

An Examination of Social Persuasion's Influence on Generalized Leader Efficacy

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Abstract

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This dissertation examined social persuasion's influence on leader efficacy. Hannah, Avolio, Luthans, and Harms (2008) proposed that the levels of leadership self-efficacy held by a leader are critical in promoting heightened levels of leader adaptability, positivity, and performance. Consequently, Hannah et al. proposed a framework for leader and leadership efficacy. Included in the model was a dyadic behaviors linkage between leader efficacy and follower efficacy. The linkage reflects Bandura's (1997) conception of self-efficacy being subject to influence by four methods, one of which is social persuasion. Scholars have conducted little empirical work to validate Hannah et al.'s framework for influencing leader efficacy. However, this dissertation empirically tested Hannah et al.'s framework by crafting an experiment designed to isolate social persuasion's influence on Generalized Leader Efficacy (GLE). GLE is conceptualized as a dynamic self-concept based structure representing leaders' (and followers') level of efficacy for self-regulation, action and means across a span of leader tasks. Drawing on self efficacy, leader efficacy and mentorship literatures, a model and methodology were proposed to examine the effect of social persuasion on GLE.

***Keywords:* Agency, confidence, leader efficacy, leadership, motivation**

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An Examination of Social Persuasion's Influence on Generalized Leader Efficacy

Chapter I: Introduction

Research has indicated that leadership in organizations matters (Hogan, Curphy & Hogan, 1994; Weiner & Mahoney, 1981). The ability to exercise leadership effectively continues to increase in its difficulty given the complex nature of organizations and their undertakings. Organizations are characterized by their dynamic natures and complex systems (e.g., Marion & Uhl-Bien, 2001). As such, effective organizational leadership requires development of knowledge, skills and abilities (KSAs) in leaders. Additionally, leaders must understand how they can skillfully leverage their KSAs in a variety of dynamic and complex contexts (Hannah, Woolfolk, & Lord, 2009; Lord & Hall, 2005).

While several constructs have been linked to leader performance, confidence routinely emerges as an important leader attribute (e.g., House & Aditya, 1997; Kaplan, 1991; George, 2003). Howell and Shamir (2005) showed a consistent association of confidence with effective leadership. Hannah and Luthans (2008), and Conway (2000) suggested that a leader's confidence relates with greater flexibility and adaptability in varying contexts resulting in greater effective leader engagement. Additionally, Fredrickson and colleagues (e.g., Fredrickson, 2001; Fredrickson, Tugade, Waugh, & Larkin, 2003) have shown that during periods of fast change and high levels of stress efficacy promotes broadening of thought and behavioral responses, personal development, and positive emotion. Finally, Bandura's (1998) self-efficacy concept highlights the importance of self-perception of leadership capability on potential leader effectiveness. Bandura (1998) defined perceived self efficacy as an individuals' beliefs concerning their abilities to create designated levels of performance which influence events affecting their lives. Consequently, Hannah, Avolio, Luthans, and Harms (2008) proposed that the levels of leadership self-efficacy held by a leader are critical in promoting heightened levels

of leader adaptability, positivity, and performance. As a result of their review of the leadership literature, Hannah et al. determined that no comprehensive model of leadership efficacy existed. Therefore, they created such a model (see Figure 1).

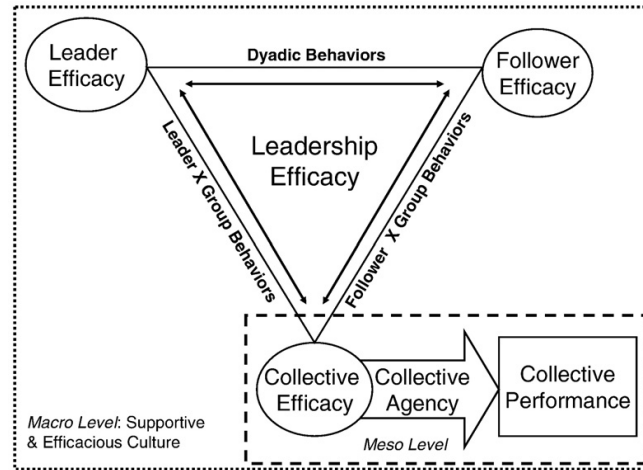


Figure 1: Framework for Leader Efficacy and Leadership Efficacy

Furthermore, Hannah et al. created a construct for an individual's leader self-efficacy. Consequently, they devised a means of measurement designed to identify the level of self-efficacy possessed by an individual with regard to each of the core components present in their construct. The measure was called *Generalized Leader Efficacy* (GLE). GLE is conceptualized by Hannah, Avolio, Walumbwa, and Chan (2010) as a dynamic self-concept based structure representing leaders' levels of efficacy for self-regulation, action and means across a span of leader tasks.

Statement of the Problem

In their review of the leadership self-efficacy literature Hannah, Avolio, Luthans, and Harms (2008) noted that little theoretical and empirical work on the leader efficacy construct had been done. They and others have attempted to create a sense of urgency regarding the need for research on the leader efficacy construct. Hannah et al.'s review of the efficacy literature

revealed twenty studies related to leadership self-efficacy at the individual leader and manager level. Since then, two additional studies have been published on leadership self-efficacy (Anderson, Krajewski, Goffin, & Jackson, 2008; Ng, Ang, & Chan, 2008). Hannah et al.'s review noted that studies have demonstrated positive relationships between the level of leader efficacy and performance outcomes such as organizational commitment (e.g., Paglis & Green, 2002), leader performance ratings (e.g., Chemers, Watson, & May, 2000), ratings of leaders motivation to lead and potential (e.g., Chan & Drasgow, 2001), and simulated organizational performance (Wood & Bandura, 1989b). Yet, only one study (Finn, Mason & Bradley, 2007) has specifically examined growth in leadership self-efficacy as a consequence of coaching. Most importantly, the Finn et al. study was constructed as a training program. Therefore, it sought to specifically increase transformational leadership characteristics in the participants. This is important to note because most interactions between leaders and followers are not structured encounters designed to produce specific outcomes. Yet many leaders are concerned with how their followers are developing. Therefore, understanding how the interactions between leaders and followers influence self efficacy can contribute to the knowledge base for leader development.

Objectives

The primary goal of this dissertation is to contribute to the leader self efficacy literature by investigating the influence of social persuasion on Generalized Leader Efficacy (GLE). The reason for investigating social persuasion's role in leader self-efficacy is twofold. First, Bandura (1977) stated social persuasion is the most difficult approach one can take when seeking to raise self-efficacy. So, it is important to understand what it really takes to create a significant outcome in perceived leader self efficacy employing this method of influence. Second, leaders have the

ability to control their behavior. Therefore, understanding more about how they can tailor their actions in service of followers' developmental needs can contribute in a meaningful way to the practice of leadership.

The study may contribute to the leader self efficacy literature by investigating whether social persuasion in and of itself is sufficient to raise leader self efficacy. It is predicted that social persuasion will influence two components of GLE: leaders' efficacy for action and leaders' efficacy for means thereby having an impact on their overall GLE. Second, the study predicted that social persuasion will not significantly influence leaders' efficacy for self-regulation without the introduction of specific cognitive challenges to be addressed as part of the persuasive dialog. Third, this study introduced the importance of incorporating structured social persuasion efforts into the leader self efficacy literature. Because, understanding how to appropriately influence the various components of leader self efficacy constitutes significant knowledge for leadership practitioners to possess.

The insight gleaned from this research will provide leader practitioners with behavioral imperatives based on scientific rigor that will enable them to structure their efforts more effectively in service of developing the leader efficacy of their followers. The valid and reliable methodology in this dissertation can inform such developmental efforts when social persuasion is a primary component of leaders' efforts to positively influence their followers' GLE.

Including this introduction, the dissertation contains five chapters. Chapter 2 (Literature Review) provides a brief discussion of self efficacy and the four means of influencing it. Then, leader and leadership self efficacy is defined for the study, followed by a brief review of the leader self efficacy research. Next, the literature review outlines some knowledge relevant to social persuasion from the scholarship associated with mentorship. Finally, the Hannah, Avolio,

Walumbwa, and Chan (2010) theoretical model is presented and briefly described with corresponding hypotheses and predicted results developed for this study.

The research methodology for the dissertation's studies testing one dyadic relationship proposed in the Hannah et al. (2010) theoretical model will be discussed in Chapter 3 (Methodology). The associated variables in the study will be defined and the measures used to assess them are provided. Additionally, the statistical analysis for testing the relationship is presented.

Chapter 4 (Results) presents the information gleaned from conducting Generalized Linear Model Repeated Measures analysis on the three hypotheses. The chapter examines the hypotheses using within subjects and between groups analysis. T-tests serve as the means to establish pre-treatment equivalence between the control and experimental groups. Descriptive information concerning the samples is also provided.

In conclusion, Chapter 5 (Discussion) addresses the significance of the results. The chapter presents a summary of the key findings, implications for research and practice, and limitations of the dissertation's research.

Chapter II: Literature Review

Overview

This chapter begins with a discussion of self-efficacy and the four means of influencing it. Next, the connection between self efficacy influence mechanisms and leader self-efficacy is introduced through a review of the leader self-efficacy literature. Consequently, the theoretical model from which one relationship was be tested is presented along with associated hypotheses and expected results.

Self Efficacy

Many researchers have written on the role of self referent thought in psychological functioning (DeCharms, 1968; Garber & Seligman, 1980; Lefcourt, 1976; Perlmutter & Monty, 1979; Rotter, Chance, & Phares, 1972; White, 1959). All the approaches taken by the aforementioned scholars explored self referent thought in relation to an individual's sense of personal efficacy. More specifically, their research sought to examine how personal efficacy influences individuals' perceptions of their ability to regulate life events and produce outcomes.

Perceptions of efficacy are subject to multiple influences. Bandura (1982) stated that efficacy is not a fixed act related to the ability to cope with one's environment or an easy matter of knowing what to do in a given situation. Quite the contrary, it is a generative capability requiring the combination of multiple skills (e.g., behavioral, cognitive and social) in order to craft integrative courses of action. Furthermore, the assessment of whether one's ability to appropriately combine skills in service of enacting a course of action is perceptually valid is dependent in some measure on outcomes. Therefore, perceived self-efficacy is "...concerned with judgments of how well one can execute courses of action required to deal with prospective situations" (Bandura, 1982, p. 122). Perceptions of self efficacy influence people's emotions,

cognitions, motivational processes, and behaviors. Accordingly, people's well-being and willingness to pursue objectives in hopes of accomplishing things is strengthened by possessing a strong sense of efficacy.

Bandura (1994) asserted that people who possess high confidence of their capabilities in a given area approach arduous tasks in that area as challenges. Consequently, mastery of those tasks is what they seek. When people possess confidence in their abilities, they do not view challenging tasks as threats to be avoided. Instead, they embrace such activities. Intrinsic interest and commitment to achievement are fostered as a result of strong efficacious perceptions. When faced with failure, people with strong efficacy quickly regroup and attribute their inability to achieve the desired outcome to things they can address (e.g., insufficient knowledge). Ominous situations are approached by high efficacy people with the belief they can exercise control over the situation. Conversely, when people lack efficacy they avoid tasks which are perceived to exceed their coping capabilities (Bandura, 1977a). Consequently, perceptions of high efficacy contribute to the production of personal accomplishments because of enhancing people's willingness to engage in the task (it influences the intensity and duration of effort). Furthermore, belief in one's abilities helps to combat internal turmoil like stress and vulnerability to depression.

Bandura (1977, 1994) outlined four main ways in which people can develop their efficacy. First, mastery experiences constitute the most effective means of creating strong efficacy. Success validates one's efficacy beliefs and failure weakens it. Failure has an especially powerful weakening effect if it occurs before one's sense of efficacy in a given area is solidified.

Second, social models can provide vicarious experiences which help others to develop efficacy. The key to this self-efficacy developmental avenue is perceived similarity to the social

model. People's faith in their own ability to succeed, provided they engage in sustained effort regarding a particular type of activity, is raised when they observe others they consider peers (i.e., people they consider to be like them) succeed through similar effort. Conversely, when people observe social models failing even though sustained effort was present it weakens the observers' self-efficacy perceptions--thus, lowering their propensity for engaging in the activity. The more people believe they are like the social model; the more influential the social model's outcomes (i.e., successes and failures). When selecting social models, people desire to observe individuals who are competent in the areas they aspire to master. Competent models' behavior and advocated ways of approaching tasks convey knowledge and teach observers effective means for managing the demands of their environment. Acquiring better social models and observing their activities leads to acquisition of better means. The result is as the social model achieves positive outcomes the perceived self-efficacy of the observer increases as well. In other words, the observer views the social model as his or her comparison other.

The third means of influencing self-efficacy is partial reliance on somatic and emotional states. The body provides signals as to what constitutes good or poor performance. Stress reactions and tension constitute signals where the actor's senses are indicating their vulnerability to performing poorly. Similarly, indicators of physical debility (e.g., fatigue, pain) at a certain threshold (e.g., breathing very heavily at the one mile mark of a five mile run) indicate vulnerability to potentially not possessing a high enough degree of efficacy for a given task. Accordingly, mood indications influence people's judgments regarding their self-efficacy. When individuals are in a positive mood it increases their self-efficacy perception and conversely a poor mood decreases self-efficacy perception. Important matters to note regarding this means of influencing self-efficacy are perception and interpretation. For example, individuals who possess

high self-efficacy regarding a given task perceive affective arousal as a positive thing whereas those possessing low self-efficacy regard arousal as a debilitating factor. So, increasing one's ability to handle arousal and maintain a positive emotional state can positively influence their perception of self-efficacy.

Bandura's fourth main way through which people can develop their self-efficacy is social persuasion. People can be influenced verbally regarding capacity to master specific activities. Accordingly, when people are socially supported towards engagement in a given activity it is likely to mobilize greater effort. Furthermore, they will be more likely to sustain their efforts towards task accomplishment than if they are allowed to let self-doubt go unchecked. Social persuasion helps people to cope more effectively when problems occur due to personal deficiencies. When people are encouraged to engage, and sustain their engagement in an activity, it can result in the development of skills and subsequent increased personal efficacy. So, social persuasion can lead people to try hard enough that success can ultimately arise from their efforts. Social persuasion as a means of influencing efficacy has some distinct challenges. For example, it can lead to the rapid loss of perceived self-efficacy if an unrealistic boost resulting from dialog with others is not confirmed by appropriate results. It is harder to create high self-efficacy by social persuasion alone. Therefore, it is important for the persuading party to construct activities and situations so as to raise people's perceptions of their capabilities. Positive appraisal of the influence target in and of itself is not enough to build efficacy. Their persuasion efforts must be reinforced by placing people in situations where they can succeed and avoiding the placement of their influence targets prematurely in situations where they are likely to fail often. Successful social persuasion is measured by perceived self-improvement on the behalf of those being influenced as opposed to feeling that they have triumphed over others.

Bandera's (1977) conception of self-efficacy was domain neutral. However, multiple scholars have specifically explored self-efficacy's relationship to leadership.

Proposition 1: *Leaders who understand the four main ways of influencing self-efficacy can artfully tailor their behaviors when seeking to increase the self-efficacy of their followers.*

Leader Efficacy

Leader efficacy research originated from the work of scholars exploring the role of efficacy in organizations. Consequently, they examined multiple forms of efficacy in their efforts: self-efficacy (Holden, 1991; Multon, Brown, & Lent, 1991; Stajkovic & Luthans, 1998); general efficacy (Chen, Gully, & Eden, 2001); means efficacy (Eden, 2001; Eden & Sulimani, 2002); collective and team efficacy (Gully, Incalcaterra, Joshi, & Beaubien, 2002; Prussia & Kinicki, 1996; Tasa, Taggar, & Seijts, 2007). The organizational efficacy body of research established linkages between performance outcomes and mechanisms which influence performance. Subsequently, other scholars sought specifically to examine the types of efficacy possessed by individuals when examining their perceived capabilities as leaders.

Hannah, Avolio, Luthans, and Harms (2008) defined leader efficacy as follows:

Leaders' beliefs in their perceived capabilities to organize the positive psychological capabilities, motivation, means, collective resources, and courses of action required to attain effective, sustainable performance across their various leadership roles, demands, and contexts.

Hannah et al. (2008) noted two principle shortcomings in their review of the body of leader efficacy scholarship. First, they and others (e.g., Porter & McLaughlin, 2006) asserted that leadership is a social construct. Therefore, measurement of leadership efficacy must account for a leader's situational context. Lewin's (1936) conception of behavior as a function of the person and the environment provides a foundation for the inclusion of context when examining a leader's behavior. Consistent with that argument, Osborn, Hunt, and Jauch (2002) stated that,

“Leadership and its effectiveness, in large part, are dependent on the context. Change the context and leadership changes” (p. 797). Subsequently, Hannah et al. argued that means efficacy (i.e., an individual’s belief in the quality and utility of the tools available for task performance) (Eden, 2001) and collective efficacy (i.e., a group’s shared belief in its conjoint capabilities to organize and execute the courses of action required to produce specific accomplishments) (Bandura, 1997) should be integrated into leader efficacy conceptualizations. Doing so would help capture external resources influences, as well as the influence of superiors, peers and followers, on leaders’ overall levels of leader efficacy.

Second, Hannah et al. argued that previous studies have examined leader efficacy too narrowly due to the growing complexity of demands placed on leaders. They cited studies that focused on leaders’ efficacy for what leaders believe they can *do*. The studies often took a narrowly defined approach to delineating tasks and contexts, and the likelihood of this restrictive approach was to underestimate the complexity and fluid contexts most leaders contend with today. Subsequently, Hannah et al. had several suggestions. First, leaders require efficacy for action. Second, leaders require efficacy for thought. Thought efficacy can help leaders to perceive contexts more accurately and to generate novel solutions which can spur followers to address challenges and opportunities. Third, leaders require an efficacy for self-motivation (the motivation to act). Finally, leaders require an efficacy for means orchestration. Means efficacy involves marshalling and directing the resources in a leader’s environment that they need to succeed. Hannah et al.’s delineation of four types of means within a generalized leader efficacy construct is consistent with Bandura’s (1997) differentiation of efficacy related to action and performance. His conception of various domains of efficacy for self-regulation (e.g., for

regulation of thought and motivation) also aligns with Eden's (2001) differentiation between internal (i.e., self) and external (i.e., means) sources of efficacy.

Hannah et al. (2010) validated their multidimensional construct of leader efficacy based on their four part hierarchical structure reflecting the subcomponents of generalized leader efficacy. Their multivariate approach extends from Gist and Mitchell's (1992) argument that individuals simultaneously "orchestrate" various antecedents when formulating overall efficacy beliefs. Adding to the reasoning for the multivariate approach, Wood (2007) asserted that leaders' self concepts are composed of specific domains of knowledge (emotional, physical and social) about their selves and their capabilities. Therefore, leaders' self-efficacy is task and context specific. But, successful leader experiences across multiple contexts and tasks contribute to leaders' efficacy beliefs becoming *generalized*.

Generalized Leader Efficacy

Generalized efficacy represents a more holistic appraisal of leaders' self-concepts (Bandura, 1997). Consequently, leaders will develop an efficacy "stamp" resulting from their unique individual experiences. Their stamp represents the domain of contexts and tasks to which each leader generalizes his or her leader efficacy. Therefore, Hannah et al. (2010) changed the definition of leader efficacy to one for *Generalized Leader Efficacy* (GLE). GLE refers to the state in which leaders believe they possess the capabilities, motivation, and resources required to generate success throughout a wide range of leadership tasks. The three core components of GLE (i.e., leader efficacy for self-regulation, leader efficacy for means, and leader efficacy for action) will be addressed in the next section of this dissertation.

Hannah et al.'s three core components of GLE build on Bandura's earlier work. For example, Wood and Bandura (1989b) determined that when leaders generate outcomes spanning different

challenges they will develop breadth in personal self-concepts regarding their self efficacy. Consequently, in future leadership opportunities they self-regulate more conscientiously using these self-conceptions of enhanced efficacy. Therefore, the type and broadness of leaders' *successful* experiences define their breadth of efficacy. Leaders' self-efficacy becomes more complex as they execute actions and achieve success over an increasing collection of tasks, contexts and leader roles. Hannah and Luthans (2008) argued that the aforementioned process enhances leaders' adaptability and performance in negotiating increasingly diverse types of leader challenges. Such a process transpires over time. Leaders' efficacy becomes broader and more complex. Ultimately, the process allows leaders to *generalize* their leader efficacy across tasks containing similar features and role demands.

In discussing generalizability of GLE, scholars must distinguish between generalized leader efficacy and general efficacy, the latter consisting of more global and context neutral beliefs. General efficacy shares commonality with global constructs such as self-esteem and locus of control (e.g., Eden, 2001). Conversely, GLE is specific to domains associated with leading. Additionally, it is not devoid of context. Generalized leader efficacy represents *meta-knowledge* about what one can do as a leader (Kihlstrom, Beer, & Klein, 2003). It is formed from specific leadership episodes which build on one another to form an ever-increasing body of experiences which influence leaders' perceptions of their leadership efficacy (Hannah, Avolio, Walumbwa & Chan, 2010).

To represent the broadness of the leader efficacy beliefs, Hannah et al. (2010) drew from the functional distinctions identified in the early Ohio State and Michigan studies, that is the two types of leader functions: task-oriented and relationship-oriented behaviors. Those studies over the years built on this earlier work with a variety of models. Many of the models which emerged

tended to represent more task-oriented versus relationship-oriented leadership styles. Such models forged the transactional base for leadership. Later, those modeling efforts were coupled with an even more expansive base including Burns' (1978) transformational leadership theory. Bandura (1997) noted that efficacy guides self-regulation with the choice of specific behaviors. Therefore, logic would suggest that leaders who feel efficacious to perform a wider range of leader tasks spanning transactional and transformational leadership activities will be more effective executing corresponding behaviors across a broader domain of leadership challenges (Hannah & Luthans, 2008). Hannah et al.'s GLE's operationalization of the three core components was informed by the Full Range Model of Leadership which reflects the active forms of transactional (active forms of management by exception and contingent reward) and transformational (idealized influence, inspirational motivation, intellectual stimulation and individualized consideration) leadership (Avolio, 2008). They noted other researchers' work (e.g., Wofford, Goodwin, & Whittington, 2008; Lord & Hall, 2005; Finn, Mason, & Bradley, 2007) that provided evidence in support of their assertion that unique experiences are what allow leaders to develop efficacy for various forms of leadership (transactional and transformational).

As a final supporting element of Hannah et al.'s operationalization of GLE's three core components, they argued that leaders will form patterns of beliefs. Such patterns provide the ability to categorize internal forms of efficacy (i.e., action and self-regulation) and means efficacy as more or less transactional or transformational in nature. They provided two examples of how such beliefs could manifest themselves as transformational or transactional. First, the positive perceptions held by a leader who is working in a mission-driven organization where employees feel inspired by the service that they provide might be considered transformational in nature because the environment is something they construe as a resource they can leverage

(Walumbwa, Avolio, & Zhu, 2008). Conversely, a transactional example of means efficacy based on leader perception might manifest itself in the leader's belief that when required the organization will demonstrate the ability to provide adequate levels of resources and/or operational systems to execute a task effectively (Walumbwa, Avolio, & Zsu, 2008).

Hannah et al.'s (2010) ultimate conclusion in their generalizability of the GLE components was that effective leaders have the ability to perform a greater range of transactional and transformational leadership behaviors. Furthermore, the broader a leader's efficacy across the three components of GLE the more it will promote performance, effectiveness and executing such leader behaviors. Hannah et al. started with the question "efficacy for what?" and used leadership behaviors (transactional and transformational) to guide their development of the three core components.

The Core GLE Components

Hannah et al.'s work determined that leaders structure their efficacy beliefs across two internal domains of self-efficacy (action and self-regulation). Consequently, their operationalization of leader efficacy for means suggests that it is an external form of efficacy. As such, the three components are interdependent. Additionally, they have shared variance. Because of their interdependence and shared variance, the three components constitute a higher order construct (Bollen & Lennox, 1991). It is this higher-order construct that Hannah et al. call GLE.

Leader Efficacy for Self-Regulation

Leading requires complex social problem-solving skills. Consequently, development, thought and self-motivation are the hallmarks of GLE's self-regulation component. Various studies and conceptions of leadership capacity (e.g., Mumford, Zaccaro, Harding, Jacobs, & Fleishman,

2000) have designated cognitive ability as a core component in their models. Cognitive ability has been shown to predict leadership emergence and effectiveness (e.g., Atwater, Dionne, Avolio, Camobreco, & Lau, 1999). Additionally, Wood and Bandura (1989a, 1989b) noted managers' self-efficacy for decision-making increased organizational performance and heightened their use of problem-solving strategies. However, previous models examining leader cognition (e.g., Mumford, Friedrich, Caughron, & Byrne, 2007), have failed to explore how leader efficacy plays a role in leveraging cognitive abilities. Hannah et al. (2010) asserted efficacy for thought is linked to leaders' ability to generate effective leadership solutions because of its empirical ties to cognitive performance (Schunk & Gunn, 1986), memory functioning and recall (Hultsch, Hertzog, Dixon, & Davidson, 1988), and stronger application of attention and information processing resources (Berry, 1987). Bandura (1989) also addressed the importance of efficacy beliefs in the regulation of cognitive processes, stating that "...people's perceptions of their efficacy influence the types of anticipatory scenarios that they construct and reiterate. Those that have a high sense of efficacy visualize success scenarios that provide positive guides for performance and they cognitively rehearse good solutions to potential problems" (p. 729). Therefore, efficacy for thought (cognitive ability) is an important part of leader efficacy for self-regulation

Another important element of a leader's self-regulatory efficacy is centered on leaders' beliefs in their ability to acquire new knowledge and skills (Bandura, 1997). This measure of developmental ability reflects their *learning efficacy*. Avolio and Hannah (2008) identified learning efficacy as a significant component of leaders' *developmental readiness*--a leader's level of readiness for learning and engaging in leadership challenges. Likewise, Kanfer and Ackerman (1989) identified learning efficacy as a predictor of leaders' abilities to acquire

complex skills. Therefore, leaders' learning efficacy influences the development of knowledge, skills and abilities (KSAs). Additionally, it also influences the capacity to activate KSA's across leadership domains (Lord & Hall, 2005).

Finally, a variety of leadership theories have reflected self-motivation as part of their construct. These theories include, but are not limited to, self-leadership (Manz, 1986), managerial role-motivation (Miner, 1978), transformational leadership, (Bass, 1985), and the motivation-to-lead (Chan & Drasgow, 2001). Paglis & Green (2002) also noted a linkage between leader efficacy and attempts to lead (Paglis & Green, 2002, while Singer (1991) noted its connection to individuals' aspirations for leadership roles. All of the aforementioned relationships are consistent with Bandura's (1989) efficacy work. His research detailed how agency and efficacy allow human beings to exercise forethought whereby envisioned outcomes serve as proximal motivators to regulate behaviors (Hannah, Avolio, Walumbwa & Chan, 2010).

Proposition 2: *Because leader efficacy for self-regulation involves addressing specific ways to deal with leadership and task accomplishment scenarios, leaders' actions to help increase followers' efficacy for self regulation must involve mastery experiences.*

Proposition 3: *When leaders primarily employ social persuasion in their attempts to increase followers' self-efficacy for regulation, their efforts must be accompanied by mastery experiences in order to generate lasting change in the followers' efficacy.*

Leader Efficacy for Action

As opposed to self-regulation, which is concerned with internal psychological processes (self-motivation and thought), the action domain of GLE is associated with leaders' perceived abilities. It represents a leader's confidence in his or her ability to exercise leadership and create effects through behavioral actions. Action efficacy is also a measure of leaders' beliefs in their capabilities for motivating others to act. As such, it has several influencing components (e.g., confidence in the ability to direct, confidence in the ability to coordinate, or reward followers;

confidence in the ability to develop or mentor; confidence in the ability to create trust and ethical behaviors in relationships, and confidence in the ability to inspire followers and gain their commitment) (Hannah, Avolio, Walumbwa & Chan, 2010).

Stajkovic and Luthans (1998) noted how performance action and behavior across multiple domains is influenced by self-efficacy. Leader efficacy in particular is related to the perceived ability to exercise effective leader behaviors/actions. As such, it has been associated with a variety of outcomes such as garnering follower support for change (Paglis & Green, 2002); leader-member exchange and follower performance (Murphy & Ensher, 1999); and leader effectiveness (Prussia, Anderson, & Manz, 1998; Semander, Robins, & Ferris, 2006).

Proposition 4: *Social persuasion can be used by leaders as a primary mechanism for increasing followers' beliefs in their self-efficacy for action (i.e., capabilities for motivating others to act). Social persuasion can influence followers' confidence through positive appraisals provided by their leaders.*

Leader Efficacy for Means

Leadership research has long reflected the understanding that context matters. Therefore, Hannah et al. incorporated means-efficacy (Eden, 2001) as the third domain of GLE. Means efficacy influences leaders' perceptions and choices of tools, procedures, and colleagues. Additionally, it has an impact on perceptions of an organization's resources and context. Ultimately, it affects how leaders perceive their abilities to access and coordinate all those elements as part of their GLE (Hannah, Avolio, Walumbwa & Chan, 2010).

Eden's (2001) *internal-external efficacy model* highlighted the distinction between internal and external sources of efficacy. Eden defined means efficacy as external efficacy. It is individuals' beliefs in the quality and appropriateness of the tools available to them for performing a task. Eden states that "tools" can take many forms to include implements (e.g., equipment and computers), other people (e.g., superiors, peers, or subordinates), or

organizational administrative aspects (e.g., policies, procedures and systems). Leaders must possess confidence in their ability to marshal the resources required to execute a leadership challenge. As such, means efficacy is their formation of GLE.

It is important to note that Eden's (2001) model holds that tasks differ because of means required to execute them. Therefore, means efficacy can potentially outweigh overall self-efficacy in determining performance for tasks involving heavy reliance on external means (Eden & Sulimani, 2002). Paglis (1999) also found that leader efficacy is influenced by perceptions leaders hold concerning the resources and organizational support available to them.

Proposition 5: *Social persuasion can be used by leaders as a primary mechanism for increasing followers' beliefs in their self-efficacy for means (i.e., perception of their abilities to access and coordinate tools, procedures, and colleagues). Social persuasion can influence followers' confidence through helping them to understand the resources available to them.*

Collective Efficacy

Collective efficacy plays an important role in means efficacy. Leaders require followers to bring about outcomes. Therefore, leaders' perceptions of followers, peers and other group leaders' capabilities in promoting success in a given task can be construed as means. As such, it constitutes a critical element in determining a leader's GLE level (Hannah, Avolio, Walumbwa & Chan, 2010). Bandura (1997) defined collective efficacy as the shared belief a group possesses in its capabilities to coordinate and enact the courses of action required to bring about specific accomplishments. Eden (2001) subsumed collective efficacy as an external factor and component of means efficacy. All the elements of leader efficacy are part of a larger framework designed to describe how leadership efficacy is influenced.

The Framework for Leader Efficacy and Leadership Efficacy

Hannah et al. (2008) established a framework for leader efficacy and leadership efficacy (see Figure 1 for the theoretical framework) (Hannah, Avolio, Luthans, & Harms, 2008, p. 671). The leader and follower efficacy components of the model are what the GLE construct addresses. However, the interaction of leaders and followers with the collective is what contributes to the generation of leadership efficacy. Additionally, the efficacy of both parties is reciprocally linked with the collective efficacy of the group. The causal linkages between leaders and followers are not only what reflect the collective efficacy, but they are also what generate the building of collective efficacy over time. When collective efficacy is fostered it helps generate effective performance outcomes through the persistence and direction of efforts (leaders' and followers'). The Hannah et al. heuristic framework can assist leaders and followers in understanding how everyone contributes to the fostering of collective agency and performance. However, only two studies have examined the dyadic behaviors component of their framework.

Mellor, Barclay, Bulger & Kath (2006) conducted a study examining the influence of gender similarity and verbal persuasion on union members' self-efficacy to lead. However, their study did not manipulate the type or duration of verbal persuasion received by individuals who filled out their survey instrument. Furthermore, the self-efficacy they sought to measure was specifically focused on participants' willingness to serve as union stewards versus their overall sense of GLE. Therefore, the ability to generalize their findings to other groups and expand basic understanding of how the core GLE components are influenced was minimal.

Finn, Mason & Bradley (2007) conducted a study testing the influence of executive coaching on transformational leader efficacy. The study's participants took part in a year-long transformational leadership training program. As part of the program, all participants received

multi-rater feedback. However, the experimental group received executive coaching regarding their feedback whereas the control group did not.

The executives in the experimental condition had higher scores on transformational leadership efficacy ($r=.45$), in addition to other outcomes, than did the control group executives.

Furthermore, experimental condition executives were also rated by their team members as more transformational ($r=.39$). The study's results indicated that leader self efficacy may be trainable. Additionally, it takes the form of positive leadership behaviors. But, the study did not specifically determine the influence of dyadic behaviors on the growth of leader self efficacy in the participants.

Given the sparse empirical data regarding the influence mechanisms for leader self efficacy, the framework requires much more empirical evidence to determine the validity of its theorized dyadic behavior component. Therefore, this dissertation proposes a more focused articulation of the Hannah et al. (2008) model.

Expanded Framework for Leader and Leadership Efficacy-Model and Hypotheses

Hannah et al.'s theoretical model of leader efficacy and leadership efficacy identified the reciprocal relationship between leader efficacy and follower efficacy as one consisting of dyadic behaviors. However, they did not specifically identify those behaviors. Their conceptualization of the relationship was based on Bandura's (1977) four main means of influencing efficacy. But, it can be asserted that all four means do not automatically constitute reciprocal dyadic behaviors. For example, followers in selecting a social model do not have to observe their designated leader. Likewise, the influence of somatic and emotional states on a leader or follower is personal in nature (although those states can be triggered by interactions with others). Furthermore, mastery experiences can be created by the leader for a follower (or vice versa) or

they can be generated simply by the environment (or the follower). But, one form of Bandura’s means for influencing self-efficacy is always contingent on reciprocal dialog--social persuasion. Therefore, this dissertation explored empirically social persuasion as a reciprocal dyadic behavior influencing leader and follower efficacy using Hannah et. al’s framework (see Figure 2 for the modified theoretical model).

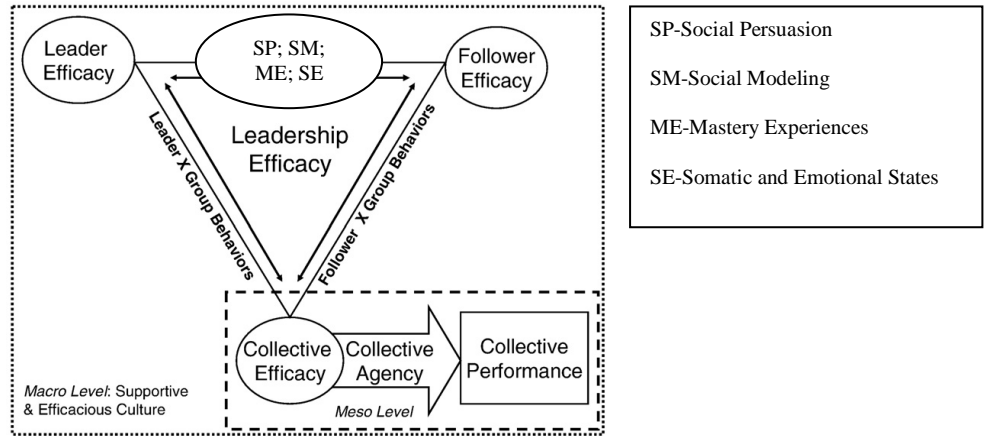


Figure 2: Expanded Framework for Leader Efficacy and Leadership Efficacy

It was proposed that social persuasion expressed verbally can influence people regarding their capacity to master specific activities. When such encouragement transpires, the influence target is likely to mobilize greater effort, and sustain the effort towards participation in the activities being advocated (or employment of the attributes the sender of the message is telling them they possess). Furthermore, social persuasion can assist the influence target in more effectively addressing problems that arise due to personal deficiencies. Ultimately, engagement and persistence in an activity can result in the development of skills and subsequent increased personal efficacy. So, social persuasion can lead people to try hard enough that success ultimately arises from their efforts. However, the influence target can experience a rapid loss of perceived self-efficacy if an unrealistic boost resulting from dialog with others is not confirmed by appropriate results. Thus, it is possible to increase temporarily leader self-efficacy in some

domains through social persuasion alone. But, other domains require engagement in an actual cognitive activity in order to develop leader self-efficacy.

Creating the Context for Examining Social Persuasion's Influence on Leader Self-Efficacy

Isolation of leaders' social persuasion behavior is paramount in order to empirically examine this form of influence on their followers' leader self-efficacy. Consequently, the use of internet based dialog lends itself to such dialog. The dialog can be structured to specifically address issues in accordance with pre-determined parameters. Furthermore, the dialog can be recorded for analysis using a variety of quantitative and qualitative tools. Therefore, a series of hypotheses is proposed based on a review of the literature and the ability to create an internet based experiment.

Summary of Hypotheses and Predicted Results

Hypothesis 1: *If a group of followers are socially persuaded through internet based blogging involving substantive dialog with their designated leaders over a four week period that they possess the tools, procedures, and colleagues to act as a leader then their leader efficacy for means will increase. The difference in the mean scores achieved by the followers who blog will demonstrate a statistically significant positive increase over the difference in mean scores achieved by their peers not involved in the internet based dialog.*

Hypothesis 2: *If a group of followers are socially persuaded through internet based blogging involving substantive dialog with their designated leaders over a four week period of time that they possess the ability to exercise leadership and create effects through behavioral actions (i.e., motivate people) then their leader efficacy for action will increase. The difference in the mean scores achieved by the followers who blog will demonstrate a statistically significant positive increase over the difference in mean scores achieved by their peers not involved in the internet based dialog.*

Hypothesis 1: Predicted Results

Hypothesis 2: Predicted Results

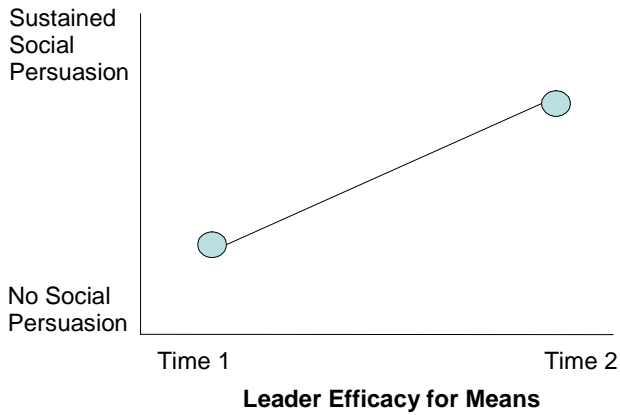


Figure 3: Hypothesis 1

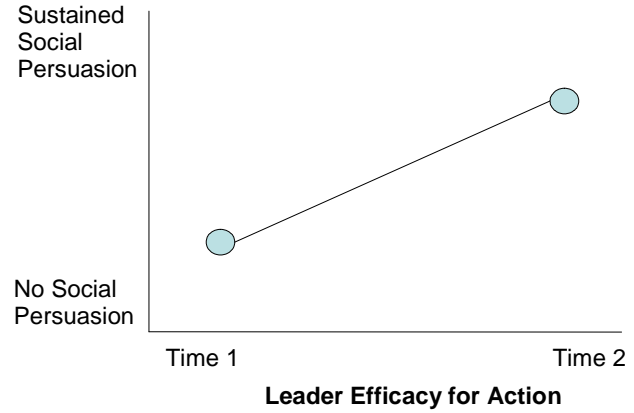


Figure 4: Hypothesis 2

Hypothesis 3: *If a group of followers are socially persuaded through internet based blogging involving substantive dialog with their designated leaders over a four week period of time that they possess the ability to deal with leadership and task accomplishment scenarios in specific ways, but the followers do not have the opportunity to engage in mastery experiences to validate their beliefs, then leader efficacy for self-regulation will not increase. The difference in mean scores achieved by the followers who blog will not demonstrate a statistically significant positive increase over the difference in mean scores achieved by their peers not involved in the internet based dialog.*

Hypothesis 3: Predicted Results

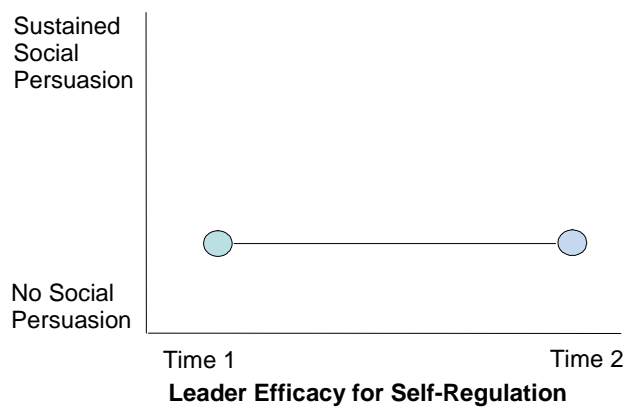


Figure 5: Hypothesis 3

Chapter III: Methodology

Overview

The methodology employed to test the hypotheses presented in Chapter II will be addressed in this chapter. The hypotheses will be tested twice using pilot and experimental studies employing a single survey instrument. The sample and data collection procedures are described first. Consequently, the measures for the three components of GLE (i.e., leader efficacy for means, leader efficacy for action, leader efficacy for self-regulation) and social persuasion are described. The demographic variables and control measures are also presented. Finally, this chapter explains the Generalized Linear Model Repeated Measures (GLM RM) statistical analysis which was conducted.

Study 1

Participants and Procedure

Volunteers to participate in the pilot study were recruited in person and via electronic means by the researcher. Study participants were located in two cities, but only interacted through an internet based secured blogging website.

One group of participants in the pilot study was recruited from a non-profit organization based in the Southwestern United States. These participants consisted of emerging high school seniors (fourth year students) enrolled in a year-long leadership development fellowship (Houston Leadership for Tomorrow-HLT) program. The original contact with the non-profit was initiated by the program's director. The director contacted the researcher seeking assistance with the fellowship program. Subsequently, the researcher conceived of a voluntary electronic interaction process study between the fellowship students and undergraduate students.

The initial meeting with the fellowship participants was conducted face to face in the spring of 2011. At the meeting, all fellowship participants and their legal guardians were provided information validated in advance by the United States Military Academy Institutional Review Board process concerning the purpose of the proposed study (see Appendix D). Subsequently, fellowship participants and their legal guardians were contacted the second time via an electronic message (see Appendix E). The message outlined the completely voluntary nature of the proposed activity, described the overall research objectives and benefits of participation, and specified the procedures for joining the initiative. Participants were provided the researcher's contact information (phone and email) and told to use those means of communication in the event they had any questions about the study. After fellowship participants expressed their desire to enroll in the study, they (and when required their legal guardian) were provided with informed consent forms. No one was permitted to engage in a study activity until a signed informed consent form was received. Ultimately, 43 fellowship participants (out of 47) voluntarily consented to participate in the pilot study. A lottery process was used to determine random assignment to the experimental (22) versus control group (21) condition amongst the 43 participants.

The demographics of the pilot study (a.k.a., Study 1) fellowship participants were: gender (male 51%, female 49%), age ($M = 17.7$ years; $range = 17-19$, $SD = .558$), number of blog (experimental condition) participants (51%), and race/ethnicity (African Americans 46%, Hispanic 54%).

A somewhat similar process was undertaken when recruiting the second group of pilot study participants. This group consisted of undergraduate cadets (third and fourth year students) attending the United States Military Academy at West Point. First, an electronic message

soliciting potential participants was sent to 340 cadets identifying themselves demographically as either African-American or Hispanic (see Appendix E). A pool of 45 potential participants expressed interest from the African American and Hispanic population. Consequently, the researcher held several meetings in person with those potential participants. Given the age of the cadets, no contact was required with their legal guardians. All 45 cadets were provided with informed consent forms which everyone signed. Using a lottery process, 22 cadets were randomly selected to participate in the study.

It is important to note one other feature of the study's design. All participants assigned to the control group were afforded the opportunity to engage in the blogging dialog after data collection for the study was concluded.

Measures

The cadets' role was to blog (i.e., the treatment) with the experimental condition leadership fellows on the topic of leadership with the experimental condition fellowship participants for a period of one month. (Given the cadets' role and the lack of control for their sample they did not participate in the survey instrument.) Each week the experimental condition participants were given a series of leadership efficacy related questions to discuss. The cadets' specific responsibility was to incorporate their understanding of leadership theory into the dialog. Furthermore, they were tasked to maintain a positive orientation when discussing with the leadership fellows the challenges and opportunities present to leaders. The intent was to enhance the leadership fellows' perceptions of their ability to lead successfully in their senior year of high school. The first week's questions were designed to get people used to using the website and involved in the dialog. The questions discussed were as follows: "Does leadership matter? If so, why? Is it important to always strive to lead? If not, why?"

IV 1 – Self Efficacy for Means Discussion Questions

The questions discussed during the second through fourth weeks served as the independent variable (IV) treatments. The second week's questions concerned topics related to the GLE component of means. Once again, means is concerned with leaders confidence in their ability to marshal the resources required to execute a leadership challenge. The questions discussed in the second week were as follows: "In your previous experiences, to what extent has those leading you embodied high standards and good ethics? How has those strengths or weaknesses influenced your development and/or performance as a leader? To what extent have you been able to tap into the talents of those around you in order to figure out how to get things done? Have the groups you've been a part of in the past provided the support required for you to be successful as a leader? If not, what types of challenges have you had to overcome as a result?"

IV 2 – Self Efficacy for Action Discussion Questions

The third week involved the discussion of questions related to the GLE component of action. The action component is associated with leaders' perceived abilities. It represents a leader's confidence in his or her ability to exercise leadership and create effects through behavioral actions. The third week questions were as follows: "How confident are you in your abilities to direct others and why? What are you particularly good at and what are some areas for improvement in that regard? What are some of the ways you seek to reward others for their efforts? What has worked most effectively in the past? What hasn't worked well and why? How confident are you in your personal ability to acquire mentors and to mentor others? Why? What are your strengths and areas for improvement regarding your ability to inspire followers, and gain their commitment? Why?"

IV 3 – Self Efficacy for Self-Regulation Discussion Questions

The fourth week questions were associated with the GLE component of self-regulation. This component assesses leaders cognitive and problem solving abilities, and ability to motivate one's self to learn those things required to lead effectively in a given context. The questions asked in the fourth week were as follows: "How do you seek to motivate yourself to learn new things related to leading? What are your core values and how did you come to adopt them? What do you do when your values are challenged as a leader? How do you tackle complex leadership challenges? What kind of things do you use in order to determine whether a project you are leading is successful or not?"

All the GLE dependent variable (DV) components were measured using Hannah, Avolio, Walumbwa, & Chan's (2010) 22 item GLE Questionnaire. The Hannah et al. (2010) GLE instrument was created using generally accepted scale development practices and multiple samples (Hinkin, 1995). They started the scale development by selecting five practitioners, each with 10 to 23 years of organizational leadership experience. The practitioners were provided construct definitions for the three domains of GLE: means, action, and self-regulation. Additionally, each one received descriptions of the active forms of leadership. Subsequently, the practitioners were asked to generate means, action, and self-regulation GLE factors covering the span of active leadership domains (Hannah et al., 2010).

In a parallel process, six leadership scholars conducted a review of the leadership literature and generated similar lists for each GLE domain. There was a 78% overlap between the aspects identified by the practitioners and review scholars. The aspects identified by the 2 groups represented 65 separate aspects of leadership. Finally, that list was reviewed for validation by

four additional leadership practitioners and scholars. Consequently, seven aspects were deleted and the review resulted in five others being added. Using Bandura's (2006) efficacy scale guide, the 63 remaining aspects were then formed into scale items.

After placing the items into a randomized list, Hannah et al. presented the 63 items along with factor definitions to five naïve observers. The observers were asked to categorize the items into three groups based on the factor definitions (i.e., a "bucket drill"). Items assigned to the proper a priori category more than 80% of the time were retained (MacKenzie, Podsakoff, & Fetter, 1991). If an item was consistently being mis-sorted it was deleted if determined to possess redundancy in content. Accordingly, other more distinct yet mis-sorted items were reworded. Subsequently, the entire sorting exercise was re-done and 40-items emerged having passed the 80% assignment screening criteria (Hannah et al., 2010).

The establishment of content validity was the next step in the GLE instrument creation process. Two rounds of content validity assessments were undertaken by eight scholars possessing expertise with expertise in leadership. As with the two previous "bucket drill" sorting exercises, scholars were provided the three GLE domain descriptions. Subsequently, they were asked to assign each randomly ordered item to one of the three GLE domains. Additionally, they were encouraged to recommend items for deletion or revision. The scholars were also directed to annotate unclear items, and to provide written comments. In a manner identical to the first two sorting exercises, items achieving 80% assignment to the proper a priori category were retained. After two iterations of the drill, 22 items remained. A 96% Inter-rater consistency was attained in the second round. The 22 items retained for further analysis included 7 action items, 7 means items, and 8 self-regulation items (see Appendices D and E).

Bandura (1997) suggested a 0-100 response format be employed when measuring efficacy beliefs. Subsequently, Pajares, Hartley, and Valiante (2001) validated Bandura's efficacy response scale as more psychometrically valid than efficacy scales reflecting less response span. Bandura (2006) suggests the most effective measure of efficacy beliefs is the efficacy strength score. Consequently, the GLE instructions ask participants to respond to each of the items on a 0-100 continuous scale in order to establish an efficacy strength score. A score of 100 represents 100% confidence. A score of 50 represents 50% (or moderate) confidence. Finally, a score of 0 means no confidence at all. Participants can select any whole number between 0-100 when assessing their level of confidence with respect to an item.

DV 1 – Self Efficacy for Action

The GLE questionnaire used seven items to assess self-efficacy for action. Example items are “As a leader I can inspire followers to perform beyond their expectations.” and “As a leader I can get followers to re-examine their basic beliefs and assumptions.” The researcher conducted a new reliability analysis for the scale. The scale yielded adequate overall reliability, Chronbach's $\alpha = .769$ and accounted for 49.65% of the instrument's total variance explained. In addition, reliability for the instrument overall was also sufficient, Chronbach's $\alpha = .930$. However, principal components analysis using orthogonal (varimax) rotation once again revealed less than favorable factor loadings. The items identified by Hannah et al. (2010) as measuring self efficacy for action were 1, 2, 4, 7, 9, 13, and 20. Five of those items loaded successfully when the rotation was performed (see Table 1). But, three had significant cross-loading. Additionally, 14 of the instrument's remaining 15 items loaded onto this factor at a level exceeding .30. Eight of those items also exhibited significant cross-loading onto another factor besides GLE Action. Factor 1 is GLE Action.

Table 1

Standardized loadings^a from principal components analysis for GLE Action (n = 43)

<i>Item</i>	<i>Loadings^b</i>		
	<i>1</i>	<i>2</i>	<i>3</i>
<i>Chronbach ($\alpha = .769$)</i>			
1. develop agreements with followers to enhance their participation.	.592		
2. inspire followers to go beyond their self-interests for the greater good.	.746	.433	
4. get my followers to meet the requirements we have set for their work.	.696		
7. inspire followers to perform beyond their expectations.	.752		.332
9. come up with the rewards and punishments that will work best with my followers	.471	.593	
13. get followers to re-examine their basic beliefs and assumptions.	.	.435	.414
20. coach followers to assume greater responsibilities for leadership	.709		
	Eigenvalue		9.382
	(% of Variance)		42.65
	Mean (Pre-Test)		69.76
	SD (Pre-Test)		15.01
	Mean (Post-Test)		76.94
	SD (Post-Test)		13.64

a. Results of rotated component matrix reported; rotation converged in 3 iterations. Extraction method was principal component analysis using varimax rotation with Kaiser normalization.

b. Significant item loadings have been emboldened only when they load most heavily on the factor they theorized to fall under.

DV 2 – Self Efficacy for Self Regulation

The GLE questionnaire used eight items to assess self-efficacy for action. Example items are “As a leader I can adapt my thinking to a broad range of unique leadership challenges” and “As a leader I can motivate myself to perform at levels that inspire others to excellence.” The researcher conducted a new reliability analysis for the scale. The scale yielded adequate overall reliability, Chronbach’s $\alpha = .806$ and accounted for 9.316% of the instrument’s total variance explained. However, principal components analysis using orthogonal (varimax) rotation

indicated poor factor loadings. The items identified by Hannah et al. (2010) as measuring self efficacy for self regulation were 5, 6, 10, 12, 14, 16, 17, and 18. This scale (Factor 2) had the weakest factor loading when the rotation was performed (see Table 2).

Table 2

Standardized loadings^a from principal components analysis for GLE Self Regulation (n = 43)

<i>Item</i>	<i>Loadings^b</i>		
	<i>1</i>	<i>2</i>	<i>3</i>
<i>Chronbach ($\alpha = .806$)</i>			
5. adapt my thinking to a broad range of unique leadership challenges.	.592		
6. motivate myself to set goals that are achievable.			-.449
10. remain steadfast to my core beliefs when I'm challenged.	.696		
12. motivate myself to perform at levels that inspire others to excellence.	.780		
14. develop detailed plans to accomplish complex missions.	.740	.414	
16. accomplish the targeted goals set by my superiors.	.727		
17. determine the objectives needed to complete our project goals.	.705		
18. distinguish the ethical components of problems/dilemmas	.632		
	Eigenvalue	2.050	
	(% of Variance)	9.316	
	Mean (Pre-Test)	86.00	
	SD (Pre-Test)	11.79	
	Mean (Post-Test)	87.60	
	SD (Post-Test)	10.96	

a. Results of rotated component matrix reported; rotation converged in 3 iterations. Extraction method was principal component analysis using varimax rotation with Kaiser normalization.

b. Significant item loadings have been emboldened only when they load most heavily on the factor they theorized to fall under.

DV 3 – Self Efficacy for Means

The GLE questionnaire used seven items to assess self-efficacy for action. Example items are “As a leader I can effectively lead working within the boundaries of my organization's policies” and “As a leader I can count on others to give me the guidance I need to complete work assignments.” The researcher conducted a new reliability analysis for the scale. The scale yielded adequate overall reliability, Chronbach’s $\alpha = .712$. However, principal components analysis using orthogonal (varimax) rotation revealed poor factor loadings. The items identified by Hannah et al. (2010) as measuring self efficacy for mean were 3, 8, 11, 15, 19, 21, and 22. But, only three of those items loaded successfully when the rotation was performed (see Table 1) and all three had cross-loading. Factor 3 represents GLE Means.

Table 3*Standardized loadings^a from principal components analysis for GLE Means (n = 43)*

<i>Item</i>	<i>Loadings^b</i>		
	<i>1</i>	<i>2</i>	<i>3</i>
<i>Chronbach ($\alpha = .712$)</i>			
3. count on my leaders to support high standards of ethical conduct.	.615	-.497	
8. go to my superiors for advice to develop my leadership.	.625	-.509	
11. effectively lead working within the boundaries of my organization's policies.	.670		
15. rely on my leaders to come up with ways to stimulate my creativity.	.548	-.336	.522
19. count on others to give me the guidance I need to complete work assignments	.550		
21. rely on my organization to provide the resources needed to be effective.	.708		.368
22. rely on my peers to help solve problems.	.522	-.385	.455
	Eigenvalue		1.56
	(% of Variance)		7.10
	Mean (Pre-Test)		78.55
	SD (Pre-Test)		13.98
	Mean (Post-Test)		81.86
	SD (Post-Test)		11.92

a. Results of rotated component matrix reported; rotation converged in 3 iterations. Extraction method was principal component analysis using varimax rotation with Kaiser normalization.

b. Significant item loadings have been emboldened only when they load most heavily on the factor they theorized to fall under.

Study 2

Participants and Procedure

Volunteers to participate in the experimental study were recruited in person and via electronic means by the researcher. Study participants were located in two cities, but only interacted through an internet based secured blogging website.

As in the pilot study, one group of participants in the experimental study was recruited from a non-profit organization based in the Southwestern United States. These participants consisted of a different group of emerging high school seniors (fourth year students) enrolled in the year-long leadership development fellowship program. As with the pilot study, contact with the non-profit organization was orchestrated through the program's director.

The initial meeting with the fellowship participants was conducted face to face in the summer of 2011. At the meeting, all fellowship participants and their legal guardians were provided information validated in advance by the Teachers College, Columbia University Institutional Review Board process concerning the purpose of the proposed study (see Appendix A). Subsequently, fellowship participants and their legal guardians were contacted the second time via an electronic message (see Appendix E). The message outlined the completely voluntary nature of the proposed activity, described the overall research objectives and benefits of participation, and specified the procedures for joining the initiative. Participants were given the researcher's contact information (phone and email) and told to use those means of communication in the event they had any questions about the study. After fellowship participants expressed their desire to enroll in the study, they (and when required their legal guardian) were provided with informed consent forms. No one was permitted to engage in a study activity until a signed informed consent form was received. Ultimately, 54 fellowship participants (out of 58)

voluntarily consented to participate in the pilot study. A lottery process was used to determine random assignment to the experimental (24) versus control group (27) condition among the 51 participants.

The demographics of the fellowship participants were: gender (male 51%, female 49%), age ($M = 16.87$ years; $range = 16-18$, $SD = .448$), number of blog (experimental condition) participants (44%), and race/ethnicity (African Americans 50%, Hispanic 50%).

A somewhat similar process was undertaken when recruiting the second group of experimental study participants. This group consisted of undergraduate cadets (third and fourth year students) as in Study 1 attending the United States Military Academy at West Point. First, an electronic message soliciting potential participants was sent to 353 cadets identifying themselves demographically as either African-American or Hispanic (see Appendix E). A pool of 51 potential participants expressed interest from the African American and Hispanic population. None of the cadets in the pool were participants in the pilot study. Consequently, the researcher held several meetings in person with those potential participants. Given the age of the cadets, no contact was required with their legal guardians. All 51 cadets were provided with informed consent forms which everyone signed. Using a lottery process, 24 cadets were randomly selected to participate in the study.

It is important to note one other feature of the study's design. All participants assigned to the control group were afforded the opportunity to engage in the blogging dialog after data collection for the study was concluded.

Measures

As in the pilot study, the cadets' role was to blog with the experimental condition leadership fellows on the topic of leadership with the experimental condition fellowship participants for a

period of one month. (Given the cadets' role and the lack of control for their sample they did not participate in the survey instrument.) Each week the experimental condition participants were provided a series of leadership related questions to discuss. The cadets' specific responsibility was to incorporate their understanding of leadership theory into the dialog. Furthermore, they were tasked to maintain a positive orientation when discussing the challenges and opportunities present to leaders with the leadership fellows. The intent was to enhance the leadership fellows' perceptions of their ability to lead successfully in their senior year of high school. The first week's questions were designed to get people used to using the website and involved in the dialog. The questions discussed were as follows: "Does leadership matter? If so, why? Is it important to always strive to lead? If not, why?"

IV 1 – Self Efficacy for Means Discussion Questions

The questions discussed during the second through fourth weeks served as the independent variable (IV) treatments. The second week's questions concerned topics related to the GLE component of means. Once again, means is concerned with leader's confidence in their ability to marshal the resources required to execute a leadership challenge. The questions discussed in the second week were as follows: "In your previous experiences, to what extent have those leading you embodied high standards and good ethics? How have those strengths or weaknesses influenced your development and/or performance as a leader? To what extent have you been able to tap into the talents of those around you in order to figure out how to get things done? Have the groups you've been a part of in the past provided the support required for you to be successful as a leader? If not, what types of challenges have you had to overcome as a result?"

IV 2 – Self Efficacy for Action Discussion Questions

The third week involved the discussion of questions related to the GLE component of action. The action component is associated with leaders' perceived abilities. It represents a leader's confidence in his or her ability to exercise leadership and create effects through behavioral actions. The third week questions were as follows: "How confident are you in your abilities to direct others and why? What are you particularly good at and what are some areas for improvement in that regard? What are some of the ways you seek to reward others for their efforts? What has worked most effectively in the past? What hasn't worked well and why? How confident are you in your personal ability to acquire mentors and to mentor others? Why? What are your strengths and areas for improvement regarding your ability to inspire followers and gain their commitment? Why?"

IV 3 – Self Efficacy for Self-Regulation Discussion Questions

The fourth week's questions were associated with the GLE component of self-regulation. This component assesses leaders cognitive and problem solving abilities, and ability to motivate one's self to learn those things required to lead effectively in a given context. The questions asked in the fourth week were as follows: "How do you seek to motivate yourself to learn new things related to leading? What are your core values and how did you come to adopt them? What do you do when your values are challenged as a leader? How do you tackle complex leadership challenges? What kind of things do you use in order to determine whether a project you are leading is successful or not?"

DV 1 – Self Efficacy for Action

As in the pilot study, the researcher conducted a new reliability analysis for the scale. The scale yielded adequate overall reliability, Chronbach's $\alpha = .710$ and accounted for 25.17% of the instrument's total variance explained. In addition, reliability for the instrument overall was also sufficient, Chronbach's $\alpha = .835$. Principal components analysis using orthogonal (varimax) rotation revealed strong factor loadings. The items identified by Hannah et al. (2010) as measuring GLE self efficacy for means were 1, 2, 4, 7, 9, 13, and 20. Six of those items loaded successfully when the rotation was performed (see Table 4). But, four had significant cross-loading. Additionally, 12 of the instrument's remaining 15 items loaded onto this factor at a level exceeding .30. Eight of those items also exhibited significant cross-loading onto another factor besides GLE Action. Factor 1 is GLE Action.

Table 4

Standardized loadings^a from principal components analysis for GLE Action (n = 54)

<i>Item</i>	<i>Loadings^b</i>		
	<i>1</i>	<i>2</i>	<i>3</i>
<i>Chronbach ($\alpha = .769$)</i>			
1. develop agreements with followers to enhance their participation.	.574	-.383	
2. inspire followers to go beyond their self-interests for the greater good.	.611		
4. get my followers to meet the requirements we have set for their work.	.540		.325
7. inspire followers to perform beyond their expectations.	.591	-.362	
9. come up with the rewards and punishments that will work best with my followers	.500	-.313	
13. get followers to re-examine their basic beliefs and assumptions.	.		.468
20. coach followers to assume greater responsibilities for leadership	.574		
	Eigenvalue		5.538
	(% of Variance)		25.174
	Mean (Pre-Test)		73.64
	SD (Pre-Test)		12.21
	Mean (Post-Test)		81.40
	SD (Post-Test)		11.64

a. Results of rotated component matrix reported; rotation converged in 3 iterations. Extraction method was principal component analysis using varimax rotation with Kaiser normalization.

b. Significant item loadings have been emboldened only when they load most heavily on the factor they theorized to fall under.

DV 2 – Self Efficacy for Self Regulation

The scale reliability analysis revealed adequate overall reliability, Chronbach's $\alpha = .871$ and accounted for 13.373% of the instrument's total variance explained. Principal components analysis using orthogonal (varimax) rotation revealed weak factor loadings. This scale (Factor 2) had the weakest factor loading when the rotation was performed (see Table 5).

Table 5

Standardized loadings^a from principal components analysis for GLE Self Regulation (n = 54)

<i>Item</i>	<i>Loadings^b</i>		
	<i>1</i>	<i>2</i>	<i>3</i>
<i>Chronbach ($\alpha = .871$)</i>			
5. adapt my thinking to a broad range of unique leadership challenges.	.398		
6. motivate myself to set goals that are achievable.	.496		.307
10. remain steadfast to my core beliefs when I'm challenged.	.519	-.473	
12. motivate myself to perform at levels that inspire others to excellence.	.771	-.432	
14. develop detailed plans to accomplish complex missions.	.321	.510	.481
16. accomplish the targeted goals set by my superiors.	.404		
17. determine the objectives needed to complete our project goals	.705		
18. distinguish the ethical components of problems/dilemmas	.632		
	Eigenvalue		2.942
	(% of Variance)		13.373
	Mean (Pre-Test)		84.85
	SD (Pre-Test)		10.30
	Mean (Post-Test)		87.91
	SD (Post-Test)		8.30

a. Results of rotated component matrix reported; rotation converged in 3 iterations. Extraction method was principal component analysis using varimax rotation with Kaiser normalization.

b. Significant item loadings have been emboldened only when they load most heavily on the factor they theorized to fall under.

DV 3 – Self Efficacy for Means

The scale yielded adequate overall reliability, Chronbach's $\alpha = .762$. However, principal components analysis using orthogonal (varimax) rotation revealed poor factor loadings. None of the predicted items loaded successfully when the rotation was performed although two items loaded negatively (see Table 6). Factor 3 represents GLE Means.

Table 6*Standardized loadings^a from principal components analysis for GLE Means (n = 54)*

<i>Item</i>	<i>Loadings^b</i>		
	<i>1</i>	<i>2</i>	<i>3</i>
<i>Chronbach ($\alpha = .762$)</i>			
3. count on my leaders to support high standards of ethical conduct.		.652	
8. go to my superiors for advice to develop my leadership.	.515		
11. effectively lead working within the boundaries of my organization's policies.	.504		-.534
15. rely on my leaders to come up with ways to stimulate my creativity.	.549	.338	
19. count on others to give me the guidance I need to complete work assignments.		.670	
21. rely on my organization to provide the resources needed to be effective.	.628		
22. rely on my peers to help solve problems.	.606		-.554
	Eigenvalue		2.034
	(% of Variance)		9.244
	Mean (Pre-Test)		79.90
	SD (Pre-Test)		11.19
	Mean (Post-Test)		83.59
	SD (Post-Test)		12.26

a. Results of rotated component matrix reported; rotation converged in 3 iterations. Extraction method was principal component analysis using varimax rotation with Kaiser normalization.

b. Significant item loadings have been emboldened only when they load most heavily on the factor they theorized to fall under.

A New Measure

The factor analysis for both studies indicated strong item loading for all items onto GLE Action. Consequently, the researcher decided to explore what factor loadings would look like if forced onto one factor (see Tables 7 and 8). The subsequent results indicate that while the survey

instrument is highly reliable, the three scale construct is suspect. It appears the instrument might really be one highly reliable scale based on the forced loading exercise and theoretical constructs used to create the items.

Table 7

Standardized one factor loading^a from principal components analysis for GLE Study 1 (n = 43)

<i>Item</i>		<i>Loadings^b</i>	
		<i>I</i>	
<i>Chronbach ($\alpha = .930$)</i>		.592	
1.	Develop agreements with followers to enhance their participation.	.746	
2.	Inspire followers to go beyond their self-interests for the greater good.	.615	
3.	Count on my leaders to support high standards of ethical conduct.	.696	
4.	Get my followers to meet the requirements we have set for their work.	.727	
5.	Adapt my thinking to a broad range of unique leadership challenges.	.680	
6.	Motivate myself to set goals that are achievable.	.752	
7.	Inspire followers to perform beyond their expectations.	.625	
8.	Go to my superiors for advice to develop my leadership.	.471	
9.	Come up with the rewards and punishments that will work best with my followers.	.669	
10.	Remain steadfast to my core beliefs when I'm challenged.	.670	
11.	Effectively lead working within the boundaries of my organization's policies.	.780	
12.	Motivate myself to perform at levels that inspire others to excellence.	.293	
13.	Get followers to re-examine their basic beliefs and assumptions.	.740	
14.	Develop detailed plans to accomplish complex missions.	.548	
15.	Rely on my leaders to come up with ways to stimulate my creativity.	.727	
16.	Accomplish the targeted goals set by my superiors.	.705	
17.	Determine the objectives needed to complete our project goals.	.632	
18.	Distinguish the ethical components of problems/dilemmas.	.550	
19.	Count on others to give me the guidance I need to complete work assignments	.709	
20.	Coach followers to assume greater responsibilities for leadership.	.708	
21.	Rely on my organization to provide the resources needed to be effective.	.522	
22.	Rely on my peers to help solve problems.		
		Eigenvalue	9.382
		(% of Variance)	42.647

a. Results of rotated component matrix reported; rotation converged in 3 iterations. Extraction method is I is principal component analysis using varimax rotation with Kaiser normalization.

Table 8*Standardized one factor loading^a from principal components analysis for GLE Study 2 (n = 51)*

<i>Item</i>		<i>Loadings^b</i>
		<i>1</i>
<i>Chronbach ($\alpha = .835$)</i>		
1.	Develop agreements with followers to enhance their participation.	.377
2.	Inspire followers to go beyond their self-interests for the greater good.	.540
3.	Count on my leaders to support high standards of ethical conduct.	.627
4.	Get my followers to meet the requirements we have set for their work.	.540
5.	Adapt my thinking to a broad range of unique leadership challenges.	.592
6.	Motivate myself to set goals that are achievable.	.506
7.	Inspire followers to perform beyond their expectations.	.634
8.	Go to my superiors for advice to develop my leadership.	.446
9.	Come up with the rewards and punishments that will work best with my followers.	.634
10.	Remain steadfast to my core beliefs when I'm challenged.	.446
11.	Effectively lead working within the boundaries of my organization's policies.	
12.	Motivate myself to perform at levels that inspire others to excellence.	.745
13.	Get followers to re-examine their basic beliefs and assumptions.	.511
14.	Develop detailed plans to accomplish complex missions.	.648
15.	Rely on my leaders to come up with ways to stimulate my creativity.	.448
16.	Accomplish the targeted goals set by my superiors.	.707
17.	Determine the objectives needed to complete our project goals.	.682
18.	Distinguish the ethical components of problems/dilemmas.	.523
19.	Count on others to give me the guidance I need to complete work assignments	.333
20.	Coach followers to assume greater responsibilities for leadership.	.640
21.	Rely on my organization to provide the resources needed to be effective.	.577
22.	Rely on my peers to help solve problems.	.361
Eigenvalue		6.252
(% of Variance)		29.773

a. Results of rotated component matrix reported; rotation converged in 3 iterations. Extraction method [is principal component analysis using varimax rotation with Kaiser normalization.

As a result of this new scale construction, the researcher added a fourth hypothesis for analysis.

Hypothesis 4: *If a group of followers are socially persuaded through internet based blogging involving substantive dialog with their designated leaders over a four week period that they possess the ability to act as a leader then their generalized leader efficacy will increase. The difference in mean scores achieved by the followers who blog will demonstrate a statistically significant positive increase over the difference in mean scores achieved by the followers not involved in the internet based dialog.*

Hypothesis 4: Predicted Results

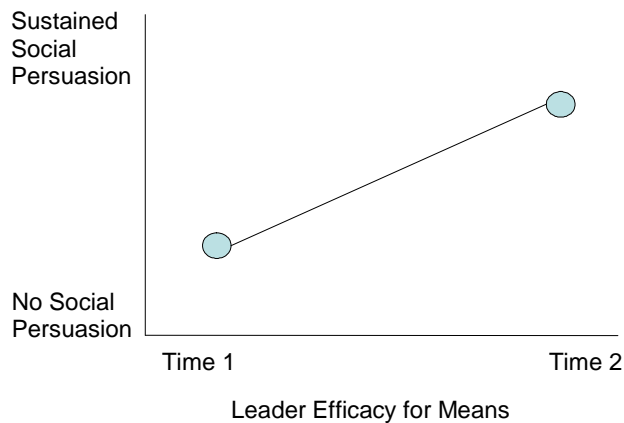


Figure 6: Hypothesis 4

Analysis

The four hypotheses were tested using GLM RM analysis in SPSS. The analysis involved testing differences in the three response variables (i.e., Dependent Variables-DVs): GLE Means, GLE Action, GLE Self-Regulation. Prior to taking the instrument all leadership fellowship program participants were issued a unique code by their program director in order to facilitate the researcher's ability to pair their pre-test and post-test responses. However, no unique identification information was sent to the researcher about each participant so as to maintain their anonymity.

The initial measurement was conducted using the GLE instrument as the pre-test (T1) prior to beginning blogging activities. Both the HLT Fellows experimental and control groups filled out

the instrument. The second measurement using the instrument was a post-test (T2) conducted one month later at the conclusion of blogging activities. As with T1, both the HLT Fellows experimental and control groups filled out the instrument. Subsequently, the means and difference scores for both groups (at T1 and T2) were determined.

The value for a DV was computed from adding up the scores of all items in a given scale and then dividing by the number of items in the scale. However, difference scores were really the point of comparison between the two groups. The GLM RM analysis compared the aggregate difference between T1 means against the T2 of each group. Once each group's difference scores were computed they were tested against one another in order to determine whether a statistically significant increase in means was achieved by the experimental relative to the control groups. It was predicted that the GLE Means, and GLE Action, would exhibit a statistically significant positive difference between the experimental group and the control group (with the experimental group having the higher mean). However, it was also predicted that the GLE Self-Regulation would not be influenced in a statistically significant positive way for either the experimental or control groups.

Chapter IV: Results

Overview

This chapter presents the statistical analysis of the data and the associated results. The descriptive statistics are presented, followed by the General Linear Model Repeated Measures (GLM RM) analysis results that were performed to test each of the hypotheses presented in Chapter 2. A comparison of demographic data for both Studies 1 and 2 is included in Table 9.

Table 9

Age, gender, ethnicity and blogging participant status broken down by Study 1 and Study 2

Study 1 Participants (n = 43)							
Age (years)		Gender (%)		Ethnicity (%)		Blogger (%)	
<i>M</i>	<i>SD</i>	<i>M</i>	<i>F</i>	<i>AA</i>	<i>H</i>	<i>Y</i>	<i>N</i>
17.7	.559	51	49	46	54	51	49

Study 2 Participants (n = 54)							
Age (years)		Gender (%)		Ethnicity (%)		Blogger (%)	
<i>M</i>	<i>SD</i>	<i>M</i>	<i>F</i>	<i>AA</i>	<i>H</i>	<i>Y</i>	<i>N</i>
16.9	.448	51	49	50	50	44	56

Note. Ethnicity: AA = African American, H =Hispanic; Blogger: Y=Yes,N=No.

In order to compare the experimental group's DV means to the control group's DV means prior to issuing the experimental treatment, a *t*-Test comparison of scale means and the overall instrument mean was conducted. The intent was to examine whether random assignment had resulted in equivalent group means. There was no statistical difference between the two groups (bloggers versus non-bloggers) at T1 for overall mean in either study (see Tables 19 and 24). Study 1, $t(43) = 0.546$, $p < .05$. Study 2, $t(54) = 0.392$, $p < .05$. Additionally, there was no

statistical difference between the two groups at T1 for any of the scale means in either study (see Tables 16-18 and 20-23). Therefore, equal variance was assumed when examining the two groups in each study.

Table 10

Group statistics for GLE Action

STUDY 1	N	MEAN	Std. DEVIATION
Bloggers	22	79.77	11.67
Non-Bloggers	21	77.07	16.07

Table 11

Group statistics for GLE Means

STUDY 1	N	MEAN	Std. DEVIATION
Bloggers	22	67.23	14.39
Non-Bloggers	21	72.41	15.55

Table 12

Group statistics for GLE Self-Regulation

STUDY 1	N	MEAN	Std. DEVIATION
Bloggers	22	84.56	11.75
Non-Bloggers	21	87.50	11.94

Table 13*Group statistics for GLE Action*

STUDY 2	N	MEAN	Std. DEVIATION
Bloggers	24	80.18	10.68
Non-Bloggers	27	79.28	11.82

Table 14*Group statistics for GLE Means*

STUDY 2	N	MEAN	Std. DEVIATION
Bloggers	24	71.90	12.77
Non-Bloggers	27	75.18	11.71

Table 15*Group statistics for GLE Self-Regulation*

STUDY 2	N	MEAN	Std. DEVIATION
Bloggers	24	84.48	8.49
Non-Bloggers	27	85.19	11.83

Table 16*Independent samples test for Study 1 GLE Means pre-test (Bloggers vs. Non-Bloggers)*

N	Test Stat	df	Sig.
43	-0.628	36.43	0.5343

* $p \leq .05$ **Table 17***Independent samples test for Study 1 GLE Action pre-test (Bloggers vs. Non-Bloggers)*

N	Test Stat	df	Sig.
43	1.133	40.37	0.2641

* $p \leq .05$ **Table 18***Independent samples test for Study 1 GLE Self-Regulation pre-test (Bloggers vs. Non-Bloggers)*

N	Test Stat	df	Sig.
43	0.813	40.84	0.4212

* $p \leq .05$ **Table 19***Independent samples test for Study 1 Overall GLE Instrument (Bloggers vs. Non-Bloggers)*

N	Test Stat	df	Sig.
43	0.546	39.94	0.5883

* $p \leq .05$

Table 20*Independent samples test for Study 2 GLE Means pre-test (Bloggers vs. Non-Bloggers)*

N	Test Stat	df	Sig.
51	0.952	47	0.3461

* $p \leq .05$ **Table 21***Independent samples test for Study 2 GLE Action pre-test (Bloggers vs. Non-Bloggers)*

N	Test Stat	df	Sig.
51	-0.285	48.98	0.7768

* $p \leq .05$ **Table 22***Independent samples test for Study 2 GLE Motivation pre-test (Bloggers vs. Non-Bloggers)*

N	Test Stat	df	Sig.
51	0.248	47.01	0.8049

* $p \leq .05$ **Table 23***Independent samples test for Study 2 Overall GLE Instrument (Bloggers vs. Non-Bloggers)*

N	Test Stat	df	Sig.
51	0.392	48.69	0.6968

* $p \leq .05$

Testing Hypothesis 1

Hypothesis 1 predicts that if a group of followers are socially persuaded through internet based blogging involving substantive dialog with their designated leaders over a four week period that they possess the tools, procedures, and colleagues to act as a leader then their leader efficacy for means will increase. The difference in mean scores achieved by the followers who blog will demonstrate a statistically significant positive increase over the difference in mean scores achieved by the followers not involved in the internet based dialog. This hypothesis was not supported in either Study 1 or 2.

There is some evidence that dialog concerning the tools, procedures, and colleagues surrounding a leader may have a positive effect as predicted in the hypothesis. While the means for both groups increased from T1 to T2 in the two studies, the increase in mean achieved at T2 by the blogging group in Studies 1 and 2 was greater than that of the non-blogging group (see Tables 24 and 25). This difference indicates a positive trend in the data (see Figures 7 and 8).

Table 24

Study 1 post-test means and standard deviations for GLE Means

Study	M	SD
Bloggers	85.19	8.01
Non-Bloggers	78.37	14.35

Table 25

Study 2 post-test means and standard deviations for GLE Means

Study	M	SD
Bloggers	86.90	8.38
Non-Bloggers	80.64	14.41

Significance Test

The hypothesis was tested with GLM RM analysis. This technique was selected because the GLE Means DV was measured for each participant at T1 and T2. The test involved the determination of a difference score (post-test minus pre-test) for each participant. Subsequently, all the difference scores for a group were summed and divided by the number of participants. The GLM RM test then analyzed whether the collective difference achieved in mean by the blogging group was statistically significant from that achieved by the non-blogging group. For the respective studies, the test determined a significance of $F(1,41) = 3.367$, $p > .05$ for Study 1 and $F(1, 49) = 1.543$, $p > .05$ for Study 2 (see Tables 26 and 27). So, the test determined no statistical significance existed between the two groups in either study.

Table 26

GLM repeated measures test of within subjects contrasts for Study 1 GLE Means

Comparison	Type III Sum of Squares	df	Mean Square	F	Sig.
PrePost*Group	83.172	1	83.172	3.367	.074
Error	1012.758	41	24.701		

* $p \leq .05$

Table 27

GLM repeated measures test of within subjects contrasts for Study 2 GLE Means

Comparison	Type III Sum of Squares	df	Mean Square	F	Sig.
PrePost*Group	182.954	1	182.954	1.543	.220
Error	5811.190	49	118.596		

* $p \leq .05$

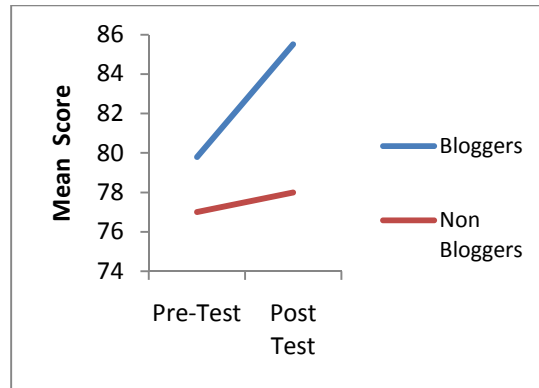


Figure 7: GLE Means at Pre-Test and Post-Test for Study 1

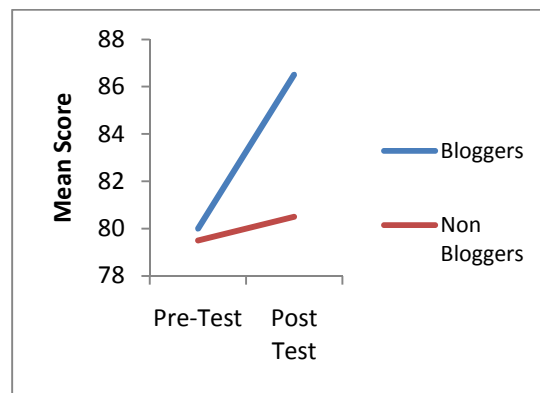


Figure 8: GLE Means at Pre-Test and Post-Test for Study 2

Testing Hypothesis 2

Hypothesis 2 predicts that if a group of followers are socially persuaded through internet based blogging involving substantive dialog with their designated leaders over a four week period of time that they possess the ability to exercise leadership and create effects through behavioral actions (i.e., motivate people) then their leader efficacy for action will increase. The difference scores achieved by the followers who blog will demonstrate a statistically significant positive increase over the difference scores achieved by the followers not involved in the internet based dialog. This hypothesis was supported in both studies. There is statistically significant evidence that dialog concerning one's ability to exercise leadership and create effects through

behavioral actions does positively influence their GLE for action (see Tables 28 and 29, Figures 9 and 10).

Significance Test

The hypothesis was tested with GLM RM analysis. For the respective studies, the test determined a significance of $F(1,41) = 33.697$, $p < .05$ for Study 1 and $F(1, 49) = 5.660$, $p < .05$ for Study 2 (see Tables 28 and 29). So, the test established a statistically significant difference between the two groups in both studies.

Table 28

GLM repeated measures test of within subjects contrasts for Study 1 GLE Action

Comparison	Type III Sum of Squares	df	Mean Square	F	Sig.
PrePost*Group	743.656	1	743.657	33.697	.000*
Error	905.299	41	22.080		

* $p \leq .05$

Table 29

GLM repeated measures test of within subjects contrasts for Study 2 GLE Action

Comparison	Type III Sum of Squares	df	Mean Square	F	Sig.
PrePost*Group	471.296	1	471.296	5.660	.021*
Error	4080.214	49	83.270		

* $p \leq .05$

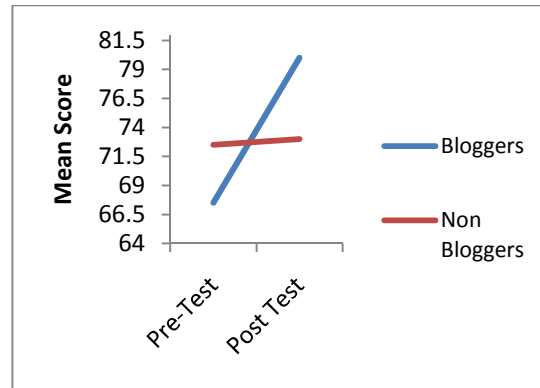


Figure 9: GLE Action at Pre-Test and Post-Test for Study 1

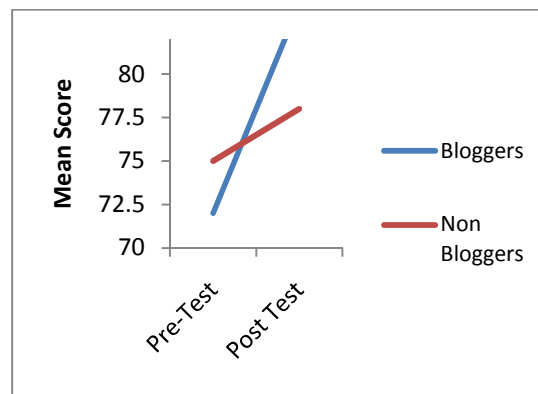


Figure 10: GLE Action at Pre-Test and Post-Test for Study 2

Testing Hypothesis 3

Hypothesis 3 predicts that if a group of followers are socially persuaded through internet based blogging involving substantive dialog with their designated leaders over a four week period of time that they possess the ability to deal with leadership and task accomplishment scenarios in specific ways, but the followers do not have the opportunity to engage in mastery experiences to validate their beliefs, then leader efficacy for self-regulation will not increase. The difference scores achieved by the followers who blog will not demonstrate a statistically significant positive increase over the difference scores achieved by the followers not involved in the internet based dialog. This hypothesis was not proven to be incorrect in either study. There is no evidence to conclude that dialog concerning the ability to deal with leadership and task

accomplishment scenarios in specific ways, but devoid of mastery experiences, cannot significantly influence one's GLE for self-regulation (see Tables 30 and 31, Figures 11 and 12).

Significance Test

The hypothesis was tested with GLM RM analysis. For the respective studies, the test determined a significance of $F(1,41) = 3.390$, $p > .05$ for Study 1 and $F(1, 49) = .105$, $p > .05$ for Study 2 (see Tables 30 and 31). So, the test revealed no statistical significance difference between the two groups difference scores.

Table 30

GLM repeated measures test of within subjects contrasts for Study 1 GLE Self-Regulation

Comparison	Type III Sum of Squares	df	Mean Square	F	Sig.
PrePost*Group	39.681	1	39.681	3.390	.073
Error	479.969	41	11.707		

* $p \leq .05$

Table 31

GLM repeated measures test of within subjects contrasts for Study 2 GLE Self-Regulation

Comparison	Type III Sum of Squares	df	Mean Square	F	Sig.
PrePost*Group	7.835	1	7.835	.105	.748
Error	3671.808	49	74.935		

* $p \leq .05$

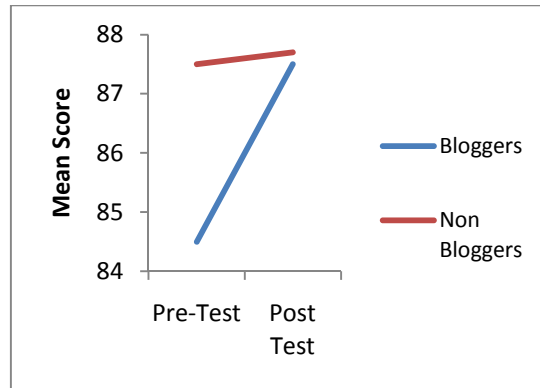


Figure 11: GLE Self-Regulation at Pre-Test and Post-Test for Study 1

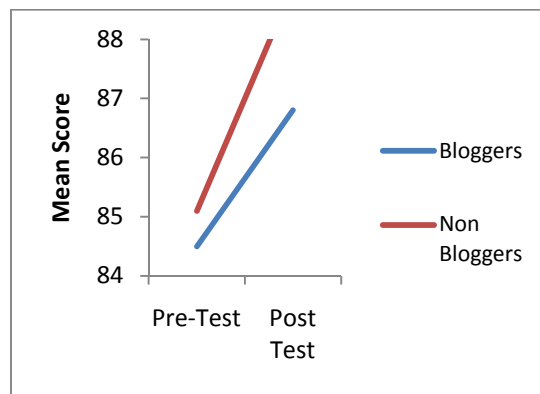


Figure 12: GLE Self-Regulation at Pre-Test and Post-Test for Study 2

Testing Hypothesis 4

Hypothesis 4 predicts that if a group of followers are socially persuaded through internet based substantive dialog with their designated leaders over a four week period that they possess the ability to act as a leader then their generalized leader efficacy will increase. The difference scores achieved by the followers who blog will demonstrate a statistically significant positive increase over the difference scores achieved by the followers not involved in the internet based dialog. The hypothesis was supported in Study 1 and was not supported in Study 2. Therefore, there is mixed evidence to support the hypothesis that dialog concerning the ability to act as a leader positively influence one's overall GLE for self-regulation in a statistically significant manner (see Tables 34 and 35, Figures 13 and 14).

However, the means for both groups increased from T1 to T2 in both studies. Furthermore, the size of the increase in mean achieved at T2 by the blogging group in Study 2 was greater than that of the non-blogging group (although it had not achieved statistical difference). Thus, a positive trend moving towards reaching the statistical significance threshold was present in Study 2.

Significance Test

The hypothesis was tested with General Linear Model Repeated Measures (GLM RM) analysis. For the respective studies, the test determined a significance of $F(1,41) = 14.863$, $p < .05$ for Study 1 and $F(1, 49) = 1.517$, $p > .05$ for Study 2 (see Tables 32 and 33). So, the test revealed a statistically significant increase in the difference scores for the bloggers relative to those achieved by the non-bloggers in Study 1. But, no such difference was present in Study 2.

Table 32

GLM repeated measures test of within subjects contrasts for Study 1 GLE

Comparison	Type III Sum of Squares	df	Mean Square	F	Sig.
PrePost*Group	192.357	1	192.357	14.863	.000*
Error	530.621	41	12.942		

* $p \leq .05$

Table 33

GLM repeated measures test of within subjects contrasts for Study 2 GLE

Comparison	Type III Sum of Squares	df	Mean Square	F	Sig.
PrePost*Group	103.905	1	103.905	1.517	.224
Error	3355.292	49	68.475		

* $p \leq .05$

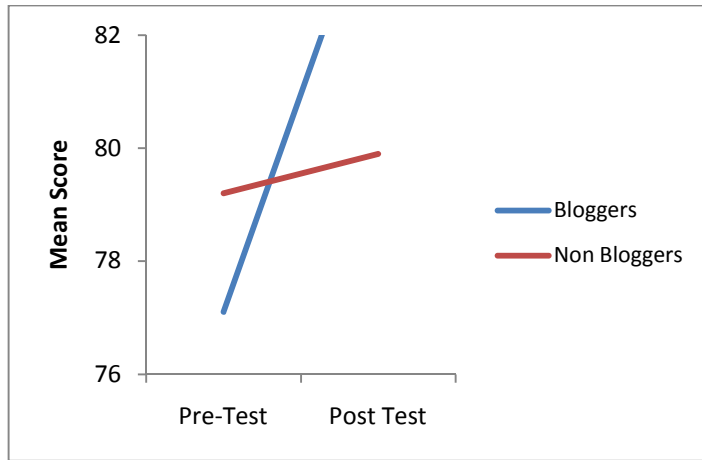


Figure 13: GLE at Pre-Test and Post-Test for Study 1

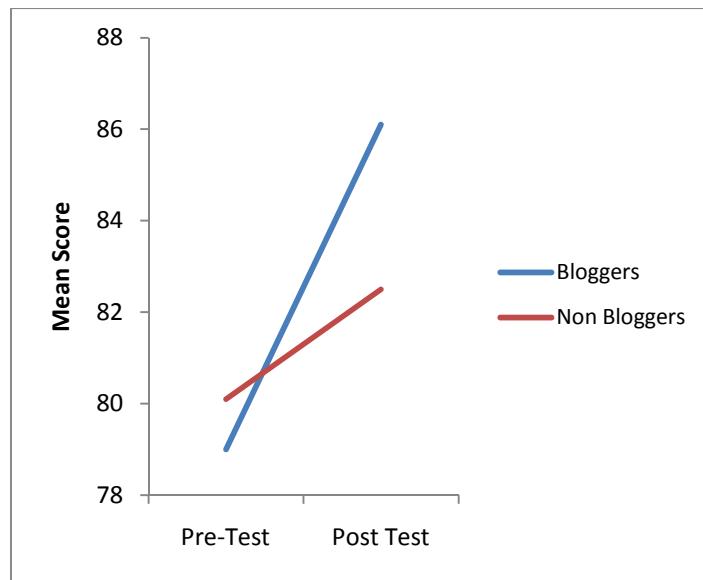


Figure 14: GLE at Pre-Test and Post-Test for Study 2

Chapter V: Discussion

Overview

This chapter will review Chapter IV's results highlighting the conclusions and implications of that chapter's findings. Initially, this chapter will provide a brief background summary of the research. Subsequently, the results will be discussed in four main sections. The four sections are the effect of social persuasion on generalized leader efficacy for means; the effect of social persuasion on generalized leader efficacy for action; the effect of social persuasion on generalized leader efficacy for self-regulation; and the effect of social persuasion on overall generalized leader efficacy. Limitations of the study will also be discussed. Specifically, the focus of that discussion will center on how those limitations may have contributed to the lack of full support for the hypotheses specified in Chapter II. Finally, this chapter will address the implications for practice and potential directions for future research.

Background

Cognitive and social psychology scholars have devoted considerable effort towards the exploration of self-efficacy research, modeling, and theory building. Most notably, Bandura's (1997) work concerning self-efficacy incorporates insights gleaned from examinations of almost 2000 studies exploring the construct's effects on performance. As a result of his work, other scholars (e.g., Gist, 1989) have called for research looking at self-efficacy's application to the organizational leadership context. Yet, a sparse number of empirical studies exist regarding leadership efficacy.

Hannah, Avolio, Luthans, and Harms' (2008) recent review of the leadership self-efficacy literature revealed 20 studies incorporating individual level leader or manager efficacy. Since then, two additional studies were published (Anderson, Krajewski, Goffin, & Jackson, 2008; Ng,

Ang, & Chan, 2008). As part of their efforts to expand the conceptualization of how self-efficacy applies to the leadership domain, Hannah, Avolio, Luthans, and Harms' (2008) created a framework for leader and leadership efficacy. Their framework formed the basis for Hannah, Avolio, Walumbwa, and Chan's (2010) creation of a dynamic self-concept based structure representing leaders' level of efficacy for self-regulation, action and means across a span of leader tasks which they called Generalized Leader Efficacy (GLE). The GLE construct represented two elements of the framework for leader and leadership efficacy (i.e., leader efficacy and follower efficacy). In order to validate the construct, Hannah et al. (2010) undertook a series of empirical studies to validate the instrument they created to measure GLE.

The studies conducted by the researcher as part of this dissertation sought to validate Hannah et al.'s GLE instrument while adding empirical evidence regarding one of the relationships (dyadic behavior involving social persuasion) depicted in Hannah, Avolio, Luthans, and Harm's (2008) framework for leader and leadership efficacy. The dyadic behaviors relationships represent Bandura's (1977, 1994) four main ways in which people can develop their efficacy. These four methods were discussed earlier in this paper. However, it is useful to briefly review them given their centrality to this dissertation.

First, Bandura (1997) asserts the most effective means of creating stronger efficacy is through mastery experiences. Such experiences constitute the most lasting means of creating strong efficacy. Success validates one's efficacy beliefs and failure weakens it. Failure has an especially powerful weakening effect if it occurs before one's sense of efficacy in a given area is solidified.

Second, social models can help others to develop efficacy. Such models provide instructional vicarious experiences which the observer can adopt in service of their own needs. Perceived

similarity to the social model is an important consideration for this self-efficacy developmental method.

The third means of influencing self-efficacy is partial reliance on somatic and emotional states. The body provides signals as to what constitutes good or poor performance. In addition to understanding the signals provided by one's body, individuals must also possess awareness of how their moods and emotions are influenced by cues developed from feedback provided by others. Increasing one's ability to handle arousal and maintain a positive emotional state can positively influence their perception of self-efficacy.

Social persuasion is Bandura's (1997) fourth main way through which people can develop their self-efficacy. The perception people possess regarding their capacity to master specific activities can be influenced verbally. Successful social persuasion is measured by perceived self-improvement on the behalf of those being influenced. The present studies focused on social persuasion as a dyadic behavior through which leaders can influence followers GLE and vice versa. Specifically, the role of social persuasion's influence on GLE means, actions, and self-regulation was examined. To date, no known published studies exist which specifically have tested only social persuasion's influence on GLE. Here, Hannah et al.'s (2008) leader efficacy framework social persuasion dyadic relationship was tested in an attempt to validate the potential influence of leaders on their followers' GLE (see Figure 2). The sample population for Study 1 consisted of 43 subjects (22 high school seniors located in the southwestern United States enrolled in a leadership fellowship program that blogged as part of their fellowship activities and 21 high school seniors enrolled in the same program who did not participate in the blogging project). Whereas, the sample population for Study 2 consisted of 51 subjects (24 high school seniors located in the southwest United States enrolled in a leadership fellowship program who

blogged as part of their fellowship activities and 27 high school seniors enrolled in the same program who did not participate in the blogging project).

Summary of Key Findings

The overall goal of this research was to examine empirically whether social persuasion can influence generalized leader efficacy. The three measures of effectiveness for the two studies were *Generalized Leader Efficacy for Means (GLE Means)*; *Generalized Leader Efficacy for Action (GLE Action)*; and *Generalized Leader Efficacy for Self-Regulation (GLE Self-Regulation)*. Each of those measures constituted a scale contained within Hannah, Avolio, Walumbwa, and Chan's (2010) Generalized Leader Efficacy Questionnaire. Hypotheses were developed by linking the independent variable, social persuasion through internet based substantive dialog, to each of the dependent variables, GLE Means; GLE Action; GLE Self-Regulation. GLE Means was operationalized as an individual's perception of their abilities to access and coordinate tools, procedures, and colleagues (Hannah et al, 2010; Eden, 2001). GLE Action, defined as a leader's confidence in his or her ability to exercise leadership and create effects through behavioral actions, was operationalized as an individual's perception of their capabilities to motivate others to act (Hannah et al., 2010; Stajkovic and Luthans, 1998; Prussia, Anderson, & Manz, 1998; Semander, Robins, & Ferris, 2006). Finally, GLE Self-Regulation was operationalized as an individual's perception of their ability to craft specific ways to deal with leadership and task accomplishment scenarios (Hannah et al., 2010; Atwater, Dionne, Avolio, Camobreco, & Lau, 1999). The specific hypotheses that were tested, and a summary of the key findings, are discussed next.

Generalized Leader Efficacy for Means

Means efficacy is drawn from Eden's (1996, 2001) work concerning efficacy. Specifically, Eden's *Internal-External Efficacy Model* serves as the foundation for examining means efficacy in relation to leader efficacy. Eden (2001) defined external efficacy as means efficacy—an individual's perceptions of the tools (i.e., quality and utility) accessible for use in the performance of a task. Hannah (2006) proposed that "...the leader's perception of the enablement, support, and other *means* provided by their organization, particularly when embedded in such 'weak contexts,' is thus critical to the formation and activation of efficacy beliefs" (Hannah, 2006, p. 28). It stands to reason leaders must believe they have access to the resources required to accomplish a leadership related activity if they are to voluntarily participate in the task. Wood and Bandura (1989) highlighted the veracity of that statement through a study which revealed that when managers were placed in a work environment they believed they could control, the managers demonstrated increased levels of resilient managerial efficacy. Additionally, the managers continued to raise the target for goals and used effective cognitive analytical processes. However, when managers were exposed to conditions they perceived as being uncontrollable they quickly lost self-efficacy. This occurred even when the targets were easily attainable ones. This dissertation's two studies sought to leverage the internet in order to examine social persuasion's influence on individuals' perceptions of the means available to them. The literature suggests that leader efficacy for means can be influenced in all four ways Bandura (1977) outlined.

First, it was hypothesized that if the HLT Fellows were socially persuaded through internet based substantive dialog with West Point cadets over a four week period that they possess the tools, procedures, and colleagues to act as a leader then their leader efficacy for means will

increase. The hypothesis also predicted the difference scores achieved by the HLT Fellows who blog will demonstrate a statistically significant positive increase over the difference scores achieved by the HLT Fellows not involved in the internet based dialog. This prediction was tested using a random assignment pre-test-post-test, control group design with the measurement conducted via a 7 item scale embedded within a 22-item instrument designed to assess generalized leader efficacy. Survey respondents were all participants in the HLT Fellowship Program. About half of the respondents, the experimental group, conducted four weeks of blogging dialog concerning topics related to the employment of tools/procedures/and colleagues for leadership activities. The other half of the respondents did not participate in the blogging while continuing the normal fellowship activities.

The initial predictions were unsupported for Studies 1 and 2. Positive social persuasion undertaken for four weeks through an internet based platform did not result in a statistically significant increase in the GLE Means difference scores of bloggers versus non-bloggers. However, both groups did experience growth in GLE Means. Furthermore, the amount of growth for the bloggers in both studies was comparatively larger than that of the non-bloggers. Therefore, a positive trend was indicated by the data. It appeared that if more time was involved the difference between the two groups would achieve statistical significance if the same linear trend continued. It is important to note a *t*-test revealed the difference between the two groups' starting means in both studies was not statistically significant.

The lack of statistical significance in the difference between the two groups' difference scores could reflect the difficulty of taking context into account when examining self-efficacy. Leadership theory research at the individual level of analysis has always struggled with the influence of context (Northouse, 2010). Bandura (1994) noted the sole use of social persuasion to

instill high beliefs of personal efficacy is more difficult than attempts by leaders to undermine a follower's self-efficacy. Because, individuals who lack beliefs in their ability to successfully contend with the leadership challenges present in their context will not seek to undertake such challenges. Therefore, the leader must possess sufficient gravitas and empathy to positively influence the follower's appraisal of their self-efficacy in a significant manner.

Mellor et al. (2006) described how similarity can influence self-efficacy in their study. Specifically, they examined gender similarity's influence on verbal persuasion targeted at growing an individual's self-efficacy to serve in a specific role. Their research identified that when the target of influence shared the same gender as the persuader, the target's self-efficacy for pursuing the role being advocated by the persuader was statistically significant in a positive direction. Other self-efficacy studies have also noted that when recipients perceive their attributes (e.g. age, socio-economic status, gender) to be aligned with those of the model the effect of verbal persuasion is augmented (Bussey & Bandura, 1999). When examining tools, procedures, and whether one has the right colleagues to pursue leadership tasks the target of influence may seek to determine the extent to which the persuader truly understands their unique circumstances. Unlike personal GLE Action or Self-Regulation, GLE Means relies on external resources. So, one potential reason for the lack of statistical significance in either Studies 1 or 2 could be insufficient similarity between the HLT Fellows and cadets to create sufficient perceptual change within a one month time frame.

The point of time within the HLT Fellowship is another potential factor influencing the difference between the results obtained in Studies 1 and 2. The amount of difference between the blogging group's starting and ending GLE Means score was greater for Study 2 than the difference achieved in Study 1. A possible explanation for this outcome is the population in

Study 2 was at the beginning of their one year fellowship while the Study 1 population was in the final stages of their fellowship experience. Therefore, the subjects' openness to new knowledge was potentially greater in the second study because of the program's relative newness to them. However, positive influence was observed in both studies.

Generalized Leader Efficacy for Action

Multiple literature reviews have identified action efficacy as the primary domain examined in leadership self-efficacy research (see: Bandura, 1997; Holden, 1991; Multon et al., 1991; Stajkovic & Luthans, 1998). This component of GLE is concerned with an individual's perception of their ability to direct, develop, and inspire others (Hannah, 2006). GLE Action also involves perceptions concerning one's ability to foster adaptability, trust, and moral-ethical behavior in others. It stands to reason leaders must believe they have the hands on ability to undertake the basic tasks associated with leading if they are to voluntarily participate in the task. This dissertation's two studies sought to leverage the internet in order to examine social persuasion's influence on individuals' perceptions of their action abilities. The literature suggests that leader efficacy for action can be influenced using all four ways identified by Bandura (1977).

First, it was hypothesized that if the HLT Fellows were socially persuaded through internet based substantive dialog with West Point cadets over a four week period that they possess the ability to exercise leadership and create effects through behavioral actions (i.e., motivate people) then their leader efficacy for action will increase. The hypothesis also predicted the difference scores achieved by the HLT Fellows who blog will demonstrate a statistically significant positive increase over the difference scores achieved by the HLT Fellows not involved in the internet based dialog. The procedure used to test the prediction was a random

assignment pre-test-post-test, control group design with the measurement conducted via a 7 item scale embedded within a 22-item instrument designed to assess generalized leader efficacy. Survey respondents were all participants in the HLT Fellowship Program. About half of the respondents, the experimental group, conducted four weeks of blogging dialog concerning topics related to the employment of tools/procedures/and colleagues for leadership activities. The other half of the respondents did not participate in the blogging while continuing the normal fellowship activities. It is important to note a *t*-test revealed the difference between the two groups' starting means in both studies was not statistically significant.

The initial predictions were supported for Studies 1 and 2. Positive social persuasion undertaken for four weeks through an internet based platform did result in a statistically significant increase in the GLE Action difference scores of bloggers versus those achieved by non-bloggers. The presence of statistical significance between the two groups' difference scores could possibly reflect the centrality of action when examining self-efficacy. Unlike GLE Means which specifically examined the resources an individual perceives to have at their disposal currently, GLE Action measures a domain with less contextual specificity. It also primarily addresses what individuals perceive they can do rather than what they perceive they can access.

The point of time within the HLT Fellowship did not appear to have a significant influence on participants' ratings for this domain. The bloggers mean value growth was virtually even (less than .6 point difference) in both studies. Likewise, the non-bloggers mean value growth in both studies was also separated by less than 2.6 points. Yet, the growth in difference scores for bloggers in both studies was four times that achieved by non-bloggers. A possible explanation for this outcome is confirmation bias. Because all the subjects were competitively selected to

participate in the fellowship, each had demonstrated tangible leadership accomplishments in the past. Yet, focused internet dialog concerning one's perceptions of their ability to undertake the basic tasks associated with leading resulted in four times the growth for GLE Action for bloggers. Perhaps, the blogging HLT Fellows merely became more confident in their personal assessments because of the confirmatory positive feedback regarding their ability to act as a leader. The desire when examining one's ability to act might have been to seek confirmation, as opposed to dis-confirming their self assessments. Therefore, the subjects potentially were more likely to extract the positive comments from their dialog than they were to challenge self-perceptions regarding their level of action competence.

Generalized Leader Efficacy for Self-Regulation

Bandura (1989) stated "...people's perceptions of their efficacy influence the types of anticipatory scenarios that they construct and reiterate. Those that have a high sense of efficacy visualize success scenarios that provide positive guides for performance and they cognitively rehearse good solutions to potential problems" (p. 729). His insight pertained to the criticality of efficacy beliefs in the regulation of cognitive processes. Leaders' perceived abilities to think critically, engage in self-motivation, and to learn are the capabilities addressed by the GLE self-regulation construct.

Complex social problem-solving skills are required to lead. Many models of leadership capacity have addressed the role of cognitive ability (e.g., Mumford, Zaccaro, Harding, Jacobs, & Fleishman, 2000). Likewise, Bandura's (1997) work highlighted the importance of self-efficacy to one's belief in their ability to acquire new knowledge and skills. Kanfer & Ackerman, (1989) demonstrated how learning efficacy serves as predictor of people's ability to acquire complex skills. Additionally, Avolio and Hannah (2008) expressed the importance of learning

efficacy because of its relationship to a leader's level of developmental readiness to learn and engage in leadership challenges. Finally, the self-motivation to undertake challenges associated with leadership positions is influenced by the interaction of thought and learning ability. Bandura (1989) described how the interplay of agency and efficacy allow people to envision potential outcomes which can serve as proximal motivators to regulate behaviors. Therefore, it stands to reason leaders must believe they have the ability to do the things associated with self-regulation for a particular challenge if they are to voluntarily participate in the task.

As in the previous two construct analyses, this dissertation's two studies sought to leverage the internet in order to examine social persuasion's influence on individuals' perceptions of their self-regulatory abilities. The literature suggests that leader efficacy for self-regulation requires taking on actual leadership challenges in order for significant and lasting perceptual change to occur.

This dissertation hypothesized that if a group of followers were socially persuaded through internet based blogging involving substantive dialog with their designated leaders over a four week period that they possess the ability to deal with leadership and task accomplishment scenarios in specific ways, but the followers do not have the opportunity to engage in mastery experiences to validate their beliefs, then their efficacy for self-regulation will not increase. The difference scores achieved by the followers who blog will not demonstrate a statistically significant positive increase over the difference scores achieved by the followers not involved in the internet based dialog. The procedure used to test the prediction was a random assignment pre-test-post-test, control group design with the measurement conducted via an 8 item scale embedded within a 22-item instrument designed to assess generalized leader efficacy. Survey respondents were all participants in the HLT Fellowship Program. About half of the respondents,

the experimental group, conducted four weeks of blogging dialog concerning topics related to the employment of tools/procedures/and colleagues for leadership activities. The other half of the respondents did not participate in the blogging while continuing the normal fellowship activities. A *t*-test revealed the difference between the two groups' starting means in both studies was not statistically significant.

The initial predictions were supported for Studies 1 and 2. It is important to note given the prediction of non-significance made in the third hypothesis, the findings indicate there was no evidence to conclude the hypothesis was wrong. Positive social persuasion undertaken for four weeks through an internet based platform concerning one's ability to deal with leadership and task accomplishment scenarios in specific ways, but not involving mastery experiences, did not result in statistically significant GLE Self-Regulation growth for bloggers versus non-bloggers. The overall change in means and their associated difference scores, for Studies 1 and 2, was the smallest of the three DVs. GLE Self-Regulation's construct lends itself to requiring validation experiences in order to augment social persuasion if significant perceptual growth is to transpire.

Discussion of Additional Analyses and Findings

To date, most leadership self-efficacy research has concentrated on action related constructs (see: Bandura, 1997; Holden, 1991; Multon et al., 1991; Stajkovic & Luthans, 1998). However, scholars are attempting to refine our understanding of the distinct components which encompass leadership self-efficacy. Hannah, Avolio, Walumbwa, and Chan's (2010) creation of the Generalized Leader Efficacy questionnaire constitutes the most recent effort to do so. Accordingly, they distinguished three distinct components of leader self-efficacy which they contend are generalizable across a span of leader tasks. However, the six samples they used in validating their instrument were fairly limited in occupational scope (Junior Military Officers;

Working Adult Students; Correctional Managers; Midwest Full-time Employees; Mid-Senior Level Military Officers; and Senior Military Trainees). While the results they obtained indicated clear factor loadings, the statistical analyses conducted for this dissertation failed to achieve the same distinction among factors. Instead, the exploratory factor analysis conducted for this dissertation using high school and undergraduate students consistently revealed one large generalized leader efficacy factor. Furthermore, the 22-items proposed by Hannah et al. (2010) loaded almost exclusively on to their action construct. However, the overall reliability of the Hannah et al. (2010) instrument was extremely high. Given the instrument's methodologically sound development, previously discussed in Chapter III, the results of this dissertation might call into question the generalizability of Hannah et al.'s (2010) three factors to all contexts. So, this dissertation added a fourth hypothesis to the original three. The fourth hypothesis was designed to test the difference achieved in overall generalized leader efficacy between the bloggers and non-bloggers (treating the 22-item instrument as one scale because of its reliability and the items theoretical validity to the measurement of leader self-efficacy).

It was hypothesized that if a group of followers are socially persuaded through internet based blogging involving substantive dialog with their designated leaders over a four week period that they possess the ability to act as a leader then their generalized leader efficacy would increase. The difference scores achieved by the followers who blog will demonstrate a statistically significant positive increase over the difference scores achieved by the followers not involved in the internet based dialog. This prediction was tested using a random assignment pre-test-post-test, control group design with the measurement conducted via a 22-item instrument designed to assess generalized leader efficacy. Survey respondents were all participants in the HLT Fellowship Program. About half of the respondents, the experimental

group, conducted four weeks of blogging dialog concerning topics related to leader self-efficacy. The other half of the respondents did not participate in the blogging while continuing the normal fellowship activities.

The initial predictions were supported for Studies 1 and unsupported for Study 2. Positive social persuasion undertaken for four weeks through an internet based platform did result in a statistically significant increase in the GLE difference scores of bloggers versus those achieved by non-bloggers for Study 1. The data did not reveal a statistically significant increase in difference scores for bloggers versus those achieved by non-bloggers for Study 2. However, both groups experienced positive growth in GLE. But, the amount of growth for the bloggers in both studies was comparatively larger than that of the non-bloggers. Therefore, a positive trend was indicated by the data. It appeared that if more time were involved in Study 2 the difference between the two groups would achieve statistical significance if the same linear trend continued. It is important to note a *t*-test revealed the difference between the two groups' starting means in both studies was not statistically significant.

As was previously discussed with GLE Means, the lack of statistical significance in the difference between the two groups' difference scores could reflect the difficulty of taking context into account when examining self-efficacy. The participants in Study 1 were approaching the end of their fellowship and blogging created a statistically significant difference between the two groups' change in overall GLE perceptions. Perhaps, this indicates both groups were less open to change because of their lengthy tenure in the program. Thus, an opportunity to create a new unique experience potentially could yield more significant results than merely participating in the program's other offerings. Conversely, the Study 2 participants were just beginning their fellowship year when the experiment transpired. Because of the program's relative newness in

their lives, all the HLT participants were poised to experience positive growth as a result of having started to engage in a variety of activities. Therefore, even if the bloggers achieved positive growth it might not be large enough to achieve significance when compared to the growth also being achieved by the non-bloggers.

Implications

Research

This dissertation has several implications for research. First, it builds on the leadership self-efficacy literature by providing empirical data to test one of the relationships proposed in Hannah, Avolio, Walumbwa, and Chan's (2010) framework for leader efficacy and leadership efficacy. To date, no other study has sought to isolate empirically the influence of social persuasion on generalized leader self-efficacy. It is important to note that Hannah (2006) used social persuasion in concert with mastery experiences and guided reflection to raise leaders' self-efficacy in a previous study. But, no study (other than those undertaken as part of this dissertation) has relied exclusively on social persuasion as the means of examining influence on leader self-efficacy. Mellor et al. (2006) is the only other leadership self-efficacy study to have used social persuasion in its methodology. However, they sought to determine verbal persuasion's influence on being encouraged to serve as a shop steward. In their study, when verbal persuasion raised an individual's efficacy for serving in that specific role they associated the outcome with higher efficacy for leadership. Furthermore, the enhanced leadership efficacy effect (willingness to assume the shop steward role) was augmented when the gender of the influencer was congruent with that of the influence target. This dissertation's studies were not designed to assess willingness to perform a certain role. The intent behind this dissertation's studies was to examine whether social persuasion could raise an individual's generalized leader

efficacy in a statistically significant manner irrespective of role. The Hannah et al. (2010) framework is designed to be applicable irrespective of context. This dissertation's ability to demonstrate social persuasion's ability to influence leader self-efficacy also supports Bandura's (1977) original conception of how self-efficacy can be changed.

Second, this research challenges Hannah et al.'s (2010) assertion that there are three components of leader self-efficacy generalizable across leader tasks in all contexts. While their factors are derived from theory, this dissertation's inability to recreate their factor loadings calls into question whether leader self-efficacy displays the same discreet components across all contexts. The sample populations used by Hannah et al. (2010) in validating their instrument may not be sufficiently broad to facilitate true generalizability without any contextual restrictions.

Finally, this research reinforces the role of context in leadership and leader self-efficacy. Attempts to create universal leadership theories have always struggled with the role context plays in leader perceptions and outcomes (Northouse, 2010). Despite this dissertation's findings, it cannot be asserted emphatically that the use of blogging in order to facilitate positive social persuasion concerning one's generalized leader efficacy would yield the same results if undertaken with a population unlike the one studied here.

Practice

This dissertation has three significant implications for practice. First, the usefulness of the Hannah et al. (2010) framework for leader efficacy and leadership efficacy lies partially in its ability to help practitioners conceptualize how they can influence leadership self-efficacy in order to ultimately influence collective performance. Such models are needed. Because, to date there is a sparse amount of published literature concerning how to develop efficacy beliefs in

leaders (Finn et al., 2007; McCormick, 1999; Mellor et al., 2006). Therefore, exposing the various conditions which potentially change the manner in which various components can significantly be influenced becomes important. This dissertation addressed one of those potential conditions (time in a given context) and how it can influence openness to change. Other potential conditions exist (e.g., amount of risk involved in a proposed leadership activity) which may change the influence mechanisms advocated in a given context.

Accordingly, the importance of contextual assessment is another significant implication for practice. Leaders must start with the end in mind when choosing the influence tactics they employ in service of growing a follower's leader self-efficacy. Choosing an appropriate influence technique for a given context is important. For example, if leaders choose to use social persuasion solely in an attempt to raise a follower's leader self-efficacy they might encounter overwhelming resistance if the scenario is a high risk one where the influence target does not possess a lot of domain specific leadership experience. Properly assessing the context and matching the potential influence tactics (i.e., mastery experiences, vicarious learning, social persuasion, physiological and emotional arousal) to the likely outcome each can enable is crucial for a leader.

Finally, understanding social persuasion's influence on leader self efficacy is important because perception leads to engagement. An individual's propensity for voluntarily undertaking an activity is directly related to his or her perceived level of competence in the activity's domain. Growing an individual's leader self-efficacy does not make him or her a better leader. However, it does increase one's willingness to participate in leadership activities and we do know that the most influential means of growing competency as a leader is experience.

Limitations

First, while Hannah et al. (2010) achieved construct reliability and validity across six samples representing various contexts (corrections, military and a breadth of working adult industries) this dissertation was not able to match their scale factor loadings for the GLE questionnaire. So, the GLM RM analysis conducted in this dissertation using their scales may lead to flawed conclusions. Therefore, it is possible that there may be no inferential significance for the findings associated with conducting the individual hypotheses testing for H1/H2/H3. The analyses were run with the decision to treat each of the scales as possessing validity. Additional contextual tests are needed to assess the suitability of the GLE questionnaire for measuring discreet components of overall generalized leader efficacy.

Second, this dissertation did not address the influence of antecedents on subjects' potential openness to leader self-efficacy change. While the blogging and non-blogging groups were assigned randomly, and their starting means were determined not to possess any statistically significant difference in both studies, antecedents could potentially shed light on why a given group's change in means transpired in a certain way. Hannah et al. (2010) identified five antecedents to GLE: general efficacy, learning goal orientation, the big five personality traits, and meta-cognitive ability. However, other antecedents could exist.

Third, the sample sizes used in this dissertation were small. However, they represented 99% of the population involved in the leadership fellowship during both studies. The small sample sizes could have influenced the exploratory factor analysis results. Ideally, having 10 subjects for every question contained in a survey is the desired ratio. So, having at least 220 people to run the exploratory factor analysis would have been desirable.

Fourth, the personal characteristics of the sample may have created both range restriction and ceiling effects. All HLT Fellows are competitively selected for participation in the program. Their accomplishments are among the highest in their respective schools. All the participants engage in areas such as sports, volunteer activities, student government, clubs, and church groups. These subjects may have had higher initial levels of leadership efficacy coming into the study than would an average student population their age. Because of the young average age of the sample, range restriction was also likely concerning the developmental readiness variables. These high school-age participants likely had lower levels of self-concept clarity than older and more experienced individuals found in the average population. Therefore, the sample's characteristics may somewhat limit the generalizability of this dissertation's findings. Additionally, the sample's participation in a competitively selected year-long leadership development fellowship may be indicative of high levels of achievement orientation or motivation. Such a pre-disposition could have created greater engagement in the blogging intervention than would be found in an average population their age.

Fifth, a limitation of this study is that it was a self-report survey measure. Consequently, its results could be subject to social desirability demand bias. Social desirability is the propensity for an individual to respond in such a manner that others will view the individual favorably, rather than responding in accordance with one's own core beliefs or values (Marlowe & Crowne, 1960).

Conclusion

Self-efficacy is linked to agency (Bandura, 1997). Accordingly, leader self-efficacy is linked to leader agency. An increase in self efficacy leads to an increase in agency, thus resulting in a higher probability of engagement. Understanding how to more effectively and efficiently

increase leaders (and followers) self-efficacy is an important area of inquiry for leader development scholars. Because, if one can increase how individuals perceive their capabilities to act as leaders in a given context their propensity for acting as a leader in that context can be increased. Pursuing further development of the GLE construct, its associated framework, and its measurement will allow for accurate predictions. Examples of such important predictions include things such as leader motivation, leadership style, and performance. But, because of its state-like quality we must learn more about how to assess the influence of context on leader self-efficacy. This dissertation constitutes one effort to add to the body of knowledge regarding how social persuasion can influence generalized leader self-efficacy.

References

- Anderson, D. W., Krajewski, H. T., Goffin, R. D., & Jackson, D. N. (2008). A leadership self-efficacy taxonomy and its relation to effective leadership. *Leadership Quarterly*, 19, 595-608.
- Atwater, L. E., Dionne, S. D., Avolio, B. J., Camobreco, J. F., & Lau, A. W. (1999). A longitudinal study of the leadership development process: Individual differences predicting leader effectiveness. *Human Relations*, 52, 1543-1562.
- Avolio, B.J. & Hannah, S.T. (2008). Developmental readiness: Accelerating leader development. *Consulting Psychology Journal*, 60, 331-347.
- Balkundi, P., & Kilduff, M. (2005). The ties that lead: A social network approach to leadership. *Leadership Quarterly*, 16, 941-961.
- Bandura, A. (1977). Self-efficacy: Toward a unifying theory of behavioral change. *Psychological Review*, 84, 191-215.
- Bandura, A. (1986). *Social foundations of thought and action*. Englewood Cliffs, NJ, Prentice-Hall.
- Bandura, A. (1989). Regulation of cognitive processes through perceived self-efficacy. *Developmental Psychology*, 25, 729-735.
- Bandura, A. (1997). *Self-efficacy: The exercise of control*. New York: Freeman.
- Bandura, A. (2006). Guide for constructing self-efficacy scales. In F. Pajares & T. Urdan (Eds.) *Self-efficacy beliefs of adolescents* (pp. 120-145). Greenwich, CT: Info Age Publishing.
- Bandura, A., & Locke, E. A. (2003). Negative self-efficacy and goal effects revisited. *Journal of Applied Psychology*, 88, 87-99.
- Bass, B. M. (1985). *Leadership and performance beyond expectations*. New York: Free Press.
- Bass, B. M., & Avolio, B. J. (1997). *Full range leadership development: Manual for the Multifactor Leadership Questionnaire*. Palo Alto, CA: Mindgarden.
- Berry, J. M. (1987, September). *A self-efficacy model of memory performance*. Paper presented at the 95th annual convention of the American Psychological Association, New York.
- Bollen, K. A., & Lennox, R. (1991). Conventional wisdom on measurement: A structural equation perspective. *Psychological Bulletin*, 100, 305-314.
- Bono, J. E., & Colbert, A. (2005) Understanding responses to feedback: The role of core self-evaluations. *Personnel Psychology*, 58, 171-203.

- Bussey, K., & Bandura, A. (1999). Social cognitive theory of gender development and differentiation. *Psychological Review*, 106, 676–713.
- Button, S. B., Matieu, J.E., Zajac, D. M. (1996). Goal orientation in organizational research: A conceptual and empirical foundation. *Organizational Behavior and Human Decision Processes*, 67, 26-48.
- Campbell, D. T., & Fiske, D. W. (1959). Convergent and discriminant validation by the multitrait-multimethod matrix. *Psychological Bulletin*, 56, 81-105.
- Chan, K. Y., & Drasgow, R. (2001). Toward a theory of individual differences and leadership: Understanding the motive-to-lead. *Journal of Applied Psychology*, 86, 481-498.
- Chemers, M. M., Watson, C.B., & May, S. T. (2000). Dispositional affect and leadership effectiveness: A comparison of self-esteem, optimism, and efficacy. *Personality and Social Psychology Bulletin*, 26, 267-277.
- Chen, G., Gully, S. M., & Eden, D. (2001). Validation of a new general self-efficacy scale. *Organizational Research Methods*, 4, 62-83.
- Conway, J. M. (2000). Managerial performance development constructs and personality correlates. *Human Performance*, 13, 23-46.
- Darlington, R. B. (1990). *Regression and linear models*. New York: McGraw-Hill.
- Day, D. V., Harrison, M. M., & Halpin, S. M. (2009). *An integrative approach to leader development*. New York: Taylor & Francis.
- DeCharms, R. (1968). *Personal causation: The internal affective determinants of behavior*. New York: Academic Press.
- Dennison, D. R., Hooijberg, R., & Quinn, R. E. (1995). Paradox and performance: Toward a theory of behavioral complexity in managerial leadership. *Organizational Science*, 6, 524-540.
- Dweck, C. S., Higgins, E. T., & Grant-Pillow. (2003). Self-systems give unique meaning to self variables. In M. R. Leary & J. P. Tangney (Eds.), *Handbook of self and identity* (pp. 239-252). New York: The Guilford Press.
- Eden, D. (2001). Means efficacy: External sources of general and specific subjective efficacy. In M. Erez, U. Kleinbeck & H. Thierry (Eds.), *Work motivation in the context of a globalizing economy* (pp. 65-77). Hillsdale, NJ: Lawrence Erlbaum.

- Eden, D., & Sulimani, R. (2002). Pygmalion training made effective: Greater mastery through augmentation of self-efficacy and means efficacy. In B. J. Avolio & F. J. Yammarino (Eds.), *Transformational/charismatic leadership: The road ahead*. (pp. 287-308). New York: Elsevier.
- Finn, F., Mason, C., & Bradley, L. (2007, August). *Doing well with executive coaching: Psychological and behavioral impacts*. Paper presented at the Academy of Management Conference, Philadelphia.
- Fredrickson, B. L. (2001). The role of positive emotions in positive psychology: The broaden-and-build theory of positive emotions. *American Psychologist, 56*, 218-226.
- Fredrickson, B. L., Tugade, M. M., Waugh, C. E., & Larkin, G. R. (2003). What good are positive emotions in crisis? A prospective study of resilience and emotions following the Terrorist Attacks on the US on Sept 11th, 2001. *Journal of Personality and Social Psychology, 84*, 365-376.
- Garber, J. & Seligman, M.E.P. (Eds.). *Human helplessness: Theory and applications*. New York: Academic Press, 1980.
- George, W. (2003). *Authentic leadership: Rediscovering the secrets to creating lasting value*. San Francisco: Jossey-Bass.
- Gist, M. E. (1989). The influence of training method on self-efficacy and idea generation among managers. *Personnel Psychology, 42*, 787-805.
- Gist, M. E., & Mitchell, T. R. (1992). Self-efficacy: A theoretical analysis of its determinants and malleability. *Academy of Management Review, 17*, 183-211.
- Gosling, S. D., Rentfrow, P. J., & Swann, W. B. (2003). A very brief measure of the big five personality domains. *Journal of Research in Personality, 37*, 504-528.
- Grant, A. M., & Wrzesniewski, A. (2010). I won't let you down...or will I? Core self-evaluations, other-orientation, anticipated guilt and gratitude, and job performance. *Journal of Applied Psychology, 95*, 108-121.
- Hannah, S.T, Avolio, B.J., Walumbwa, F.O., & Chan, A. (2010). Generalized leader efficacy. Draft of submission under review for publication in *Leadership Quarterly*.
- Hannah, S. T., Avolio, B. J., Luthans, F., & Harms, P. (2008). Leadership efficacy: Review and future directions. *Leadership Quarterly, 19*, 669-692.
- Hannah, S. T., & Luthans, F. (2008). A cognitive affective processing explanation of positive leadership: Toward theoretical understanding of the role of psychological capital. In R. H. Humphrey (Ed.), *Affect and emotion: New directions in management theory and research* (pp. 95-134). Charlotte, NC: Information Age Publishing.

- Hannah, S. T., Woolfolk, R. L., & Lord, R. G. (2009). Leader self-structure: A framework for positive leadership. *Journal of Organizational Behavior, 30*, 269-290.
- Hendricks, J. W., & Payne, S. C. (2007). Beyond the Big Five: Leader goal orientation as a predictor of leadership effectiveness. *Human Performance, 20*, 317-343.
- Higgins, E.T., Van Hook, E., & Dorfman, D. (1998). Do self-attributes form a cognitive structure? *Social Cognition, 6*, 177-206.
- Hinkin, T. R. (1995). A review of scale development practices in the study of organizations. *Journal of Management, 21*, 967-988.
- House, R. J., & Aditya, R. N. (1997). The social scientific study of leadership: Quo vadis? *Journal of Management, 23*, 409-473.
- Howell, J.M., & Shamir, B. (2005). The role of followers in the charismatic leadership process: Relationships and their consequences. *Academy of Management Review, 30*, 96-112.
- Hu, L., & Bentler, P. M. (1999). Cutoff criteria for fit indexes in covariances structure analysis: Conventional criteria versus new alternatives. *Structural Equation Modeling, 6*, 1-55.
- Hultsch, D. F., Hertzog, C., Dixon, R. A., & Davidson, H. (1988). In M. L. Howe & C. J. Brainerd (Eds.), *Cognitive development in adulthood: Progress in cognitive development research* (pp. 65-92). New York: Springer.
- Judge, T. A., Bono, J. E., Erez, A., & Locke, E. A. (2005). Core self-evaluations and job and life satisfaction: The role of self-concordance and goal attainment. *Journal of Applied Psychology, 90*, 257-268.
- Judge, T. A., Bono, J. Y., Ilies, R., & Gerhardt, M. W. (2002). Personality and leadership: A qualitative and quantitative review. *Journal of Applied Psychology, 87*, 765-780.
- Judge, T. A., Erez, A., Bono, J. E., & Thoresen, C. J. (2003). The core self-evaluations scale: Development of a measure. *Personnel Psychology, 56*, 303-331.
- Judge, T. A., Thoresen, C., & Pucik, V. (1999). Managerial coping with change: A dispositional perspective. *Journal of Applied Psychology, 84*, 107-122.
- Kane, T. D., Zaccaro, S. J., Tremble, T. R., & Masuda, A. D. (2002). An examination of the leader's regulation of groups. *Small Group Research, 33*, 65-120.
- Kane, T. D., Baltes, T. R. (1998, April). *Efficacy assessment in complex social domains: Leadership efficacy in small task groups*. Paper presented at the annual meeting of the Society of Industrial and Organizational Psychology, Dallas, TX.

- Kanfer, R. (1987). Task-specific motivation: An integrative approach to issues of measurement, mechanisms, processes, and determinants. *Journal of Social and Clinical Psychology, 5*, 237-264.
- Kanfer, R. (1990). Motivation and individual differences in learning: An integration of development, differential and cognitive perspectives. *Learning and Individual Differences, 2*, 221-239.
- Kanfer, R., & Ackerman, P.L. (1989). Motivation and cognitive abilities: An integrative/aptitude-treatment interaction approach to skill acquisition. *Journal of Applied Psychology, 74*, 657-689.
- Kaplan, R. E. (1991). *Beyond ambition: How driven managers can lead better and live better*. San Francisco: Jossey-Bass.
- Kihlstrom, J. F., Beer, J. S., & Klein, S. B. (2003). Self and identity as memory. In M. R. Leary & J. P. Tangney (Eds.), *Handbook of self and identity* (pp. 68-90). New York, NY: Guilford Press.
- Law, K., Wong, C., & Mobley, W. (1998). Toward a taxonomy of multi-dimensional constructs. *Academy of Management Review, 23*, 741-755.
- Lefcourt, H.M. *Locus of control: Current trends in theory and research*. Hillsdale, N.J: Erlbaum, 1976.
- Lewin, K. (1936). *Principles of topological psychology*. New York, NY: McGraw-Hill.
- Little, T. D., Cunningham, W. A., Shahar, G., & Widaman, K. F. (2002). To parcel or not to parcel: Exploring the question, weighing the merits. *Structural Equation Modeling, 9*, 151-173.
- Lord, R. G., & Brown, D. J. (2004). *Leadership processes and follower self-identity*. New Jersey: Lawrence Erlbaum.
- Lord, R. G., & Hall, R. J. (2005). Identity, deep structure and the development of leadership skills. *Leadership Quarterly, 16*, 591-615.
- Luthans, F., Avolio, B., Avey, J., & Norman, S. (2007). Psychological capital: Measurement and relationship with performance and satisfaction. *Personnel Psychology, 60*, 541-572.
- MacKenzie, S.B., Podsakoff, P.M., & Fetter, R. (1991). Organizational citizenship behavior and objective productivity as determinants of managerial evaluations of salespersons' performance. *Organizational Behavior and Human Decision Processes, 50*, 123-150.

- Marlowe, D., & Crowne, D. P. (1960). A new scale of social desirability independent of psychopathology. *Journal of Consulting Psychology, 24*, 349-354.
- Manz, C. C. (1986). Self-leadership: Toward an expanded theory of self-influence processes in organizations. *Academy of Management Review, 11*, 585-600.
- Marion, R., & Uhl-Bien, M. (2001). Leadership in complex organizations. *Leadership Quarterly, 12*, 389-418.
- Medsker, G. J., Williams, L. J., & Holahan, P. J. (1994). A review of current practices for evaluating causal-models in organizational-behavior and human-resources management research. *Journal of Management, 20*, 439-464.
- Mellor, S., Barclay, L.A., Bulger, C.A., & Kath, L.M. (2006). Augmenting the effect of verbal persuasion on self-efficacy to serve as a steward: Gender similarity in a union environment. *Journal of Occupational and Organizational Psychology, 79*, 121-129.
- Metcalf, J., & Shimamura, A. P. (Eds.). (1994). *Metacognition: Knowing about knowing*. Cambridge, MA: MIT Press.
- Miner J. B. (1993). *Role motivation theories*. London: Routledge.
- Multon, K.D., Brown, S.D., & Lent, R.W. (1991). Relation of self-efficacy beliefs to academic outcomes: A meta-analytic investigation. *Journal of Counseling Psychology, 38*: 30-38.
- Mumford, M. D., & Connelly, M. S. (1991). Leaders as creators: Leader performance and problem solving in ill-defined domains. *Leadership Quarterly, 2*, 289-316.
- Mumford, M. D., Friedrich, T. L., Caughron, J. J., & Byrne, C. L. (2007). Leader cognition in real-world settings: How do leaders think about crisis? *Leadership Quarterly, 18*, 515-543.
- Mumford, M. D., Zaccaro, S. J., Harding, F. D., Jacobs, T. O., Fleishman, E. A. (2000). Leadership skills for a changing world: Solving complex social problems. *Leadership Quarterly, 11*, 11-35.
- Murphy, S. E., & Ensher, E. A. (1999). The effects of leader and subordinate characteristics in the development of leader-member exchange quality. *Journal of Applied Social Psychology, 29*, 1371-1394.
- Ng, K. Y., Ang, S., & Chan, K. Y. (2008). Personality and leader effectiveness: A moderated mediation model of leadership self-efficacy, job demands, and job autonomy. *Journal of Applied Psychology, 93*, 733-743.
- Northouse, P.G. (2010). *Leadership: Theory and practice*. Thousand Oaks, CA: Sage.

- Nunnally, J. C., & Bernstein, I. H. (1994). *Psychometric theory* (3rd ed.). New York: McGraw-Hill.
- Osborn, R. N., Hunt, J. R., & Jauch, L. R. (2002). Toward a contextual theory of leadership. *Leadership Quarterly*, *13*, 797-837.
- Paglis, L. L. (1999). *Searching for the wellspring of leading change: Leader self-efficacy in organizations*. Unpublished doctoral dissertation. Purdue University.
- Paglis, L. L., & Green, S.G. (2002). Leadership self-efficacy and managers' motivation for leading change. *Journal of Organizational Behavior*, *23*, 215-235.
- Pajares, F., Hartley, J., & Valiante, G. (2001). Response format in writing self-efficacy assessments: Greater discrimination increases prediction. *Measurement and Evaluation in Counseling and Development*, *33*, 4-14.
- Parker, S. K., (1998). Enhancing role breadth self-efficacy: The roles of job enrichment and other organizational interventions. *Journal of Applied Psychology*, *83*, 835-852.
- Perlmutter, L.C., & Monty, R.A. (Eds.). (1979). *Choice and perceived control*. Hillsdale, N.J.: Erlbaum.
- Peterson, S. J., Walumbwa, F. O., Byron, K., & Myrowitz, J. (2009). CEO positive psychological traits, transformational leadership, and firm performance in high technology start-up and established firms. *Journal of Management*, *35*, 348-368.
- Phillips, J. M., & Gully, S. M. (1997). Role of goal orientation, ability, need of achievement, and locus of control in the self-efficacy and goal-setting process. *Journal of Applied Psychology*, *82*, 792-802.
- Podsakoff, P. M., MacKenzie, S. C., Podsakoff, N. P., & Lee, J. (2003). Common method biases in behavioral research: A critical review of the literature and recommended remedies. *Journal of Applied Psychology*, *88*, 879-903.
- Porter, L. W., & McLaughlin, G. B. (2006). Leadership and the organizational context: Like the weather. *Leadership Quarterly*, *17*, 559-576.
- Prussia, G. E., Anderson, J.S., & Manz, C.C. (1998). Self-leadership and performance outcomes: The mediating influence of self-efficacy. *Journal of Organizational Behavior*, *19*, 523-538.
- Reeves, B. & Nass, C. (1996). *The media equation*. Cambridge: Cambridge University Press.
- Rosenberg, M. (1965). *Society and adolescent self-image*. Princeton, NJ: Princeton University Press.

- Rotter, J. B., Chance, J.E., & Phares, E.J. (1972). *Applications of a social learning theory of personality*. New York: Holt, Rinehart & Winston.
- Schachter, S. (1959). *The psychology of affiliation*. Palo Alto: Stanford University Press.
- Schmidt, A. M., & Ford, K. J. (2003). Learning within a learner control training environment: The interactive effects of goal orientation and metacognitive instruction on learning outcomes. *Personnel Psychology*, *56*, 405-429.
- Schraw, G., & Dennison, R. S. (1994). Assessing metacognitive awareness. *Contemporary Educational Psychology*, *19*, 460-475.
- Schunk, D. H., & Gunn, T. P. (1986). Self-efficacy and skill development: Influence of task strategies and attributions. *Journal of Educational Research*, *79*, 238-244.
- Singer, M. (1991). The relationship between employee sex, length of service, and leadership aspirations: A study from valence, self-efficacy, and attribution perspectives. *Applied Psychology: An International Review*, *40*, 417-436.
- Snyder, C. R. (2000). *Handbook of hope*. San Diego: Academic Press.
- Snyder, C. R., Irving, L., & Anderson, J. (1991). Hope and health. In C. R. Snyder & D. R. Forsyth (Eds.). *Handbook of social and clinical psychology* (pp. 285-305). Elmsford, NY: Pergamon.
- Stajkovic, A. D., & Luthans, F. (1998). Self efficacy and work-related performance: A meta analysis. *Psychological Bulletin*, *124*, 240-261.
- Walumbwa, F. O., Avolio, B. J., & Zhu, W. (2008). How transformational leadership weaves its influence on individual job performance: The role of identification and efficacy beliefs. *Personnel Psychology*, *61*, 793-825.
- Walumbwa, F.O., Luthans, F., Avey, J., & Oke, A. (2009). Authentically leading groups: The mediating role of positivity and trust. *Journal of Organizational Behavior*, Advance online publication. DOI: 10.1002/job.653.
- White, R.W. Motivation reconsidered: The concept of competence. *Psychological Review*, 1959, *66*, 297-333.
- Wood, D. (2007). Using PRISM to compare the explanatory value of general and role-contextualized trait ratings. *Journal of Personality*, *75*, 1103-1126.
- Wood, R., & Bandura, A. (1989a). Social cognitive theory of organizational management. *Academy of Management Review*, *14*, 361-384.

- Wood, R., & Bandura, A. (1989b). Impact of conceptions of ability on self-regulatory mechanisms and complex decision making. *Journal of Personality and Social Psychology*, 56, 407-415.
- Wofford, J. C., Goodwin, V. L., & Whittington, J. L. (1998). A field study of a cognitive approach to understanding transformational and transactional leadership. *Leadership Quarterly*, 9, 55-84.

Appendices

Appendix A: Teachers College, Columbia University IRB approval

TEACHERS COLLEGE
COLUMBIA UNIVERSITY
OFFICE OF SPONSORED PROGRAMS

Institutional Review Board

June 2, 2011

Bernard Banks
21B Wilson Road
West Point, NY 10996

Dear Bernard,

Please be informed that as of the date of this letter, the Institutional Review Board for the Protection of Human Subjects at Teachers College, Columbia University has given full approval to your study entitled "*Examining Social Persuasion's Influence on Generalized Leader Efficacy*" after a **Full Committee Review**.

The approval is effective until **June 1, 2012**.

The IRB Committee must be contacted if there are any changes to the protocol during this period. **Please note:** If you are planning to continue your study, a Continuing Review application must be filed six weeks prior to the expiration of the protocol. The IRB number assigned to your protocol is **11-259**. Feel free to contact the IRB Office [212-678-4105 or mbrooks@tc.edu] if you have any questions.

Please note that your consent form bears an official IRB authorization stamp. Copies of this form with the IRB stamp must be used for your research work.

Best wishes for your research work.

Sincerely,



Karen Froud, Ph.D.
Assistant Professor of Speech and Language Pathology
Chair, IRB

cc: File, OSP

Appendix C: GLE Scoring Instructions

**Generalized Leader Efficacy Questionnaire
Scoring**

	Actions
1	develop agreements with followers to enhance their participation.
2	inspire followers to go beyond their self-interests for the greater good.
4	get my followers to meet the requirements we have set for their work.
7	inspire followers to perform beyond their expectations.
9	come up with the rewards and punishments that will work best with my followers.
13	get followers to re-examine their basic beliefs and assumptions.
20	coach followers to assume greater responsibilities for leadership.
	Means
3	count on my leaders to support high standards of ethical conduct.
8	go to my superiors for advice to develop my leadership.
11	effectively lead working within the boundaries of my organization's policies.
15	rely on my leaders to come up with ways to stimulate my creativity.
19	count on others to give me the guidance I need to complete work assignments
21	rely on my organization to provide the resources needed to be effective.
22	rely on my peers to help solve problems.
	Self Motivation/Thought
5	adapt my thinking to a broad range of unique leadership challenges.
6	motivate myself to set goals that are achievable.
10	remain steadfast to my core beliefs when I'm challenged.
12	motivate myself to perform at levels that inspire others to excellence.
14	develop detailed plans to accomplish complex missions.
16	accomplish the targeted goals set by my superiors.
17	determine the objectives needed to complete our project goals.
18	distinguish the ethical components of problems/dilemmas.

Appendix D: United States Military Academy IRB Approval Memo

Banks, Bernard B COL MIL USA USMA

From: Mallory, Linda CIV USA USMA
Sent: Thursday, November 18, 2010 11:14 AM
To: Banks, Bernard B COL MIL USA USMA
Cc: Rovira, Ericka M CIV USA USMA
Subject: Exempt Approval

After a careful review of your protocol Building Real Leaders Through Virtual Means: Measuring the Influence of Social Persuasion on Generalized Leader Efficacy, I have determined that this is human subject research according to 32CFR219 and meets the requirements of exempt status under 32CFR219.101(b)(2). Your approval is good for one year.

Your project control number is ~~11-30~~ Banks.

Data collection may begin as scheduled. Please provide this office with any articles/presentations which are generated by this research. If the research extends beyond one year, the PI is responsible for requesting an extension in sufficient time to process the request (at least four weeks).

Linda Mallory, EdD
Student Learning Outcomes Assessment/EDO
US Military Academy at West Point
West Point, NY 10996
845-938-7385
845-938-7380 (fax)
linda.mallory@usma.edu

Appendix E: Recruitment Letters

Dear Cadets,

Hello. The purpose of this message is to solicit your assistance in a volunteer community outreach effort. Recently, West Point was contacted by a non-profit civic organization in Houston (Houston Leadership for Tomorrow-HLT) seeking assistance in helping to strengthen a fellowship program they annually run for approximately 52 talented high school juniors from historically under-represented collegiate groups (i.e. African-Americans, Hispanics, and Native Americans). The HLT Fellows Experience is designed to meet the following objectives:

- * Expand core and advanced skills
- * Prepare Fellows for the transition to college
- * Create a high performing peer community
- * Develop key leadership and problem solving skills
- * Expose Fellows to business and other leaders in Houston
- * Ground Fellows in Houston and surrounding community
- * Build awareness of different career options

Accordingly, West Point desires to assist HLT by creating an opportunity for HLT participants to have a cadet leadership “mentor” while they are in their program. As mentors, cadets will engage in dialog with HLT Fellows concerning specific questions designed to discuss topics associated with the process of leadership (i.e., the process whereby an individual influences a group of individuals to achieve a common goal). More specifically, cadets can leverage the knowledge gleaned from their formal leadership courses at the Academy and practical experiences to stimulate reflection (HLT Fellows and their own) through discussion of topics such as: goal setting, creating and communicating a vision, dealing with conflict, enhancing self-awareness. The program will be structured as a research project and participation for cadets, and HLT Fellows, is completely voluntary. If randomly selected from the pool of cadets who express a desire to participate, mentors will dialog with their randomly selected HLT Fellow partner weekly. All dialogs will occur electronically via a secure blog and the time commitment involved will constitute approximately one-two hours a week. Dialog with your randomly assigned partners will begin in July and will continue throughout the fall. All dialog participants will be required to fill out an online survey at the beginning of the blogging project and at periodic intervals throughout as part of an effort to measure program effectiveness.

The survey's are designed determine the effectiveness of electronic dialog on how people perceive their capabilities as a leader. The potential benefits of the results for the study participants and organizations would be an enhanced understanding of the extent to which perceptions can be influenced through internet based interaction requiring no pre-existing relationships. As a result of this research project, organizations potentially will be able to construct meaningful developmental dyads which could increase the propensity of individuals to take on leadership responsibilities. All participants will be given access to the study's findings. No individual feedback on personal results will be provided because personal identifiers will not be employed on the surveys. Both West Point and HLT will receive a copy of the final research report.

West Point has an opportunity to positively influence the lives of many through its collaboration with HLT. Additionally, for the cadets who choose to participate in the program you will gain valuable experience working with a demographic that mirrors that of your future soldiers. Furthermore, all efforts expended as part of one's participation in the program can be placed on your resume as community service (something that looks really good for graduate school and scholarship applications). Please, join us in helping to make West Point's engagement with HLT a powerful one.

All interested cadets may contact COL Bernie Banks <bernard.banks@usma.edu> in order to get signed up as a potential mentor. Additionally, COL Banks will answer any questions that may exist concerning any aspect of the program at one of several potential participants' briefings to be held (dates and times to be announced later). If selected for participation in the program, you will be required to sign a research program consent form after attendance at a project briefing.

Have a great day!

Dear HLT Parents/Guardians for Fellows under 18 years of age,

Hello. The purpose of this message is provide your child a unique developmental opportunity. Recently, the United States Military Academy at West Point was contacted by Houston Leadership for Tomorrow (HLT) as part of its ongoing efforts to create powerful developmental opportunities for participants in the HLT Fellowship program. As you are aware, the HLT Fellows Experience is designed to meet the following objectives:

- * Expand core and advanced skills
- * Prepare Fellows for the transition to college
- * Create a high performing peer community
- * Develop key leadership and problem solving skills
- * Expose Fellows to business and other leaders in Houston
- * Ground Fellows in Houston and surrounding community
- * Build awareness of different career options

Accordingly, West Point desires to assist HLT with the development of its “key leadership and problem solving skills” objective by creating an opportunity for HLT fellows to have a cadet leadership “mentor” while they are in the program. (Due to the potential number of cadets able to participate, not everyone will have a mentor at the same time. But, the intent is to conduct the program in two groups so as to afford everyone the opportunity to participate in the dialog at some point in their fellowship year.) As mentors, cadets will specifically engage in dialog with HLT Fellows concerning specific questions designed to discuss topics associated with the process of leadership (i.e., the process whereby an individual influences a group of individuals to achieve a common goal). More specifically, cadets will leverage the knowledge gleaned from their formal leadership courses at the Academy and practical experiences to stimulate reflection (HLT Fellows and their own) through internet based discussion with your child on topics such as: goal setting, creating and communicating a vision, dealing with conflict, enhancing self-awareness. The intent of West Point’s participation is not to recruit your child for military service. Accordingly, you and your child will not be provided any literature concerning West Point as part of this opportunity. The focus of West Point’s participation is solely on allowing your child to discuss leadership with someone close to their age who is learning about leadership as part of their college studies.

HLT Fellows and their cadet mentors will dialog electronically (i.e., over the internet) via a secure blog and the time commitment involved will constitute approximately one-two hours a week. We will begin the blocks of dialog in July and will conclude at the end of the fall school semester. The program will be structured as a research project (in order to measure its effectiveness) and participation for cadets, and HLT fellows, is completely voluntary. Assignment to the first versus second group of blogging participants will be completely random. All dialog participants will be required to fill out some online survey instruments at periodic intervals as part of an effort to measure program effectiveness. If you would not like your child to participate in the blogging dialog we would still respectfully request permission for them to still fill out the associated surveys.

The survey’s are designed determine the effectiveness of electronic dialog. The potential benefits of the results for the study participants and organizations would be an enhanced understanding of the extent to which perceptions can be influenced through internet based interaction requiring no pre-existing relationships. As a result of this research project, organizations potentially will be able to construct meaningful developmental pairings which could increase the propensity of individuals to take on leadership responsibilities. All participants will be given access to the study’s findings. No individual feedback of personal results will be provided because personal identifiers will not be present on the surveys. Both West Point and HLT will receive a copy of the final research report.

West Point is excited about the opportunity to positively influence the lives of many through its collaboration with HLT. Please, join us in helping to make West Point’s engagement with HLT a powerful one.

All interested HLT fellows may contact Ms. Barbara Paige (HLT Program Director) in order to get signed up as a potential participant. Additionally, Colonel Banks from West Point <Bernard.banks@usma.edu> can answer any additional questions that may exist concerning any aspect of the program. He will conduct an in-person project briefing in June during a HLT session. Additionally, he will conduct a conference call for anyone unable to attend his June briefing. If you opt to allow your child’s participation in the program, you will be required to sign a research program consent form on behalf of your child after attending Colonel Banks’ briefing or participating in the conference call. Additionally, your child will be required to sign research consent (but only after you have done so). Additionally, if you are under the age of 18 you will require a signed consent form from your parent or legal guardian as well.

Have a great day!

Appendix F: Human Subjects Education Certificate

