented. Many saw distrust as overshadowing the emergence of the true culture that exists within the studied academic group and could not clearly define the culture of this organization. Although frustrated, most participants provided specific solutions to improve the issues confronting a lack of defined culture within the group.

Hare and O’Neill (2000) suggested the importance of leadership training, management skills, and communication abilities to effective peer group development. The authors identified three important leadership aspects that included aspects of shared vision, leader-follower roles, and organizational culture and structure.

Baxter Magolda (1992) conducted previous research analyzing how extracurricular activities develop students. Existing literature tends to focus on academia as the primary driver for student development and student affairs as a secondary influence in the higher education mission. The prevailing view suggests a stovepipe structure within higher education with academia, athletics, and student affairs as three, separate entities that
rarely work together, but all have a significant impact on student development. Baxter-Mogolda proposed a structure describing how students acquire knowledge and the impact peers have on knowledge acquisition.

Baxter-Mogolda (1992) proposed three levels of acquiring knowledge. The first level consists of absolute knowledge where the students gain knowledge from authority figures and peers do not possess knowledge unless obtained from authority figures. The second level focuses on in-transitional knowledge, students are less certain regarding the validity of the knowledge and peers tend to play a greater role in knowledge acquisition. The third level describes independent learning where students view knowledge as uncertain.

Baxter-Mogolda (1992) gathered data from semi-structured interviews conducted over the four-year student life cycle at a mid-western public institution. Each year the author interviewed students by allowing a free-flowing interview based on open-ended questions focused on extracurricular development influences. Based on the interviews, data themes were grouped then categorized into the three levels of knowledge acquisition. Absolute learners found support from peers as most useful when making decisions based on knowledge they acquired. Diversity, learning about others, and gaining interpersonal skills appear most influenced by peers at the transitional knowledge level. Independent functioning and diversity provided two key themes that peers impacted students at the independent knowledge level. Peers have the greatest influence on other students at the third level as peers assist students in shaping their own perspectives on the issues being analyzed and incorporated as knowledge.
Peers had a greater impact on women than men as women appeared more concerned for their peers than men. Support and challenge by peers emerged as two prevalent aspects having the most impact on student development. Baxter-Magolda’s (1992) research coincides with other studies in identifying support as a major function of effective peer influence on other students and a possible competency for effective peer leadership.

Fisher (1974) discussed the importance of communication in small group processes. Social systems and a status hierarchy influenced emergent leadership and provided indicators of who the small group would choose as their leader. Those emerging as candidates for small group leadership positions exhibited better communicative behavior than those not chosen. Fisher’s findings coincide with the finding of Adleman (2002), Holmes et al. (2006), Ladyshevsky (2006), Erez et al. (2002), Whitt et al. (1999), Stevens and Campion (1994), Salas et al. (2005), and Tagger and Ellis (2007) who indicated that communication skills directly influence effective peer leadership.

Despite the broad scope of leadership literature, there is little scholarship regarding how a leadership identity develops over time. Most leadership development scholarship focuses on skill-building or short-term interventions such as retreats or courses, rather than on the process of how leadership capacity or leadership identity develops or changes over time.

Komives et al. (2005) provided readers with a qualitative research and grounded theory study that examined leadership identity development. The authors noted a lack of systemic models for educators to use in leadership development. The authors proposed a six-stage model to fill this void titled the Leadership Identity Development (LID) model.
Komives et al. (2005) used intensity sampling, a type of purposeful sampling, to identify students who evidenced leadership identity development, the focus of their study. Professionals who had the opportunity to observe students interacting in group settings at the mid-Atlantic study university nominated students for the study who exemplified relational leadership. Each student participated in a series of three interviews conducted by the same interviewer using a structured interview protocol.

Through the interviews, researchers identified six progressive stages that constituted leadership identity. The six stages identified were (a) Awareness, (b) Exploration/Engagement, (c) Leader Identified, (d) Leadership Differentiated, (e) Generativity, and (f) Integration/Synthesis. The findings suggest that throughout the six leadership development stages identified, the essential developmental influences that fostered the development of a leadership identity included adult influences, peer influences, meaningful involvement, and reflective learning.

Adult influence focused on the family as well as the importance adults have as the first to identify the student’s leadership potential. Adults represent the first, and often primary, role models for students versus peer influences where peers serve as role models. Students look to older peers as sponsors to motive student involvement. Peers also provide affirmation facilitating a deeper and more meaningful example of leadership identity.

Komives et al. (2005) defined meaningful involvement as the training grounds where leadership identity evolved, helping students clarify personal values and interests. Team-based involvements such as sports, theater, and band taught students to do their personal best while concurrently supporting others. Reflective learning structured
opportunities for critical reflections, such as journaling and meaningful conversations with others allowing students to uncover their passions, integrity, and commitment to continual self-assessment and learning.

Research by Komives et al. (2005) revealed that students found as their leadership developed, their views towards leadership or leadership identity shifted from a hierarchical, leader centered form of leadership to a collaborative, relational leadership process. Results from Komives et al. indicated a critical shift in developing a leadership identity between stage three, Leader Identified, and stage four, Leadership Differentiated. Between stages three and four students began to realize that leadership occurred by more than just the leader and that others could effectively contribute to the leadership process. The shift, from viewing leadership as being done by leaders to leadership accomplished by many, was a major research finding and key transition in the LID model.

Several limitations occurred in the research by Komives et al. (2005) that afford opportunities for further research. Students involved in this study participated in organizations that may differ from those students with little formal group involvement. The sample size of this study limited the influences of diversity and culture on the leadership identity process. Therefore, transferability of the study becomes suspect due to the methodology, especially the small number of participants that participated in this study. Additional research focused on environmental interventions that facilitate the key transition from stage three to four might reinforce the initial study findings.

Peer leadership appears as an environmental influence and a key development factor in developing leadership identity. Komives et al. (2005) noted the positive influence peers had on students encouraging them to participate in the leadership process.
as well as serving as mentors in helping students progress through the six stages. The study did not explore specific leadership skills or competencies and did not identify in a meaningful or descriptive manner the most effective aspects of peer leadership. Specific leadership skills and competencies might allow peers to effectively influence other peers as students progress through the six stages, especially between stages three and four.

In a follow-up study, Komives et al. (2006) expanded on earlier research (2005) regarding the stage-based LID model and expanded explanations of the six leadership identity stages one progresses through in leadership identity development. There was no new research presented, but in-depth analysis of participant’s responses during the author’s initial grounded theory study. The original thirteen participants provided insights to the original study that was not offered by the authors in the first.

The authors further defined student leadership development as an intersection between student development and relational leadership. Two key families of developmental theory influenced Identity: psychosocial and cognitive. Psychosocial focuses on the relational aspects of leadership while the cognitive focuses on the thought process involved in identity development. The literature review focused on various authors as cited in Chickering and Reisser (1993), King and Kitchener (1994), Baxter-Magolda (1998), and Kegan (1994) who analyzed relational leadership in detail. Komives et al. (2006) defined relational leadership as “...a relational process of people working together to accomplish change or to make a difference that will benefit the common good” (p. 402).

The original study based on grounded theory resulted in the identification of a developmental process describing how students situate themselves in the construct of
leadership over time. The proposed six-stage LID emerged from the central category of leadership identity. Five categorical themes influence LID and consist of (a) broadening view of leadership, (b) developing self, (c) group influences, (d) developmental influences, and (c) the changing view of self with others. The authors integrated the categories of the grounded theory into building a LID model and tentatively applied the grounded theory to illustrate and further develop how the categories of the theory change across stages of the model. The authors also discussed the stages of the model and how each stage begins with a transition from the previous stage.

The authors discussed the influence of peers on the LID model. Peer leadership first surfaces in stage two when students began to interact with peers by seeking opportunities to explore their numerous interests, and when students focused on interpersonal peer relationships. Older peers act as role models, appear as leaders, and encouraged leadership development.

Stages three through six indicated increased peer involvement:

- Stage three: students looked to older peers as models for guidance to accomplish tasks and functioned as increasingly important role models. Stage three illustrates the student’s perception that they were either the leader or not the leader. Over time, as students experienced more complex leadership situations, students began to realize that they could not accomplish all required leader tasks, had to rely on others, and that others could also participate in leadership with them. Older peers played an increasingly important role now as sponsors or peer mentors.

- Stage four: students began to view leadership as a process--not a hierarchical structure. Peers continued as mentors and became meaning makers. Students began to
seek out same-age peers for support, especially those who also possessed a leadership identity. Stage four also saw leaders beginning to subscribe to altruistic goals and realizing that there were other aspects of leading that were much greater than the emphasis on the leader. Students in stage four also began to develop and coach younger peers in the leadership development process.

- Stage five: students have a much greater passion and need for teaching and developing younger peers who needed their support, affirmation, and mentoring to develop their leadership capacity. Reflection with peers emerged as important during this stage as students began to fully realize the potential in reflective learning.

- Stage six: students appeared confident in their leadership ability and comfortable either in a position as the leader or finding where they could best fit within the situation. Students in stage six sought out other peers who viewed leadership in the same way and had similar values. Values become more important to students during stages five and six.

In the LID model, peer leadership exists in many of the stages and played an increasingly important part in the critical stages of leader identified (stage three) and leadership differentiated (stage four). From this study, peer leadership appears important in the leadership development process. However, the authors do not further define peer leadership competencies and skills.

Throughout this literature review, the majority of students involved in recent studies and the focus of this review concerns student belonging to the Gen Y cohort. The Gen Y cohort (also called Millennials, Generation WWW, the Digital Generation, Echo Boomers, N-Gens) are students born between 1977 and 1997 and constitute over 29 million people in the work force today (Dulin, 2008). Dulin (2008) stated that the Gen Y
The qualities of interpersonal relationships determined by Dulin’s study provide insight to possible leadership skills and competencies important to the peers involved in this research. The differences between the different cohorts may have an influence on the necessary skills and competencies for effective peer leadership and provides a limiting factor for this research as the focus is on the Gen Y cohort.

**Summary**

A literature review of Social Learning Theory, emergent leadership, team leadership, peer leadership, and the limited body of literature on specific peer leader skills and competencies, identified several themes that provide for further study. Peers have a definite impact on the development of other students and impact most aspects of a student’s life. Much research regards the impact peers have on the cognitive and affective or extracurricular learning processes of other students. Established leadership constructs of team and emergent leadership provide insight to peer leadership and the influence peers have when engaged in establishing influence over other peers. The literature on specific leader skills and competencies needed for effective peer leadership appears limited and inconsistent. Discussions involving peer leader skills and competencies usually focus on broad categories or concepts and few studies focus on specific aspects of
effective peer leadership. Table 2 provides an aggregate summary of identified leadership skills and competencies from the literature.

Table 2

**Leadership Skills and Competencies Identified from a Review of Literature**

<table>
<thead>
<tr>
<th>Author</th>
<th>Leadership Skill/Competency Identified</th>
</tr>
</thead>
<tbody>
<tr>
<td>Adelman, 2002</td>
<td>Peer Counseling, Mentoring, Academic Advising, Tutoring, Communication Skills, Interpersonal Skills, Critical Thinking, Reflective Abilities, Self-Awareness, Confidence, Sense of Civic and Social Responsibility</td>
</tr>
<tr>
<td>Anderson &amp; Wanberg, 1991</td>
<td>Verbal Communication, Support, Empathy, Utilize diversity of power</td>
</tr>
<tr>
<td>Bandura, 1977</td>
<td>Verbal Persuasion, Performance Accomplishments, Providing/Receiving Feedback</td>
</tr>
<tr>
<td>Burke, Stagl, Cameron, Goodwin, Salas, &amp; Halpin, 2006</td>
<td>Empowerment, Boundary Spanning</td>
</tr>
<tr>
<td>Erez, Lepine, &amp; Elms, 2002</td>
<td>Communication Skills, Cooperation, Work Load Sharing</td>
</tr>
<tr>
<td>Guzzo &amp; Sales, 1995; Lord &amp; Hall, 1992</td>
<td>Intellective, Interpersonal, and Administrative Competence</td>
</tr>
<tr>
<td>Hare &amp; O’Neill, 2000</td>
<td>Management Skills, Shared Vision</td>
</tr>
<tr>
<td>Holmes, Adorna, &amp; Procaccino, 2006</td>
<td>Working Hard, Leads by Example</td>
</tr>
</tbody>
</table>

(continued)
<table>
<thead>
<tr>
<th>Author</th>
<th>Leadership Skill/Competency Identified</th>
</tr>
</thead>
<tbody>
<tr>
<td>Kellett, Humphrey, &amp; Sleeth, 2006</td>
<td>Emotional Intelligence, Empathy</td>
</tr>
<tr>
<td>Kickul &amp; Neuman, 2000</td>
<td>Openness to Experience, Cognitive Ability, Extroversion</td>
</tr>
<tr>
<td>Kirpatrick &amp; Locke, 1991</td>
<td>Achievement, Tenacity, Initiative</td>
</tr>
<tr>
<td>Komives, Mainella, Owen, Osteen, &amp; Longerbeam, 2005, 2006</td>
<td>Support, Mentoring</td>
</tr>
<tr>
<td>Kouzes &amp; Posner, 2007</td>
<td>Model the Way, Inspire a Shared Vision, Challenge the Process, Enable Others to Act, Encourage the Heart</td>
</tr>
<tr>
<td>Ladyshewsky, 2006</td>
<td>Peer Coaching, Critical Thinking, Communication Skills, Active Listening, Reflective Abilities, Empathy, Respect, Confidence, Support</td>
</tr>
<tr>
<td>Loughead &amp; Hardy, 2005</td>
<td>Social Support, Positive Feedback, Democratic Decision Making</td>
</tr>
<tr>
<td>Mullen, Salas, &amp; Driskell, 1989</td>
<td>Verbal Persuasion, Support, Concern for Others</td>
</tr>
<tr>
<td>Rubin, Bartels, &amp; Bommer, 2002</td>
<td>Intelligence, Self-Monitoring (the extent at which individuals monitor and control their self-perceptions in social situations)</td>
</tr>
<tr>
<td>Salas, Sims, &amp; Burke, 2005</td>
<td>Shared Mental Models, Closed-Loop Communication, Providing Feedback, Mutual Trust, Team Orientation</td>
</tr>
<tr>
<td>Sims &amp; Manz, 1982</td>
<td>Modeling</td>
</tr>
<tr>
<td>Smith &amp; Forti, 1998</td>
<td>Dominance, Intelligence, General Self-Efficacy</td>
</tr>
<tr>
<td>Stevens &amp; Campion, 1999</td>
<td>Conflict Resolution, Collaborative Problem Solving, Communication Skills, Planning, Coordinating</td>
</tr>
<tr>
<td>Stone &amp; Cooper, 2009</td>
<td>Providing Credible Solutions to Problems, Fill Voids, Intelligence</td>
</tr>
</tbody>
</table>

(continued)
The summary of Table 2 reveals the following most cited leadership skills and competencies: (a) communication (cited 10 times); (b) support (7); (c) reflection/feedback (6); (d) work hard/ethic (4); (e) goal setting/emphasis (4); (f) mentoring/peer counseling (4); (g) collaboration (3); (h) providing solutions (3); (i) interpersonal (3); (j) expertise/cognitive/competence (3); (k) empathy (3); (l) and five others cited twice.

The literature did not provide clear guidance on the skills and competencies that appear most effective for peer leadership. Analysis of a database, ROTC leadership assessments, consisting of leadership skills and competencies discussed in Chapter III provided another perspective on skills and competencies needed for effective peer leadership. The combined information from a literature review and analysis of the ROTC data base still indicate a lack of specified peer leadership skills and competencies and provide an opportunity to advance the body of knowledge pertaining to peer leadership.
CHAPTER III: METHOD

This study focused on examining and determining competencies and skills needed for effective peer leadership. A literature review and analysis of an existing leadership assessment database provided a list of possible peer leadership competencies and skills. The purpose of this and succeeding chapters is to define the methodology, conduct analysis of gathered data, and provide conclusions and discussions regarding effective peer leadership competencies and skills.

Many leadership programs develop learning objectives by focusing education and development to prepare students for the leadership challenges after graduation and in professional situations. Many undergraduate leadership programs provide a limited view of micro, or lower-level, leadership development and how students can gain influence over other students of equal status and ability, even when in positions of legitimate authority. Integrating peer leadership education and development into existing leadership programs allows educators and mentors the use of campuses as laboratories and practice fields to better prepare students for the significant leadership challenge of leading peers.

This chapter provides a description of methods used and rationale for gathering and analyzing data needed to address the hypotheses developed in chapter II. The methodology centers on analyzing an existing leadership assessment data base to enhance convergent validity, creating an influence survey to measure peer leadership competencies and skills, and then verifying the survey. Quantitative analysis of data provided by the influence survey provides insight for discussions regarding effective peer leadership competencies and skills.
General Research Perspective

Research questions in this study focus on providing insight to peer leadership that leads to a more definitive explanation of the factors needed to effectively influence peers. Better defined peer leadership competencies and skills might provide additional information to enhance peer leadership. Hypotheses generated from research questions provide a focus to determine aspects needed for effective peer leadership. The resulting two hypotheses examined by this study include:

\[ H_1 \] No specific leadership competencies exist that enhance peer leadership.

\[ H_2 \] No specific leadership skills exist that enhance peer leadership.

Each hypothesis focused on providing greater insight to the limited body of knowledge regarding effective peer leadership. Leadership competencies provide an over-arching framework that identifies broad defined areas of leadership needed for effective peer leadership development. Leadership skills based on identified leadership competencies provide defined behaviors that might enhance peer leadership development. Both peer leadership competencies and skills allow a concentrated focus on constructs needed to develop leadership educational outcomes and effective program evaluation. The type of research chosen for this study allowed for a quantitative analytical approach to determine hypotheses outcomes.

This study utilized descriptive quantitative survey research providing insight to research questions through stated hypotheses (Rossi, Wright, & Anderson, 1983). The primary methods allowed an analysis of an existing leadership database to enhance convergent validity to assist in the development of a valid and reliable survey. The resulting survey allowed data collection on peer leadership competencies and skills.
Quantitative procedures used during the database and survey data analysis consisted of various inferential parametric statistical methods.

**ROTC Database**

Army ROTC has a total of 272 programs located at colleges and universities throughout the 50 states, the District of Columbia, Puerto Rico and Guam with an enrollment of approximately 20,000 cadets each year (United States Army Cadet Command Headquarters, 2010). The ROTC program produces over 60 percent of the second lieutenants that join the active Army, the Army National Guard, and the U.S. Army Reserve. More than 40 percent of current active-duty Army general officers received commissions through ROTC programs. An essential aspect of the ROTC leadership development program is a leadership assessment that occurs at the end of three years of ROTC leader development. Chapter I provided details on the leadership assessment process.

Beginning in 1999 through 2009, the US Army used 16 leader dimensions (competencies) to assess leader effectiveness (see Chapter I for definitions of the leader dimensions). The 16 leadership dimensions remained consistent over the 11 years that leadership assessment data was collected at LDAC creating a stable, consistent database of leadership assessments. Although cadets are in legitimate leadership positions when evaluated, peer leadership influenced the effectiveness of the assessed cadets as all students attending LDAC are peers in ROTC programs and perceive each other as equal while at LDAC.
Participants

Access to ROTC leader assessment data occurred after receiving approval from the Study University’s Human Subjects Review Board and the U.S. Army Accessions Command Institutional Review Board (see Appendix A). Table 1 provides demographic information for the ROTC data. The ages of cadets attending LDAC during the study period ranged from 18 to 41 with 83 percent under the age of 25. Older cadets consisted of prior service Soldiers pursuing undergraduate degrees to earn commissions as officers. The vast majority of cadets reflected the demographics of the US Army officer corps. The ROTC data consisted of 47,555 cadet leadership evaluations of 16 leadership dimensions from 1999 to 2009 covering 11 assessment summers.

Data and Variables

ROTC evaluators used a nominal scale to assess leader dimensions. ROTC evaluators rated Cadets using a scale that indicated an Exceeds Standards (E), Meets Standards (S), or Needs Improvement (N) rating for each of the 16 leader dimensions. The sum of the 16 leader dimensions determined an overall rating. Cadets achieving eight or more E ratings received an overall E assessment. Cadets receiving at least 1 N rating received an overall N assessment as cadets must achieve S ratings in all 16 Dimensions to graduate from LDAC. A conversion of the nominal scale of E, S, and N to an ordinal scale permitted an analysis using the software Statistical Package for the Social Sciences (SPSS)\textsuperscript{©}, version 18. The 16 leader dimensions comprised the independent variables while the overall ROTC leadership assessment acted as the dependent variable.
Data Analysis

The initial ROTC data received from the U.S. Army required a conversion from nominal (E, S, N) to ordinal (1, 2, 3) data to accommodate various statistical analysis. Two sets of statistical procedures provided insight to the ROTC data. The first set of statistical procedures focused on the entire data set ignoring the stratification of the data based on overall cadet assessments. The second set of procedures analyzed the three stratified samples based on the overall Cadet assessments of Exceeds Standards, Meets Standards, or Needs Improvement.

The data had a normal distribution according to skewness and kurtosis indicators. Correlations between the 16 leaders dimension indicated significance between all dimensions. Stratified correlations also indicated significance among all dimensions providing limited insight to significant dimension relationships.

Descriptive statistics provided information on the 16 leader dimensions and overall Cadet-leader assessment. Although variances appeared small from a visual inspection, rank ordering the 16 dimension means provided information on those dimensions that appear important. The analysis of the stratified and entire database highlighted differences between overall leadership assessments.

Viewing the data as a survey of leadership allowed for an analysis of the reliability using Cronbach’s Alpha with deleting dimensions. Analyzing reliability by deleting dimensions provides information on independent variables influencing the reliability of an assessment instrument. The Cronbach’s Alpha reliability analysis provided information on dimensions important to the entire and stratified data samples.
The statistical analysis of the ROTC data provided information regarding those leader dimensions important to the overall cadet leadership assessment. Identifying the leader dimensions important to the ROTC leadership assessment process conducted with peers provided insight to possible peer leadership competencies. The ROTC leader dimension analysis enhanced convergent validity with the literature review.

**ROTC Database and Literature Review**

Table 1 in Chapter II provides a summary of the most often cited leadership competencies and skills found during a literature review: (a) communication (cited 10 times); (b) support (7); (c) reflection/feedback (6); work hard/ethic (4); goal setting/emphasis (4); mentoring/peer counseling (4); collaboration (3); providing solutions (3); interpersonal skills (3); expertise/cognitive/competence (3); empathy (3); and five others cited twice. The literature did not provide clear guidance on the competencies and skills that appear most effective for peer leadership. A comparison of the ROTC database to the literature review provided another perspective on competencies needed for effective peer leadership.

The commonalities between the important leader dimensions identified by the literature review and ROTC data analysis included *communication* (identified by both), *support* (literature review), *executing* (ROTC data), *work hard/ethic* (literature review), and *mental* (ROTC data). The *Reflection/feedback* competency ranked third as the most cited competency during the literature review, but did not have a specific ROTC data counterpart. The leader dimension of *physical* (ROTC data) did not correlate directly to any specific leader skill or competency identified by the literature review, but did relate indirectly to several skills and competencies in the literature. Based on the literature
review and ROTC data base analysis, five peer leadership competencies emerged for initial evaluation during this study: communication, support, mental/hard work ethic, reflection, and physical. Chapter I provided definitions of each peer leadership competency.

The literature review and a separate investigation of possible survey instruments provided no viable instruments that measured peer leadership competencies and skills. Several authors (Whitt et al., 1999; Astin, 1977, 1993; Terenzini et al., 1996; Loughhead & Hardy, 2005; Brown, 1972; Adelman, 2002) conducted research gathering or analyzing peer leadership data, but did not focus on peer leadership competencies and skills. An instrument focused on peer leadership competencies and skills developed by this author provided needed data for analysis to answer research questions and determine the status of hypotheses.

**Influence Survey**

An initial influence survey included a frame of reference scenario, two stem questions and 40 specific peer leadership skill questions derived from the literature review and ROTC database analysis. Several preliminary validity and reliability analyses produced a final survey. The final survey allowed data collection from 1084 undergraduate students at a public university located in the south-central region of the United States. The average student took approximately five minutes to complete the survey. Data analysis concentrated on quantitative inferential parametric statistical procedures using SPSS.
Initial Survey Development, Pre-Pilot Test

The initial survey designed to measure student peer leadership competencies and skills evolved from the theoretical construct determined during a literature review and analysis of the ROTC database. Five peer-leadership competencies provided a framework for the initial survey: (a) communication, (b) mental/hard work ethic, (c) support, (d) reflection, and (e) physical presence and appearance. These five peer leader competencies provided the theoretical construct needed to develop a scenario that would allow participants to relate to the five constructs and accurately answer questions. Eight questions per construct comprised the initial 40-question survey. An eight-question construct allowed for elimination of suspect questions to enhance validity. A permission request granted from the Study University’s Human Subjects Review Board allowed data collection from volunteer undergraduate students.

A small focus group familiar with leadership pedagogy developed the initial questions relating to each of the five constructs. Two stem questions allowed for a more consistent and understandable survey and was consistent with the theoretical construct. The second stem question resulted from the theoretical construct, physical, requiring a separate stem question due to the nature of the questions asked and information desired. A five-point Likert scale ranging from Never (1) to Always (5) captured student perceptions of peer leadership skills (Peterson, 2000). A demographics section captured data to compare to the university student population to provide for desired comparisons during this peer leadership study. Another small focus group of four students varying in age and college level reviewed the scenario, questions, demographics, and survey format. Comments from focus group participants indicated that students would clearly understand
the survey questions allowing students to complete the instrument accurately in a minimum amount of time. One concern focused on the frame of reference question which seemed ambiguous as it allowed participants to select several individuals as a frame of reference when answering the questions. Adjustments to the frame of reference scenario asked participants to focus on only one person when answering the influence survey questions. Additional comments and suggestions from the focus group provided for a clearer and effective initial influence survey.

A pre-pilot test consisting of 16 undergraduate students confirmed focus group comments, provided additional insight to the face validity of the Influence survey, and provided new insights to content and construct validity of several questions. A retranslation process, based on pre-pilot test information and participant feedback, enhanced the content and construct validity of survey questions. The retranslation process consisted of six doctoral students and nine Leadership Studies faculty matching peer leadership competency definitions to survey questions. Results of the retranslation process allowed adjustments to questions resulting in an influence survey for pilot testing.

**Pilot Test**

A pilot test of the revised influence survey included 102 undergraduate students and focused on examining survey reliability and validity. Peterson (2000) stated that at least 60 students constituted an accurate pilot survey test. Undergraduate students in the pilot study represented 37 academic disciplines (see Table 1 for pilot study demographics). Participants completed the pen and paper survey taking approximately five minutes to answer the 40 questions. This study preferred a pen and paper survey to an electronic
survey to mitigate environmental variables and provide consistent conditions for students completing the survey providing for more consistent and accurate data. An in-person delivery of the pen and paper influence survey also provided for a higher participation rate of volunteer undergraduate students.

Statistical procedures using SPSS software allowed an examination of the survey validity and reliability. Reliability using Cronbach’s Alpha indicated an acceptable reliability with a rating of above .90 for the entire survey and above .70 for each of the individual five theoretical constructs. The small sample size precluded an accurate assessment of the survey validity, but did indicate adequate factor loading consistent with the theoretical constructs. The reliability and validity analysis indicated that the 40 question survey provided an adequate instrument to gather data from students.

**Study Participants**

Participants in this study consisted of 1048 undergraduate students. The sample represented 52 majors or programs from the 6 colleges of the university. Demographic information appeared similar to the pilot study, ROTC data, and the university population (see Table 3).
Table 3

Demographic Information for Pilot Data, Study Data, ROTC Data, and Study University Population

<table>
<thead>
<tr>
<th>Demographic Population</th>
<th>Pilot Data (n=102)</th>
<th>Study Data (n=1048)</th>
<th>ROTC Data (n=47,555)</th>
<th>Study University (n=17,827)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Gender (percent male)</td>
<td>55</td>
<td>38</td>
<td>80</td>
<td>43</td>
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<tr>
<td>Race</td>
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<td>2</td>
<td>5</td>
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<tr>
<td>Other</td>
<td>3</td>
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<tr>
<td>College Level**</td>
<td></td>
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<tr>
<td>Freshmen</td>
<td>34</td>
<td>26</td>
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<td>29</td>
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<td>Sophomore</td>
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<td>35</td>
<td>-</td>
<td>25</td>
</tr>
<tr>
<td>Age (percent below 25 years)</td>
<td>99</td>
<td>94</td>
<td>83</td>
<td>79</td>
</tr>
</tbody>
</table>

* University reported 9 percent other for College Level **Note: No college-level demographics for two surveys

The study sample reflected the university population except for college levels as the study data participants consisted of 58 percent upper level compared to 43 percent upper level for the actual university population. A comparison between the ROTC and study participants indicated more demographic similarities than differences. The ROTC cadets and study sample participants had similar ages with 83 percent of the cadets under the age of 25 compared to 94 percent of study participants. Race demographics for the study and ROTC data also indicated similarity with the vast majority being white. Both samples included a majority of participants in upper levels of higher education with all cadets and
58 percent of study participants being juniors or seniors. The largest discrepancy between the ROTC and study data occurred with gender, as males represented 80 percent of cadets and only 38 percent of study participants. Both gender and age could induce bias and are discussed in Chapter V.

**Sampling Technique**

This author utilized a convenience-random sampling technique to collect data. Generalized studies require simple random or probability sampling (Rossi et al., 1983; Oppenheim, 1992). The basic principle associated with probability sampling is “...the condition that each element in the population is given a known nonzero probability of being selected into the sample” (Rossi et al., 1983, p. 21). The convenience sampling technique utilized in this study allowed all students at the university the same probability of selection into the study sample providing for a random characteristic of the study sample.

Faculty known by this author provided students to participate potentially in this study. The initial collection strategy consisted of 61 classes from 31 faculty members that included 1691 students. The final sample included 54 classes from 28 faculty members with 1084 students completing the survey. The lower number of participants included in this study resulted from an approximate 75 percent attendance rate for each sampled class. Class distribution consisted of 19 100-level classes, 8 200-level classes, 18 300-level classes, and 3 400-level classes. The sample represented 57 academic programs illustrating the academic diversity of the sample.

The sample included 16 classes of general education courses. Normally students enroll in general education courses during their first two years in higher education, but
for various reasons many juniors and seniors enroll in general education courses. Students often do not take course in sequence unless a requirement exists for a prerequisite course. The senior-level students participating in this sample provide one example illustrating the enrollment randomness of study participants. Only three 400-level classes participated in this sample, yet 35 percent of the sample consisted of seniors. The lack of targeting any specific academic program, college, or level provided for a degree of randomness. Due to the diversity of programs represented, the apparent random student enrollment, and the number of general education courses included in the sample, all students at the study university did have a nonzero probability of selection for this study providing for an adequate degree of randomness in the study sample.

**Final Survey**

Final adjustments from the pilot test made to the initial influence survey resulted in a survey used to gather data for analyzing the hypothesis questions (Appendix B). One reverse-coded question from each of the five peer leadership competencies ensured accurate student participation. A visual inspection after completion identified 36 surveys not included in the survey data where students provided the same rating for each survey question.

Interval scales measured student perceptions of peer leadership skills that combined to evaluate peer leadership competencies for the survey data. The 40 questions included in the final survey constituted the independent variables. An overall rating of the peer influence experience based on the survey scenario provided the dependent variable. A 10 point Likert scale, 10 the highest rating, provided a rating system for data collection of the overall peer leadership experience.
An initial data screening verified that responses ranged within the prescribed scale of one to five. Skewness and kurtosis functions of SPSS provided indications of normal distributions of collected data. A visual inspection of data frequency distributions based on the principle components identified during validity verification ensured normally distributed data. The Kaiser-Meyer-Olkin measure of sampling adequacy indicated an adequate sample size.

SPSS verified the reliability of the entire survey and each of the identified theoretical construct principle components using the Cronbach’s Alpha method. An analysis of question correlation matrices based on .3 or less correlation relationship criteria identified questions for elimination (Field, 2009). The four physical construct questions evaluating attributes or physical appearance correlated very weakly to the other survey questions. One physical-presence question correlated very weakly to the other three physical presence questions. Eliminating the four physical construct and one physical presence question allowed an analysis of the physical construct of presence. Exploratory principle component analysis based on the remaining 27 questions identified five components, but also indicated cross-loading of components. Eliminating questions that cross-loaded and using a Promax oblique rather than Varimax orthogonal rotation yielded four components. An oblique rotation provides the appropriate method for these data as correlations of identified components indicated relationships among the components rather than independent components. Costello and Osborne (2005) remarked that,

Conventional wisdom advises researchers to use orthogonal rotations because is produces more easily interpretable results, but this is a flawed argument. In the
social sciences we generally expect some correlation among factors, since behavior is rarely partitioned into neatly packaged units that function independently of one another. (p. 3)

The consistency and thematic nature of the identified four components provided a model with 18 questions and no cross loadings at the .3 level. Reliability and normality of the four-component exploratory analysis model yielded adequate reliability and indicated normally distributed data. Exploratory principle component analysis validated the validity of the survey based on the four components.

Exploratory principle component analysis using an oblique rotation identified four components that weakly verified the theoretical constructs. Principle component analysis provided a more appropriate analysis for this study than factor analysis as principle component analysis decomposes the original data into a set of linear variates. Factor analysis develops a mathematical model from which it then estimates the factors (Field, 2009). The nature of this study is in the Social Sciences, and theoretical constructs have a greater tendency to correlate than to cluster independently, favoring a principle component rather than factor analysis.

Exploratory principle component analyses of the 18 question survey indicated increased content and construct validity and defined four components that explained 50.08 percent of the variance. Two of four components accurately identified theoretical constructs. Two constructs, communication and support, loaded onto two components best defined as Partner and Participate. One component, Motivate, consisted of mental/hard work and one support question. The physical construct Presence consisted of three questions, eliminating the Appearance construct. Based on reliability and validity
analysis, the final study survey consisted of 18 questions that allowed for effective and efficient data analysis.

**Research Context and Data Collection**

All data collection occurred in classrooms at the Study University. Pen and pencil surveys provided consistency and more accuracy than electronic, web-base survey data collection methods due to the physical presence of administrators. Web-based methods can increase bias as verification of participant identity and demographic information is difficult to obtain and often unknown. Pen and pencil surveys also have potential bias, especially pressure to complete the survey due to the presence of other students and a moderator. However, the use of moderators for data collection used by this study provided for increased control measures by answering questions and ensuring anonymity, thereby increasing data accuracy and decreasing bias.

The author and graduate assistants collected data over a four-week time period at the end of the fall term at the study university. Data collectors read a script (Appendix A), answered questions, ensured against repeat survey participants, and stressed the voluntary nature of the survey. Data collectors identified repeat participants by asking students not to participate if they had already completed this survey. The script that data collectors read contained a short description of the study and hypotheses questions and assured participants of the voluntary nature of the survey. This study provided no incentives to students for participating in the study. Most faculty encouraged participation and approximately 99 percent of each class voluntarily participated in the survey.

The author visually screened each survey for completeness and obvious non-participation. An Excel spreadsheet formatted for SPSS facilitated a transfer of the survey
data into SPSS for analysis. Several demographic questions required conversion from nominal to ordinal scales for data analysis. Data imported into SPSS required adjustments to variables that allowed for parametric, inferential statistical analysis.

**Data Analysis**

Inferential parametric statistical procedures examined research questions and provide answers to hypotheses. Regression analysis, with the overall influence rating as the dependent variable and the four components identified during the principle component analysis as independent variables, provided insight to those peer leadership competencies most significant. Four independent variables resulted from summing the questions included in each of the four principle components. The summed independent variables allowed analysis to identify significant and most important peer leadership competencies. Hierarchal regression analysis provided insight to the significant peer leadership competencies needed to predict an overall peer leadership experience rating. Multiple regression and analysis of variance (ANOVA) allowed the identification of significant peer leadership skills.

ANOVA and regression analysis provided insight to significant peer leadership skills. The overall influence experience rating provided the dependent variable while the individual questions and summed questions comprising the four principle components provided independent variables. ANOVA and regression analyses identified significant leadership skills. This study used various methods to answer hypotheses and draw conclusions from an analysis of data providing for insights to peer leadership competencies and skills.
**Design Weaknesses**

Design weaknesses of this study could occur primarily in the ROTC data, development of the influence survey, and data collection. Although weaknesses could occur, implemented design controls mitigated adverse effects limiting design flaws. A critical review of the influence survey and ROTC data provide insight to possible weaknesses.

Few, if any, studies exist that involve the ROTC leadership assessment data. No possible studies using the ROTC data exist for public knowledge and internal to the U.S. Army, providing no means to compare methodology or results. Multiple inquires by this author to U.S. Army agencies did not surface any published or unpublished reports using the ROTC data.

Gender could bias the peer leadership competency analysis due to the over-representation of male Cadets and assessors compared to the general population of students. The large male percentage of Cadets and assessors does cause concerns of male bias, but the large sample size of the ROTC data helps to mitigate the male bias. Extensive frame of reference training each ROTC assessor completed before assessing Cadets also helps to mitigate the potential male assessor bias (see Chapter I for ROTC assessor training).

Maturation presents a concern as all ROTC Cadets and the majority of influence survey students consisted of upper classmen. Maturation is a difficult variable to assess in leadership development due to the many variables provided by the context and situation (Komives & Aldelman, 2002; Komives et al., 2005). The influence survey did include 42 percent freshmen and sophomores mitigating the maturation influence in this study.
Although maturation is difficult to account for in any study, the intent of this study focused on undergraduate students and not the effect maturation has on leadership development.

As mentioned previously, the ROTC data consists of like-minded Cadets. All participants involved in generating the leader assessment data had a common factor of selfless public service resulting in a potential bias. The ROTC assessors similarly appeared like-minded providing for a potential selfless public service bias. Although a potential bias existed in the ROTC data, the quality of the data focused on peer leadership providing a quantitative means to correlate with the literature review.

Instruments used to measure leadership emerged from a literature review, but none of the instruments focused exclusively on peer leadership. Given the limited knowledge and research concerning peer leadership, the lack of peer leadership assessment instruments coincides with the literature review. None of the leadership assessment instruments designed for other studies presented acceptable alternatives as the intent for these assessment instruments focused on non-peer leadership competencies and skills. As Loughhead and Hardy (2005) stated, peer leadership represented a relatively neglected topic of inquiry. The lack of a peer leadership assessment instrument focused on peer leadership competencies and skills provided an opportunity to develop an instrument to fill this void and provide a means to collect data. However, as with any new instrument, the validity and reliability could provide liabilities and become a weakness for this study with no other similar instruments to compare results.

Student participation is a potential weakness as interpretation of the survey frame of reference scenario, stem questions, and the competency questions could provide
confounding or multicollinearity effects in the data. Questions were developed based on a theoretical construct derived from a literature review and analysis of an extensive leadership assessment database. However, one frame of reference scenario, two stem questions, and the 40 competency questions can provide a wide variance of meanings to students. Small focus groups, a pre-pilot and pilot test, and leadership expert retranslation of survey questions to competencies provided for mitigation of potential bias. The large sample size helps mitigate bias.

The samples for the pilot tests and study survey resulted from one public university of higher education. The diversity of the sample university student population appeared limited and most students originate from a small geographic area surrounding the university. Due to the limited scope taken by collecting data from only one university, the universalization of the influence survey appears very limited at this time. Further studies should collect data from a diverse array of universities in different geographic areas, from private and other public universities, and in different cultures. This study focused on developing a starting point to measure peer leadership competencies and skills to enhance leadership curriculum. The uniqueness of the influence survey required a limited scope to ensure an effective and accurate initial survey instrument.

The time of the year that the survey data collection occurred could influence results. Both the pilot data and study data collection occurred during the fall semester. Different results could occur if data collection occurred towards the end of the academic year when students may have more recent experiences.
Summary

The methodology of this study provided for a logical and quantitative process to examine competencies and skills needed for effective peer leadership. A literature review and analysis of an existing leadership assessment database provided the theoretical construct allowing development of an influence survey. The influence survey provided a means to collect data on peer leadership competencies and skills. Quantitative analysis of the influence survey data provided insights to significant competencies and skills needed to effectively lead one’s peers.

Chapter IV contains an explanation of the quantitative findings for both the ROTC database and data obtained by the influence survey. The findings of the ROTC database quantitative analysis provided verification of literature review findings and one possible peer leadership competency. Chapter V discusses the significance of findings in Chapter IV and final thoughts regarding this study.
CHAPTER IV: RESULTS

Chapters I, II, and III defined the scope of this study, described a literature review of peer leadership, and defined the methodology of this study. Chapter IV provides an analysis of the data collected to evaluate the stated hypotheses. Although mainly quantitative, the analysis in this chapter provides many insights that educators might utilize to enhance their understanding of peer leadership, peer-leadership pedagogy, and leadership curriculum.

This chapter analyzes the leadership dimensions comprising the ROTC data base. The ROTC data base provided convergent validity with the literature review while providing an additional possible peer leadership competency. Although different in size, scope, context, and longitudinal nature, the ROTC data base has many similarities to the study sample. A second focus of this chapter provides insight to the development of an influence survey. The last focus analyzes data gathered using the influence survey to answer the two study hypotheses.

The literature review and ROTC data analysis determined the peer leadership competencies used to define questions that represent peer leadership skills. Quantitative analysis determined the best influence survey by verifying the resulting survey reliability and establishing validity. Multiple regression analysis and ANOVA performed on influence survey data provided answers to the study hypotheses. Influence survey data analysis provides the framework for results and conclusions discussed in Chapter V.

ROTC Database Analysis

Convergent validity lends creditability and confidence to research findings. The ROTC data base provided this study convergent validity while assisting in identifying
and understanding peer leadership competencies. Descriptive statistics and a reliability analysis with deleted items of the ROTC data base allowed the identification of important leadership competencies.

An analysis of the ROTC leader dimension means determined that the Exceeds and Meets Standards ratings have communication, execution, mental, and physical within the top five highest dimension means. None of the four dimensions appeared in the top five highest averages for the lowest rating, Needs Improvement. The differences in dimension means between the lowest and highest ratings indicate the possibility of leader dimensions needed for success at LDAC based on dimension means.

On face validity, the leader-dimension database resembles a survey or leadership assessment instrument. Each Cadet received assessments based on the 16 dimensions by multiple assessors. The average of each dimension contributed to produce an overall rating in each dimension for each Cadet. A Cronbach’s Alpha reliability analysis based on the 16 leader dimensions determined the leader dimensions important in the overall and three stratifications of the data (Es, Ss, and Ns). The communication, execution, mental, and physical leadership dimensions had the greatest impact on reliability for the Overall, Exceeds, and Meets Standards ratings. A comparison of the rankings from the descriptive statistics and the reliability analysis found communication, execution, mental, and physical common to both analyses.

The commonalities between the leader dimensions identified by the literature review and ROTC data analysis include communication (identified by both), support (literature review) and executing (ROTC data), and work hard/ethic (literature review) and mental (ROTC data). The reflection/feedback competency ranked third in frequency
citations during the literature review, but does not have a specific ROTC data counterpart. The leader dimension of physical from the ROTC data analysis does not correlate directly to any specific leader skill or competency identified by the literature review, but does relate indirectly to several skills and competencies in the literature. A comparison of the literature review and ROTC leadership assessment data identified five possible peer leadership competencies: 1) communication, 2) mental/hard work, 3) support, 4) reflection/feedback, and 5) physical. The five identified competencies provided a broad theoretical framework for developing an instrument to assess peer leadership in undergraduate students.

**Influence Survey**

The lack of existing instruments measuring peer leadership competencies and skills necessitated the development of an influence survey. The literature review and convergent validity of the ROTC data base provided the constructs needed to develop an instrument focused on peer leadership. A pilot test verified reliability and a principle component analysis confirmed the validity of the instrument. After verifying the survey reliability and validity, data gathered then screened and checked for normality established the needed analyses sample. An analysis of the gathered data determined the final influence survey model needed for inferential parametric statistical methods to analyze study hypotheses.

Chapter III provided details on the initial survey development, pre-pilot, and pilot tests needed to develop the final survey used to gather study data. Chapter IV focuses on the reliability and validity of the final influence survey, the characteristics of the data, and
the findings produced by gathered data statistical analysis. Data consistency and normality verification allowed the use of inferential parametric analyses.

**Data Screening and Normality**

An initial review of data ensured all responses ranged between one and five based on the Likert scaled used to measure participant responses. Additional reviews conducted on the five theoretical constructs consisted of summing question responses that defined each peer leadership competency then ensuring the total was within the appropriate range. Initial normality verification occurred by examining the skewness and kurtosis of each survey question and the summed leadership competencies.

Skewness and kurtosis verification included a visual analysis of frequency distribution compared to a superimposed normal curve provided by SPSS. Additional verification of skewness and kurtosis indicated normality as ratings for each construct ranged within acceptable standards -2 to 2 (Field, 2009). Later, normality re-verification occurred using the same process on the four identified principle components determined through exploratory principle component analysis. Frequencies of the four principle components and *Overall* dependent variable indicated a negative skewness providing evidence of students rating questions higher (4s and 5s for independent variables, 9s and 10s for the dependent variable) rather than lower (1s and 2s). The negative skewness coincides with the mean of the *Overall* dependent variable of 8.2 indicating that students rated their peer influence experience high creating a ‘halo’ effect, common when favorably rating someone. The Kaiser-Meyer-Olkin (KMO) measure verified the sample size (KMO = .922) as superb according to Field (2009).
Reliability of Influence Survey

The reliability of the influence survey consisted of verifying the overall reliability of the influence survey and the reliability of the four components comprising the final influence survey using Cronbach’s Alpha. A discussion of the resulting final survey four peer leadership competencies occurs in the next section. The high overall reliability of the influence survey .88 with all components achieving reliabilities above .70 indicated a reliable instrument (George & Mallery, 2003) (see Table 4).

Table 4
Cronbach’s Alpha Reliability of Influence Survey Principle Components

<table>
<thead>
<tr>
<th>Component</th>
<th>Cronbach’s Alpha</th>
<th>Number of Items</th>
</tr>
</thead>
<tbody>
<tr>
<td>1-Assist</td>
<td>.795</td>
<td>6</td>
</tr>
<tr>
<td>2-Reflect</td>
<td>.784</td>
<td>4</td>
</tr>
<tr>
<td>3-Participate</td>
<td>.711</td>
<td>5</td>
</tr>
<tr>
<td>4-Presence</td>
<td>.702</td>
<td>3</td>
</tr>
</tbody>
</table>

Validity of Influence Survey

A principle component analysis verified validity (see Chapter III for explanation). Bartlett’s test of sphericity $\chi^2 (153) = 5562.467$, $p<.001$ indicated adequate correlations for principle component analysis. An oblique rotation extracted components due to the correlations between questions that commonly occur in behavior science research (Costello & Osborne, 2005). Validity analysis identified the best model based on 18 of the 40 questions in the survey that explained 50.08 percent of the variance in the data sample. Four components had eigenvalues over Kaiser’s criteria of 1. The four components identified included Assist, Reflect, Participate, and Presence based on the thematic nature of the questions comprising the factors. No factors had cross loadings above the .30 level. All questions except one loaded onto the four factors above the .40
level as recommended for interpretation according to Stevens (2002). The one question not loading above .40 loaded above .30 allowing its inclusion in the validity analysis. Each component had several strong (above .70) loadings after rotation further confirming the validity of the influence survey model (see Table 6, next page).

**Peer Leadership Competency Hypothesis Analysis**

Multiple regression provided insight to significant peer leadership competencies based on the four component model identified through validity analyses. ANOVA determined the significance between college levels and gender. Multiple regression analysis determined the significant peer leader competencies and the degree of importance each competency has in predicting an overall influence rating. Regression also analyzed significant peer leadership competencies based upon gender. The low sample sizes of the various races in the sample prevented an analysis of peer competencies. Multiple regression analysis indicated significant differences exist between competencies.

**Multiple Regression Analysis of Peer Leadership Competencies**

Multiple regression analysis identified each of the four components as significant in explaining the resulting model. The resulting multiple regression model explained 50.80 percent of the variance in the data sample (see Table 5).

Table 5

<table>
<thead>
<tr>
<th>( R )</th>
<th>( R ) Square</th>
<th>Adjusted ( R ) Square</th>
<th>Standard Error of the Estimate</th>
</tr>
</thead>
<tbody>
<tr>
<td>.713</td>
<td>.508</td>
<td>.506</td>
<td>.939</td>
</tr>
</tbody>
</table>


<table>
<thead>
<tr>
<th>Survey Question</th>
<th>Component One Assist</th>
<th>Component Two Reflect</th>
<th>Component Three Participate</th>
<th>Component Four Presence</th>
</tr>
</thead>
<tbody>
<tr>
<td>29_MHW: Remind you to follow-up on important activities?</td>
<td>.839</td>
<td>.093</td>
<td>-.288</td>
<td>-.127</td>
</tr>
<tr>
<td>25_MHW: Assist you to define an achievable goal?</td>
<td>.725</td>
<td>.034</td>
<td>-.017</td>
<td>-.039</td>
</tr>
<tr>
<td>26_SUPT: Demonstrate enthusiasm when helping or supporting you?</td>
<td>.638</td>
<td>-.075</td>
<td>.189</td>
<td>.094</td>
</tr>
<tr>
<td>27_REFL: Help you develop objective criteria during the decision making process?</td>
<td>.615</td>
<td>.147</td>
<td>.051</td>
<td>-.157</td>
</tr>
<tr>
<td>19_SUPT: Praise you or celebrate small victories with you?</td>
<td>.594</td>
<td>-.179</td>
<td>.113</td>
<td>.235</td>
</tr>
<tr>
<td>30_REFL: Make a sincere effort to reach consensus with you on a difficult issue?</td>
<td>.591</td>
<td>.040</td>
<td>.148</td>
<td>.057</td>
</tr>
<tr>
<td>22_REFL: Cause you to effectively analyze the situation?</td>
<td>.000</td>
<td>.871</td>
<td>.002</td>
<td>-.022</td>
</tr>
<tr>
<td>21_REFL: Cause you to learn from the situation?</td>
<td>.070</td>
<td>.798</td>
<td>-.075</td>
<td>.074</td>
</tr>
<tr>
<td>23_REFL: Help you to focus and/or meditate to fully understand the situation?</td>
<td>.171</td>
<td>.675</td>
<td>.000</td>
<td>.006</td>
</tr>
<tr>
<td>9_REFL: Cause you to reflect on your situation?</td>
<td>-.107</td>
<td>.566</td>
<td>.240</td>
<td>.046</td>
</tr>
<tr>
<td>3_COMM: Demonstrate the qualities of a good listener?</td>
<td>-.116</td>
<td>.045</td>
<td>.852</td>
<td>-.110</td>
</tr>
<tr>
<td>4_SUPT: Actively include you in the decision-making process?</td>
<td>.036</td>
<td>-.042</td>
<td>.796</td>
<td>-.098</td>
</tr>
<tr>
<td>2_COMM: Clearly communicate his/her thoughts and ideas to you?</td>
<td>-.093</td>
<td>.114</td>
<td>.614</td>
<td>.045</td>
</tr>
<tr>
<td>11_SUPT: Foster a sense of cooperation with you?</td>
<td>.221</td>
<td>-.083</td>
<td>.485</td>
<td>.046</td>
</tr>
<tr>
<td>5_MHW: Constantly encourage you?</td>
<td>.299</td>
<td>.121</td>
<td>.326</td>
<td>.061</td>
</tr>
<tr>
<td>39_PHY: Having the person helping you physically near you?</td>
<td>.040</td>
<td>-.010</td>
<td>-.235</td>
<td>.821</td>
</tr>
<tr>
<td>34_PHY: The mere presence of that individual in helping or supporting you?</td>
<td>-.120</td>
<td>.077</td>
<td>.069</td>
<td>.796</td>
</tr>
<tr>
<td>37_PHY: The presence of the person in creating a sense of confidence within you?</td>
<td>-.020</td>
<td>.029</td>
<td>.051</td>
<td>.783</td>
</tr>
</tbody>
</table>

*Note. Factor loading >.3 are in boldface.*
The Durbin-Watson measure analyzed the data for multicollinearity and found the sample rating of 1.880 very close to 2.000 indicating the lack of multicollinearity; results less than 1 or greater than 3 raises concern regarding multicollinearity in a data sample (Field, 2009). The average Variance Inflation Factor (VIF) for each principle component (1.74) also indicated a lack of multicollinearity. Myers (1990) suggested that an average VIF value of 10 or greater raises cause for concern.

Table 7 indicates significance for the multiple regression model at the .01 level and that there is less than 1 percent chance that the $F$-ratio of this model would occur due to chance.

<table>
<thead>
<tr>
<th>Source</th>
<th>Sum of Squares</th>
<th>df</th>
<th>Mean Squares (Variance)</th>
<th>$F_{observed}$</th>
</tr>
</thead>
<tbody>
<tr>
<td>Regression</td>
<td>869.083</td>
<td>4</td>
<td>217.271</td>
<td>246.384</td>
</tr>
<tr>
<td>Residual</td>
<td>841.274</td>
<td>954</td>
<td>.882</td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td>1710.357</td>
<td>958</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

$F_{critical (.01, 4, 954)} = 3.34$

The significance of the $F$-ratio allows rejection of the first hypothesis:

$H_{1}$ No specific leadership competencies exist that enhance peer leadership.

ANOVA results also indicated significance of the regression model at predicting the overall influence experience than the mean participant response.

All multiple regression model parameters indicated significance and resulted in the following predictive model: $y = .569 + .114(\text{Assist}) + .063(\text{Reflect}) + .147(\text{Participate}) + .082(\text{Presence})$. All competencies positively related to the outcome variable. The order of importance for identified peer leadership competencies included: 1) Participate, 2) Assist, 3) Presence, and 4) Reflect (see Table 8). Casewise diagnostics
analyzing extreme cases identified 39 cases or 4.13 percent (39/945), less than the
expected 5 percent mitigating the potential bias from extreme cases and indicating a
good-fit model for the sample (Field, 2009). Standardized beta coefficients agreed with
unstandardized coefficients except for the Assist and Participate competencies resulting
in a slightly different importance ranking. Generalization of the model appears very good
with only 2 percent of the variance not explained (R square - Adjusted R square).
However, this model represents a specific population and its generalization remains
unknown.

Explaining 50.80 percent of the variance may appear low, but within behavioral
sciences and the challenge of predicting human behavior with extraneous variables, an $r^2$
of .508 represents a large effect according to Cohen (1988). The large effect
determination results from Cohen's effect size (EF) index of $f^2 = r^2/(1 - r^2)$. Cohen
considered An $f^2$ greater than .35 as a large effect within the behavioral sciences.

**ANOVA and Multiple Regression Analysis Based on Gender**

ANOVA between male and female peer leadership competencies identified
significant differences between genders (Table 9).
Table 9

Mean, Standard Deviations, and ANOVA Analysis for Peer Leadership Competencies Based on Gender

<table>
<thead>
<tr>
<th>Gender</th>
<th>Peer Leadership Competency</th>
<th>Mean</th>
<th>Standard Deviation</th>
<th>F</th>
<th>p</th>
</tr>
</thead>
<tbody>
<tr>
<td>Female</td>
<td>Assist</td>
<td>23.86</td>
<td>3.55</td>
<td>31.11</td>
<td>.000</td>
</tr>
<tr>
<td>Male</td>
<td></td>
<td>22.56</td>
<td>3.67</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Female</td>
<td>Reflect</td>
<td>16.06</td>
<td>2.59</td>
<td>19.21</td>
<td>.000</td>
</tr>
<tr>
<td>Male</td>
<td></td>
<td>15.32</td>
<td>2.66</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Female</td>
<td>Participate</td>
<td>20.82</td>
<td>2.68</td>
<td>29.06</td>
<td>.000</td>
</tr>
<tr>
<td>Male</td>
<td></td>
<td>19.89</td>
<td>2.67</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Female</td>
<td>Presence</td>
<td>12.07</td>
<td>2.39</td>
<td>32.64</td>
<td>.000</td>
</tr>
<tr>
<td>Male</td>
<td></td>
<td>11.20</td>
<td>2.36</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Multiple regression analysis by gender provided insight to important peer leadership competencies for each gender. The sample survey had a higher percentage of females (62 percent) but had an adequate sample of males (386) to allow ANOVA and multiple regression analysis of peer leadership competencies. Regression analysis comparing the four leadership competencies of male and female participants produced a significant model (see Table 10).

Table 10

Multiple Regression Source Tables for Male and Female Participants

<table>
<thead>
<tr>
<th>Source</th>
<th>Sum of Squares</th>
<th>df</th>
<th>Mean Squares (Variance)</th>
<th>F observed</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>Male</td>
<td>Female</td>
<td>Male</td>
</tr>
<tr>
<td>Regression</td>
<td>378.276</td>
<td>4</td>
<td>4</td>
<td>94.569</td>
</tr>
<tr>
<td>Residual</td>
<td>428.597</td>
<td>380</td>
<td>632</td>
<td>1.128</td>
</tr>
<tr>
<td>Total</td>
<td>806.873</td>
<td>384</td>
<td>636</td>
<td></td>
</tr>
</tbody>
</table>

\[ F_{critical (.01, 4, 380)} = 3.37 - Male, F_{critical (.01, 4, 632)} = 3.83 – Female \]
The multiple-regression model of male and female participants for the four peer leadership competencies indicated significant contributions of competencies to the regression model (see Table 11). The peer leadership competencies in order of importance for both male and females included: (a) Participate, (b) Assist, (c) Presence, and (d) Reflect. The ranking importance of the four competencies for separate gender samples reflects the overall sample rank ordering.

The multiple-regression model for male participants explained 46.90 percent of the variance in the male sample population, less than the overall regression model (50.80 percent). The multiple-regression model for female participants explained 51.70 percent of the variance in the female sample population, more than the overall regression model (50.80 percent) and male regression model (46.90 percent—see Table 12).

### Table 11

<table>
<thead>
<tr>
<th>Competency</th>
<th>B</th>
<th>SE B</th>
<th>B</th>
<th>SE B</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Male</td>
<td>Female</td>
<td>Male</td>
<td>Female</td>
</tr>
<tr>
<td>Constant</td>
<td>.448</td>
<td>.721*</td>
<td>.425</td>
<td>.296</td>
</tr>
<tr>
<td>Assist</td>
<td>.118**</td>
<td>.101**</td>
<td>.020</td>
<td>.013</td>
</tr>
<tr>
<td>Reflect</td>
<td>.079*</td>
<td>.054*</td>
<td>.027</td>
<td>.018</td>
</tr>
<tr>
<td>Participate</td>
<td>.128**</td>
<td>.170**</td>
<td>.025</td>
<td>.017</td>
</tr>
<tr>
<td>Presence</td>
<td>.104**</td>
<td>.065**</td>
<td>.024</td>
<td>.015</td>
</tr>
</tbody>
</table>

(n=385 for Male, n=637 for Female)

*p<.01 **p<.001
Table 12

Regression Model Summary of the Constant and Four Predictors for Male And Female Participants: Assist, Participate, Reflect, and Presence

<table>
<thead>
<tr>
<th>R Male</th>
<th>R Square Male</th>
<th>Adjusted R Square Male</th>
<th>Standard Error of the Estimate Male</th>
<th>R Female</th>
<th>R Square Female</th>
<th>Adjusted R Square Female</th>
<th>Standard Error of the Estimate Female</th>
</tr>
</thead>
<tbody>
<tr>
<td>.685</td>
<td>.719</td>
<td>.469</td>
<td>.463</td>
<td>.517</td>
<td>.517</td>
<td>.463</td>
<td>.514</td>
</tr>
</tbody>
</table>

ANOVA and Multiple Regression Analysis Based on College Levels

An ANOVA of college levels found no significant differences between the four levels (see Table 13). The lack of significance indicates that maturation does not have a significant effect on peer leadership competencies.

Table 13

Mean, Standard Deviations, and ANOVA Analysis for Peer Leadership Competencies Based on College Levels

<table>
<thead>
<tr>
<th>College Level</th>
<th>Peer Leadership Competency</th>
<th>Mean</th>
<th>Standard Deviation</th>
<th>F</th>
<th>p</th>
</tr>
</thead>
<tbody>
<tr>
<td>Freshmen</td>
<td>Assist</td>
<td>23.30</td>
<td>3.44</td>
<td>.353</td>
<td>.787</td>
</tr>
<tr>
<td>Sophomore</td>
<td></td>
<td>23.31</td>
<td>3.70</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Junior</td>
<td></td>
<td>23.59</td>
<td>3.89</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Senior</td>
<td></td>
<td>23.32</td>
<td>3.60</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Freshmen</td>
<td>Reflect</td>
<td>15.92</td>
<td>2.55</td>
<td>1.545</td>
<td>.201</td>
</tr>
<tr>
<td>Sophomore</td>
<td></td>
<td>15.61</td>
<td>2.99</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Junior</td>
<td></td>
<td>16.01</td>
<td>2.60</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Senior</td>
<td></td>
<td>15.62</td>
<td>2.53</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Freshmen</td>
<td>Participate</td>
<td>20.56</td>
<td>2.52</td>
<td>.617</td>
<td>.604</td>
</tr>
<tr>
<td>Sophomore</td>
<td></td>
<td>20.26</td>
<td>2.96</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Junior</td>
<td></td>
<td>20.60</td>
<td>2.77</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Senior</td>
<td></td>
<td>20.45</td>
<td>2.62</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Freshmen</td>
<td>Presence</td>
<td>11.85</td>
<td>2.49</td>
<td>.589</td>
<td>.622</td>
</tr>
<tr>
<td>Sophomore</td>
<td></td>
<td>11.84</td>
<td>2.36</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Junior</td>
<td></td>
<td>11.72</td>
<td>2.37</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Senior</td>
<td></td>
<td>11.62</td>
<td>2.41</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Multiple regression analysis by college level identified important peer leadership competencies for each college level. The adequate sample size for all levels (see Table 3) allowed multiple regression analysis with the resulting regression models indicating significance (see Table 14) at the .01 level. Analyses of peer leadership competency Table 14

<table>
<thead>
<tr>
<th>College Level</th>
<th>Source</th>
<th>Sum of Squares</th>
<th>df</th>
<th>Mean Squares (Variance)</th>
<th>$F_{observed}$</th>
</tr>
</thead>
<tbody>
<tr>
<td>Freshmen</td>
<td>Regression</td>
<td>211.052</td>
<td>4</td>
<td>52.763</td>
<td>54.136</td>
</tr>
<tr>
<td></td>
<td>Residual</td>
<td>251.458</td>
<td>258</td>
<td>.975</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Total</td>
<td>462.510</td>
<td>262</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Sophomores</td>
<td>Regression</td>
<td>148.677</td>
<td>4</td>
<td>37.169</td>
<td>29.652</td>
</tr>
<tr>
<td></td>
<td>Residual</td>
<td>206.828</td>
<td>165</td>
<td>1.254</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Total</td>
<td>355.506</td>
<td>169</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Juniors</td>
<td>Regression</td>
<td>222.329</td>
<td>4</td>
<td>55.582</td>
<td>61.271</td>
</tr>
<tr>
<td></td>
<td>Residual</td>
<td>211.369</td>
<td>233</td>
<td>.907</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Total</td>
<td>433.697</td>
<td>237</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Seniors</td>
<td>Regression</td>
<td>328.403</td>
<td>4</td>
<td>82.101</td>
<td>111.678</td>
</tr>
<tr>
<td></td>
<td>Residual</td>
<td>255.835</td>
<td>348</td>
<td>.735</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Total</td>
<td>584.238</td>
<td>352</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

$F_{critical (.01, 4, 258)} = 3.41$ - Freshmen, $F_{critical (.01, 4, 165)} = 3.45$ – Sophomores, $F_{critical (.01, 4, 233)} = 3.41$ – Juniors, $F_{critical (.01, 4, 348)} = 3.37$ – Seniors

regression models at each college level indicated significance in all models for all competencies except two sophomore and one junior competency (see Table 15). The Participate competency ranked highest in the regression analysis for all college levels with the Assist competency ranked second highest except for junior-level students. The Reflect and Presence competencies ranked lowest at all levels.
Table 15

**Summary of Multiple Regression Analysis for Peer Leadership Competencies by College Levels**

<table>
<thead>
<tr>
<th>College Level</th>
<th>Competency</th>
<th>B</th>
<th>SE B</th>
<th>β</th>
</tr>
</thead>
<tbody>
<tr>
<td>Freshmen</td>
<td>Constant</td>
<td>.809</td>
<td>.504</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Assist</td>
<td>.093***</td>
<td>.020</td>
<td>.264</td>
</tr>
<tr>
<td></td>
<td>Reflect</td>
<td>.090**</td>
<td>.030</td>
<td>.174</td>
</tr>
<tr>
<td></td>
<td>Participate</td>
<td>.133***</td>
<td>.028</td>
<td>.283</td>
</tr>
<tr>
<td></td>
<td>Presence</td>
<td>.087**</td>
<td>.026</td>
<td>.164</td>
</tr>
<tr>
<td>Sophomores</td>
<td>Constant</td>
<td>1.250</td>
<td>.675</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Assist</td>
<td>.118***</td>
<td>.032</td>
<td>.306</td>
</tr>
<tr>
<td></td>
<td>Reflect</td>
<td>-.004</td>
<td>.040</td>
<td>-.009</td>
</tr>
<tr>
<td></td>
<td>Participate</td>
<td>.193***</td>
<td>.040</td>
<td>.398</td>
</tr>
<tr>
<td></td>
<td>Presence</td>
<td>.036</td>
<td>.037</td>
<td>.059</td>
</tr>
<tr>
<td>Juniors</td>
<td>Constant</td>
<td>.772</td>
<td>.489</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Assist</td>
<td>.079***</td>
<td>.021</td>
<td>.232</td>
</tr>
<tr>
<td></td>
<td>Reflect</td>
<td>.089**</td>
<td>.028</td>
<td>.191</td>
</tr>
<tr>
<td></td>
<td>Participate</td>
<td>.172***</td>
<td>.029</td>
<td>.363</td>
</tr>
<tr>
<td></td>
<td>Presence</td>
<td>.061</td>
<td>.027</td>
<td>.110</td>
</tr>
<tr>
<td>Seniors</td>
<td>Constant</td>
<td>.602</td>
<td>.374</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Assist</td>
<td>.115***</td>
<td>.016</td>
<td>.355</td>
</tr>
<tr>
<td></td>
<td>Reflect</td>
<td>.048*</td>
<td>.022</td>
<td>.102</td>
</tr>
<tr>
<td></td>
<td>Participate</td>
<td>.144***</td>
<td>.023</td>
<td>.301</td>
</tr>
<tr>
<td></td>
<td>Presence</td>
<td>.101***</td>
<td>.020</td>
<td>.193</td>
</tr>
</tbody>
</table>

(n=263 for Freshmen, n=170 for Sophomores, n= 238 for Juniors, n=353 for Seniors) * p<.05, **p<.01, ***p<.001

Multicollinearity with a VIF of approximately 2 for all colleges indicated tolerances within recommended ranges by Field (2009) using the Durbin-Watson measure.

Casewise diagnostics for extreme cases identified 3.42 percent for freshmen, 6.47 percent.
for sophomores, 3.78 percent for juniors, and 4.25 percent for seniors, all within acceptable standard of approximately 5 percent indicating accurate models (Field, 2009). The percentage of variance explained by college level indicated that upper division levels explained more variance than lower levels (see Table 16).

Table 16

Regression Model Summary of the Constant and Four Predictors for College-Level Participants: Assist, Participate, Reflect, and Presence

<table>
<thead>
<tr>
<th>College Level</th>
<th>$R$</th>
<th>$R$ Square</th>
<th>Adjusted $R$ Square</th>
<th>Standard Error of the Estimate</th>
</tr>
</thead>
<tbody>
<tr>
<td>Freshmen</td>
<td>.676</td>
<td>.456</td>
<td>.448</td>
<td>.987</td>
</tr>
<tr>
<td>Sophomores</td>
<td>.647</td>
<td>.418</td>
<td>.404</td>
<td>1.120</td>
</tr>
<tr>
<td>Juniors</td>
<td>.716</td>
<td>.513</td>
<td>.504</td>
<td>.952</td>
</tr>
<tr>
<td>Seniors</td>
<td>.750</td>
<td>.562</td>
<td>.557</td>
<td>.857</td>
</tr>
</tbody>
</table>

Peer Leadership Skills Hypothesis Analysis

An analysis of peer leadership competencies provided insight to those competencies significant when one attempts to influence another person of equal ability and status. Peer leadership competencies as defined by this study provides broad domains of leader behavior necessary to influence others, but does not provide insight to specific leader actions and behaviors. Defining specific peer leadership skills allows leader development by providing measurable outcomes needed to enhance the ability of a leader to influence his/her peers. Developing peer leadership pedagogy requires measurable outcomes to enhance leadership curricula.
Multiple Regression Analysis of Peer Leadership Skills

Multiple regression analysis conducted on each peer leadership competency defined in this study identified the most important peer leadership skills. All four regression models defined by peer leadership skills indicated significance. Table 17 indicates

Table 17

<table>
<thead>
<tr>
<th>Competency</th>
<th>Source</th>
<th>Sum of Squares</th>
<th>df</th>
<th>Mean Squares (Variance)</th>
<th>F observed</th>
</tr>
</thead>
<tbody>
<tr>
<td>Assist</td>
<td>Regression</td>
<td>720.195</td>
<td>6</td>
<td>120.032</td>
<td>108.664</td>
</tr>
<tr>
<td></td>
<td>Residual</td>
<td>1105.725</td>
<td>1001</td>
<td>1.105</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Total</td>
<td>1825.920</td>
<td>1007</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Participate</td>
<td>Regression</td>
<td>716.681</td>
<td>5</td>
<td>143.336</td>
<td>130.737</td>
</tr>
<tr>
<td></td>
<td>Residual</td>
<td>1097.470</td>
<td>1001</td>
<td>1.096</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Total</td>
<td>1814.151</td>
<td>1006</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Reflect</td>
<td>Regression</td>
<td>540.151</td>
<td>4</td>
<td>135.038</td>
<td>105.686</td>
</tr>
<tr>
<td></td>
<td>Residual</td>
<td>1298.165</td>
<td>1016</td>
<td>1.278</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Total</td>
<td>1838.315</td>
<td>1020</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Presence</td>
<td>Regression</td>
<td>314.832</td>
<td>3</td>
<td>104.944</td>
<td>68.907</td>
</tr>
<tr>
<td></td>
<td>Residual</td>
<td>1554.959</td>
<td>1021</td>
<td>1.523</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Total</td>
<td>1869.791</td>
<td>1024</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

$F_{critical (.01, 6, 1001)} = 2.82$ - Assist, $F_{critical (.01, 5, 1001)} = 3.04$ – Participate,
$F_{critical (.01, 4, 1016)} = 3.34$ – Reflect, $F_{critical (.01, 3, 1021)} = 3.80$ – Presence

multiple regression models significant at the .01 level and that there exists less than 1 percent chance that the $F$-ratio of these models would occur due to chance. The average Durbin-Watson measure for multicollinearity (1.9035), close to the 2.0 desired level, indicated the lack of multicollinearity in the data (Field, 2009). The average VIF for each peer leadership skill (1.478) also indicated a lack of multicollinearity (Myers, 1990).
The significance of the $F$-ratio for the four regression models allows rejection of the second hypothesis:

$H_2$ No specific leadership skills exist that enhance peer leadership.

ANOVA results also indicated significance of the regression model and provided a better prediction of the overall influence experience than the mean participant response for peer leadership skills.

All peer leadership skills appear significant at the .001 level except for three skills (one significant at the .01 level, two significant at the .05 level) indicating that all skills contributed significantly to each peer leadership competency regression model (see Table 18). Table 18 also provides the importance of each peer leadership skill for each peer.

Table 18

<table>
<thead>
<tr>
<th>Competency</th>
<th>Skill</th>
<th>$B$</th>
<th>$SE B$</th>
<th>$β$</th>
</tr>
</thead>
<tbody>
<tr>
<td>Assist</td>
<td>Constant</td>
<td>2.807***</td>
<td>.215</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Q29_NHW</td>
<td>.197**</td>
<td>.040</td>
<td>.138</td>
</tr>
<tr>
<td></td>
<td>Q25_MHW</td>
<td>.208***</td>
<td>.049</td>
<td>.130</td>
</tr>
<tr>
<td></td>
<td>Q26_SUPT</td>
<td>.289***</td>
<td>.054</td>
<td>.174</td>
</tr>
<tr>
<td></td>
<td>Q27_REFL</td>
<td>.138**</td>
<td>.047</td>
<td>.087</td>
</tr>
<tr>
<td></td>
<td>Q19_SUPT</td>
<td>.153***</td>
<td>.043</td>
<td>.102</td>
</tr>
<tr>
<td></td>
<td>Q30_REFL</td>
<td>.386***</td>
<td>.049</td>
<td>.239</td>
</tr>
<tr>
<td>Participate</td>
<td>Constant</td>
<td>1.896***</td>
<td>.253</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Q2_COMM</td>
<td>.343***</td>
<td>.050</td>
<td>.188</td>
</tr>
<tr>
<td></td>
<td>Q3_COMM</td>
<td>.316***</td>
<td>.048</td>
<td>.189</td>
</tr>
<tr>
<td></td>
<td>Q4_SUPT</td>
<td>.231***</td>
<td>.049</td>
<td>.138</td>
</tr>
<tr>
<td></td>
<td>Q5_MHW</td>
<td>.389***</td>
<td>.043</td>
<td>.253</td>
</tr>
<tr>
<td></td>
<td>Q11_SUPT</td>
<td>.254***</td>
<td>.045</td>
<td>.150</td>
</tr>
</tbody>
</table>

(continued)
<table>
<thead>
<tr>
<th>Competency</th>
<th>Skill</th>
<th>B</th>
<th>SE B</th>
<th>β</th>
</tr>
</thead>
<tbody>
<tr>
<td>Reflect</td>
<td>Constant</td>
<td>3.872***</td>
<td>.214</td>
<td>.166</td>
</tr>
<tr>
<td></td>
<td>Q21_REFL</td>
<td>.260***</td>
<td>.054</td>
<td>.166</td>
</tr>
<tr>
<td></td>
<td>Q22_REFL</td>
<td>.150*</td>
<td>.063</td>
<td>.090</td>
</tr>
<tr>
<td></td>
<td>Q23_REFL</td>
<td>.367***</td>
<td>.053</td>
<td>.232</td>
</tr>
<tr>
<td></td>
<td>Q9_REFL</td>
<td>.318***</td>
<td>.045</td>
<td>.210</td>
</tr>
<tr>
<td>Presence</td>
<td>Constant</td>
<td>5.427***</td>
<td>.195</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Q34_PHY</td>
<td>.393***</td>
<td>.051</td>
<td>.270</td>
</tr>
<tr>
<td></td>
<td>Q37_PHY</td>
<td>.200***</td>
<td>.048</td>
<td>.146</td>
</tr>
<tr>
<td></td>
<td>Q39_PHY</td>
<td>.089*</td>
<td>.038</td>
<td>.074</td>
</tr>
</tbody>
</table>

(n=1008 for Assist, n=1007 for Participate, n=1021 for Reflect, n=1025 for Presence)

* p<.05, **p<.01, ***p<.001

Note: see Table 5 for question descriptions.

leadership competency. Casewise diagnostics for each competency analyzing extreme cases resulted in outcomes less than the expected 5 percent (ranging from 4.02 to 4.76 percent) mitigating the potential bias from extreme cases and indicating good-fit models for the samples (Field, 2009). Standardized beta coefficients generally agreed with unstandardized coefficients with few exceptions.

The peer leadership skills comprising the Assist, Participate, Reflect, and Presence peer-leadership components accounted for 39.40, 39.50, 29.40, and 16.80 percent respectively of the variance in the data samples (see Table 19). Generally, the

Table 19

Regression Model Summaries of the Peer Leadership Competencies Based on Peer Leadership Skills: Assist, Participate, Reflect, and Presence

<table>
<thead>
<tr>
<th>Competency</th>
<th>R</th>
<th>R Square</th>
<th>Adjusted R Square</th>
<th>Standard Error of the Estimate</th>
</tr>
</thead>
<tbody>
<tr>
<td>Assist</td>
<td>.628</td>
<td>.394</td>
<td>.391</td>
<td>1.051</td>
</tr>
<tr>
<td>Participate</td>
<td>.629</td>
<td>.395</td>
<td>.392</td>
<td>1.047</td>
</tr>
<tr>
<td>Reflect</td>
<td>.542</td>
<td>.294</td>
<td>.291</td>
<td>1.130</td>
</tr>
<tr>
<td>Presence</td>
<td>.410</td>
<td>.168</td>
<td>.166</td>
<td>1.234</td>
</tr>
</tbody>
</table>
peer leadership skills regression models defining the competencies explained a relatively small amount of the variance in each competency, especially the *Presence* factor.

Generalization of the models appears very good with either 2 or 3 percent of the variance not explained (R square - Adjusted R square). However, this model has a specific population and its generalization remains unknown.

**Gender Impact on Peer Leadership Skills**

Multiple regression analysis conducted on peer leadership skills within each competency by gender identified differences in significance and importance of peer leadership skills. All four regression models for each gender defined by peer leadership skills indicated significance (see Table 20). ANOVA results also indicated significance at Table 20.

### Summary of Multiple Regression Analysis for Peer Leadership Skills by Competency and Gender

<table>
<thead>
<tr>
<th>Competency</th>
<th>Skill</th>
<th>B Male</th>
<th>SE B Male</th>
<th>B Female</th>
<th>SE B Female</th>
<th>β Male</th>
<th>SE β Male</th>
<th>β Female</th>
<th>SE β Female</th>
</tr>
</thead>
<tbody>
<tr>
<td>Assist</td>
<td>Constant</td>
<td>2.759***</td>
<td>.357</td>
<td>.292***</td>
<td>.277</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Q29_NHW</td>
<td>.349***</td>
<td>.069</td>
<td>.049</td>
<td>.227</td>
<td>.070</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Q25_MHW</td>
<td>.226**</td>
<td>.083</td>
<td>.060</td>
<td>.137</td>
<td>.120</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Q26_SUPT</td>
<td>.221*</td>
<td>.089</td>
<td>.067</td>
<td>.131</td>
<td>.188</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Q27_REFL</td>
<td>-.050</td>
<td>.077</td>
<td>.059</td>
<td>-.030</td>
<td>.172</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Q19_SUPT</td>
<td>.105</td>
<td>.070</td>
<td>.057</td>
<td>.068</td>
<td>.131</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Q30_REFL</td>
<td>.524***</td>
<td>.084</td>
<td>.061</td>
<td>.312</td>
<td>.192</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Participate</td>
<td>Constant</td>
<td>2.215***</td>
<td>.469</td>
<td>1.846***</td>
<td>.308</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Q2_COMM</td>
<td>.301***</td>
<td>.090</td>
<td>.060</td>
<td>.158</td>
<td>.205</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Q3_COMM</td>
<td>.268**</td>
<td>.088</td>
<td>.058</td>
<td>.150</td>
<td>.209</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Q4_SUPT</td>
<td>.152</td>
<td>.085</td>
<td>.060</td>
<td>.088</td>
<td>.174</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Q5_MHW</td>
<td>.411***</td>
<td>.074</td>
<td>.052</td>
<td>.263</td>
<td>.243</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Q11_SUPT</td>
<td>.328***</td>
<td>.081</td>
<td>.055</td>
<td>.188</td>
<td>.115</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

(continued)
<table>
<thead>
<tr>
<th>Competency</th>
<th>Skill</th>
<th>B Male</th>
<th>B Female</th>
<th>SE B Male</th>
<th>SE B Female</th>
<th>β Male</th>
<th>β Female</th>
</tr>
</thead>
<tbody>
<tr>
<td>Reflect</td>
<td>Constant</td>
<td>3.438***</td>
<td>4.247***</td>
<td>.360</td>
<td>.270</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Q9_REFL</td>
<td>.325***</td>
<td>.283***</td>
<td>.078</td>
<td>.069</td>
<td>.200</td>
<td>.187</td>
</tr>
<tr>
<td></td>
<td>Q21_REFL</td>
<td>.196*</td>
<td>.114</td>
<td>.091</td>
<td>.080</td>
<td>.121</td>
<td>.071</td>
</tr>
<tr>
<td></td>
<td>Q22_REFL</td>
<td>.211*</td>
<td>.314***</td>
<td>.103</td>
<td>.069</td>
<td>.122</td>
<td>.205</td>
</tr>
<tr>
<td></td>
<td>Q23_REFL</td>
<td>.461***</td>
<td>.301***</td>
<td>.086</td>
<td>.056</td>
<td>.281</td>
<td>.207</td>
</tr>
<tr>
<td>Presence</td>
<td>Constant</td>
<td>5.152***</td>
<td>5.758***</td>
<td>.331</td>
<td>.251</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Q34_PHY</td>
<td>.431***</td>
<td>.316***</td>
<td>.081</td>
<td>.068</td>
<td>.291</td>
<td>.217</td>
</tr>
<tr>
<td></td>
<td>Q37_PHY</td>
<td>.168*</td>
<td>.237***</td>
<td>.077</td>
<td>.064</td>
<td>.118</td>
<td>.177</td>
</tr>
<tr>
<td></td>
<td>Q39_PHY</td>
<td>.139*</td>
<td>.062</td>
<td>.063</td>
<td>.050</td>
<td>.110</td>
<td>.054</td>
</tr>
</tbody>
</table>

(n=379 for Male Assist, n=617 for Female Assist, n=374 for Male Participate, n=621 for Female Participate, n=380 for Male Reflect, n=631 for Female Reflect, n=382 for Male Presence, n=631 for Female Presence)

* p<.05, **p<.01, ***p<.001

Note: see Table 5 for question descriptions.

the .001 level of all regression models and provided a better prediction of the Overall influence rating than the mean participant response for peer leadership skills for each gender. Peer leadership skills between genders varied in levels of significance to the regressions of their peer leadership competency.

**College Level Impact on Peer Leadership Skills**

The influence of maturation presents potential bias by college levels. Regression using peer leadership skills by college level for each peer leadership competency provided insight to possible maturation effects. All college-level regression models indicated significance at the .01 level (see Table 21). Peer leadership skills in each level provide discussion points in Chapter V.
Table 21

Regression Coefficient Analysis for Peer Leadership Skills by Competency and College Levels

<table>
<thead>
<tr>
<th>Competency</th>
<th>Skill</th>
<th>Freshmen</th>
<th>Sophomores</th>
<th>Juniors</th>
<th>Seniors</th>
</tr>
</thead>
<tbody>
<tr>
<td>Assist</td>
<td>Constant</td>
<td>3.012***</td>
<td>2.618***</td>
<td>3.188***</td>
<td>2.769***</td>
</tr>
<tr>
<td></td>
<td>Q29_NHW</td>
<td>.175*</td>
<td>.083</td>
<td>.187*</td>
<td>.258***</td>
</tr>
<tr>
<td></td>
<td>Q25_MHW</td>
<td>.211*</td>
<td>.212</td>
<td>.187</td>
<td>.197*</td>
</tr>
<tr>
<td></td>
<td>Q26_SUPT</td>
<td>.229*</td>
<td>.230</td>
<td>.314**</td>
<td>.378***</td>
</tr>
<tr>
<td></td>
<td>Q27_REFL</td>
<td>.175</td>
<td>.171</td>
<td>.082</td>
<td>.085</td>
</tr>
<tr>
<td></td>
<td>Q19_SUPT</td>
<td>.047</td>
<td>.358**</td>
<td>.199</td>
<td>.118</td>
</tr>
<tr>
<td></td>
<td>Q30_REFL</td>
<td>.484***</td>
<td>.377**</td>
<td>.313**</td>
<td>.333***</td>
</tr>
<tr>
<td>Participate</td>
<td>Constant</td>
<td>2.243***</td>
<td>2.015**</td>
<td>1.951***</td>
<td>2.079***</td>
</tr>
<tr>
<td></td>
<td>Q2_COMM</td>
<td>.283**</td>
<td>.473***</td>
<td>.340**</td>
<td>.288***</td>
</tr>
<tr>
<td></td>
<td>Q3_COMM</td>
<td>.532***</td>
<td>.261*</td>
<td>.319**</td>
<td>.174*</td>
</tr>
<tr>
<td></td>
<td>Q4_SUPT</td>
<td>.006</td>
<td>.414**</td>
<td>.163</td>
<td>.368***</td>
</tr>
<tr>
<td></td>
<td>Q5_MHW</td>
<td>.401***</td>
<td>.242</td>
<td>.313***</td>
<td>.473***</td>
</tr>
<tr>
<td></td>
<td>Q11_SUPT</td>
<td>.218*</td>
<td>.130</td>
<td>.410***</td>
<td>.172*</td>
</tr>
<tr>
<td>Reflect</td>
<td>Constant</td>
<td>3.920***</td>
<td>5.095***</td>
<td>3.348***</td>
<td>3.551***</td>
</tr>
<tr>
<td></td>
<td>Q9_REFL</td>
<td>.306**</td>
<td>.332**</td>
<td>.310***</td>
<td>.297***</td>
</tr>
<tr>
<td></td>
<td>Q21_REFL</td>
<td>.085</td>
<td>-.058</td>
<td>.525***</td>
<td>.448***</td>
</tr>
<tr>
<td></td>
<td>Q22_REFL</td>
<td>.198</td>
<td>.215</td>
<td>-.022</td>
<td>.171</td>
</tr>
<tr>
<td></td>
<td>Q23_REFL</td>
<td>.479***</td>
<td>.319</td>
<td>.422***</td>
<td>.257***</td>
</tr>
<tr>
<td>Presence</td>
<td>Constant</td>
<td>5.584***</td>
<td>6.230***</td>
<td>5.549***</td>
<td>4.992***</td>
</tr>
<tr>
<td></td>
<td>Q34_PHY</td>
<td>.361***</td>
<td>.311*</td>
<td>.381***</td>
<td>.400***</td>
</tr>
<tr>
<td></td>
<td>Q37_PHY</td>
<td>.091</td>
<td>.009</td>
<td>.203*</td>
<td>.343***</td>
</tr>
<tr>
<td></td>
<td>Q39_PHY</td>
<td>.188*</td>
<td>.175</td>
<td>.096</td>
<td>.038</td>
</tr>
</tbody>
</table>

(n=258 for Freshmen Assist, n=160 for Sophomore Assist, n=232 for Junior Assist, n=344 for Senior Assist, n=248 for Freshmen Participate, n=167 for Sophomore Participate, n=230 for Junior Participate, n=348 for Senior Participate, n=262 for Freshmen Reflect, n=167 for Sophomore Reflect, n=230 for Junior Reflect, n=350 for Senior Reflect, n=263 for Freshmen Presence, n=167 for Sophomore Presence, n=234 for Junior Presence, n=347 for Senior Presence)

* p<.05, **p<.01, ***p<.001  Note: see Table 5 for question descriptions.
Summary

Chapter IV provided an analysis using inferential parametric statistical methods on data gathered after developing an instrument to measure peer leadership skills and competencies. The verified instrument validity and reliability allowed for a degree of confidence in the multiple regression analyses of various sample aspects. Results of the multiple regression analyses generally confirmed the theoretical constructs determined through the literature review and analysis of the ROTC data base. The results also provided information needed to reject the two study hypotheses.

Chapter V provides a detailed discussion of the results determined in Chapter IV based on the methodology defined in Chapter III. A primary focus in Chapter V focuses on the analyses of each peer leadership competency and the peer leadership skills that comprise each competency discussing the causation of significance or lack of significance to the analyzed peer leadership models. A final focus of Chapter V provides limitations, summaries, conclusions, and recommendations for future studies.
CHAPTER V: DISCUSSION

This study analyzed the competencies and skills associated with effective peer leadership. A literature review summarized in Chapter II and an analysis of an existing leadership assessment data base conducted in Chapter IV identified peer leadership competencies that further identified peer leadership skills. The results of Chapter III and IV produced an influence survey that allowed the collection of data consisting of undergraduate students at a comprehensive university. Analysis of the undergraduate sample using inferential parametric statistical methods provided the needed proof to reject this study's two hypotheses.

Chapter V described a detailed analysis of the results found in Chapter IV. The first focus of Chapter V discusses the development of the influence survey needed to collect data and for an adequate and reliable sample. The second focus of this chapter provides insights to the peer leadership competencies in regard to the overall sample, possible gender differences, and an analysis of the four undergraduate college levels. A discussion of peer leadership skills resulted from the analysis of peer leadership competencies. Finally, Chapter V provides implications to the literature review, future research opportunities, methodological limitations, and limitations.

Development of an Influence Survey

Lack of a reliable and valid instrument that measured student perceptions regarding peer leadership competencies and skills led to the development of an influence survey. Many authors (Brown, 1972; Astin, 1996; Adelman, 2002; Komiveset al., 2006) conducted research involving peer leadership but did not quantitatively measure peer leadership competencies and skills. Models involving peer leadership evolved from
grounded research and research conducted in non-scholastic settings, but no survey that quantitatively measured peer leadership in any manner appear to exist. The need to gather data on undergraduate student perceptions regarding peer leadership required developing an instrument that accurately measured student perceptions of peer leadership. An accurate instrument must have adequate reliability and validity based on a theoretical construct.

Reliability and validity for the influence survey resulted from an iterative and progressive process focused on a theoretical construct. The five competencies determined from the literature review and analysis of the ROTC data base provided the framework to develop survey questions. The broad constructs and focus population of undergraduate students for this study required the use of initial, small focus groups to develop proposed survey questions. Pilot studies provide extremely valuable insight to every aspect of the survey including the format, font, size of font, color of paper, shading and non-shading of questions, and most importantly, the wording and meaning of questions (Oppenheim, 1992).

A pre-pilot study consisting of 16 undergraduate students verified the format of the survey, the readability of the survey questions, and ensured that students understood the frame of reference scenario for the survey. The pre-pilot study could not validate reliability or validity due to the small sample size, but the intent of the pre-pilot study focused on other non-statistical aspects to ensure development of a survey that students found appealing and could accurately answer questions. After adjusting the survey from comments emerging from the pre-pilot study, a retranslation process occurred that provided greater clarity to survey questions and a more accurate pilot study.
A retranslation process occurred with 15 faculty and leadership students who associated each of the 40 survey questions with the five peer competencies. The retranslation process provided information regarding the wording of the questions and how others viewed the question in relationship to the five competencies. The participants included nine faculty members who had extensive knowledge regarding leadership and provided valuable insight from a leadership perspective. The retranslation process allowed further adjustments to the survey that resulted in a clearer, more focused version for pilot testing.

A pilot test of the adjusted influence survey consisted of 102 undergraduate students in leadership studies courses. The leadership studies courses provided a representative demographic distribution of undergraduate students (see Table 1, Chapter III). The pilot study provided for an analysis of the demographic data, the process of collecting the data, the time students took to complete the influence survey, and an opportunity to determine unexpected process and content outcomes. Students took approximately five minutes to complete the survey; there were no significant questions regarding the content or structure of questions, and demographic data appeared adequate. Data entered into an Excel spreadsheet provided the means to import the data into SPSS for analysis.

An exploratory principle component analysis identified eight principle components with eigenvalues greater than 1.0. However, the eight principle components had multiple cross-loadings at the .4 level and identified components did not identify meaningful peer leadership themes nor did the components support the five theoretical constructs. An analysis of the correlations between questions using a .3 or greater relationship
eliminated multiple questions that explained a very limited amount of variance in the data (Field, 2009). The physical theoretical construct questions correlated weakly with all other questions and had two distinct components. One physical component focused on the presence of the person the other the physical attributes of the person (the physical condition of the person, their personal appearance). Multiple principle component models emerged based on question correlations, principle component loadings, and cross-loading between components.

The final model used for data analysis consisted of 18 questions representing four peer leadership components: (a) Assist, (b) Participate, (c) Reflect, and (d) Presence. The Presence component questions did not have strong (greater than .3) correlations with the majority of questions. Given the significance of the Physical component identified during the ROTC data base analysis, the Physical component represented an aspect of interest for peer leadership and was included in the final model. The final model had no cross-loadings at the .3 level and identified four distinct peer leadership competencies that explained 50.80 percent of the variance in the sample. The resulting competencies related to but also differed from the original five theoretical constructs identified by the literature review and ROTC data base analysis due to the nature of peer leadership and behavioral sciences research.

It is difficult to account for the multitude of variables that impact leadership research. To illustrate the difficulty in accounting for all variables, The Global Leadership Institute at the University of Nebraska-Lincoln conducted a meta-analysis of leadership intervention effectiveness over the past 100 years (Avolio, 2005). The results indicated that a leadership intervention program has approximately a 67 percent chance...
of effectiveness due to the many variables impacting any program and the difficulty in measuring outcomes. This study analyzed peer leadership and had defined, yet broad constructs. Given the nature of leadership research, the four components identified in this study represent peer competencies that further define the theoretical constructs and allow for quantitative analysis to answer study hypotheses.

Before conducting reliability and validity analysis, the data must have a normal distribution. A frequency analysis conducted on the questions comprising the four competencies indicated a normal distribution. The skewness and kurtosis for each component and the overall dependent variable ranged within the recommended tolerances of 2 to -2. A visual inspection of frequencies with a normal curve superimposed onto the frequency distribution indicated a normal and slightly negative skewness.

A survey must have adequate reliability before determining the content and construct validity. The overall reliability for the influence survey was .880. The reliability of each principle component was above the recommend .70 indicating good reliability for the influence survey (George & Mallery, 2003). Exploratory principle component analysis identified four peer leadership components with each component having strong loadings (at least two questions per component loading above .70) and no cross-loadings above .30.

Discussion of Peer Leadership Competency Hypothesis

An analysis of peer leadership competencies using ANOVA and multiple regression analysis indicated all competencies made significant contributions to the regression model and allowed rejection of study’s first hypothesis regarding peer competencies. The Participate competency emerged as the most significant based on regression coefficients
(see Table 8, Chapter IV). Analyzing the questions comprising the *Participate* competency indicated that peers prefer peer leaders who communicate effectively, listen effectively, encourage them, and included them when making decisions. The second most significant competency, the *Assist* competency, focused on peers who demonstrated a positive attitude, provided assistance in defining goals or making decisions, and made a sincere effort to reach consensus with the peer. The third most significant competency, *Presence*, focused on the peer leader having a physical presence with the peer. The least significant competency, *Reflect*, consisted of peer leader actions that caused the influenced peer to analyze the situation, learn from the situation, and reflect and meditate to better understand the situation.

The *Participate* and *Assist* competencies have a common theme of working with peers and offering supportive, helpful behaviors. Both competencies suggest that peers can influence other peers by relational behaviors rather than task or conceptual behaviors. Interpersonal skills appear important when attempting to influence others of equal abilities and status. Komives et al. (2002, 2005, & 2006) suggested similar finding in their grounded studies that defined and discussed the Leadership Identity Development (LID) model. Effects of peer influence emerged in stage two of the six stages and appeared as more important in stages three through six. Although Komives et al. discussed peer influences, the studies did not define specific peer competencies or skills. The competencies and skills defined in this study provide greater clarity and better define peer leadership in the LID context.

The *Presence* competency, as discussed earlier, did not correlate with other survey questions, but did emerge as a competency of interest based on the ROTC data base.
analysis. The importance of the *Presence* competency indicates that effective peer leadership results from the mere presence of the peer leader. Leaders, regardless of peer status or in positions of legitimate authority, increase their ability to influence others with their physical presence. The U.S. Army has long recognized the importance of physical presence to leadership and emphasizes this competency during leader development. The ability to project a confident, physical presence when attempting to influence and lead soldiers creates a desired leader quality that increases the leader’s ability to gain influence. This study conducted in a university context supports the Army’s views on leader development regarding the physical presence of leaders and indicates that leading peers may generalize to different contexts.

The least influential peer leadership competency, *Reflect*, focused on the situation, not the leader or the peer. The *Reflect* competency represents the only competency that does not focus on the leader or peer. The emphasis of the situation rather than the leader indicates the possibility that peer leadership is more relational and not dependent on situational variables.

Adelman (2002) cited communication and interpersonal skills, self-awareness and confidence, a sense of civic and social responsibility, critical thinking, and reflective abilities as important aspects of peer leadership. The competencies identified by this study generally agree with Adelman, but better define the peer leader influences by defining specific competencies and skills. An analysis of the effects gender and college levels have on peer leadership competencies provided insight to possible maturation influences and bias.
Gender Influences on Peer Leadership Competencies

ANOVA and multiple regression analysis based on gender identified significant differences among all four peer leadership competencies. Female means for all peer leadership competencies compared to male means indicated higher ratings by females of peer leadership questions (see Table 9, Chapter IV). The consistent higher averages for all peer competency ratings by female participants may indicate a gender difference in peer leadership perception rather than significant differences due to peer leadership competency constructs. Females may have a greater halo effect than males.

Eagly, Karau, and Makhijani (1995) conducted a meta-analysis illustrating that men and women performed equally as leaders except when in leadership roles congruent to their gender. In this study, both genders perceived the peer leadership scenario congruent to their gender and tended to rate question responses accordingly with females having a more positive frame of reference than males. Additional evidence of a possible female positive tendency occurred with rating the Overall dependent variable where females had an average of 8.293 and males an average of 7.979.

Both genders had the same order of importance for peer leadership competencies in the peer leadership competency regression model: (a) Participate, (b) Assist, (c) Presence, and (d) Reflect. The same order of importance for both genders indicates that although differences exist between gender perceptions of peer leadership, the influence survey constructs remain consistent. The regression model for females explained more variance (51.70 percent) than the male model (46.90 percent) indicating a more consistent rating between independent and dependent variables for females.
College Level Influences on Peer Leadership Competencies

ANOVA on college-level peer leadership competencies indicated no significant differences among college levels. Maturation is a very difficult aspect of leadership development to measure and analyze. Parcarella and Terenzini (1991) stated that maturation occurs across multiple, broad constructs and developmental in nature while students attend college. Most research in leadership views maturation as a positive effect on leadership development and could account for significant differences between maturity levels. This analysis of peer leadership competencies indicates no maturation impact on peer leadership competencies.

Possible reasons for the lack of maturation in this study could result from the scope or context of the study and the leadership aspect studied--peer leadership. The scope of this study focused on undergraduate students with the majority of ages between 18 and 25. This narrow age range of seven years could account for the lack of differences between college levels. However, seven years is a substantial period of time and considerable maturity results when transitioning from high school and home to higher education and college life. If these transitional factors did impact maturation, it would appear in the data as significant differences.

The context of this study was a medium sized, public university campus. Students have the ability to become involved or uninvolved in campus activities creating a prevalent environment of equality, unlike smaller or private colleges where more peer pressure exists to participate in campus activities. The general lack of peer pressure at the study university could create a more informal and less structured environment mitigating the effects of maturation.
The aspect of leadership studied, peer leadership, represents a unique aspect of leadership as one person attempts to influence another person without the use of traditional forms of power such as those identified by French and Ravens (1959). The results of this study indicated that the leadership competencies needed to influence peers do not change over time. Possible reasons for the consistent peer leadership competencies observed by college levels during this study could result from the personal and relational nature of peer leadership. The competencies and skills needed by peers to establish and maintain effective relationships may not improve with maturity. Additional studies using different contexts and age groups could provide more insight to the effects maturation has on peer leadership.

**Discussion of Peer Leadership Skills Hypothesis**

Multiple regression analysis produced significant regression models with all peer leadership skills providing a significant contribution at the .05 level to the associated peer competency regression model. All peer skills contributed significantly to regression models at the .001 level except for three skills; one in the each of the *Assist*, *Reflect*, and *Presence* competencies. The significance of peer leadership skills contributing to the regression model reinforced the content and construct validity of the influence survey. Regression results also provided the relative importance of each question to the peer leadership competency as the most significant skill clearly supported the construct of each competency.

**Gender Influences on Peer Leadership Skills**

A comparison of male and female peer leadership skills indicated significance at the .05 level by at least one gender for all questions. Three male and three female skill
questions did not contribute significantly to regression models (see Table 20). Although similarity between genders occurred for the majority of peer leadership skill questions, non-significant questions occurred in all four peer leadership competencies and indicated possible gender-based tendencies.

Two skill questions indicated a possible male tendency for autonomy. The autonomy questions (Q27, Help you develop objective criteria during the decision-making process, and Q4, Actively include you in the decision-making process) focused on helping peers develop objective criteria and including peers during the decision-making. A lack of significance by male participants on Q27 and Q4 during the regression analysis of peer leadership competencies may indicate that males perceived assistance from their peers and the inclusion of peers as not important when making decisions. The perceived male tendency towards autonomy supports research done by van Engen and Williamsen (2004) who found that women led in a more democratic and inclusive manner.

Question Q19 (Praise you or celebrate small victories with you) emerged as not significant during the regression analysis of the Assist peer leadership competency. A potential male tendency may exist as males thought praise from peers or the celebration of small victories as not important. Female participant responses indicated significance for each question found not-significant by male participants indicating potential male tendencies.

Three survey questions did not indicate significance for female participants during the regression analysis of the four peer leadership competencies. Question Q21 (Cause you to learn from the situation) of the Reflection competency focused on learning from
the situation. Q 29 (Remind you to follow-up on important activities) of the Assist competency focused on reminding peers to follow up on important activities. Both Q21 and Q29 may indicate that females have a tendency to focus on the present and not the future or past when attempting to influence their peers.

Q39 (Having the person helping you physically near you) of the Presence did not indicate significance for female participants during the regression analysis of peer competencies. Q39 focused on having the helping peer physically near the influenced peer. The other two questions (Q34, The mere presence of that individual in helping or supporting you, and Q37, The presence of the person in creating a sense of confidence within you) comprising the Presence competency indicated significance at the .001 level during the regression analysis by female participants. The lack of significance that Q39 had may indicate that female participants did not need the influencing peer physically near them for help and may rely more heavily on other means for communicating presence such as texting or other electronic communication means. Male participant responses indicated significance for all three female questions found not-significant indicating potential female tendencies. Overall, both genders generally agreed in their perceptions of peer leadership skills.

**College Level Influences on Peer Leadership Skills**

Regression models based on college-level peer leadership skills found no significance to peer leadership competencies for 6 freshmen, 11 sophomore, 6 junior, and 4 senior peer leadership skills. The ANOVA analysis of college-level competencies indicated no significance among the four peer leadership competencies. The wide variance in the number of skills indicating no significance among college levels supports
the college-level peer leadership competencies findings. Although no significance differences occurred among the college-level competencies, significant differences existed by college levels regarding the importance of peer leadership skills defining the competencies.

Two peer leadership skills did not significantly contribute to any college-level competency regression model. Two peer leadership skills had significance at the .05 or .01 level for only one of the college levels. The four skills focused on peers helping to develop objective criteria during the decision making process, causing peers to analyze effectively the situation, peers having physical proximity to the influenced peer, and celebrating small victories with peers. These four skills, although they properly loaded during the exploratory principle component analysis, do not explain any significant portion of the variance in the data by college levels and may indicate ineffective peer skills. The four peer skills did contribute significantly to the regression model of their respective peer competency, but three of the four did so at the .01 or .05 level compared to the other skills contributing at the .001 level. Difficulty in identifying these four ineffective peer skills resulted from the correlations between these independent variables allowing inclusion during the exploratory principle component analysis and indicating adequate loadings. The significance of this analysis highlights the nature of exploratory principle component analysis to verify validity while items included in the validation may not have a significant impact on explaining the study causal relationships.

Regression rankings provide useful information regarding the importance of peer leadership skills as a component of the associated competency. The most important peer skills for the Assist competency included (1) demonstrating enthusiasm and (2) making a
sincere effort to reach consensus with peers (Q26 and Q30 on the survey). Having a positive attitude provides leaders with a distinct advantage. Colin Powell (2002) remarked that “Perpetual optimism is a force multiplier” portraying the significance of a positive leader in military terminology (p. 259). Consensus may relate to enthusiasm in certain situations as both might have a positive influence on the situation.

The Participate competency had greater variance in ranking peer skills, but did identify effective communication, good listening qualities, and constantly encouraging as the most important peer skills (Q2, Q3, and Q5). The encouraging skill relates to the enthusiasm skill identified for the Assist competency and may indicate an overall positive attitude as effective for peer leadership. Communication skills identified as important relate directly to this study’s literature review that identified communication as the most important peer leadership skill competency. Both genders identified constant encouragement as the most important peer leadership skill.

The important peer skills identified for the Reflect competency focused on situational aspects. Two questions (Q9 and Q23) had equal importance and contained cognitive aspects by helping the peer reflect and meditate to understand fully the situation and to reflect on the situation. Overall, both genders identified the peer reflecting and meditating skill (Q23) as important to the Reflect competency.

Only one peer skill (Q34) surfaced as important for the Presence competency and focused on the mere presence of the peer leader when helping or supporting them. An analysis by gender indicated both male and female participants ranked the mere presence of the peer leader as important. The Presence competency evolved from the ROTC data
base analysis and indicated the peers prefer to have peer leaders visible and act as a source of comfort and reassurance.

Overall, the peer leadership skills ranked most important by competency: (1) had themes of positive leader behaviors, (2) highly rated effective communication and listening skills, (3) focused on helping peers to reflect and fully understand the situation, and (4) indicated the importance that the presence of the peer had on other peers. The findings of this study on peer leadership competencies and skills support general findings and themes discovered during the literature review. The information determined from the analysis of the influence survey data provided several suggested foci for enhancing leadership pedagogy and peer leader development.

**Implications of this Study to Leadership Pedagogy**

Brown stated,

One of the most potent environmental influences on student development in college is the peer group. While the faculty may play some role in the development of intellectual attitudes and perhaps in vocational choice, the dominant and single most important force remains the peer group. (1972, p. 31)

Astin (1996), Adelman (2002), McDaniels, et al. (1994), Cuseo (1991), Astin (1968, 1985), and Roberts (1996) all noted the positive impact peer interactions have on cognitive development and the application of peer leadership skills. The ability to utilize fully the peer group in student education and development requires specific outcomes, especially in the realm of leadership. The lessons learned from this author's study can enhance leadership curricula and pedagogy by providing leadership educators and
developers with a more defined focus on important competencies and skills needed for effective peer leadership.

Pascarella and Terenzini (2001) studied the interaction of faculty and peer-group interactions across 15 pre-enrollment characteristics regarding undergraduate residence settings on freshman year academic and non-academic outcomes. The peer-group interactions had a significant impact on non-academic outcomes, but the authors did not define peer-group interactions and called for additional research on specific patterns of interpersonal interactions to specific educational outcomes. Unlike Pascarella and Terenzini's study, the present study provided insight to more defined peer interactions and could provide helpful insights for future studies in this realm.

Fisher (1974), Baxter-Magolda (1992), Hare and O’Neill (2000), and Petzel et al. (2001) studied various aspects and contexts of leadership in higher education. In all instances, the impact of peers emerged as an important and positive factor. The authors identified peer influences, but did not further define specific competencies or skills needed for leadership development.

Adelman (2002) cited communication and interpersonal skills, self-awareness and confidence, a sense of civic and social responsibility, critical thinking, and reflective abilities as critical peer leadership skills. This researcher agreed with most of Adelman’s findings regarding peer leadership competencies, but also provided specific peer leadership skills missing in the Adelman study.

Research done by Komives et al. (2005) developed the LID model based on grounded research and identified peer leadership as one of the “…essential developmental influences that fostered the development of a leadership identity…” (p.
The authors cited affirmation and support as important to peer leadership, but did not further elaborate on the two large constructs. Komives et al. (2006) expanded their grounded research by further defining and discussing the six stages encompassing the LID model previously defined. Peers had a positive impact on the developmental influences found in stages two through six indicating the influence peer leadership had on the LID model of leadership development. The terms used to define peer leadership in the LID model focused on mentoring, sponsoring, supporting, and developing other peers. The terms used for peer influences described large and vague constructs providing leadership educators and developers difficulty in determining the important peer leadership competencies and skills to include in leadership pedagogy. This researcher's study affirmed both the support and affirmation constructs proposed by Komives et al. and further defined competencies and skills that can provide useful information as peers and mentors look to influence other peers. The results of this researcher's study provided insight to more definitive competencies and skills that can provide for more focused leadership program outcomes.

**Methodological Implications and Limitations**

Methodological considerations impacted the effectiveness of the influence study. Developing a survey and not having a comparison or similar survey created challenges that impacted verification of the survey validity. The influence survey validity needed to achieve adequate data analysis required focus group considerations, a retranslation of peer leadership skill questions into competencies, a pre-pilot study, and a pilot study. The process involved in verifying the validity of the influence survey is complex due to the variables involved and to the intent of the survey. The intent of this survey provided for
effective and efficient data gathering and results regarding the importance of peer leadership competencies and skills based on the construct of the influence survey. An analysis of the methodology and limitations provides insight to improve the influence survey for future studies regarding peer leadership competencies and skills.

The methodology used to develop this study’s influence survey followed prescribed methods advocated by Peterson (2000) and Oppenheim (1992). The methodology provided for an adequate survey, but the results indicated that student participants may have had varying perspectives for the frame of reference scenario and questions. The frame of reference scenario allowed for either a positive or negative influence experience. Comments provided by pre-pilot and pilot studies provided for adjustments to the frame of reference scenario and questions. Although the amount of variance explained by the regression model ($r^2 = .508$), according to Cohen (1988) rated as a large effect for the behavioral sciences, there remain opportunities to improve the influence survey by iteratively following the methodology of this study and refining results to improve reliability and validity.

The discussion between using exploratory or confirmatory factor analysis versus exploratory or confirmatory principle component analysis depends on the theoretical construct, nature of the data, and intent of the study. The nature of the subject (behavioral sciences) and broad theoretical constructs developed from a literature review and data base analysis identified exploratory principle component analysis as the best method to analyze the validity and determine the survey questions to include in the analysis. A confirmatory principle component analysis or factor analysis provides more effective methodology if there exists a more defined theoretical construct or more precise subject.
If a more precise subject matter focus evolved for a study regarding peer leadership competencies and skills, the use of confirmatory principle component analysis or factor analysis could provide more definitive results.

The use of the ROTC data base provided a bias of a like-minded and male sample population. The similarities of the ROTC data base to this study allowed a comparison between the ROTC data base and the literature review in determining theoretical constructs. A data base without the like-minded or male bias could provide better corroboration with a literature review and may provide insights to other peer leadership competencies or skills.

A truly random sample set may provide different results. The sampling technique employed for this study was convenient, yet random. Students at the study university did have a non-zero chance for selection to participate in the study as this study did not target a specific academic discipline, college level, gender, or ethnicity. A true random sample may provide differing results and would allow for greater generalization.

Incorporating several similar universities representing different geographic locations and sample populations could influence the study results. The study intended to establish an initial methodology and instrument to investigate peer leadership competencies and skill. Including various similar universities would introduce additional extraneous variables with varied sample populations possibly confounding the survey development and study results. A discussion of possible future studies highlights the potential established by this study.
Implications for Future Research

This study identified a set of peer leadership competencies and skills and provided an impetus for additional studies designed to further define and refine the identified skills and competencies as well as investigate various aspects not examined in this study. Future studies on peer leadership competencies and skills should focus on generalizing the influence survey and allowing investigations of different populations. Peer leadership is an aspect of leadership that transcends ages, ethnicities, and other aspects of any society, as peers exist in all human contexts.

This study analyzed undergraduate students in higher education. Future studies could look to at the peer leadership influences that exist in different age levels such as graduate students or K through 12 students. Although maturation does not seem to impact perspectives on peer leadership at the undergraduate level, it could emerge in other, more extreme age groups. The influence survey questions may require re-wording depending on the target population.

The data collected for this study occurred at a medium-sized public higher education institution. The university services a distinct geographic location in the south-central region of the United States. Data gathered at private universities as well as small or large public universities may produce different results. Data gathered at similar universities in different geographic locations may also produce varying results. Ultimately, generalization of the influence survey and study methodology to different cultures and countries would provide interesting findings.

Demographic data collected for this study included race information. The low number of minorities participating in this study did not allow a meaningful statistical
analysis or qualitative analysis on that factor. Future research regarding peer leadership may take a purposeful approach to collect a larger sample of minority students that would allow a meaningful analysis of the impact race has on peer leadership competencies and skills.

The Presence peer leadership construct provided a unique perspective that had received limited attention in a literature review, but took a prominent role in the ROTC database analysis. The degree of influence that the physical presence of a person has on peer leadership remains unclear. The analysis conducted for this study indicates an impact, but the limited questions and possibly the wording of the questions limited the value of the Presence peer leadership competency and skills. Additional research regarding the Presence competency and skills could clarify the importance regarding the physical presence of a person to effective peer leadership.

Additional research on the Reflect competency and associated skill could provide more meaningful insight to the impact reflection has on peer leadership. The literature review identified reflection in numerous studies as an important aspect of peer leadership. The results of this study indicated that reflecting on the experience or situation had limited importance to peer leadership. The discrepancy between this study’s results and body of literature could evolve from the influence survey questions or construct of the influence survey. A more effective influence survey could provide more definitive results and insights to peer leadership constructs.

Developing an effective survey is an iterative process filling a void in leadership assessment research. This study developed an influence survey for undergraduate students. The influence survey in its present form answered study hypotheses, but could
provide more thorough results with iterative forms of the influence survey. Each methodological developmental iterative process could further enhance and refine the questions asked and construct of the influence survey. One recommendation to improve the influence survey requires additional emphasis on effective focus group processes to ensure accurate peer leadership questions. Additional focus groups specific to the target study population could also provide insight to more effective survey theoretical constructs or adjusted peer leadership competencies. Additional research regarding further development and refinement of the influence survey would provide for possibly more meaningful conclusions.

**Summary and Conclusions**

Astin (1993) stated “…the student’s peer group is the single most potent source of influence on growth and development during the undergraduate years” (p. 398). Whitt, et al. (1999) summarized “When other factors were taken into account, the more that students were involved with their peers in both course-related and non-course related interactions, the greater their cognitive growth during college” (p. 72). Peer interactions provide meaningful impacts on student learning leading to opportunities for improving leadership development. Higher education environments provide a living laboratory for peer interactions allowing peers to develop skills and competencies needed to influence effectively others of equal status and ability. This study examined peer leadership competencies and skills providing additional information to better shape and refine leadership programs leveraging the surrounding environment. Both curricular and extracurricular programs can benefit from the results of this study allowing educators and
leadership developers additional means to leverage the higher education environment to enhance student's understanding of leadership.
REFERENCES


Interactions with peers and objective and self-reported cognitive outcomes across 3 years of college. *Journal of College Student Development, 40*(1), 61-78.
Wielkiewicz, R. M., (2000). The leadership Attitudes and Beliefs Scale: An instrument for evaluating college students’ thinking about leadership and organizations.

APPENDIX

Appendix A. Institutional Review Board Approvals

MEMORANDUM FOR John Baker, Western Kentucky University, Center for Leadership Excellence, 1906 Heights Blvd #11067, Bowling Green, Kentucky 42101

SUBJECT: Determination for Protocol 2009-26, Analysis of Data from Leader Development Assessment Course (LDAC)

1. A determination of exempt status has been requested for 2009-26, Analysis of Data from Leader Development Assessment Course (LDAC). The information will be analyzed as part of your dissertation. You have requested access to the last 10 years of data collected by US Army Cadet Command from individual Cadet leadership assessments conducted at the Leader Development Assessment Course. No personal information will be accessed. The request is only for the 16 leader dimensions and overall leadership rating on Cadets who completed LDAC over the past ten years. The data requested will be used to determine which dimensions might be related to outstanding Cadet performance thus providing insights to effective peer leader skills and competencies.

   a. This request for data does not meet the definition of a human subject as defined in 32 CFR 219.102(f)(1)(2).

      Human subject means a living individual about whom an investigator (whether professional or student) conducting research obtains (1) data through intervention or interaction with the individual, or identifiable private information.

   b. No interaction or intervention will be used by the Principal Investigator to obtain the data requested and no identifiable private information will be collected. This determination is based on the information contained in Protocol 2008-26, which states, “I will neither want access to nor use names, social security numbers, school names, or any other information that may, in any way compromise the privacy of individual Cadets.”

2. If you have questions, please contact the USAAC Human Protections Administrator, Ms. Melanie N. Clark, (502) 626-0060 or the IRB Chairman, Mr. Kevin D. Lyman, (502) 626-0349.

KEVIN D. LYMAN
Chairman
USAAC Institutional Review Board

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MEMORANDUM THRU THE USAAC INSTITUTIONAL REVIEW BOARD
ADMINISTRATOR, US ARMY ACCESSIONS COMMAND, G2/9, 232 OLD IRONSIDES
AVENUE, FORT KNOX, KENTUCKY 40121-5163

FOR THE USAAC INSTITUTIONAL REVIEW BOARD CHAIRPERSON, US ARMY
ACCESSIONS COMMAND, G2/9, 232 OLD IRONSIDES AVENUE, FORT KNOX,
KENTUCKY 40121-5163

SUBJECT: Scientific Review Results of Protocol 2009-26, Analysis of Data From Leader
Development Assessment Course (LDAC)

1. I have reviewed Protocol 2009-26, Analysis of Data From Leader Development Assessment
Course (LDAC) and have a couple of concerns. The principle investigator (PI) clearly states the
intent of the protocol is to determine (1) what are the specific leader skills needed to effectively
lead undergraduate student peers. and (2) what are the specific leader competencies needed to
effectively lead undergraduate student peers?

2. According to the protocol, the PI will only be collecting data from Cadet Leadership
assessments conducted at Leader Development Assessment Courses (LDAC) over the past ten
years.

   a. The United States Army Cadet Command (USACC) conducts these assessments to address
      (among others) the issue of identifying leadership qualities. What findings does the PI hope to
gain not already researched by USACC?

   b. The LDAC data is only representative of ROTC students, who by their nature have
      engraied in them a sense of leaders and followers. How does the PI plan to generalize results
      from the LDAC leadership assessments to the general student population?

   c. The PI provides minimal detail on how he will analyze the data. Will all of the data be
grouped together and analyzed as one data set or will the data be stratified (across some variable
      such as year) for analysis?

   d. How does the PI intend to establish whether the Cadets’ LDAC assessments had any
      correlation to how the Cadets’ ultimately performed (to know if the assessment actually matched
      up to performance)?

   e. The PI indicates that he will use Pierson’s (Pearson’s) correlation and regression to analyze
      the data. It would be handy to see what the response format is to the 16 leadership assessment

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ATL-AA
SUBJECT: Scientific Review Results of Protocol 2009-26, Analysis of Data From Leader Development Assessment Course (LDAC)

and overall leadership assessment questions are to know if these analysis procedures are appropriate for the data involved.

3. Another area of concern, not scientific rigor related, is the issue of data security. I think the PI should go into detail on how the data will be secured, particularly the part about the ‘secured, portable devices’.

4. The security of the data issue notwithstanding, the impact of this protocol is very minimal. Though I do not believe the PI will be able to adequately address his intended hypotheses, I do not see how providing the data would do any harm. In order to derive any meaningful research the PI may want to consider reducing the scope of his hypotheses, or expanding the data used in this research (which will require an updated protocol). Point of contact is the undersigned at DSN 536-1348, commercial (502) 626-1348, or email todd.rohrer@usaac.army.mil.

TODD M. ROHRER
Chairperson, Scientific Review Committee
In future correspondence, please refer to HS10-047, October 5, 2009

John Baker

c/o Dr. Nevil Speer
Leadership Studies
WKU

John Baker:

Your research project, Analysis of Peer Leadership Skills and Competencies, was reviewed by the HSIRB and it has been determined that risks to subjects are: (1) minimized and reasonable; and that (2) research procedures are consistent with a sound research design and do not expose the subjects to unnecessary risk. Reviewers determined that: (1) benefits to subjects are considered along with the importance of the topic and that outcomes are reasonable; (2) selection of subjects is equitable; and (3) the purposes of the research and the research setting is amenable to subjects' welfare and producing desired outcomes; that indicators of coercion or prejudice are absent, and that participation is clearly voluntary.

1. In addition, the IRB found that you need to orient participants as follows: (1) signed informed consent is not required. (2) Provision is made for collecting, using and storing data in a manner that protects the safety and privacy of the subjects and the confidentiality of the data. (3) Appropriate safeguards are included to protect the rights and welfare of the subjects.

This project is therefore approved at the Expedited Review Level until October 5, 2010.

2. Please note that the institution is not responsible for any actions regarding this protocol before approval. If you expand the project at a later date to use other instruments please re-apply. Copies of your request for human subjects review, your application, and this approval, are maintained in the Office of Sponsored Programs at the above address. Please report any changes to this approved protocol to this office. A Continuing Review protocol will be sent to you in the future to determine the status of the project. Also, please use the stamped approval forms to assure participants of compliance with The Office of Human Research Protections regulations.

Sincerely,

[Signature]
Paul J. Mooney, M.S.T.M.
Compliance Coordinator
Office of Sponsored Programs
Western Kentucky University

cc: HS file number Baker HS10-047

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Appendix B. Influence Survey, Demographic Data Sheet, and Administration Script

Influence Survey

Think of a time in your life when an individual, within your peer group, helped you either (1) make an important or difficult decision or, (2) was instrumental in supporting you during a crucial time. If more than one person comes to mind, focus on the one that had the greatest influence on you.

<table>
<thead>
<tr>
<th>To what extent did this individual:</th>
<th>Never</th>
<th>Rarely</th>
<th>Sometimes</th>
<th>Often</th>
<th>Always</th>
</tr>
</thead>
<tbody>
<tr>
<td>Make use of facts when helping you arrive at a decision?</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>Clearly communicate his/her thoughts and ideas to you?</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>Demonstrate the qualities of a good listener?</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>Actively include you in the decision-making process?</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>Constantly encourage you?</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>Provide limited or poor ideas after considering your point-of-view?</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>Assist you in locating necessary resources?</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>Provide you emotional support?</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>Cause you to reflect on your situation?</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>Avoid you in difficult situations?</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>Foster a sense of cooperation with you?</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>Persist in following through on promises to you?</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>Relentlessly help or support you?</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>Push you to accomplish a goal?</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>Display initiative?</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>Stifle your initiative when you were frustrated?</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>Make use of body language when talking with you?</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>Engage you in superficial conversations?</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>Praise you or celebrate small victories with you?</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>Provide you clear written communication(s)?</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>Cause you to learn from the situation?</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>Cause you to effectively analyze the situation?</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>Help you to focus and or meditate to fully understand the situation?</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>Use an effective vocal tone when communicating with you?</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>Assist you to define an achievable goal?</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>Demonstrate enthusiasm when helping or supporting you?</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>Help you develop objective criteria during the decision making process?</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>Verbally communicate effectively with you?</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>Remind you to follow-up on important activities?</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>Make a sincere effort to reach consensus with you on a difficult issue?</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>Listen effectively to your concerns and thoughts?</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>Provide useful suggestions?</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
</tbody>
</table>
Use this scale to answer the next set of questions

None | Little | Neutral | Some | Very Much
-----|-------|---------|------|----------
1    | 2     | 3       | 4    | 5        

**How important was:**

<table>
<thead>
<tr>
<th></th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
</tr>
</thead>
<tbody>
<tr>
<td>The physical appeal of the individual helping or supporting you?</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>The mere presence of that individual in helping or supporting you?</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>The physical fitness of the person helping or supporting you?</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>A sense of insecurity created by the physical presence of the person helping you?</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>The presence of the person in creating a sense of confidence within you?</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>The level of personal appearance maintained by the person helping you?</td>
<td></td>
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<td></td>
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</tr>
<tr>
<td>Having the person helping you physically near you?</td>
<td></td>
<td></td>
<td></td>
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<td></td>
</tr>
<tr>
<td>The physical attributes (height, weight, gender, etc.) of the person helping you?</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Overall, how would you rate the VALUE of the support or assistance you received from this individual?

<table>
<thead>
<tr>
<th>Poor</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
<th>6</th>
<th>7</th>
<th>8</th>
<th>9</th>
<th>Excellent</th>
<th>10</th>
</tr>
</thead>
</table>

How recently did this individual support or assist you?

__________ Weeks/Months/Years
Demographic Data Sheet

Please provide the following information. You are not required to answer any question that you find inappropriate.

Date:___________________

Class:__________________

Age:___________

Gender: M F

Race: White Black Hispanic Asian Other

College Level: Freshman Sophomore Junior Senior

Academic Major:______________________________

Grade Point Average:______________________________

ACT/SAT Score:______________________________

Are you the first in your immediate family to attend college? YES NO

What was the approximate size of your graduating class?______________
Survey Administration Script

Hello, my name is ________________ and I am collecting data to support research on the competencies and skills most effective for peer leadership. This survey is voluntary; you may elect not to participate or may stop at any time. We do ask for your insights and cooperation by completing the survey which most students complete in approximately five minutes. The survey you are about to take has approval from WKU’s Human Subject Review Board and constitutes no threat to you or your identity. At no time does this survey ask for any identifying information and please do not provide any identifying information on this survey. When you have completed the survey, please [depends on the classroom configuration]:

- pass the completed survey to your right (or left) and I will collect them.
- raise your hand and I will pick-up your survey