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Who develops? Understanding the role of leadership mindset in developmental opportunities

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WHO DEVELOPS? UNDERSTANDING THE ROLE OF LEADERSHIP MINDSET IN
DEVELOPMENTAL OPPORTUNITIES

by

Sheryl L. Walter

A thesis submitted in partial fulfillment of the requirements for the Doctor of
Philosophy degree in Business Administration (Management and Organizations) in
the Graduate College of The University of Iowa

August 2016

Thesis Supervisor: Professor Amy E. Colbert

Graduate College
The University of Iowa
Iowa City, Iowa

CERTIFICATE OF APPROVAL

PH.D. THESIS

This is to certify that the Ph.D. thesis of

Sheryl Walter

has been approved by the Examining Committee for the thesis requirement for the Doctor of Philosophy degree in Business Administration (Management and Organizations) at the August 2016 graduation.

Thesis Committee:

Amy E. Colbert, Thesis Supervisor

Kenneth G. Brown

Maria L. Kraimer

Ning Li

Greg L. Stewart

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ABSTRACT

Billions of dollars are invested annually on leadership development interventions within organizations. And while these leadership development programs are generally effective, as evidenced by meta-analytic findings, researchers and organizational leaders alike are perplexed by the fact that some individuals' leadership abilities do not show improvement after participating in a leadership development program. Drawing from social psychology and implicit person theory, I extend implicit self-theory into the leadership domain to examine leadership mindset, the belief an individual has about the malleability of leadership ability, and its relationship to leadership growth. Individuals with a more incremental leadership mindset believe that through hard work and effort they can improve their leadership ability. Individuals with a more fixed mindset, conversely, believe that leadership ability cannot be purposefully changed. Implicit self-theory would suggest that individuals with a more incremental mindset will have more leadership growth than individuals with a more fixed leadership mindset. Using self-regulation theory as a foundation, I propose that the effect of leadership mindset on leadership growth will be transferred through three mechanisms: negative feedback-seeking, reflection, and fear of failure. I also hypothesize that the relationship between these mediators and leadership growth will be stronger for leaders who have more developmental opportunities. Thus, I hypothesize a second-stage moderated mediation effect whereby the effect of leadership mindset on leadership growth through negative feedback-seeking, reflection, and fear of failure is stronger when individuals have more developmental opportunities.

PUBLIC ABSTRACT

Billions of dollars are invested annually on leadership development interventions within organizations. And while research shows that leadership development programs are generally effective (on average leadership development programs work), researchers and organizational leaders alike are perplexed by the fact that some individuals' leadership abilities do not show improvement after participating in a leadership development program. This research examines one possible reason that some individuals may develop more leadership skills than others when participating in a leadership development program. I propose that leadership mindset may influence individuals' leadership development. Generally speaking, leadership mindset is the belief that individual have about whether leadership is a born ability (unchangeable through effort) or a changeable skill. Individuals with a more incremental leadership mindset believe that through hard work and effort they can improve their leadership ability. Individuals with a more fixed mindset, conversely, believe that leadership ability cannot be purposefully changed. I propose that individuals with a more incremental mindset will have more leadership growth than individuals with a more fixed leadership mindset because they will seek more negative or critical feedback, they will reflect more on ways to improve their leadership, and they will be less likely to fear failure. I also propose that the more opportunities that individual have to develop their leadership skills (through coaching, formal training, or challenging assignments) the stronger the link between these behaviors (seeking feedback, reflecting, and fear of failure) and leadership growth will be.

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CHAPTER I: INTRODUCTION

Employers are becoming increasingly concerned with the lack of leadership talent within their organizations and are making sizable investments in leadership development interventions in order to increase their internal leadership pool. A study of 1100 US organizations conducted by AON consulting in 2008 found that 56% of employers were experiencing a shortage of leadership talent, up from 40% in 2007 (Adler & Mills, 2008). A 2012 survey of top executives from over 600 US firms in the government, nonprofit, public, and private sectors conducted by Right Management identified the lack of potential leaders as the most pressing human resource challenge (Katz, 2012). Decision makers in organizations who are concerned with this leadership shortage are searching for ways to increase the leadership potential of individuals within their organizations. As a result, United States companies spend approximately \$11 billion per year, approximately a quarter of their total training budget, on leadership development (O'Leonard, 2014).

With the growing demand for leadership development, it is increasingly important that we understand how to maximize the positive outcomes associated with leadership development opportunities. Although meta-analytic research suggests that leadership development interventions have an overall positive impact (Avolio, Reichard, Hannah, Walumbwa, & Chan, 2009; Collins & Holton, 2004), research also suggests that these interventions are not universally beneficial to all participants. A recent examination of a two-year leadership development program showed that half of the participants' leadership skills, as rated by their managers, improved, whereas half of the participants' leadership skills remained constant or *decreased* (Colbert, Walter, & Guay, 2014). When discussing

leaders' development through challenging job assignments, McCall (2004) notes "Some people learn only part of what they could learn, some learn the wrong things, and some steadfastly refuse to learn anything at all." In order to maximize the return on investment in leadership development, we must seek to understand what causes this variance in leadership learning outcomes.

Why is it that, when given the same developmental opportunities, some individuals improve their leadership skills and others do not? In order to answer this question, I draw on and extend Dweck's (1986) implicit self-theory from social psychology. Implicit self-theories originated in educational development when Dweck noticed that youths' beliefs about whether their intelligence was fixed (entity self-theory) or could be changed with hard work (incremental self-theory), led to different behaviors when the students were faced with an intellectual challenge or set-back. Differences in implicit beliefs (whether someone holds an entity or incremental implicit belief) have been linked to motivational processes (Dweck, 1986), individual achievement (Blackwell, Trzesniewski, & Dweck, 2007), and judgments about self and others (Dweck, Chiu, & Hong, 1995). The effects of these implicit beliefs in domains such as intelligence, weight loss, math ability, computer skills, and shyness, have been linked to differences in behaviors in these domains, especially when facing adversity. The effects of implicit beliefs about leadership, conversely, have not been extensively examined and have potentially significant implications for leadership development theory. By extending Dweck's implicit self-theories into the leadership domain, I propose that the extent to which individuals have a more fixed or incremental belief about their leadership ability will influence the degree to which they develop their leadership abilities.

Theoretical findings from Dweck's (1986) implicit self-theory, when applied to leadership, would suggest that an individual's implicit theory of leadership,¹ or leadership mindset, is one aspect that may influence individuals learning from leadership development opportunities. Leadership mindset is defined as the implicit belief that an individual holds about the malleability of leadership abilities. An individual with a more incremental leadership mindset believes that with hard work and effort, leadership skills can be developed or improved. Alternately, an individual with a stronger entity, or fixed, leadership mindset believes that leadership ability is not something that can be changed. Broadly speaking, fixed and incremental mindsets can be compared to 'born' or 'made' leadership beliefs, respectively. People with stronger entity mindsets believe that leadership abilities are something that individuals are born with. Entity theorists believe that there is nothing that an individual can do to control, or change, their innate leadership abilities. Although the belief regarding whether leaders are 'born' or 'made' may seem innocuous, Dweck's (1986) implicit theory of self suggests that these beliefs may influence leaders to behave in significantly different ways, thereby leading to different individual outcomes. While fixed versus incremental mindsets were originally operationalized dichotomously, my study will examine leadership mindset as a continuum with individuals having a more incremental or more fixed leadership mindset. Therefore, while individuals may be described as having an incremental mindset or a

¹ It is important to delineate the difference between implicit leadership theory and the implicit theory of leadership. The implicit leadership theory (ILT) suggests that individuals have implicit beliefs about the traits, qualities, and behaviors that typify a 'leader' (Eden & Leviatan, 1975; Lord & Maher, 2002). Implicit theory of leadership (based on Dweck's (1986) implicit theory of intelligence) is the belief that an individual has about how controllable the change in leadership ability is.

fixed mindset within this paper, it should be interpreted as an individuals who have a more incremental or more fixed mindset on a mindset continuum with a completely incremental belief on one end of the scale and a completely fixed mindset on the other end of the scale.

Accordingly, the overarching purpose of this research is to address the question: Does leadership mindset influence individuals' leadership growth? And, if it does, through what mechanisms is this influence mediated? In order to address these questions, I introduce and test a theoretical model that draws from implicit self-theory (Dweck, 1986) and self-control theory (Carver & Sheier, 1988).

Self-control theory (Carver & Sheier, 1988) is used as a foundation to examine mechanisms through which leadership growth occurs. Carver and Scheier's (1988) model of behavioral self-control suggests that goal monitoring is one of the primary processes involved in self-regulation. Goal monitoring is an important component of self-regulated behavior because it helps individuals identify how close they are to reaching their goal and what behavioral changes may still be necessary to accomplish their goal. Therefore, I propose two cognitive processes (negative feedback-seeking and reflection) and one emotional process (fear of failure) related to goal monitoring. Carver and Sheier (1988) suggest that feedback is integral to the goal monitoring process of behavioral self-regulation. Therefore, feedback-seeking is core to the self-regulatory process of behavioral change and growth. Zimmerman and Campillo (2003) introduced a model of self-regulated learning. These researchers suggested that self-reflection is essential in monitoring progress toward self-regulated learning. While theory suggests that feedback-seeking and reflection are important cognitive methods of monitoring goal progress,

theory also suggests that emotion can be an important source of information (Schwarz & Clore, 1983). Carver and Scheier (2012) suggested that when individuals evaluate or monitor their rate of progress toward attaining their goal, the evaluation is often manifested as affect or emotion. So, I propose examining both cognitive and affect goal monitoring mechanisms. Fear of failure is proposed as an attitudinal manifestation of goal monitoring, which, consequentially, influences leadership growth.

Carver and Sheier's (1988) self-control theory of behavior proposes feedback is an important component of behavioral change because it relays information about whether an action is having the desired effect. Although feedback is often viewed as having a positive influence on behaviors and performance, an extensive review of the feedback literature by Kluger and DeNisi (1996) found that feedback actually decreased performance in about a third of cases. One possible reason for this decline in performance is that some individuals may not have been emotionally or cognitively prepared to receive the feedback. Feedback-seeking, conversely, is when individuals actively seek, as opposed to reactively receive, feedback (Ashford, 1986). Because individuals are actively seeking this feedback, they are more emotionally and cognitively prepared for the feedback, and therefore more likely to accept and act on the feedback. It is expected, then, that feedback-seeking behavior, unlike unsolicited feedback, will have a generally positive impact on leadership growth. I extend the managerial feedback-seeking model proposed by Ashford and Tsui (1991) by suggesting that individuals' leadership mindset will influence how actively an individual seeks negative (areas for improvement) feedback. Self-regulation theory (Carver & Sheier, 1988) would then suggest that this feedback can be used as information to help individuals learn from reactions to their past

behaviors and adjust their future behavior in order to reach their goals. In sum, the active pursuit of negative feedback is expected to mediate relationship between individuals' leadership mindset and leadership growth. The relationship between feedback-seeking and leadership growth is expected to be stronger when individuals have more opportunities for developing their leadership abilities.

A second mechanism through which mindset may influence leadership growth is reflection. Numerous academics have noted the theoretical importance of reflection on leaders' development (Densten & Gray, 2001; Gray, 2007; Nesbit, 2012; Van Woerkom, 2004), however, empirical research on this theory is lacking. Using self-regulation theory as a foundation, Zimmerman and Campillo's self-regulated learning theory (2003) proposes that reflection is a behavior individuals use to monitor their progress towards a learning goal. They may think about whether their current actions are having the impact that they desire and, if the results are not as desired, reflection may be used to think of alternative behaviors or strategies to achieve the desired results. Therefore, I expect that active reflection will increase the positive relationship between leadership development opportunities and leadership growth. Additionally, I propose the leadership mindset is a predictor of individuals' reflection behaviors. Individuals who have an incremental leadership mindset will be more likely to reflect on their leadership behaviors. The relationship between reflection and leadership growth is expected to be stronger when individuals have more opportunities for developing their leadership abilities.

Carver and Scheier's (1988) self-control theory of behavior conceptualizes goal monitoring as a function feedback loops. They proposed two types of loops: *action loops*, which assess the magnitude of the discrepancy between the current state and the desired

state, and *meta loops*, which assess the discrepancy changes over time. In essence, action loops indicate the distance from a goal, whereas meta loops indicate the rate of progress toward the goal. While cognitive processes, such as feedback-seeking and reflection, are often used for monitoring progress toward the goal (the action loop), Carver and Scheier (2012) note that for the meta loop “The error signal in this loop is manifest in experience as affect” (p. 514). Therefore, negative emotions, such as the fear of failure, may provide goal monitoring information to individuals. Fear of failure is an emotion that is expected to mediate the relationship between leadership mindset and leadership growth. Atkinson (1966, p. 13) initially defined the fear of failure (or the motive to avoid failure) as the motivation to “avoid failure and/or a capacity for experiencing shame or humiliation as a consequence of failure.” Individuals with a fixed leadership mindset believe that every ‘test’ of their leadership ability is a measure of their capacity for leadership. Leaders with fixed mindsets may fear failure because they interpret it as a judgment of both their current and future leadership abilities. This fear of failure, in turn, limits the potential for leadership growth for individuals. A fear of failure may inhibit individuals from trying new skills or attempting to improve their skills for fear that if they do not succeed at the new skill then they have proved to themselves and to others that their skills are limited. Martin, Marsh, and Debus (2001a) note that fear of failure is a cascading process whereby fear of failure interacts with one’s belief that he will be able to accomplish a task and that interaction leads to differing self-regulatory behaviors. Someone who fears failure and beliefs that a task is not likely to be accomplished is more likely to self-handicap themselves to provide an excuse for failure instead of extending increased effort toward accomplishing the task. In summary, I expect that fear of failure is an emotional

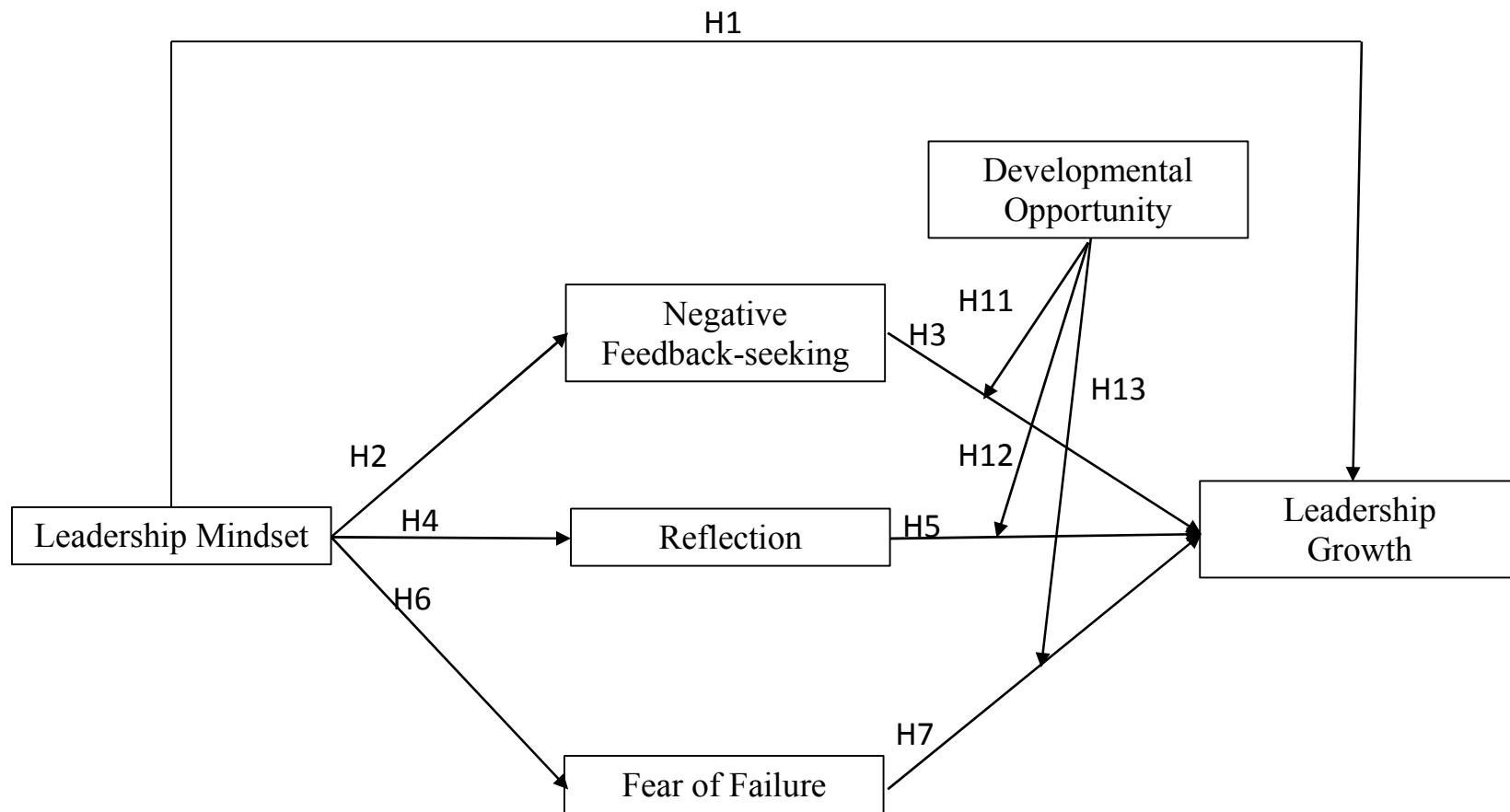
mechanism that transmits effects from leadership mindset to leadership growth. I also expect the negative relationship between fear of failure and leadership growth to be stronger when individuals have more opportunities for developing their leadership abilities.

I expect the relationship between the goal monitoring behaviors described above (negative feedback-seeking, reflection, and fear of failure) and leadership growth to be moderated by the amount of leadership development opportunities that the leader has. With more leadership development opportunities, the influence of the goal monitoring behaviors will be greater than with less opportunities. Self-regulatory processes, including goal monitoring, are predicated on the fact that individuals have goals to strive towards. It makes theoretical sense that if someone has more leadership development opportunities, then they will be given (or self-create) more leadership development goals. Therefore, the self-regulatory process will be more influential when individuals have more leadership development opportunities. In sum, I expect that the relationship between negative a) feedback-seeking, b) reflection, and c) fear of failure and leadership growth will be stronger when individuals have more, rather than less, leadership development opportunities.

In summary, I integrate theories and literatures from multiple disciplines including psychology, education, and management to develop and propose my hypotheses. Implicit self-theory suggests that individuals' leadership mindset may influence leadership development behaviors. Based on the monitoring process of self-regulation theory (Carver & Sheier, 1988) and literature on leadership development (Avolio, 2005), I suggest that three mechanisms through which leadership mindset

influences leadership growth are feedback-seeking, reflection, and fear of failure. The proposed theoretical model is shown in Figure 1.

Figure 1: Theoretical Model



Contributions of the Research

This research has the potential to make several contributions to the study of leadership and leadership development theory and research. First, it takes a first step to expand implicit self-theory or mindsets into the domain of leadership. Examining whether leadership mindsets influence behaviors in patterns similar to those of intelligence or general ability mindsets, may lead us to a better understanding of why leaders behave the way they do. This proposed study examines one potential implication of leadership mindset: its relationship to leadership growth. If these leadership mindset patterns are similar to those of other implicit self-theories, future research examining leadership mindset may lead to insights about leaders' attributions of others' success or failure, how high-level leaders identify future leaders, how leaders develop their leader identities, and why some leaders derail.

More explicitly, the current research explores one possible explanation for why some individuals learn more from leadership development opportunities than other individuals do. In order to develop their leaders within the company, many organizations provide leadership development opportunities such as classroom leadership training, mentoring or coaching, and developmental or challenging job assignments. Although research has found that these leadership development opportunities are effective in developing leadership abilities *on average*, both researchers and business leaders alike are interested in understanding what makes these developmental opportunities more effective for some individuals than others. This research examines one potential reason: the leadership mindset of the participant.

It is important to understand not only if leadership mindset influences leadership development, but also the mechanisms through which this influence is transmitted. Therefore, this research integrates implicit self-theory and self-regulation theory, to examine several specific mechanisms through which different beliefs or mindsets may influence leadership growth: negative feedback-seeking, reflection, and fear of failure. Research on feedback-seeking and reflection has primarily focused on the outcomes associated with these behaviors, less is known about the antecedents. Therefore, this research advances our understanding of feedback-seeking, reflection, and the fear of failure by examining mindset as a potential antecedent.

Although feedback-seeking has a robust history in management research (Ashford, 1986; Ashford, Blatt, & VandeWalle, 2003; Ashford & Tsui, 1991), reflection has not been widely studied in management situations (Reynolds, 1998). Therefore, this research has the potential to extend leadership development theory by examining the role of reflection in leadership development. Research in the development of educators and nurses has noted the positive influence of reflection on the development of critical thinking skills and the transfer of abstract theory into constructive behaviors (Moon, 2004), but little research has examined the impact of reflection on leadership development. Because leadership development often requires transfer of knowledge from abstract theoretical form to applied knowledge, a challenge similar to that in the fields of education and nursing, reflection may be an important process in the development of leadership ability. Examining whether or not reflection mediates the relationship between leadership mindset and leadership growth will improve our understanding of the relative importance of reflection as a part of leadership development.

This research also has important practical implications. Research suggests that mindsets can be primed or even changed long-term (Aronson, Fried, & Good, 2002; Niiya, Crocker, & Bartmess, 2004). Consequently, if the results of this research suggest that leadership mindset does indeed influence behaviors associated with leadership growth, then it follows that implementing an intervention to influence the leadership mindset of development participants may be a first step in a developmental intervention. Influencing the mindset of leadership development participants may lead to an overall improvement in leadership development outcomes by decreasing the number of participants who have no improvement from the leadership development intervention.

While implicit person theory has not been widely studied in the management field, a related construct, goal orientation, has been more thoroughly examined. For example, within the leadership literature, goal orientation has been studied as a predictor of leadership effectiveness (Hendricks & Payne, 2007) as well as a moderator of the relationship between challenging developmental opportunities and skill development (DeRue & Wellman, 2009; Dragoni, Tesluk, Russell, & Oh, 2009). It is important to understand the similarities and differences between goal orientation and mindset. Therefore, a sub-goal of this research is to examine the discriminant nature of leadership mindset and the three dimensions of goal orientation. Having introduced the theoretical model and contributions of the research, I will review the relevant literature and provide support for the hypotheses in Chapter 2. Chapter 3 is then a description of the sample, methods, and analytical strategy used to test the hypotheses. Chapter 4 presents the results of the analyses. And, finally, Chapter 5 is a brief discussion, including

contributions and implications of the study, limitations of the study, and possible future directions.

CHAPTER II: LITERATURE REVIEW AND HYPOTHESIS DEVELOPMENT

In this chapter, I will review the relevant literature and develop the hypotheses related to my theoretical model (Figure 1). I will begin with the literature on implicit self-theories (mindsets), investigating the findings on implicit theories in the intelligence domain, and discussing why the leadership domain is an important theoretical extension to the implicit-self literature. I will then transition to the primary contribution of this dissertation by exploring leadership mindset as a critical factor related to leadership growth. Drawing on self-regulation theory, I will explore three mechanisms expected to mediate the relationship between leadership mindset and leadership growth: negative feedback-seeking, reflection, and fear of failure. Next, I briefly explore the literature on leader development with emphasis on three broad categories of organization sponsored leader development: formal training programs, coaching, and challenging job experiences. Finally, I explore how these development opportunities interact with negative feedback-seeking behavior, reflection, and fear of failure to influence the magnitude of their relationships with leadership growth.

Implicit Theories of Self

Implicit self-theory was developed by Dweck and Diener as they observed differences in children's reactions to failure (Diener & Dweck, 1978, 1980). These researchers noted that children generally had one of two reactions when faced with an obstacle, they either increased their effort (labeled the "mastery-oriented" response), or they withdrew from the task (labeled the "helpless" response). What most intrigued these researchers was that this reaction was independent of the actual ability of the children (Dweck, 2000). Some of the brightest students would 'fall apart' when faced with a

setback, questioning their intelligence even if they had performed exceptionally up to that point, whereas some of the less skilled students would increase their effort in the face of a setback, not once questioning their ability or intelligence. Diener and Dweck (1978) set out to understand these different response patterns by asking the children why they failed at the task. The researchers found that children who displayed mastery-oriented patterns (striving in the face of setbacks) attributed their failure to not giving enough effort to the task or using a poor strategy to accomplish the task. Conversely, children who displayed helpless patterns (withdrawing when facing a challenge) attributed their failure to dispositional causes such as their lack of ability to perform the task.

Based on their interviews about failure attributions, Dweck and colleagues theorized that individuals have implicit self-theories. Implicit self-theories are beliefs about whether attributes, such as intelligence, are ‘a part of who they are’ or ‘something they can change’ (Dweck & Leggett, 1988). These beliefs then lead to mastery-oriented or helpless responses to failure. Individuals with an “entity” self-theory believe that an ability, such as intelligence, is a fixed trait (you are either intelligent or you are not, and you cannot do anything to change that). Individuals with an “incremental” self-theory believe that an ability can be improved through learning and effort. So, incremental theorists believe that by studying and working hard you can improve your intelligence whereas entity theorists do not believe that you can control or change your intelligence. In order to improve the ease of interpretation, individuals with an entity self-theories are said to have a “fixed mindset”, whereas individuals with an incremental self-theory are said to have an “incremental mindset” (Dweck, 2006). Fixed and incremental mindsets are equally common in the domain of intelligence, with about 40% of individuals

believing that intelligence is non-malleable (fixed intelligence mindset), 40% believing that intelligence is malleable (incremental intelligence) mindset, and 20% being undecided (Dweck & Molden, 2013).

The influence of a mindset is most significant and evident when individuals face a challenging situation because their mindset guides their interpretation of the challenging situation, including the cause or reason why they are facing the challenging situation and what strategies can be taken to overcome the challenge (Dweck & Molden, 2013). Hong, Chiu, Dweck, Lin, and Wan (1999) suggest that mindsets are an important extension to attribution theory.

Attribution theory suggests that individuals' responses to events are influenced by the causal attributions that they make about that event (Weiner, 1974). Weiner suggested that individuals' attributions consist of three important dimensions: locus, stability, and controllability. How individuals classify the situation they are in (in other words, what attributes they make on the three dimensions) influence their subsequent motivation in a similar task or situation. The locus dimension refers to whether the cause of the event is considered internal to the individual or external. For example, if a student fails an exam, an internal locus or attribution might be that s/he did not prepare enough, and an external attribution may be that the teacher made the test unfairly difficult. The stability attribution dimension refers to whether the cause is stable or unstable across time and situations. For example, a student would make a stable attribution if s/he fails a test because they believe that the teacher consistently makes unfairly difficult tests. Conversely, if a student failed a test when they were feeling ill, the student may make an unstable attribution, believing s/he would have passed the test if well. Attribution theory

suggests that when individuals experience success, attributions to stable causes lead to positive expectations for future success. Alternately, in the case of failure, attributions to stable causes lead to lower expectations of future success. The final attribution dimension, controllability, refers to whether individuals believe they can control the cause of the event. The controllability dimension is only applicable to internal attributions.

Attribution theory has a long history in the social sciences and many facets of attributions have been examined, so it is important to clarify where mindset fits within the attribution model. Hong et al. (1999) suggest that attribution approaches to understanding behaviors are somewhat incomplete in that they do not address the belief systems that individuals have that may promote particular attributions. In other words, individuals may be pre-disposed to make certain attributions. Since mindset is a belief about whether or not individuals can change, it is expected that mindset will only influence the stability and controllability dimensions of internal attributions. An individual with a fixed mindset is pre-disposed to attribute failures to the deficiency of an *unchangeable* ability (an uncontrollable, stable attribution). Conversely, an individual with an incremental mindset is pre-disposed to attribute failure to a *lack of effort* or a lack of a *learnable* ability (a controllable, unstable attribution).

As mentioned earlier, attribution theory suggests that when individuals attribute negative events (such as failure) to stable factors, it leads them to expect poor future performance. The learned helplessness model, an extension of attribution theory, suggests that when individuals make both uncontrollable and stable attributions to negative events, it is improbable that they will take action to change the situation (Abramson, Seligman, &

Teasdale, 1978). An individual's mindset influences his interpretation of why he is facing the challenging situation, thereby influencing the strategy he will implement to overcome or evade the challenging situation. When individuals with fixed mindsets face a challenge, they generally attribute the cause to a stable, uncontrollable ability level, which often leads to helpless behaviors such as reduced effort or withdraw.

Although implicit theories are generally relatively stable beliefs, there is evidence that they can be primed or changed long-term. Many experimental studies have manipulated the implicit beliefs of individuals, often using persuasive readings. For example, as a part of their experimental study, Niiya et al. (2004) had participants complete a Graduate Record Examination (GRE) type test including a reading comprehension portion. The reading passage was designed to either prime a fixed or incremental intelligence mindset. For priming the fixed mindset, the passage described intelligence as being solely based on heredity so that it could not be changed throughout an individual's lifetime. Individuals primed for incremental mindset read a passage that described intelligence as capable of being substantially increased through environmental factors. In addition to these experimental studies, which primed fixed or incremental intelligence mindsets, there is empirical evidence that people's intelligence mindsets can be changed long-term using targeted interventions (Aronson et al., 2002).

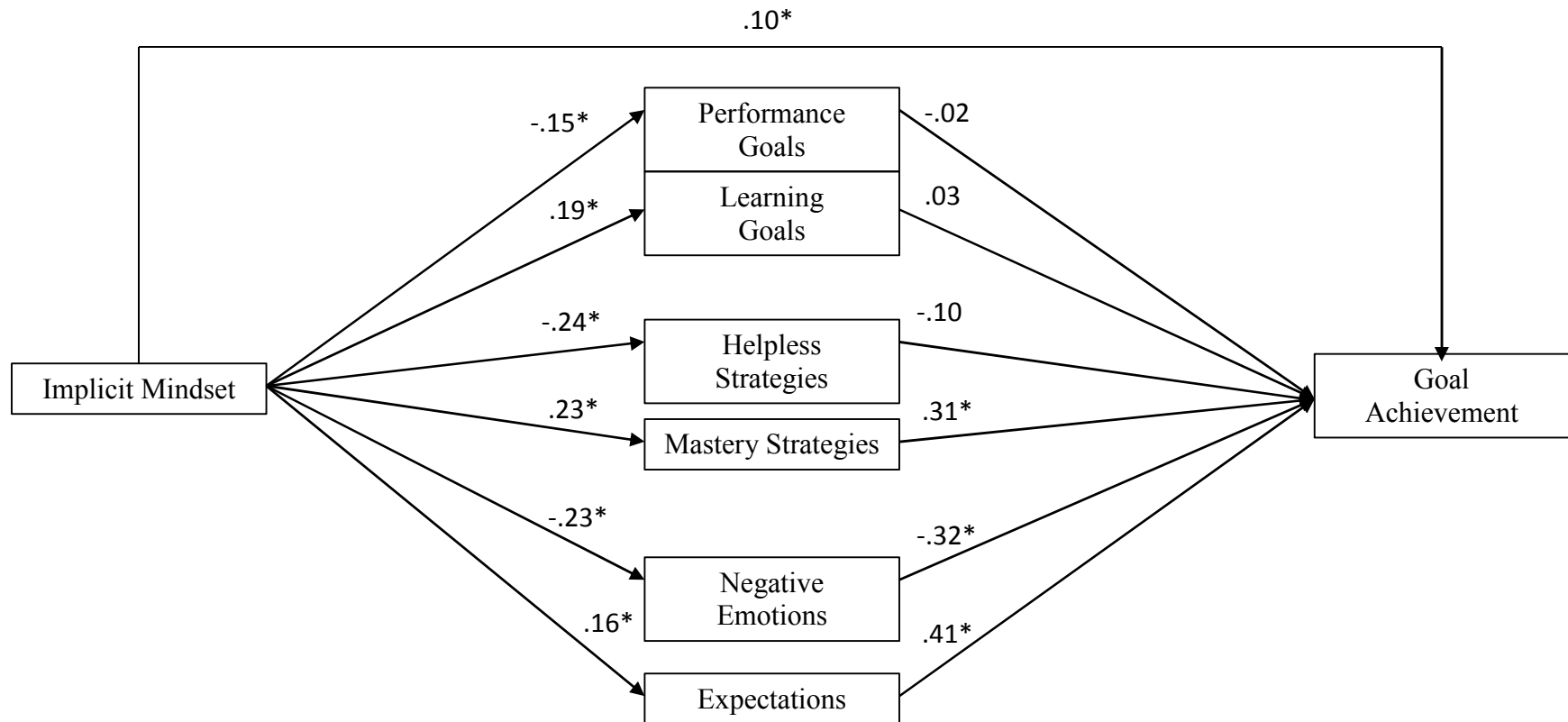
An empirical study by Blackwell et al. (2007) supports the theory that individuals' mindsets influence their performance improvement through differences in their beliefs about effort, attributions about challenges, and strategies for dealing with setbacks. This longitudinal study followed 373 7th grade students, examining the relationship between their implicit theories about intelligence (intelligence mindsets) and improvements in

mathematics achievement. Mindsets were related to beliefs about ability, with incremental mindset students believing that effort was a way to become better at mathematics and fixed mindset students believing that effort reflected deficient ability. Individuals with a fixed mindset believe that their intelligence is something that is stable and uncontrollable. Therefore, for individuals with a fixed mindset, ability and effort are inversely related. They believe that if they have to work at something (exert effort) that meant that they had a low ability level. Students with fixed mindsets endorsed ideas such as: “To tell the truth, when I work hard at my schoolwork, it makes me feel like I’m not very smart.” Students with incremental and fixed mindsets also attributed their failures to very different reasons, with incremental mindset students believing that failure was due to lack of effort or poor strategy (“I didn’t go about studying the right way”) and entity mindset students believe that failure was again due to lack of ability (“I wasn’t smart enough”). It follows that given the differences in attributions for failure, these students would have different strategies for overcoming failure. Indeed, incremental mindset students endorsed a strategy of increased effort after failure (“I would work harder in this class from now on”), whereas students with a fixed mindset endorsed less constructive strategies (i.e. “I would spend less time on this subject from now on” or “I would try to cheat on the next test”). Students with a fixed mindset believe that there is no way to improve their ability, and believe that exerting extra effort will not lead to improved outcomes, but instead will confirm their lack of ability, so their strategies are more likely to include withdrawing from the situation. At the end of the two-year study students with an incremental mindset outperformed students with a fixed mindset in mathematics

achievement, even though the groups began the study with equivalent mathematics ability (Blackwell et al., 2007).

A recent meta-analysis by Burnette, O'Boyle, VanEpps, Pollack, and Finkel (2013) examined the relationship between mindsets and goal achievement. The relationship between incremental mindset and goal achievement was found to be .10 ($k = 55$; $n = 12,943$; 95% CI: .04, .15). While the majority of the studies included in the meta-analysis were focused on intelligence mindsets, 32% of the studies were outside the academic domain and studied mindsets in various domains such as athletic abilities, dieting, and willpower. The authors of this meta-analysis analyzed the relationship between mindset and goal achievement through multiple self-regulatory mechanisms using meta-SEM. A summary of their findings is presented in Figure 2.

Figure 2: Mindset Relationships from meta-SEM



Adapted from Burnette, O'Boyle, VanEpps, Pollack, & Finkel (2013). Mind-sets matter: A meta-analytic review of implicit theories and self-regulation. *Psychological Bulletin*, 139(3), p.670. Effect size estimates are observed correlations from separate analyses investigating each path.

* $p < .05$

Implicit Theory of Leadership – Leadership Mindset

While the original conceptualization of implicit self-theory referred to fixed versus incremental beliefs about *intelligence*, the theory has expanded to include many domains such as personality (Ruvolo & Rotondo, 1998), shyness (Beer, 2002), morality (Chiu, Dweck, Tong, & Fu, 1997), physical ability (Cury, Da Fonseca, Rufo, & Sarrazin, 2002), computer skills (Martocchio, 1994), and social relationships (Knee, Patrick, & Lonsbary, 2003). Dweck et al. (1995) note that individuals may have different mindsets, depending on the domain being studied. For example, an individual may have a fixed mindset believing that intelligence cannot be substantially changed, but an incremental mindset about physical ability, believing that an individual can significantly change how athletic or coordinated they are.

One domain-specific implicit person belief that has not been widely examined is leadership mindset, the belief that leadership ability is more fixed or incremental. A long debated question in the scholarship of leadership is whether leaders are ‘born’ or ‘made.’ This question maps closely with the fixed or incremental leadership mindset. Essentially, individuals who believe that leaders are ‘born’ are endorsing a more ‘fixed’ leadership mindset, suggesting that individuals have little control over the level of their leadership ability. Conversely, individuals who believe that leaders are ‘made’ are endorsing the belief that leadership abilities are ‘malleable’ or ‘incremental.’ A Google search of the exact phrase, “Are leaders born or made,” results in over 33,000 results. The large number of web pages dedicated to debating the position of born or made leadership abilities suggests that some individuals have strong fixed or incremental mindset beliefs. Indeed even within the academic literature there is debate about the extent to which

leaders are born or made (Arvey, Rotundo, Johnson, Zhang, & McGue, 2006; Arvey, Zhang, Avolio, & Krueger, 2007; Avolio, 1999; Conger, 2004; Johnson et al., 1998). Research suggests that successful performance is generally attributed to experience and coaching as opposed to genetics (Ericsson & Charness, 1994). Thus while leadership ability is a combination of genetics and experience, it is possible to develop additional leadership capacity or ability (Conger, 2004). It is important to note that the goal of this research is not to attempt to answer whether leadership is fixed or malleable, or even which of these beliefs is 'better,' but rather to examine how each of these beliefs may influence individuals' behaviors.

While leadership mindset research is limited, the impact of a manager's general implicit person theory (the belief about whether or not a person can change *in general*) has been examined more broadly in the management field. A study by Heslin, Vandewalle, and Latham (2006) examined the influence of managers' implicit person theories on coaching. For this study, the researchers used the 'kind of person' domain of implicit person theory, meaning they asked the managers if individuals could change the kind of person that they are (sample question: "People can substantially change the kind of person they are"). They found that having an incremental mindset was positively related to subordinates' rating of the manager's coaching behavior after controlling for manager's experience and age. When managers believed that people could change, they were more likely to invest time and effort coaching their subordinates.

Another example of the impact of managers' implicit person theories on their behaviors is the study by Heslin, Latham, and VandeWalle (2005) that examined the effects of managers' implicit person beliefs on performance appraisals. In this

experiment, the participants watched a video of an individual who performed poorly on a negotiation exercise. Participants were asked to rate the negotiator's performance. The participants then watched a video of the same individual negotiating again, but in this second video the individual exhibited many 'positive' or 'good' negotiation strategies or behaviors. Participants then rated the negotiation performance of the individual observed in the second video. Participants with a more incremental mindset were more likely to recognize the improvement in performance, as evidenced by increased negotiation performance ratings from the first to the second video. The researchers noted that when managers have a fixed mindset they are more likely to hold 'anchored' beliefs about performance. Participants with a more fixed mindset would 'anchor' their evaluations based on their initial or first performance impressions. Therefore, individuals with a more fixed mindset are less likely to notice or be aware of (positive or negative) changes in other's performance. Again, while this experiment examines the influence of manager's general implicit person beliefs (whether or not people change substantially change), it does not specifically examine the impact of the manager's leadership mindset (whether or not people can significantly change their *leadership abilities*). Additionally, this research by Heslin et al. (2005) examines the impact that a manager's implicit beliefs have on their evaluations of others, and does not examine the influence that mindset has on an individual's own strategies. In other words, their study examines how a leader's mindset influences others, but it does not examine how the leader's mindset directly impacts the leader.

In an experimental study by Taberner and Wood (1999) researchers examined the impact of an individual's managerial mindset, which is a closer extension of implicit

person theory into the leadership domain than the previously mentioned studies by Heslin and colleagues. These researchers asked participants two questions to measure their managerial domain-specific mindset: “Do you believe that the ability to coordinate workers on a task is an incremental skill that can be continually enhanced?” (incremental managerial mindset) and “Do you believe that the ability to manage a group is a fixed capacity, something that you either have or you do not have?” (fixed managerial mindset). Participants then completed a computer simulation where they were managers of a furniture production facility, tasked with allocating workers to tasks in order to complete work assignments in the shortest period of time. Participants also selected performance goals, provided feedback, and allocated rewards to the simulated workers (goals, feedback and rewards were chosen from options provided by the computer simulation). The simulation lasted for twelve simulated business weeks, with participants’ motivational measures (self-efficacy, self-satisfaction, and individual goals for the simulation) taken after the first six-week block and at the end of the simulation. The researchers found that individuals with a more incremental managerial mindset had significantly higher self-efficacy, were more satisfied with their performance, and set more challenging goals than individuals with a fixed managerial mindset. These results were found both for the first half block of the experiment and the second block. Additionally, individuals with a more incremental mindset had better performance on the simulation than individuals with a fixed mindset. While these results strongly suggest that an individual’s managerial mindset influences their motivational response patterns leading to better performance, there are some limitations to the study. First, the study participants were undergraduate students with no prior managerial experience.

Additionally, although the simulation did involve some leadership competencies such as providing feedback and allocating rewards, performing these actions within the realm of a simulation is a very different context than providing feedback and allocating rewards to actual individuals. A study of individuals with leadership experience involving actual work conditions would support the generalizability of these findings.

There have been two published studies by Burnette and colleagues that have specifically studied leadership mindset, examining the relationship between leadership mindset, leadership self-efficacy, and self-esteem. In the first study, Burnette, Pollack, and Hoyt (2010) examined the impact of women's leadership mindset and leadership self-efficacy on self-esteem when faced with a stereotype threat. Implicit person theory suggests that individuals with a more incremental mindset are concerned with their *personal* performance or ability growth, whereas individuals with a more fixed mindset are concerned with their performance *in comparison to others*. Therefore, researchers proposed that when faced with a 'stereotype threat' (meant to create a comparison threat), individuals with a more incremental mindset would not be negatively affected since they would accept the situation as an opportunity to learn or develop, and not as a comparison threat, and, therefore, would have high self-esteem level independent of their level of leadership self-efficacy. Researchers found that having a more fixed leadership mindset and low self-efficacy was positively related to low self-esteem when faced with the stereotype (or comparison) threat.

Another study that specifically examined leadership mindset examined the discrepant impact of a role model on self-efficacy for individuals with fixed or incremental leadership mindset (Hoyt, Burnette, & Innella, 2012). This research,

conducted with 46 undergraduate women, found that women with more incremental, compared to fixed, leadership mindset reported greater leadership confidence and less anxious-depressed affect after writing about a leader role-model and then completing a challenging leadership task. The researchers offered that though women with an incremental leadership mindset identify with their leader role model, women with a more fixed leadership mindset feel threatened when presented with a successful role model. In a follow-up study, the researchers manipulated the mindset of 55 undergraduate participants by having them read a *Psychology Today* type article that presented compelling evidence for either the fixed or the incremental leadership mindset belief. Participants were then given a vignette of a successful leader role model to read. Finally, participants were given a leadership task and asked to complete an exit survey that measured their leadership confidence, anxious-depressed affect, and identification with role model. The results again showed that people with a more incremental leadership mindset were more positively affected by a leader role model, reporting greater leadership confidence and less anxiousness after completing the leadership task, and performing better on the leadership task than individuals with a more fixed leadership mindset.

The studies on managerial (Taberner & Wood, 1999) and leadership mindset (Burnette et al., 2010; Hoyt et al., 2012) have many strengths and have set a foundation for exploring this important implicit theory domain. The experimental tasks within these studies clearly show that there is a link between mindset and attitudes and behaviors of individuals faced with a threat or challenge. An important next step is to extend the generalizability of leadership mindset by examining how implicit leadership mindset

impacts working managers in field settings. I also propose extending our understanding of leadership mindset by examining how leadership mindset influences goal monitoring processes which consequentially influence the effectiveness of a range of developmental opportunities.

Implicit Person Theory and Goal Orientation

While implicit person theory has not been widely studied in the management field, a related construct, goal orientation, has been more thoroughly examined. For example, within the leadership literature, goal orientation has been studied as a predictor of leadership effectiveness (Hendricks & Payne, 2007) as well as a moderator of the relationship between challenging developmental opportunities and skill development (DeRue & Wellman, 2009; Dragoni, Tesluk, Russell, & Oh, 2009). It is important to understand the similarities and differences between goal orientation and mindset. Goal orientation is theoretically related to, yet conceptually distinct from, mindset (Vandewalle, 2012). Vandewalle (2012) notes that mindsets are *beliefs* about whether or not an ability is malleable, whereas a goal orientation represents an individual's *purpose* in an achievement situation. Dweck and Leggett (1988) originally described two types of goal orientations: learning and performance. Individuals with a learning goal orientation are concerned with mastering tasks and improving their performance on tasks. They are less concerned with the opinions of others or their performance relative to others, but rather seek to improve their own absolute performance, often setting challenging or 'stretch' goals. Individuals with a performance goal orientation, on the other hand, are concerned with the perceptions of others and seek goals or tasks that they can successfully perform. Vandewalle (1997) further delineated performance goal orientation

into two sub-dimensions: performance prove orientation and performance avoid orientation. Individuals with a performance prove orientation seek to perform better than their peers, whereas individuals with a performance avoid orientation are motivated to avoid negative evaluations from others.

When Dweck and Leggett (1988) originally theorized goal orientations, they suggested a two-step attribution process whereby implicit theories (mindsets) led to goal orientations, then goal orientations led to differing attributions and behavioral responses. So, originally, the researchers believed it was individuals' goal orientation that most directly (or proximally) influenced their attributions and responses. Since then, Dweck and colleagues have revised their theory to suggest that mindsets directly impact attributions and behaviors (as opposed to working through goal orientation/setting). Although Dweck and Leggett (1988) originally theorized mindsets as predictors of goal orientations, Hong et al. (1999, p. 589) later noted that "implicit theories are more consistently predictive of attributions and responses than are achievement goals" (performance goals). Meta-analytic evidence also suggests that mindsets and goal orientations are not as strongly related as original theories suggested (Burnette et al., 2013). The results of this meta-analysis are represented in Figure 2. Although results showed that the relationships were significant in the expected directions, the magnitudes were relatively small. Incremental mindsets were positively related to learning goals ($r = .19$; $k = 36$; $n = 9,184$; 95% CI: $.14, .23$) and negatively related to performance goals ($r = -.15$; $k = 30$; $n = 7,635$; 95% CI: $-.20, -.10$, note: this is equivalent to a positive relationship between fixed mindset and performance goal). An empirical study by Stipek

and Gralinski (1996) showed that mindset predicted academic achievement, but support for the assertion that goals mediated that effect was modest.

Research from Dweck and colleagues suggest that implicit theories may modify the meaning that particular goals have for individuals (Erdley, Loomis, Cain, & Dumas-Hines, 1997; Hong et al., 1999). These researchers highlight two primary differences in the way that individuals with fixed versus incremental mindsets influence perceive tasks. First, when given a goal that was a clear performance goal (tasks to assess ability and teach nothing), individuals differed in how broadly they thought the performance task measured ability. Fixed mindset individuals believed it measured their underlying and future ability much more than incremental mindset individuals, who saw it as measuring their current ability level. Second, when given a specific learning goal task (meant to teach something new, but not measure performance), individuals with a fixed mindset expressed concern about not feeling or looking smart when performing the task much more often than individuals with an incremental mindset.

In short, while goal orientation is related to mindset, mindset is a broader construct, which likely works through multiple mechanisms in addition to influencing individual's goal orientation, such as altering the interpretation of the meaning of failure of a goal, and attributions toward success and failure. Because of the differences between mindsets and goal orientations, it is important to study the influence of leadership mindset on leadership growth.

Measuring, or even defining, leadership growth can be a complex undertaking (Day & Lance, 2004; Hooijberg, Hunt, & Dodge, 1997). With the understanding that I am simplifying a very complex construct, I define leadership growth as improvement in

skills and abilities that influence individuals' functioning in formal leadership positions. There are many behavioral skills and abilities that are generally agreed upon as promoting leadership effectiveness, such as: planning ability, delegation ability, communication skills, being a good role model, ability to motivate others, and creating a vision or direction for the team (Chemers, 2008).

Having examined implicit self-theory and briefly defined what is meant by leadership growth, I examine behavioral self-regulation theory (Carver & Scheier, 1988), and more specifically the goal monitoring process of self-regulation theory as a theoretical foundation for the processes through which leadership mindset influences leadership growth.

Self-Regulation

Carver and Scheier's (1988) self-regulation theory of behavior is based on the idea that human behavior is directed at reaching goals and regulated by a feedback control process. The feedback control process is described as a "negative feedback loop," which consists of four major components: an input function, a reference value, a comparator, and an output function. In less technical terms, the input function is a perception of the current situation, the reference value is what you would like the situation to be, the comparator is the individual who makes the comparison between the input (current situation) and the reference value (where you would like things to be) to determine what actions must take place next and the output function is the behavior that occurs given the value of the comparison (what, if any, discrepancy there is between the current situation and the desired situation).

Carver and Scheier's (1988) model can be described in terms of three primary processes based on the four components in their feedback loop: goal setting, goal operating, and goal monitoring. Goal setting is the first process involved in the regulation of behavior. Individuals set their reference value, or their goal, in this first process. The next process is goal operating where individuals perform behaviors in an effort to reach their goal/reference value. The next, or sometimes concurrent process is goal monitoring. During this process individuals (comparators) assess whether or not they are meeting their goals, and what strategies may be necessary if the goals are not being met (the output). If, during the goal monitoring process, individuals determine that they are not meeting their goals, they can either readjust their goals (goal setting process) or change their behavioral strategies (goal operating process). It is important to note that in the goal monitoring process involves two major components: 1) evaluating the discrepancy between the goal and the current state and 2) deciding what future actions need to be taken given this discrepancy (or what the behavioral outcomes must be). The processes of goal setting, goal operating, and goal monitoring work in a continuous fashion until the goal is met (the input matches the reference value).

Using self-regulation as a foundation, Zimmerman and Campillo (2003) developed a model of self-regulated learning. This model of self-regulated learning consists of three process which map closely to Carver & Scheier's (1988) self-regulated theory of behavior. Zimmerman's three phases are: forethought phase (consisting of task analysis behaviors and self-motivation beliefs), performance phase (consisting of self-control and self-observation components), and self-reflection phases (consisting of self-judgment and self-reaction). The self-reflection phase suggests that monitoring behaviors

and making self-judgments about the effectiveness of those behaviors is integral to learning and growth.

Another important aspect of these self-regulatory models is that they are loops. This means that one process (such a goal monitoring) is likely to influence the other processes (goal setting/adjusting and goal operating). Carver and Scheier (2012) make a distinction between action loops and meta loops. Action loops assess the magnitude of the discrepancy between the current state and the desired state at one point in time. Meta loops assess the discrepancy changes (how much the action loops change) over time. Essentially, action loops indicate the distance from a goal, whereas meta loops indicate the rate of progress toward the goal. While cognitive processes, such as feedback-seeking and reflection, are often used for monitoring progress toward the goal (the action loop), Carver and Scheier (2012) note that for the meta loop “The error signal in this loop is manifest in experience as affect” (p. 514). This suggests that individuals use affect or emotions as information in monitoring their goal progress, which would be supported by Schwarz and Clore’s theory of mood as information (Schwarz & Clore, 1983, 2003).

Although mindset may influence all three self-regulatory processes (Burnette et al., 2013), the current research is focused specifically on the goal monitoring process of self-regulatory behavior and its influence leadership growth. The goal monitoring process was selected because leadership development researchers have already been researching and discussing the micromechanisms associated with goal monitoring, such as feedback and reflection (Avolio, 2005; DeRue & Wellman, 2009; Seibert & Daudelin, 1999). As such, examining the relationship between leadership mindset and leadership growth using mechanisms associated with the goal monitoring processes is a reasonable place to begin

integrating implicit self-theory and self-regulatory theory and adding to the discussion on leadership development.

Leadership Mindset and Leadership Growth

Before examining specific mechanisms through which leadership mindset influences leadership growth, I begin by examining the main effects of leadership mindset on growth. Implicit person theory suggests, and results from both primary studies and meta-analytic results support, that individuals with a more incremental mindset are more likely to develop their skills when given a learning opportunity than individuals with a more fixed mindset, especially if the learning opportunity involves some risk to their ego, or opportunity for failure (Burnette et al., 2013; Robins & Pals, 2002; Stipek & Gralinski, 1996).

As mentioned earlier, individuals with a more fixed leadership mindset believe that their leadership ability cannot be changed. These individuals believe that their ability is ‘fixed’ at a specific level. Therefore, they have no motivation to try to learn skills that they are currently lacking. These individuals may instead try to avoid tasks or situations where they may not succeed (Dweck, 1986). Failures are interpreted as a measure of their fixed ability level. If individuals with a fixed leadership mindset are given a challenge or an opportunity to stretch their leadership ability, they are likely to experience a high level of anxiety and fear about not being able to successfully accomplish the task (Burnette et al., 2010). Individuals with a more fixed mindset would interpret this failure as a limitation of their current *and future* ability as a leader, as these individuals believe that current and future abilities are tantamount (Hong et al., 1999). As such, individuals with a

fixed leadership mindset when monitoring progress toward their goal are not focused on developing strategies to improve performance.

Implicit self-theory suggests that individuals who believe that leadership ability is more malleable, through effort and commitment, are more likely to continue to pursue challenging tasks until they master them (Dweck & Leggett, 1988). Although these individuals do not enjoy failure, they interpret failure as a measure of their current ability level and believe that they can develop the skills necessary to improve their ability and potentially overcome that challenge/failure in the future (Hong et al., 1999). Therefore, these individuals are more focused on determining why they are not reaching their goals and developing strategies to improve performance to meet their goals.

Self-regulation theory suggests that feedback is an important process in reaching goals (Carver & Sheier, 1988) and implicit self-theory suggests that mindsets influence the monitoring process. Mangels, Butterfield, Lamb, Good, and Dweck (2006) examined differences in brain activity of individuals with more incremental or more fixed mindsets. In this study, individuals were asked to answer difficult questions one at a time on a computer. After the individual answered each question, they were first given information about whether they answered the question correctly or not and then were given information about the correct answer. The researchers tracked brain activity during the experiment and could tell what information individuals brains were attune to the feedback they were receiving. The researchers found that both individuals did not differ in their attention to whether they answered the question correctly. The researchers note that information about whether they answered correctly is important both to individuals with a more fixed mindset who want to validate their ability and to individuals with a more

incremental mindset who are interested in learning. But, differences in mindset were related to differences in attention to what the correct answer was. When the correct answer was presented, individuals with a more incremental mindset attended to the correct answer. However, individuals with a more fixed mindset were less likely to pay attention to the correct answer. Thus, individuals with a more incremental mindset are more likely than individuals with a fixed mindset to attend to information that can help them learn from their mistakes.

Therefore, I hypothesize:

Hypothesis 1: Leadership mindset is positively related to leadership growth, such that individuals with a more incremental mindset are more likely to have leadership growth.

Having hypothesized the relationship between leadership mindset and leadership growth, I now examine mechanisms through which the effects of leadership mindset may transfer to leadership growth. I propose three mediating mechanisms: negative feedback-seeking, reflection, and fear of failure. I will examine each of these mediating mechanisms individually, but I will follow the same structure for each mechanism. I begin with a brief description and review of the mediating construct. I will use implicit theory to develop the hypothesis relating mindset to the mediating mechanism. I end each section using self-regulatory theory as a foundation to develop the hypothesis relating the mediating mechanism to leadership growth.

Feedback-Seeking

Ashford & Cummings' (1983) seminal piece on feedback seeking behavior extended our theoretical understanding of feedback. Prior to this article, much of the work on

feedback was focused on how organizations could use feedback to improve employee performance and to make employees more receptive to supervisor-initiated feedback (Ilgen, Fisher, & Taylor, 1979; Kim & Hamner, 1976; Prue & Fairbank, 1981). Ashford & Cummings (1983) expressed the importance of moving beyond the typical unsolicited, annual performance review type feedback, instead focusing on how individuals actively seek feedback to obtain valuable information.

Ashford et al. (2003) identified three motives for feedback seeking: instrumental motive to improve performance, ego-based motive to defend or enhance the individual's ego, or image-based motive to defend or enhance other's impressions of the individual. The instrumental motive for feedback-seeking is grounded in self-regulation theory; individuals seek feedback to obtain diagnostic information that will help them reach their goals (Tsui & Ashford, 1994). Information from feedback helps individuals determine if they should continue their current behavior (if it is moving them toward their goal) or if they should stop or change behaviors (if what they are currently doing is not moving them toward their goal). The other two feedback seeking motivations (ego-based and image-based) are similar in that the feedback seeking individuals with this motivation are not concerned with using feedback as a diagnostic tool but rather as a way to enhance the opinion that they have of themselves, in the case of ego-based, or the opinion that others have of them, in the case of image-based.

When choosing whether or not to pursue feedback, individuals must weigh the perceived costs and potential value of seeking feedback (Vancouver & Morrison, 1995). Feedback-seeking has potential costs or risks (Ashford & Tsui, 1991), such as potential impression management costs (Ashford, 1986) Individuals may seek feedback and

receive negative feedback that makes them ‘look bad.’ Implicit self-theory would suggest that individuals’ mindsets would impact how they weigh the perceived cost versus benefits of feedback seeking. Individuals with an incremental mindset would be more motivated by the instrumental value of feedback seeking whereas individuals with a fixed mindset would be more motivated by ego- or image-based enhancement value.

When a choice is made to pursue feedback, individuals must also decide what type of feedback to pursue. Feedback can be positive (i.e. what they are doing right) and/or negative (i.e. what they are doing wrong or need to change). Even though both positive and negative feedback can be diagnostic and useful, negative feedback is often more instrumental because it highlights areas where additional learning or growth can occur. Positive feedback may not be as instrumental. It is possible for someone to get positive feedback even if no learning or leadership behaviors have occurred. For example, if an individual has always been good at giving motivational speeches, then s/he may give a motivational speech and receive positive feedback even though no improvement or behavioral changes have occurred. Therefore, seeking negative feedback is often used for instrumental or diagnostic purposes, whereas seeking positive feedback is often done for positive impression management purposes (Morrison & Bies, 1991).

Mindset and Feedback-Seeking

Individuals’ leadership mindset is expected to influence their self-regulation of behavior, at least in part, due to differences in their monitoring processes. Monitoring progress toward goals is one of the primary processes influencing the self-regulation of behavior (Carver & Sheier, 1988), and mindset is expected to influence the type of feedback that individuals seek.

As noted earlier, leadership mindset influences the perceived cost versus value of feedback. Individuals with a more incremental leadership mindset are more likely to use feedback-seeking as a diagnostic tool for improvement. As noted in past studies of self-theories, when faced with a challenging situation or roadblock, individuals with a more incremental mindset exert extra effort to accomplish the challenging task (Dweck, 2000). Extending this empirical finding to feedback-seeking, it follows that when faced with a new or challenging leadership task, individuals with a more incremental leadership mindset will seek information regarding what they need to do better in order to accomplish the task. This useful, critical feedback, although termed ‘negative’ in the literature, can be an important improvement tool for individuals with an incremental mindset.

Conversely, individuals with a more fixed leadership mindset do not believe that their leadership ability can be significantly improved. Therefore, feedback seeking is likely less instrumentally valuable to individuals with more fixed leadership mindset. In addition, there is a larger inherent risk with feedback seeking for individuals with a more fixed mindset. Implicit self-theory suggests that if these individuals ask for feedback on their leadership abilities and the feedback is not positive, then the individual will interpret the feedback as a more severe judgment because it will be interpreted as a judgment of their person or entity (Dweck, 2000; Hong et al., 1999). A fixed leadership mindset leads these individuals to believe that their leadership skills cannot improve, so if the skills are not satisfactory now, there is no hope that they will be in the future. Because of the high self-preservation risks involved, individuals with a more fixed leadership mindset are less likely to seek negative feedback.

Individuals with a more fixed mindset tend to react in a maladaptive way to performance setbacks, decreasing effort, quitting the task, or blaming external sources for the failure (Dweck, 2000). When faced with a leadership task where they are underperforming, these individuals are not likely to seek feedback on how to improve their leadership skills because they do not believe that these skills can be improved. In addition to the lack of instrumental value, individuals with a more fixed mindset are more likely to interpret feedback as a judgment of self (Dweck (2000), making negative feedback more threatening to their self-esteem (Brockner, 1988).

In summary, individuals with a more fixed mindset may be as likely as individuals with a more incremental mindset to seek positive feedback because it serves to boost their egos. However, individuals with more fixed mindsets are less likely to seek negative feedback because of the self-preservation risks involved.

Therefore, I hypothesize:

Hypothesis 2: Leadership mindset is positively related to negative feedback-seeking, such that individuals with a more incremental mindset are more likely to seek negative feedback.

Influence of Feedback-Seeking on Leadership Growth

Feedback is an integral part of behavioral changes, learning, and growth. The primary control system within the self-regulatory theory of behavior is the feedback loop (Carver & Sheier, 1988). In order for individuals to make progress toward their goals, they must obtain feedback to determine how close they are toward meeting their goals. Monitoring progress towards goals through obtaining accurate feedback is necessary to

effectively determine what behavioral changes are necessary to most effectively meet their goals.

In order to improve their leadership skills or abilities, individuals may choose to use feedback from their own personal observation or perception of their work instead of seeking feedback from others. Unfortunately, research suggests that individuals' self-perceptions of their performance is often inaccurate, sometimes remarkably inaccurate, with individuals generally overestimating their ability (Dunning, Heath, & Suls, 2004). As noted earlier, accurate feedback is important for reaching goals. Therefore, individuals may choose seek more accurate information by asking knowledgeable others (such as a supervisor) for feedback. Because individuals often overestimate their performance, feedback from others can involve receiving feedback that is more negative than the individuals were expecting. But, the more accurate the feedback, the more the feedback helps the individuals to properly alter their behaviors, speeding up the learning process by saving the individuals from needing to go through additional feedback-loops because of having less accurate feedback (which may lead to less worse than expected results).

Empirical evidence supports the assertion that negative-feedback seeking behavior is related to accurate self-evaluations of performance. Ashford and Tsui (1991) conducted a field study examining the negative feedback-seeking behaviors of 387 managers. They found that managers who actively sought negative feedback had more accurate understandings others' (including their superior's, peers', and subordinates') perceptions of their performance evaluations. Again, because information obtained from negative-feedback seeking is more accurate, it is expected to promote the self-regulation of behavior and more quickly lead to learning and behavioral change.

Based this theoretical and empirical support, I hypothesize:

Hypothesis 3: Negative feedback-seeking is positively related to leadership growth.

Having examined the role of negative feedback-seeking in the self-regulation of behavior and its function in the relationship between leadership mindset and leadership growth, I will now examine another potential cognitive mechanism in the self-regulatory process: reflection.

Reflection

Reflection has been identified as an integral component in self-regulated learning. Self-regulated learning refers to learning resulting from students' self-generated thoughts and behaviors directed at reaching learning goals (Schunk & Zimmerman, 2003).

Zimmerman's three phase self-regulation model of learning (2000) maps closely with Carver and Scheier's (1988) self-regulation theory of behavior, but Zimmerman tailors the language of his processes specifically toward attaining the goal of learning.

Zimmerman's theory includes the forethought stage (processes that set the stage for action), the performance control phase (processes that occur during learning that affect attention and action), and the self-reflection phase (process that occurs after performance whereby individuals evaluate their efforts and results). Not that the self-reflection phase is essentially a goal monitoring process. It seeks to answer the question: Did my actions bring me closer to my goal? (specifically, a goal of learning in Zimmerman's theory).

Together these theories suggest that goal monitoring, specifically in the form of reflection, is important for obtaining learning goals (and therefore positive behavioral change).

Learning in organizations is essential for the continual success and evolution of the organization's business (Fiol & Lyles, 1985). The learning ability of an organization is based on the learning abilities of the individuals within the organization (Hall & Seibert, 1992). Leading management theorists assert that learning from experience is one of the most influential methods of individual learning (Mintzberg, 1973). And yet, not all individuals have the same learning outcomes from similar experiences. Theorists have suggested that while experience is crucial to development, reflection is central to learning from that experience (Kolb, 1984). Mintzberg states, "Above all, the manager needs to be introspective in order to continue to learn on the job" (1975, p. 61). While reflection is often noted as critical for developing learning from experiences, many educational researchers also identify reflection as an important component of classroom learning. Reflection exercises have often been suggested as a classroom tool for engaging students to actively digest the learned material and strategize ways of using the newly learned information in their lives (King & LaRocco, 2006; Yancey, 1998). Coaches and mentors may also try to promote reflective thinking to help students understand why a certain outcome occurred and what, if anything, the student could do differently in a similar situation in the future (Grant, 2006; Hanft, Rush, & Shelden, 2004; Stover, Kissel, Haag, & Shoniker, 2011).

Although educational theorists have suggested that reflection is an integral part of the learning process, very little is known about the role of reflection in leadership development or managerial learning. Schön's (1983) work on reflection in the professional context is the basis for much of the research in the area of reflection in work settings. He discusses two types of reflection that professionals may engage in:

reflection-in-action and reflection-on-action. Reflection-in-action is the process individuals use to address novel problems or situations in their daily work. It is essentially thinking about a problem while it is happening. Reflection-on-action differs in that managers stopped in the midst of an action or decision to think about what was happening or they stop to think about what happened in a situation after the fact. Reflection-in-action can be thought of as daily decision making, whereas reflection-on-action is much more introspective and requires intentional effort. Schön (1983) found that managers were much less likely to exhibit the behavior of reflection-on-action than reflection-in-action. Research on learning in fields such as education and nursing suggest that it is this reflection-on-action process, often called reflective practices, that produces significant learning outcomes (Mann, Gordon, & MacLeod, 2009; Rolfe, Freshwater, & Jasper, 2001; Schön, 1987). This reflection-on-action process (which, for the interest of simplicity, I will term reflection throughout the remainder of the paper) will be the focus of this study because it is not universally used (it is more intentional in nature) and because of the theoretical and empirical link between this process and learning outcomes.

Although limited empirical research has examined the role of reflection in leadership development, Anseel, Lievens, and Schollaert (2009) did examine the role of reflection and feedback in skill development. These researchers used performed two experiments where participants performed a simulated task of responding to emails. Individuals were randomized to receive only feedback, to only participate in reflection, or to receive feedback and reflect on their performance. For the reflection task, individuals were asked to list four things they thought they were doing well when responding to the emails and four things that they thought they were doing poorly (could improve). The

groups who received feedback were given a short feedback report with multiple performance dimensions listed/explained, the individuals score on that performance dimension, and a description of the behaviors of an individual who would score high on that dimension. The results of the experiment suggested that reflection alone did not improve task performance. But, reflection combined with feedback improved performance beyond the improvement of feedback alone. These results suggest that reflection combined with feedback may be notably beneficial when learning a new skill, but the results caution the reflection without performance feedback may not be beneficial to learning.

Both internal and external forces influence the amount of reflection that an individual gives to a situation. External forces such as the amount of time available to make a decision may make that situation be more or less conducive to reflection. For example, a formal training program may have specific interventions in the program that guide participants through a reflective exercise, influencing individuals who are generally less reflective to be more reflective in that moment. On the other hand, a situation may happen very quickly (such as an emergency situation) which forces an individual who would normally be reflective to make a quick decision without taking as much time as he would like to reflect on the decision. There are multiple individual differences, such as reflexivity (Kagan, 1965), typical intellectual engagement (Goff & Ackerman, 1992), need for cognition (Cacioppo & Petty, 1982), and epistemic motivation (Kruglanski, 1989), that are likely to influence an individual's tendency to be reflective, *in general*. Although these individual differences are related to individuals' propensity toward

effortful cognition or the desire to process information fully, there is not empirical evidence that examines the impact of these traits on individuals' reflection behaviors.

Studies on reflection in learning have not focused on individual's cognitive motivations for reflection, but rather have discussed the stages or levels of the reflection process (Boud, Keogh, & Walker, 1985; Mezirow, 1981; Schön, 1983) or methods and practices that can be used to improve individuals' reflection processes (Daudelin, 1997; Gray, 2007; Mann et al., 2009; Schön, 1987). While it is important to understand the techniques that individuals successfully use to reflect and learn from experiences, it is also important to understand individual differences in the motivation to reflect. Just as Noe (1986) suggested that individual's beliefs and attitudes would have a direct influence on their motivation to learn information within a training program, beliefs and attitudes are expected to influence individual's use of reflection techniques to learn from training or on-the-job experiences.

At the core of reflection is the desire to learn from experiences and develop skills. The work of managers in organizations is generally more motivated by and focused on operational performance than learning (Berings, Poell, & Simons, 2008). Even in a learning situation, such as a challenging job experience, managers are often judged on their performance, not their learning growth. Individuals must, therefore, choose to put forth the time and cognitive effort of reflection, with the belief that this investment will be rewarded with self-development and learning. The choice of using time and cognitive capacity on reflection as opposed to using it on current demands or situations is a risk and, as such, the manager must prioritize the potential benefits of working 'in the moment' and attempting to 'learn from the past.' While the goal of active reflection is to analyze

one's past and current experience to improve performance in the future (Daudelin, 1997), Moon (2004) notes that "reflection and learning are essentially private and under the control of the learner" (p. 23). This means that individuals may choose what, if anything, to reflect on and learn from.

Mindset and Reflection

Leadership mindset is expected to influence the self-regulatory process through differences in the amount of reflection in which individuals with varying degrees of incremental or fixed mindset engage. As mentioned in the previous sections, individuals with a more fixed leadership mindset do not believe that the development of leadership abilities is something that you can control. Because these individuals do not think that leadership abilities can be learned or changed, they have no incentive to reflect on their leadership skills. For an individual with a more fixed leadership mindset, there is nothing to be gained from investing time or cognitive energy thinking about past experiences. Theory would suggest that individuals with a more incremental mindset, however, would see benefit from examining past experiences in order to learn from that experience and develop their leadership abilities.

As noted in the literature review, the amount of reflection performed by an individual can be situationally impacted. There may be 'strong' situations where individuals are given time and training on how to reflect and what to reflect about, or there may be weak situations where reflection is not inherently expected. For example, a mentoring session where a mentor asks a mentee to describe a situation where things did not go according to the mentees plan and then asks what the mentee might do differently would be an example of a strong situation. A challenging job assignment where there is

no formal review after the assignment would be an example of a weaker situation.

Although reflection is more likely to occur in a strong situation than a weak one, it is still expected that individuals with a more incremental mindset will more actively participate in reflection than individuals with a more fixed mindset, no matter how strong the reflection situation.

When reflection is ‘forced’ in a situation, this reflection time will be useful for individuals with a more incremental mindset. They should use the time, as expected, to strategize ways to improve in the future. Forced reflection for someone with a more fixed mindset is more likely to be wasted time, especially if asked to reflect on how the individual could improve next time. If forced to think too deeply about a failure, this reflection time may even be detrimental to an individual with a more fixed mindset. These fixed mindset individuals see failure as highlighting their limitations, showing the limited extent of their capabilities, and as a ceiling of their skillset (Hong et al., 1999). Focusing on these limitations may even lead to depressive-type behaviors and low self-esteem (Dweck, 2000). So, while strong reflective situations are beneficial for individuals with a more incremental mindset, theory suggests that they will not be beneficial and may even be harmful for individuals with more fixed mindsets.

Weak reflection situations require that individuals be self-motivated to initiate and participate in reflection. This self-motivation to reflect may be especially challenging for leaders for several reasons. First, managerial work and motivation are generally focused on performance rather than learning (Berings et al., 2008). Additionally, leadership is stressful and leaders have extremely high time demands. Given these priorities and time demands, a leader will not self-engage in reflection unless s/he believes that reflection

will help him/her improve their abilities (potentially leading to better performance in the future). Since individuals with a more fixed mindset do not believe that they can improve, they are unlikely to self-engage in reflection. Individuals with a more incremental mindset believe that they can improve their leadership abilities, so they may be willing to invest time and cognitive energy in reflecting on ways to improve their abilities.

Therefore, I hypothesize:

Hypothesis 4: Leadership mindset is positively related to reflection, such that individuals with a more incremental mindset are more likely to reflect.

Influence of Reflection on Leadership Growth

Many researchers in both the education and leadership development literature have noted the importance of reflection as a self-regulatory mechanism of learning and development. Self-reflection is a core component of the theory of self-regulated learning (Zimmerman, 2000). Within the leadership development literature, multiple researchers have noted that self-reflection is an important self-regulatory mechanism for developing leadership skills (Avolio, 2005; Densten & Gray, 2001; Nesbit, 2012), while others have written about tools and methods that leaders can use to improve their reflection skills, thereby increasing their leadership growth (Gray, 2007; Reynolds, 1998). These theoretical articles support the assertion that reflection is a useful behavior to monitor progress toward learning goals.

As additional support for the influence of reflection in learning or ability growth, dual process models of learning suggest that there are two modes of cognitive processing that influence the amount of learning that occurs. The first mode is characterized by automatic, fast processing that requires little cognitive effort, whereas the second mode is

characterized by analytic, reflective, higher-order processing that is cognitively demanding (Evans, 2008). Many positive learning outcomes are associated with the second, reflective, type cognitive processing. These outcomes include new methods of problem-solving, better organization of information and integration in memory, and higher probability of attitude and behavior change (Anseel et al., 2009). The importance of reflection in learning is well documented (Agryris, 1982; Dewey, 1933; Kolb, 1984; Schön, 1983).

While reflection and learning are clearly theoretically linked (Kolb, 1984; Zimmerman & Campillo, 2003), empirical research on reflection practices has been somewhat limited to the professions of teaching and nursing (Moon, 1999). While these two professions would seem disconnected, Moon (1999) notes that they both “represent hermeneutic knowledge constitutive interests” (p.55). The subject matter in these professions “is interpretive and not rooted in fact to the same extent that scientific disciplines are” (Moon, 1999, p. 55). These professions require substantial situational interpretations. While a teacher may know the theory behind motivating students to learn material, this theoretical application may need to be applied differently from one class to another. Reflection is therefore useful as a method for reconstructing how the theories or strategies may need to be adjusted based on the situation. Given this premise that reflection is most beneficial when subject matters are ‘interpretive,’ it follows that leadership and leadership development are areas where reflection may be particularly beneficial to learning and performance.

Therefore,

Hypothesis 5: Reflection is positively related to leadership growth.

Having examined two cognitive components of the self-regulatory process of goal monitoring (negative feedback-seeking and reflection), I will not explore a more affective goal monitoring influence: fear of failure.

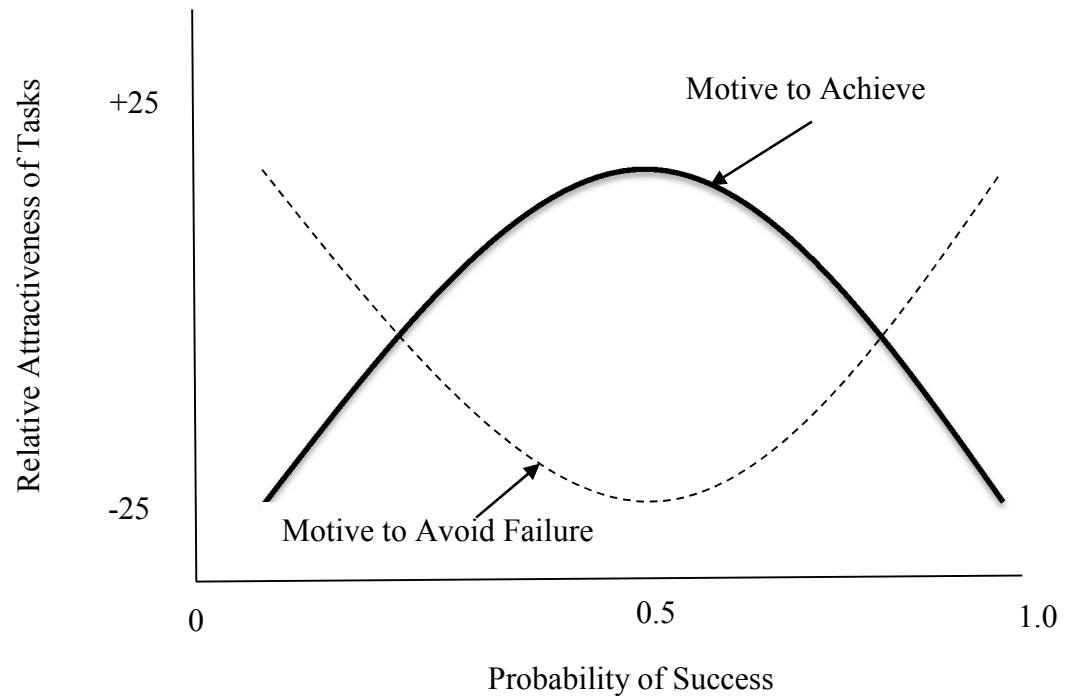
Fear of Failure

Carver and Scheier's (1988) self-control theory of behavior is conceptualized as a series feedback loops. The theory suggests that individuals set goals, perform actions that they expect to help them reach those goals, and then seek feedback about how close they are to their reaching their goals. Based on this feedback, they may then keep or readjust their goals and perform more actions to again try to reach those goals and seek feedback on their goal discrepancy. These three processes (goal setting/adjusting, goal operating, and goal monitoring) continue in a looping fashion until the goal is met. Carver and Scheier (2012) proposed two types of loops: *action loops*, which assess the magnitude of the discrepancy between the current state and the desired state (or a single loop), and *meta loops*, which assess the discrepancy changes over time. In essence, action loops indicate the distance from a goal, whereas meta loops indicate the rate of progress toward the goal. While cognitive processes, such as feedback-seeking and reflection, are often used for monitoring progress toward the goal (the action loop), Carver and Scheier (2012) note that for the meta loop "The error signal in this loop is manifest in experience as affect" (p. 514). Therefore negative emotions may provide goal monitoring information to individuals. One emotion that has been explored as influential in the self-regulatory process is the fear of failure (Elliot & Church, 1997).

The fear of failure (or the motive to avoid failure) was defined by Atkinson as the motivation to "avoid failure and/or a capacity for experiencing shame or humiliation as a

consequence of failure” (1966, p. 13). Basing his work on McClelland’s (1965) investigation of achievement motivation, Atkinson (1957) examined individuals’ motivation to approach (a task) and motivation to avoid. Examining specifically the motivation to avoid (i.e. the fear of failure), he suggested that when individuals who have a high fear of failure are forced to perform a task (i.e. through peer pressure or assigned by a supervisor) and asked to set a goal (aspiration level), then those individuals are most likely to set a very low (easy to attain) goal or a very high (nearly impossible to attain goal). In the case of setting a low goal, individuals will be likely to attain the goal, therefore, lessening the fear that they will fail. In the case of setting an unreasonably high goal, failure to attain the goal would be no cause for self-blame or embarrassment. Individuals who have a strong fear of failure, then, are not likely to purposely set ‘stretch’ goals for themselves. He suggests an inverted curve (see Figure 3) whereby very difficult task or very easy tasks are less likely to an elicit individuals’ fear of failure, and therefore are more attractive for individuals with a motive to avoid failure.

Figure 3: Relative attractiveness of task

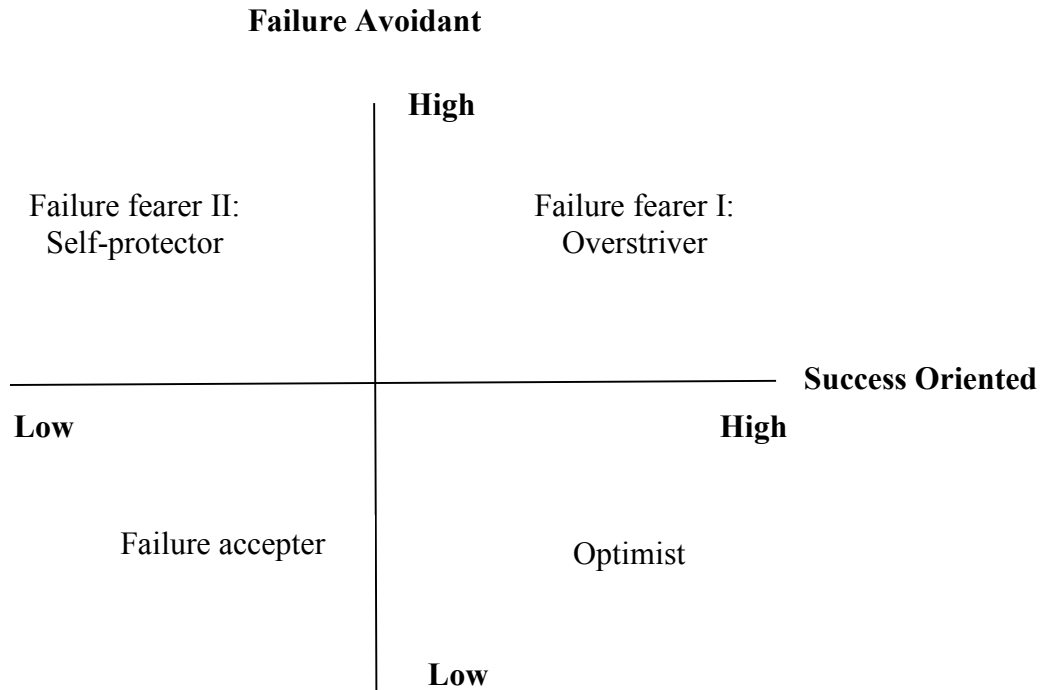


Adapted from Atkinson, J.W. (1957). Motivational determinants of risk-taking behavior. *Psychological Review*, 64(6), p.365.

“Relative attractiveness of tasks which differ in subjective probability of success (i.e., in difficulty). The avoidance curve has been inverted to show that very difficult and very easy tasks arouse less fear of failure and hence are less unattractive than moderately difficult tasks.”

Covington (1992) later refined the theory of need for achievement by creating a quadripolar model of need achievement (see Figure 4). Within this model, individuals' failure avoidance and success orientation interact to form four categories. For this discussion, I concentrate on the two categories involving individuals with high failure avoidance: overstrivers (high failure avoidance and high success orientation) and self-protectors (high failure avoidance and low success orientation). Martin and Marsh (2003, p. 31) define overstrivers as individuals 'who deal with their fear of failure by hard work and/or success' and self-protectors as individuals 'who deal with their fear of failure through counterproductive activity that is aimed more at self-protection than attaining success.' Martin et al. (2001a) suggested a cascading model of failure avoidance whereby individuals generally start in the overstriver category, attempting to avoid failure by doing their best to meet a goal, but when individuals with a high failure avoidance tendency fail at meeting their goal, they quickly fall into the self-protector category. It is important to note that while overstrivers attempt to avoid failure (by attaining goals or successfully accomplishing a challenging task), self-protectors attempt to avoid the *implications* of failure, such as the extent to which they are embarrassed or the extent to which failure reflects poorly on their ability (Covington, 1992). Essentially, cascading into greater levels of failure avoidance is related to negative outcomes such as lower persistence, more withdraw, and lower achievement (Martin & Marsh, 2003).

Figure 4: Quadripolar model of need for achievement



Adapted from Martin, A.J. & Marsh, H.J. (2003). Fear of Failure: Friend or Foe? *Australian Psychologist*, 38(1), p.32.

Originally from Covington, M. (1992). *Making the Grade: A Self-Worth Perspective of Motivation and School Reform*. Cambridge: Cambridge University Press.

The cascading model of failure avoidance proposed by Martin et al. (2001a) suggests that the actions predicted by fear of failure (work harder versus self-sabotage) are influenced by situational factors. Lamb (1973) also notes that fear of failure is task dependent. Therefore, while fear of failure has some trait-like features, it also has a state-like quality that can be influenced by the task being performed.

Mindset and Fear of Failure

Leadership mindset influences individuals interpretation of failure and therefore is expected to influence the degree to which individuals fear failure. Mindset theory suggests that individuals' mindsets influence their temporal attributions of failure (Dweck, 2006). Individuals with a more fixed mindset believe that their ability cannot be improved through increased work. This suggests that when an individual with a more fixed mindset fails at a task, it is a more permanent appraisal of their ability level. Empirical evidence confirmed that when young individuals were given a performance-goal task, individuals with a fixed intelligence mindset tended to think that the task measured their current *and future* intelligence significantly more than individuals with an incremental mindset, who conversely tended to believe that the task only measured current intelligence (Hong et al., 1999). Mindset influences how broadly individuals regard tasks as assessing ability.

Mindset theory, therefore, influences the significance that failure has for individuals. For individuals with a more incremental mindset, failure is a statement about the current nature of ability. Failure may be uncomfortable for these individuals, but they realize that with effort, they should be able to successfully complete a similar task in the future. Failure is a temporary setback. It is something to learn from and a way of improving. Individuals with a more fixed mindset, on the other hand, believe that failure is an assessment of their core ability. To fail is to reach the limit of their ability level. These individuals are less likely to interpret failure as a temporary obstacle, but instead as an enduring barrier signifying their limitations.

Because failure is interpreted as a more permanent measure of the limitations of individuals with more fixed mindset, it follows that these individuals would be more likely to fear failure.

Therefore, I hypothesize:

Hypothesis 6: Leadership mindset is negatively related to fear of failure, such that individuals with a more incremental mindset have lower fear of failure.

Influence of Fear of Failure on Leadership Growth

Carver and Sheier (1988) suggested that goal striving occurs through a self-regulatory mechanism that loops through three primary processes: goal setting, goal striving, and goal monitoring. Likewise, Zimmerman (2000) suggested that self-regulated learning loops through similar processes of forethought, performance and self-reflection. Fear of failure may be an important factor in this cyclical process. Martin et al. (2001a) suggested a cascading model of failure avoidance whereby the fear of failure has an increasingly stronger negative effect on behaviors and outcomes. This cascading model proposes that as individuals who fear failure have more failures their behavior changes from trying to succeed to trying to create excuses for failure. The behaviors of these individuals are no longer aimed at succeeding, but rather their efforts are focused on protecting their ego. Martin and his colleagues found that as the fear of failure is related to self-regulatory processes (Martin et al., 2001a; Martin, Marsh, & Debus, 2001b). These researchers found that self-handicapping and defensive pessimism negatively predicted self-regulation.

As an example, let us assume that a leader is given a developmental challenge to start a new product line by a certain deadline within a given budget. This individual is

concerned that he will not be able to successfully complete the project, but he begins assigning tasks to individuals with hopes that he will successfully complete the task. A few weeks before the project deadline, the leader is convinced that the project will not be completed under budget. This increases his fear of failure (since he knows that he will fail at least one component of this task), so he begins to use the first protection mechanism proposed by Martin and Marsh (2003): defensive pessimism. Defensive pessimism is the setting of unrealistically low performance expectations prior to the evaluation of one's performance (Norem & Cantor, 1986). Although he believes that he will be \$1 million over budget, he begins telling everyone that he will be \$2 million over budget. Thinking that he will look 'better' when the project comes in 'only' over budget by \$1 and not \$2 million. Then as the project deadline is only a few days away, it becomes clear that the project will not launch by the deadline. Martin and Marsh (2003) proposed that this second failure may then cause an even greater cascading fear of failure response: self-handicapping. Self-handicapping is when individuals choose obstacles that enable them to deflect the cause of failure away from their own ability (Rhodewalt & Davison Jr, 1986). So, the leader may call in to work sick the week that the product was meant to launch. Then, when the project is not done in time, he can use the excuse that he was sick (as opposed to examining possible areas of leadership ability that he needs to improve). While the fear of failure may not always lead to such negative behaviors as self-handicapping, it does often lead to unproductive thoughts and behaviors that inhibit the ability to properly monitor and evaluate performance in order to improve leadership skills.

As the previous scenario exemplifies, the fear of failure is an integral part of the self-regulatory process of behavior change not only because it is used by individuals as an emotional source of information that individuals use to monitor their goal process, but also because it influences their strategy for behavior changes (and, therefore, ‘downstream’ regulatory processes). In the above scenario, the fear of failure was influential in determining individuals’ future behavior choices, as Martin et al.’s (2001) cascading model of failure avoidance would suggest. Atkinson (1957) also suggested the individual’s fear of failure would influence future goal setting processes. He suggested that as individuals’ fear of failure increased they would adjust their goal setting processes. Individuals who were afraid that they would fail would set either extremely low (easy) or extremely high (impossible) goals. As research on goal setting theory has revealed, setting attainable, stretch goals is important for motivation and high performance (Locke & Latham, 2002). By setting extremely low or impossible goals, these individuals who fear failure will decrease their chance of learning and increasing performance.

Therefore, I hypothesize:

Hypothesis 7: Fear of failure is negatively related to leadership growth.

As discussed, the proposed mediation effect in Figure 1 is based on the idea that self-regulatory processes play a key role in leadership development and that leadership mindset is related to self-regulation processes (Burnette et al., 2013). As such, if an individual has a more incremental leadership mindset, they will be more motivated to monitor their progress toward developing their leadership skills. Thus, they are more likely to exhibit behaviors that aid in goal monitoring such as seeking-negative feedback

and reflecting on ways to improve their leadership skills. These goal monitoring processes, in turn, should be positively related to leadership growth. Individuals with a more incremental mindset are also less likely to fear failure, and thus, may be more likely to put forth continued effort, even when faced with higher odds of failing at a task. The willingness to risk failing, should increase learning prospects and lead to more leadership growth.

Therefore, self-regulatory processes such as negative-feedback seeking, reflection, and fear of failure should play a significant mediating role between leadership mindset and leadership growth. I hypothesize:

Hypothesis 8. Negative feedback-seeking partially mediates the effect of leadership mindset on leadership growth.

Hypothesis 9. Reflection partially mediates the effect of leadership mindset on leadership growth.

Hypothesis 10. Fear of failure partially mediates the effect of leadership mindset on leadership growth.

Organization-Sponsored Leader Development Opportunities

The preceding sections described how leadership mindset influences self-regulatory processes that lead to leadership growth. In the following section I discuss organization-sponsored leader development opportunities. It is expected that leader development opportunities will interact with the goal monitoring processes of negative-feedback seeking, reflection, and fear of failure to influence leadership growth. I begin by describing three categories of leadership development opportunities: formal training, coaching, and challenging experiences. These categories have been used by other

management researchers studying leadership growth (Dragoni et al., 2009; Seibert, Sargent, Kraimer, & Kiazad, 2015). I then discuss how developmental opportunities interact with goal monitoring to influence leadership growth.

Formal leadership training classes are often what first comes to mind when individuals mention leadership development opportunities. The meta-analysis of leadership development programs by Collins and Holton (2004) examined the behavioral change or expertise, measured objectively before and after the leadership training program. Fourteen programs with a total of 1,004 participants were examined and the average effect size was found to be 1.01 (effect size was calculated as the difference in objective scores before and after the program, divided by the standard deviation of pre-program objective score, so on average the programs improved objective expertise by one standard deviation of the pre-test objective measure). The effect size of the individual programs ranged from -.28 to 1.66, indicating that some programs were more effective than others (some programs had even had an overall decrease in objective effectiveness from pre-program to post-program). The meta-analytic results speak to the effectiveness of leadership development programs in general, but there is still need for research regarding what variables may impact the magnitude of this effect for specific individuals (DeRue & Myers, 2014).

Prior to the 1980's much of research about the factors that influence the effectiveness of training was focused on features of the training intervention (such as method of training or characteristics of the trainer) or the transfer environment (such as organizational support or supervisor support). In the mid-1980's, Noe made a significant impact on training research when he suggested that researchers should examine how the

participants' attributes or attitudes may impact training outcomes (Noe, 1986). Since then, a few trainee characteristics have been examined as influences on leadership training effectiveness, including motivation to transfer learning (Franke & Felfe, 2012) and self-determination (Solansky, 2014). Although some researchers have begun examining how participants' attributes may influence leadership training outcomes, much of the research on improving formal leadership training programs continues to focus on features of the training program itself (Santos, Caetano, & Tavares, 2015; van der Locht, van Dam, & Chiaburu, 2013). It is interesting to note that while leadership training programs are quite pervasive within organizations, the published research regarding the effectiveness of these programs or what factors influence programs' effectiveness is relatively limited (McCauley, 2008).

Although formal leadership training through classroom programs are still widely used by companies, many companies are realizing that supplemental types of leadership development interventions are also needed (Day, 2001). Classroom programs suffer from transfer of training challenges, and most leaders do not attribute significant leadership development to classroom programs. Researchers with the Center for Creative Leadership compiled the results from interviews with over 288 participants in CCL's development programs and 267 leaders from multiple Fortune 100 companies (McCauley & Van Velsor, 2004). In these interviews, leaders from the US were asked what events most helped them develop their leadership abilities throughout their careers. The results of these interviews showed that only 5% of the developmental experiences for these executives came from coursework and training, such as a formal leadership training program. Based on the low percentage of developmental learning that executives

reported, the researchers at CCL concluded that while formal training usually teaches task-related or functional knowledge, it often does not teach the deep learning necessary to significantly improve leadership skills (McCauley & Van Velsor, 2004). Therefore, a combination of formal classroom training, feedback, mentoring or coaching, and challenges or opportunities to implement learning from the classroom may be used in combination to maximize opportunities to learn and implement new leadership skills.

Developmental relationships, including mentoring or coaching, are another method that organizations use to develop the skills and abilities of current and future leaders. Although empirical evidence suggests that mentoring leads to positive career developments, there is limited empirical research on the impact of mentoring leaders specifically, especially leaders at high levels within an organizations (Stead, 2005). A study by Solansky (2010) examined the impact of mentoring on 303 school administrators participating in a leadership development program. This study did not evaluate the impact of mentoring on leadership competencies or growth, but rather examined the impact of a mentor's coaching (as opposed to compliance or ensuring that the mentee are doing what they are supposed to be doing as a part of the program) on the amount of information that the leader mentee shared with the mentor and group (the leaders were mentored in a group setting). Results suggest that coaching by the mentor is positively related to sharing information from the mentee.

Coaching is “a process of equipping people with the tools, knowledge, and opportunities they need to develop themselves and become more effective” (Peterson & Hicks, 1996, p. 41). Coaching, especially in the form of executive coaching, has been used to facilitate leadership learning and move executives to their highest level of

potential performance (Ellinger & Bostrom, 1999). Coaching is often more systematic than mentoring, generally involving four steps: data gathering, feedback, intervention implementation, and evaluation. In the first phase, information such as the personality, leadership style, and goals of the leader as well as his or her performance feedback (often in the form of 360-degree feedback), is gathered. The coach then analyzes the data to determine the leader's strengths and areas where s/he can and should improve. The coach and leader then meet and discuss the data and determine a plan of action. Once a plan of action is in place, the coach and leader meet periodically to evaluate progress toward goals and discuss ways to overcome barriers.

Although the outcomes of executive coaching have not been examined as extensively as outcomes of mentoring, the relationships that have been examined show considerable benefits from coaching. Olivero, Bane, and Kopelman (1997) examined the relationship between coaching and productivity. The researchers studied the productivity of 31 managers who went through a conventional managerial training program followed by eight weeks of one-on-one coaching. Results of this study showed that the manager's productivity improved by 22% after the training and 88% after the training and coaching. These results suggest that coaching after training can lead to significant productivity improvement beyond that for training alone.

Developmental relationships may not need to explicitly be in the form of a formal coach. Dragoni, Park, Soltis, and Forte-Trammell (2014) examined how supervisors can influence the development of new leaders. These researchers tracked 110 first-line managers over a ten month period at four points in time. They examined the impact of supervisors modeling effective leadership and providing job information on the

effectiveness of the first-line managers. They found an interactive effect of role modeling and providing job information which increased the rate of the first-line manager's self-perceived role knowledge. This effect was even stronger for the first-line managers who had not previously been exposed to an exceptional leader. Therefore, the word 'coach' often implies a person whose sole job is to improve performance of an individual, for the purposes of this study it is used as a proxy to represent developmental relationships. Which may come from a formal coach, or a mentor who helps develop leadership skills, or a supervisor who sets a good example and clearly explains role expectations.

In addition to formal training and developmental relationships, developmental assignments may play a significant role in the improvement of individuals' leadership abilities. The CCL study of US leaders' most developmental experiences found that the most cited category of developmental experiences was challenging assignments, with 41% of experiences subsiding within this category (McCauley & Van Velsor, 2004). Other researchers have estimated that over 70% of leader's development happens through on-the-job experiences, versus about 10% of the leader development that comes from formal training programs (Robinson & Wick, 1992).

Leadership development scholars propose that some job experiences have the potential to be more developmental than others. McCauley, Ruderman, Ohlott, and Morrow (1994) identified five challenging aspects of jobs that may foster leadership development: creating change, managing at high levels of responsibility, managing boundaries, dealing with diversity, and experiencing a job transition. Creating change involves responsibilities such as starting something new (i.e. a new product line); making strategic changes to the direction, structure, or operations of the business; carrying out a

reorganization; or responding to rapid environmental business changes. Managing at high levels of responsibility includes high visibility projects, jobs with very large scope (i.e. numerous product lines), or responsibility for decisions that make success or failure clearly evident. Managing boundaries refers to jobs that require influencing individuals, over whom the manager has no direct responsibility, in order to complete the job successfully. Dealing with diversity involves managing and developing individuals of both genders and from various racial or ethnical backgrounds. Finally, experiencing a job transitions involves responsibilities that are new, very different, or much broader than previous assignments. Together, these challenges create opportunities for the leader to develop or stretch their current leadership abilities. DeRue and Wellman (2009) note that the five challenging job features load on one latent factor, which they termed “developmental challenge.”

Research suggests that challenging job experiences do have a significant impact on leadership development and career success. In addition to the interview results mentioned above where leaders report the exceptional developmental properties of challenging assignments (McCauley & Van Velsor, 2004), empirical, quantitative studies have suggested a positive relationship between challenging job assignments and leadership growth (DeRue & Wellman, 2009; Dragoni et al., 2009; McCauley et al., 1994).

Goal Monitoring and Developmental Opportunities

Increasing the amount of developmental opportunities may influence the relationship between leadership mindset and leadership growth through the goal monitoring processes. The purpose of offering developmental opportunities is to grow

individuals leadership skills. And, as mentioned in the previous section, empirical evidence suggests that on average leadership development opportunities lead to leadership growth. However, there are individual variations in the amount of leadership growth experienced by some individuals. Individuals who participate in more leadership development opportunities should have more occasions try new behaviors and grow their leadership skills.

Self-regulatory theory would suggest that individuals who have more opportunities to develop their skills and effectively use goal monitoring techniques will have larger behavioral change or growth than individuals with less developmental opportunities. Self-regulation theory proposes that individuals regulate their behavior toward the accomplishment of a goal (Carver & Scheier, 2000). If individuals are able to participate in more developmental opportunities, they are more likely to have or create goals that would induce leadership growth (increased goal setting opportunities). Conversely, if individuals do not participate in developmental opportunities, then they are less likely to have goals that would lead to leadership growth. Without goals to work toward, or monitor, the self-regulation process does not function. Another way in which developmental opportunities may interact with self-regulatory process is through what Carver and Scheier (2000) call a 'shift in standards.' They suggest that as individuals gain experience in a given domain, adjustments may be made in the pace that individuals expect of themselves. In other words, as individuals have more developmental opportunities, they may set higher standards for themselves and push themselves to develop skills more quickly than individuals who are not provided with developmental activities.

The interactive relationship between goal monitoring and opportunities influencing growth is expected to be the same whether those goal monitoring techniques are behavioral (such as feedback-seeking), cognitive (such as reflection), or emotional (such as fearing failure). Individuals with few developmental opportunities with ineffective goal monitoring strategies (low negative feedback-seeking behaviors, little reflection, and high fear of failure) are unlikely to exhibit leadership growth. Individuals with few developmental opportunities with effective goal monitoring strategies (high negative feedback-seeking behaviors, high reflection, and low fear of failure) may exhibit some leadership growth. However, these individuals would need to be very motivated to grow their leadership skills in order for this to happen since they would need to seek out leadership development opportunities that were not organizationally sponsored in order to grow their skills. Individuals with high developmental opportunities and ineffective goal monitoring skills are expected to have low levels of leadership growth. Finally, individuals with high developmental opportunities and effective goal monitoring are expected to have the highest levels of leadership growth.

Therefore, I hypothesize:

Hypothesis 11: Leadership development opportunities including, a) formal training, b) coaching, and c) challenging job assignments, will moderate the strength of the mediated relationship between leadership mindset with leadership growth through negative feedback-seeking behavior such that the path between negative feedback-seeking and leadership growth will be stronger under high

levels of leadership development opportunities than under low leadership development opportunities.

Hypothesis 12: Leadership development opportunities including, a) formal training, b) coaching, and c) challenging job assignments, will moderate the strength of the mediated relationship between leadership mindset with leadership growth through reflection such that the path between reflection and leadership growth will be stronger under high levels of leadership development opportunities than under low leadership development opportunities.

Hypothesis 13: Leadership development opportunities including, a) formal training, b) coaching, and c) challenging job assignments, will moderate the strength of the mediated relationship between leadership mindset with leadership growth through fear of failure such that the path between fear of failure and leadership growth will be stronger under high levels of leadership development opportunities than under low leadership development opportunities.

CHAPTER III: METHODOLOGY

The purpose of this chapter is to describe the study used to test my hypotheses. First, I describe my sample and the data collection process. Then, I describe the measures used in the study. Finally, I describe the analytical procedures used to test my hypotheses.

Method

Participants and Procedures

Leaders and their supervisors for this study were recruited from two primary sources. For purposes of this study, individuals with people management, project management, or P&L (profit and loss) responsibilities are considered ‘leaders.’ Leader participants were recruited from part-time MBA programs with students who worked full time and leadership training programs at a large university in the Midwest as a first source². Because these individuals were participating or had participated in formal development programs, I used a second source that would be less likely to have a large amount of formal leadership training to increase the variance in leadership development interest and availability. Participants were recruited through Qualtrics survey panel members as a second source. Individuals in the Qualtrics panel have expressed interest in participating in survey studies in exchange for compensation. Qualtrics emailed a prequalification survey to individuals to ensure that they met the study definition of a leader (they either had direct reports, project management responsibilities, and/or P&L responsibilities). The individuals who met those requirements were then invited to participate in the survey.

² A t-test showed that the means and variances between the working MBA sample and the leadership training participants were not significantly different for the constructs in the model.

Two hundred and eighty-seven leaders affiliated with the university (working MBA students and university employees) were invited to participate. Data was collected at two points in time. First, the leaders were emailed a link to the survey. At the end of the leader survey, the individual was asked to provide the name and email address of their direct supervisor. Approximately two weeks after receiving the completed survey from the leader, the supervisor was emailed a link to the supervisor survey. A total of 89 of the invited leaders participated, representing a 31% response rate. Of the 74 supervisors whose contact information was provided, 50 (68%) supervisors completed the survey.

One hundred thirty-five individuals from the Qualtrics panel who met the pre-qualification as a leader chose to participate in the study³. Of the 98 supervisors whose contact information was provided, 48 (49%) supervisors completed the survey. The surveys sent to the Qualtrics participants included three attention check questions on the leader survey and two attention check questions on the supervisor survey. The attention check questions asked the participants to select a specific answer for a questions (i.e. “Please select Strongly Agree as the answer to this item”). All of the attention check questions were marked correctly for all leaders and supervisors who participated in this survey. This provides some evidence that the Qualtrics respondents were not randomly selecting answers. In total, the final sample including the university and Qualtrics participants was 98 dyads. Details regarding the demographic composition of the participating leaders and supervisors are displayed in Table 1.

³ The number of individuals who received the pre-qualification survey and the number of individuals who ‘passed’ the pre-qualification check was not reported by Qualtrics, so I could not calculated a response rate for this sample.

Table 1. Demographic Composition of Leader and Direct Report Samples

Demographic Characteristic	Leaders (N = 98)		Supervisors (N = 98)	
Age	<i>Between 21-30:</i>	21.4%	<i>Between 21-30:</i>	5.1%
	<i>Between 31-40:</i>	44.9%	<i>Between 31-40:</i>	21.4%
	<i>Between 41-50:</i>	17.3%	<i>Between 41-50:</i>	36.7%
	<i>Between 51-60:</i>	14.3%	<i>Between 51-60:</i>	23.5%
	<i>Over 60:</i>	2.0%	<i>Over 60:</i>	13.3%
Sex	<i>Male:</i>	51.0%	<i>Male:</i>	66.3%
	<i>Female:</i>	49.0%	<i>Female:</i>	33.7%
Total managerial experience	<i>Less than 6 months:</i>	2.0%	n/a	
	<i>6 months to 1 year:</i>	5.1%		
	<i>1-2 years:</i>	11.2%		
	<i>3-5 years:</i>	28.6%		
	<i>6-10 years:</i>	27.6%		
	<i>Over 10 years:</i>	25.5%		
Tenure in current management position	<i>Less than 6 months:</i>	6.1%	n/a	
	<i>6 months to 1 year:</i>	9.2%		
	<i>1-2 years:</i>	22.4%		
	<i>3-5 years:</i>	38.8%		
	<i>6-10 years:</i>	13.3%		
	<i>Over 10 years:</i>	10.2%		
Tenure with current supervisor	<i>Less than 6 months:</i>	11.2%	n/a	
	<i>6 months to 1 year:</i>	12.2%		
	<i>1-2 years:</i>	19.4%		
	<i>3-5 years:</i>	29.6%		
	<i>6-10 years:</i>	14.3%		
	<i>Over 10 years:</i>	13.3%		

Measures

Leaders provided self-report data on leadership mindset, negative feedback-seeking, reflection, fear of failure, and leadership development opportunities. Supervisors provided ratings of the leader's leadership growth, leadership performance (current and one year ago), and promotability.

This study proposes associations with growth, consequently it was important that survey participants were all using the same amount of time when considering growth. Therefore, all measures that reference growth or participation in developmental opportunities reference a one-year time period. These measures include: participation in formal training, coaching, challenging assignments, and leadership growth. A one-year period was chosen because it is long enough for changes in leadership behaviors to be developed and noticed and because individuals within organizations are accustomed to using a year as a measurement reference (organizations often have employees develop yearly goals and performance evaluations are generally completed on a yearly basis).

Leadership Mindset. Leaders provided self-assessments of their leadership mindset. To measure leadership mindset, I used a modified version of the intelligence mindset three-item scale (Hong et al., 1999). The scale was modified by replacing “intelligence” with “leadership ability.” Items are measured on a six-point scale ranging from *strongly agree* (1) to *strongly disagree* (6). The items are “I have a certain amount of leadership ability and I really can't do much to change it,” “My leadership ability is something about myself that I can't change very much,” and “I can learn new skills, but I can't really change my basic leadership ability.” Coefficient alpha for this scale was .91.

It is important to note with the scoring of the leadership mindset, higher values mean more incremental mindset and lower values mean more fixed mindset.

Negative Feedback-seeking. Leaders rated their negative feedback receptivity using a 2-item scale from Ashford and Tsui (1991). An additional third question was created to support the reliability of the measure. They were asked to rate how characteristic behaviors were of themselves within the last year. Items were measured on a five-point scale ranging from *not at all characteristic* (1) to *very characteristic* (5). The two items from the Ashford and Tsui (1991) scale were “Ask others to be critical when they gave you feedback” and “Prefer detailed, critical appraisals even though they might hurt.” I added the additional reverse scored item to create a 3-item scale: “React negatively to constructive criticism.” Coefficient alpha for this scale was .73.

Reflection. Leaders provided self-assessments of the degree to which they engage in reflection. A modified version of the four item reflection scale developed by Kember et al. (2000) was used to assess whether the leaders reflect on their leadership ability. The scale was modified to more specifically examine reflection on leadership abilities. For example, the original statement “I often reflect on my actions to see whether I could have improved on what I did” was modified to “I often reflect on my actions as a leader to see whether I could have improved on what I did.” Items are measured on a five-point agreement scale ranging from *strongly disagree* (1) to *strongly agree* (5). Coefficient alpha for this scale was .73.

Fear of Failure. Fear of failure was measured with the fear of shame and embarrassment scale from the performance failure appraisal inventory (Conroy, 2001). The fear of shame and embarrassment scale consists of 11 items that measure whether

individuals believe that shame and embarrassment are consequences of failure. Examples from this scale include: “When I am not succeeding, I am less valuable than when I succeed,” “When I am failing, I worry about what others think about me,” and “When I am failing, I doubt that I am as good as I thought I was.” The instructions ask individuals to think about their beliefs and feelings over the past year and to mark how much they believed each item was true of their performance as a leader. Items are measured on a five-point scale as follows: *Did not believe at all* (1), *Believed 25% of the time* (2), *Believed 50% of the time* (3), *Believed 75% of the time* (4), or *Completely believed* (5). Coefficient alpha for this scale was .91.

Challenging Assignments. To measure challenging assignments, I used a ten-item scale developed by Seibert et al. (2015). This ten-item scale was developed based on the Job Challenge Profile (JCP) scale (McCauley, Ohlott, & Rudderman, 1999). The scale developed by Seibert et al. (2015) was preferable to the JCP for multiple reasons. While the 50-item length of the JCP captures multiple sub-dimensions of challenging assignments, I am not interested in the effects of sub-dimensions, but rather of challenging assignments more broadly as a development intervention. Seibert et al.’s (2015) scale effectively captures this developmental opportunity while minimizing respondent’s fatigue by capturing the information in a shorter scale than the JCP. The ten-item scale was validated by Seibert et al. (2015) and showed good internal consistency. Sample items include “I have been given direct responsibility for an entire project, product, service, function, or other identifiable unit of this magnitude” and “I have been required to work with a product, market, or technology I have not worked with before.” Leaders were asked to indicate the extent to which they experienced the job

challenge in the past year using a five-point scale ranging from *not at all* (1) to *a great deal* (5). Coefficient alpha for this scale was .85.

Formal Training. In order to assess how much organizational sponsored leadership training that leaders have participated in, I used one item. “In the past year, how much time have you spent attending leadership training courses run by your company.” Participants were asked to rate this item on the following 5-point scale: *none* (1), *less than one day* (2), *1-day* (3), *2 - 5 days* (4), or *more than a week* (5). I was also interested in assessing the quality of the formal training program. After reviewing best practices in leadership training (Day & Haipin, 2001; Groves, 2007; Leskiw & Singh, 2007), I decided to include four components that are consistent with high-quality leadership development programs: evaluation of strengths/weaknesses, opportunities to work on ‘real’ problems, opportunities to practice skills, and opportunity to interact with high level leaders within the company. The four items used to assess training quality were: “Provided you with a personal evaluation of your strengths and weakness (through assessments such as 360-degree feedback, personality assessments, StrengthsFinder assessment, etc.),” “ Provided the opportunity to work on real problems that you or your organization are currently facing,” “Provided the opportunity to practice skills through role-playing or simulations,” and “Provided the opportunity to interact with high level executives or officers in your organization.” These four items are rated on a 5-point scale: *none* (1), *little* (2), *some* (3), *much* (4), or *a great deal* (5). Coefficient alpha for this scale was .95.

Coaching. To assess the developmental relationships of the leaders, I used eight items from the coaching dimension of the empowering leadership scale developed by

Arnold, Arad, Rhoades, and Drasgow (2000). Because I was interested in whether or not the leader has someone within the organization providing him/her with coaching, the instructions asked the participant whether or not they have someone within the organization who has provided them with the various coaching aspects in the past year. Additionally, the original scale was focused on coaching a group, so the statements were modified to focus on the participant. So, an original statement such as “Helps my work group see areas in which we need more training” was modified to state, I have someone within the organization who “helps me see areas in which I need more training.” The statement “helps develop good relations among work group members,” “encourages work group members to solve problems together,” and “encourages work group members to exchange information with one another” from the original 11-item scale were not used because they focused specifically on dynamics within a team setting. Items were measured on a five-point agreement scale ranging from *strongly disagree* (1) to *strongly agree* (5). Coefficient alpha for this scale was .92.

Developmental Opportunities. Although developmental opportunities may be operationalized as a higher-order latent variable indicated by challenging assignments, formal leadership training, and coaching, a direct measure of developmental opportunities was also obtained using a four-item scale from Hurley and Hult (1998). Leaders were asked the extent to which their company has provided these opportunities over the past year. The four items are: “This company provides opportunities for individual development other than formal training (e.g., work assignments and job rotation),” “This company encourages managers to attend formal developmental activities such as training, professional seminars, symposia, etc.,” “There are people at this company who provide

guidance and counsel regarding one's career," and "In this company, career management is a shared responsibility of both employee and the manager." Items were measured on a five-point agreement scale ranging from *strongly disagree* (1) to *strongly agree* (5).

Coefficient alpha for this scale was .78.

Leadership growth. Leadership growth was measured in two ways. First, growth was measured by directly asking the supervisors about the leadership growth of the leaders. Supervisors rated the leader's leadership growth over the past year using a scale from Hirst, Mann, Bain, Pirola-Merlo, and Richver (2004). This 5-item scale asks supervisors to rate the past year's improvement of the leader in five core leadership areas, such as managing individuals and technical knowledge. Items were rated on a five-point scale ranging from *none* (1) to *a great deal* (5). Coefficient alpha for this scale was .86.

The second method of assessing leadership growth was to ask the supervisors to rate the leader's performance from one year ago on 11 leadership competencies. The supervisors were also asked to rate the leader's current performance on those same competencies. Growth would then be operationalized as a difference score or by using past performance as a control for future performance in a regression equation. The competencies were based on the leadership self-efficacy scale competencies (Ng, Ang, & Chan, 2008). Example competencies include: planning ability, setting direction, leading by example, and holding people accountable. Items were rated on the following five-point scale: *Unsatisfactory performance* (1), *Needs development* (2), *Fully meets expectations* (3), *Exceeds expectations* (4), or *Exceptional performance* (5). Coefficient alpha for this scale was .95 for this year's performance and .94 for last year's performance.

Promotability. Promotability is an alternative outcome of interest as it is organizationally relevant and can be used as a proxy of potential (or future) leadership growth. Supervisors rated the promotability of the leaders using a seven item scale from Harris, Kacmar, and Carlson (2006). Example items include: “If I had to select a successor for my position, it would be this employee” and “This subordinate is the type of individual our company seeks to hire.” Items were rated on a five-point agreement scale from *strongly disagree* (1) to *strongly agree* (5). Coefficient alpha for this scale was .83.

Goal Orientation. Because of the theoretical connection between mindset and goal orientation (Dweck & Leggett, 1988), I measured goal orientation. Measuring these orientations allows for supplemental analysis to examine the relationship between leadership mindset and goal orientation. Goal orientation was measured using the 12-item scale developed by VandeWalle (1997). This scale captures the three domains of goal orientation: learning goal orientation, performance prove goal orientation, and performance avoid goal orientation. Four items are used to capture each of the three domains. Example items for the learning goal orientation scale are: “I am willing to select a challenging work assignment that I can learn a lot from” and “For me, further development of my work ability is important enough to take risks.” Example items for the performance prove goal orientation scale are: “I like to show that I can perform better than my co-workers” and “I enjoy it when others at work are aware of how well I am doing.” Example items for the performance avoid goal orientation scale are: “I would avoid taking on a new task if there were a chance that I would appear rather incompetent to others” and “I prefer to avoid situations at work where I might perform poorly.”

Coefficient alphas were .88, .85, and .91 for the learning goal orientation, performance prove orientation, and performance avoid orientation scale respectively.

Control variables. In order to rule out alternative explanations for my findings, I measured control variables for the following constructs: leadership self-efficacy (Ng et al., 2008), motivation to lead (Chan & Drasgow, 2001), supervisor's leadership mindset, and demographics (age, gender and tenure with current supervisor). The conceptual reasoning for including each control variable is explained in the following paragraphs.

Leadership self-efficacy is included as a control because it is a known to be a significant predictor of leadership effectiveness (Anderson, Krajewski, Goffin, & Jackson, 2008). Additionally, social cognitive theory (Bandura, 1986) suggests that leadership self-efficacy may be related to the mediators (reflection, fear of failure, and negative feedback-seeking). Social cognitive theory posits that individuals with higher levels of self-efficacy are more confident in their leadership abilities, and therefore may be more likely than individuals with low leadership self-efficacy to reflect on or seek feedback about their leadership performance. In summary, I will control for self-efficacy by using it as a predictor of outcomes and mediators. Coefficient alpha for the leadership self-efficacy scale was .87.

I will also measure motivation to lead as a possible control variable. Research suggests that an individual's motivation to lead may drive their desire to improve their leadership skills (DeRue & Myers, 2014). I measured motivation to lead using the 9-item affective-identity motivation to lead scale developed by Chan and Drasgow (2001). Example items are: "Most of the time, I prefer being a leader rather than a follower when working in a group," "I am the type of person who likes to be in charge of others," and "I

am the type who would actively support a leader but prefers not to be appointed as leader” (with the last item reverse scored). Coefficient alpha for the motivation to lead scale was .68.

I will also measure the supervisor’s leadership mindset as a possible control variable. Research has suggested that mindsets influence the degree to which individuals perceive behavioral changes (Heslin et al., 2005). Individuals with fixed mindsets ‘anchor’ on their initial impressions of others’ performance, whereas individuals with an incremental mindset are more likely to perceive behavioral changes. Therefore, if a supervisor has a fixed leadership mindset, s/he is less likely to indicate that the leader’s performance has changed, even if it has. Hence, it is necessary to control for the supervisors’ leadership mindset to minimize the possibility that the measure of leadership growth is biased by mindset of the supervisor. The same 3-item leadership mindset scale used for the leader survey (modified from Hong et al. (1999)) was used for measuring the supervisor’s leadership mindset. Coefficient alpha for the supervisor’s leadership mindset scale was .94.

In addition to controlling for the above factors, I sought to control for experience-related and demographic factors that may impact leadership growth. I first controlled for tenure with current supervisor. There is evidence that role expectations in early phases of a dyadic relationship differ from those in later phases (Fisher, 1986). These differences in what a supervisors expects from a ‘new’ employee versus an employee with whom they have been working with for years may influence the performance appraisal process (Murphy & Cleveland, 1995). Empirical evidence supports the assertion that the duration of a supervisor-subordinate relationship influences performance ratings (Duarte,

Goodson, & Klich, 1994), therefore I control for tenure with supervisor as a possible alternative explanation for differences in ratings of leadership growth. Additionally, research has shown that gender can influence leadership evaluations (Eagly, Makhijani, & Klonsky, 1992), therefore, I controlled for gender in my model. Thus, coupled with the other control variables, it is possible to see if my hypotheses are supported after controlling for relevant demographic, dispositional, and experience-related factors.

Analytical Strategy

Confirmatory Factor Analysis

My first step in the data analysis was to examine the measurement model by performing a confirmatory factor analysis (CFA) using LISREL 9.2. Andersen and Gerbing (1988) recommend testing the measurement model prior to and separate from the causal model. Testing the measurement model prior to the causal model is recommended because when a structural equation model has poor fit it is more likely due to misspecification of the measurement model than from the structural component because the measurement portion is more complex than the structural model (Brown, 2015).

There are two fundamental purposes for testing the measurement model using CFA. The first purpose is to examine whether the measures used in the survey accurately capture the theoretical construct. If the factor loading of each survey item (indicator) on the respective latent construct is significant, then the items are deemed to be valid indicators of the latent construct. The second purpose of the CFA is to examine the distinctiveness of the latent constructs in the model. The fit of the proposed measurement model will be compared with alternative measurement models (with various constructs combined into a single factor). If these alternative models are better fitting (based on a

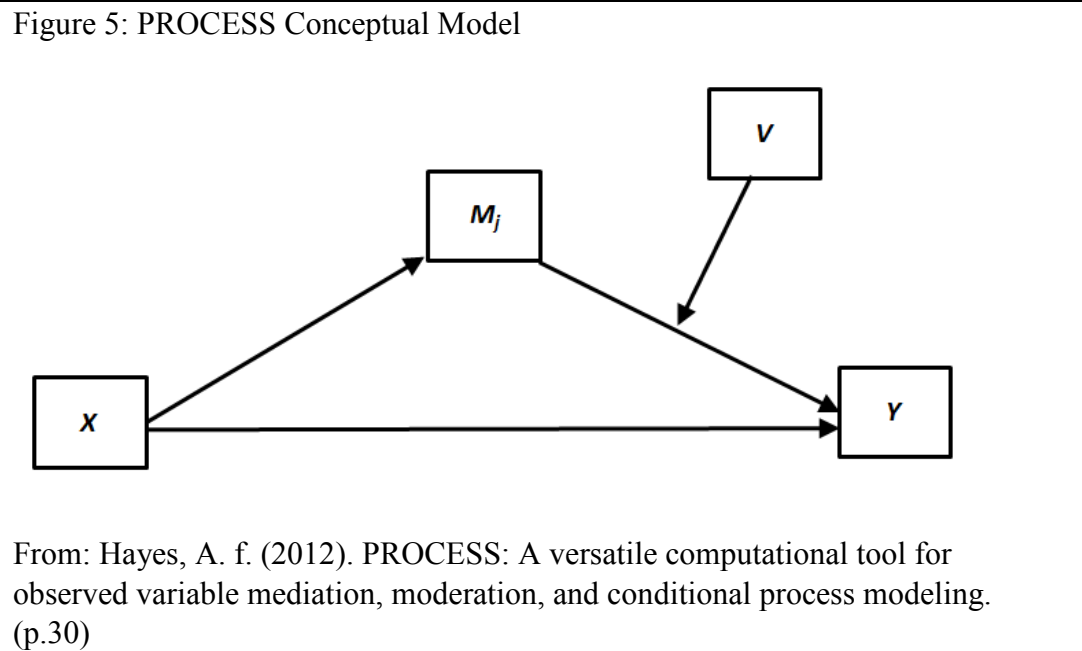
chi-squared difference test of the nested model) then the proposed latent constructs are not distinct and should be combined in the model and for subsequent analysis.

When examining the distinctiveness of the latent constructs, I examined the relationship between the three leadership development opportunity measures: formal leadership training, coaching, and challenging assignments. I wanted to examine the possibility that these factors loaded onto a second order factor: “developmental opportunities.” If the indicators from these constructs did load onto a second order factor then it would be possible to test the overall model using this single developmental opportunity factor after the initial hypotheses tests. Conversely, limited evidence of the higher order factor would limit me to testing each of the moderators (formal leadership training, coaching, and challenging assignments) in separate models.

Path Analysis

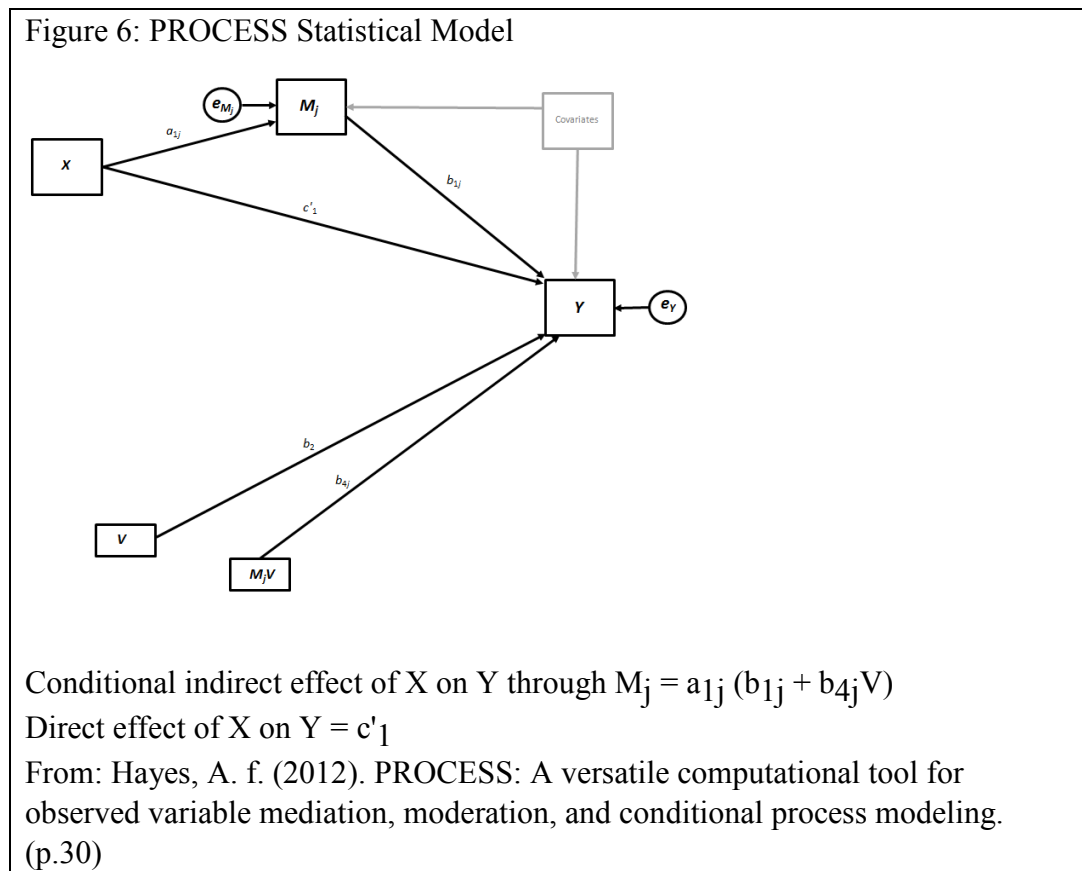
The proposed model is what Edwards and Lambert (2007) termed a second stage moderated mediation and, as such, will be analyzed using the PROCESS macro developed by Hayes (2012). This macro combines moderated regression analysis with path analysis to test the direct relationships among the constructs and bootstrapping to calculate the significance of the indirect effects. The conceptual model for the PROCESS macro given my proposed moderated mediation model is Model 14 from the Hayes (2012) PROCESS macro. This conceptual model (for my proposed second stage moderated mediation) is shown in Figure 5. The macro allows for testing multiple mediators in parallel (as suggested the symbol M_j in the conceptual model in Figure 5). Therefore, the PROCESS macro allows me test all of the mediators in the same model,

however I will test each of the moderators (formal leadership training, mentoring, and challenging assignments) in separate models.



The statistical model of a second stage moderated mediation is presented in Figure 6. In this model X represents the independent variable, Y is the dependent variable, M is the mediator of the $X \rightarrow Y$ relationship, and V is the variable that moderates the $M \rightarrow Y$ relationship. X influences Y through direct and indirect pathways. The direct influence of X on Y is independent of M. The indirect influence of X on Y is the product of the path from X to M and the path from M to Y. In a second stage moderated mediation, the effect of M on Y is complicated by the inclusion of a moderator (V). The inclusion of this moderator in the second stage of the mediation results in a conditional indirect effect of X on Y, meaning that the effect of X on Y through M is conditional on the value of V. Therefore, the indirect path from X to Y can be quantified as $a(b_1 + b_3V)$, where a, b_1 , and b_3 are the paths from $X \rightarrow M$, $X \rightarrow Y$, and $MV \rightarrow Y$ respectively (see

Figure 6). If the indirect effect of X on Y differs significantly based on the value of V, then moderated mediation is concluded. The significance of the paths is determined by examining the bootstrapped confidence interval. The PROCESS macro generates confidence intervals by repeatedly generating effect sizes using bootstrapped samples. Once the effects are generated, the program rank orders them and then the highest and lowest 2.5% are removed to create the bounds for the 95% confidence interval. Rank ordering the bootstrapped effects and using the confidence intervals created by removing the highest and lowest 2.5% values creates a confidence interval that is bias-corrected for non-normality. These bias-corrected confidence intervals will be used to evaluate whether the hypothesized effects are significant.



CHAPTER IV: RESULTS

In this chapter I report the results of my study. First, I briefly mention some notable descriptive statistics and correlations. Then, I report the results of the CFA used to test my proposed measurement model. Third, I report the results of my hypothesis tests. Finally, I report the results of some exploratory post-hoc analyses.

Descriptive Statistics and Correlations

Table 2 reports the descriptive statistics and intercorrelations for the study variables. In this section, I highlight some findings in Table 2 that may be of interest. Of the proposed controls, only leadership self-efficacy and supervisor's leadership mindset were significantly related to the outcome, leadership growth. Therefore, per best practices recommendations by Aguinis and Vandenberg (2014), the non-significant controls (motivation to lead, tenure with supervisor, and sex) were excluded from further analysis.

It is interesting that the leader's leadership mindset and the supervisor's leadership mindset are highly positively related ($r = .63, p < .05$). This may be an example of attraction-assimilation-attrition (ASA) theory at the employee-supervisor level. It may be that employees are attracted to and supervisors hire individuals with similar beliefs about leadership development. I also want to point out that the developmental opportunities (formal leadership training, coaching, challenging assignments, and developmental opportunities) are significantly related to each other (with the one exception of challenging assignments and formal training), but the relationships are of moderate magnitude. The moderate size of these correlations is discussed further in the CFA results. Additionally, formal leadership training and the

quality of training were highly, positively related ($r = .82, p < .05$), therefore only the formal leadership training construct is used in the analysis.

The descriptive statistics and correlations also reveal some interesting similarities and differences from the original mindset domain of intelligence. One of the more interesting findings about intelligence mindset is that fixed and incremental mindsets are equally prevalent in the population (Dweck & Molden, 2013). Therefore, I was interested to determine if leadership mindset followed a similar pattern. As mentioned earlier, leadership mindset is measured on a six-point scale (1 = most fixed mindset, 6 = most incremental mindset). Therefore, the midway point of the scale would be 3.5. The mean of the leadership mindset rating for the sample in the current study was 4.11, suggesting that the study participants had a slight bias toward a more incremental leadership mindset. The standard deviation of the leadership mindset scores was 1.43, representing a relatively large amount of variability in the scale. Thus, this pattern of a mean score near the mid-point and good variation in the scores is similar to the pattern found in intelligence mindset research.

A different pattern seems to exist in the relationship between sex and leadership mindset. In intelligence research, females are more likely than males to have a more fixed mindset (Dweck, 2000). The current study finds that females are more likely than males to have an incremental leadership mindset. Dweck (2000) postulates that females may be more likely than males to develop a more fixed intelligence mindset at a young age because they are more often praised for how smart they are or how fast they learn topics. Following this logic, perhaps boys are more often praised for their natural leadership abilities at a young age, leading them to have a more fixed leadership mindset.

Table 2. Descriptive Statistics and Intercorrelations between Study Variables

Variable	<i>M</i>	<i>SD</i>	1	2	3	4	5	6	7	8	9	10	11	12
1. Leadership Mindset	4.11	1.43	.91											
2. Negative Feedback Seeking	3.59	.71	.26*	.73										
3. Reflection	4.11	.43	.09	.06	.73									
4. Fear of Failure	2.74	.91	-.28*	.01	.17	.91								
5. Challenging Assignments	3.73	.68	-.22*	.04	.39*	.30*	.85							
6. Formal Leadership Training	3.31	1.51	-.03	.14	-.01	.31*	.10							
7. Quality of Formal Training	3.77	1.65	-.19	.01	.14	.32*	.26*	.82*	.95					
8. Coaching	3.80	.86	-.14	.01	.23*	.14	.24*	.34*	.49*	.92				
9. Developmental Opportunities	3.85	.73	-.22*	.01	.26*	.28*	.35*	.40*	.54*	.61*	.78			
10. Leadership Growth	3.67	.85	-.40*	-.08	.14	.06	.39*	.03	.18	.09	.24*	.86		
11. Leadership Performance this year	3.97	.70	-.14	.06	.23*	-.10	.14	.24	.32*	.38*	.27*	.43*	.95	
12. Leadership Performance last year	3.69	.73	-.24*	-.07	.18	-.20*	.09	.10	.26*	.31*	.27*	.50*	.84*	.94

Note. N = 98. Coefficient alphas are on the diagonal in bold. * $p < .05$.

Table 2 - Continued

Variable	<i>M</i>	<i>SD</i>	1	2	3	4	5	6	7	8	9	10	11	12
13. Promotability	4.32	.52	.03	.28*	.22*	-.08	.06	.12	.09	.19	.21*	.38*	.69*	.61*
14. Leadership Self-Efficacy	4.19	.52	-.22*	-.14	.37*	-.08	.41*	-.08	.12	.08	.29	.49*	.38*	.49*
15. Motivation to Lead	3.63	.55	.39*	.23*	.19	-.11	.18	-.02	-.11	.01	.01	.00	.17	.01
16. Supervisor's Leadership Mindset	4.03	1.36	.63*	.18	-.05	-.29*	-.22*	.10	-.15	-.26*	-.29*	-.39*	-.21*	-.24*
17. Tenure with Supervisor	3.63	1.50	-.16	.00	.05	-.05	-.06	-.18	-.25*	-.18	-.02	.19	.04	.04
18. Sex (0 = male, 1 = female)	.49	.50	.31*	-.06	-.07	-.06	-.07	-.08	-.12	-.17	-.11	-.14	.06	.04
19. Age	3.31	1.03	.20*	-.06	.00	-.30*	-.17	-.26*	-.34*	-.40*	-.22*	-.18	-.21*	-.10
20. Data Source (0 = development, 1 = Qualtrics)	.49	.50	-.65*	-.15	-.05	.12	.07	-.11	.08	.08	.20	.53*	.17	.35*
21. Learning Growth Orientation	4.27	.60	.05	.12	.38*	-.03	.36*	.04	.13	.23*	.10	.11	.32*	.11
22. Performance Prove Orientation	3.82	.78	-.26*	-.01	.28*	.13	.56*	-.07	.16	.33*	.21*	.32*	.30*	.26*
23. Performance Avoid Orientation	2.69	.98	-.57*	-.24*	-.01	.45*	.13	.10	.34*	.27*	.26*	.16	.01	.08

Note. N = 98. Coefficient alphas are on the diagonal in bold. * $p < .05$.

Table 2 - Continued

Variable	13	14	15	16	17	18	19	20	21	22	23
13. Promotability	.83										
14. Leadership Self-Efficacy	.26*	.87									
15. Motivation to Lead	.36*	.27*	.68								
16. Supervisor's Leadership Mindset	-.03	-.27*	.26*	.94							
17. Tenure with Supervisor	.06	.24*	-.12	-.09							
18. Sex (0 = male, 1 = female)	.15	-.08	.17	.10	-.09						
19. Age	-.21*	.03	-.15	.20	.43*	-.05					
20. Data Source (0 = development, 1 = Qualtrics)	.05	.42*	-.17	-.55*	.19	-.18	-.21*				
21. Learning Growth Orientation	.37*	.33*	.43*	-.05	-.10	-.14	-.16	-.23*	.88		
22. Performance Prove Orientation	.23*	.36*	.26*	-.29*	-.23*	-.14	-.22*	.21*	.39*	.85	
23. Performance Avoid Orientation	-.15	.07	-.40*	-.52*	-.08	-.15	-.22*	.35*	-.18	.31*	.91

Note. N = 98. Coefficient alphas are on the diagonal in bold. * $p < .05$.

It is also interesting to note that there are several significant differences in the mean scores and variability of constructs between the sample that came from leadership development recruitment groups (MBA classes and leadership development programs) versus the sample group from Qualtrics. Significant differences were found in the mean values of primary constructs in the model including leadership mindset and leadership growth. Results of t-test of mean differences between these sample groups are presented in Table 1A in the Appendix. There were also differences in construct relationship between the two groups, which can be seen by comparing the correlation table from the development group (Table 2A in Appendix) to that from the Qualtrics group (Table 3A). Data source is used as a control in the analysis due to these significant differences.

Measurement Model

Hypothesized Measurement Model

As described in Chapter 3, prior to testing my hypotheses I conducted a CFA to test the overall fit of the hypothesized measurement model to the data. Because of my limited sample size, I formed three parcels as indicators of the latent variables (Williams, 2008) for the constructs that had more than three items in the measure. These constructs included reflection, fear of failure, challenging assignments, coaching, developmental opportunities, and growth. I created the parcels by combining every third item. As an example, the challenging assignment construct had 10 items, therefore the 1st, 4th, 7th and 10th item formed parcel 1, the 2nd, 5th, and 8th item formed parcel 2 and the 3rd, 6th, and 9th item formed parcel 3.

One of the first concerns that I wanted to address with the measurement model was whether the developmental opportunities loaded onto a higher order factor. As

mentioned in Chapter 3, I had three measures of developmental opportunities that may form a higher order factor: challenging job assignments, the amount of time spent in formal leadership training, and coaching. I tested the measurement model with these three measures loading onto one higher order developmental opportunities latent construct. The CFA for this model contained three lower order latent constructs. The lower order constructs had the following indicators: three parcel indicators for the challenging assignments measure, three parcel indicators for the coaching measure, and one measure of formal leadership training. Because the model was perfectly identified, the model fit statistics are not a valid representation of the quality of data fit, however, none of the paths from the lower order latent factors to the higher order latent factor were significant, suggesting that a higher order factor should not be used. This is not surprising given that the correlations between challenging job assignments, formal leadership training, and coaching were moderate (averaging about .24 as reported in Table 2).

Since the correlations between these developmental opportunities were moderate, I ran a CFA for the measurement model with nine latent variables: leadership mindset, reflection, negative feedback-seeking, fear of failure, challenging job assignments, formal leadership training, coaching, developmental opportunities, and leadership growth. Results indicate that the hypothesized model provided an acceptable fit to the data ($\chi^2(240) = 309.17$, $p < .01$; RMSEA = .06; SRMR = .07; CFI = .95). This model will be used as the primary measurement model. The results of this CFA are shown in Table 3.

Table 3. Confirmatory Factor Analysis for Measurement Model

Model	χ^2 (df)	$\Delta\chi^2$ (Δ df) (compared to Model 1)	RMSEA	SRMR	CFI
1. Nine factors (hypothesized model treating developmental opportunities, formal training, challenging assignments, and coaching as four distinct factors)	309.17 (240)		.06	.07	.95
2. Eight factors (fixing correlation of negative feedback seeking and fear of failure to one)	379.42 (241)	70.25 (1)*	.08	.08	.90
3. Seven factors (fixing correlations between all mediators to one)	439.58 (243)	130.41 (3)*	.09	.10	.86
4. Three factors (fixing correlations between all moderators and mediators to one)	1211.87 (261)	902.70 (21)*	.20	.20	.33
5. Five factors (fixing correlation between all moderators and leadership growth to one)	995.63 (250)	686.46 (10)*	.18	.17	.48

Note. RMSEA = Root mean square error of approximation, SRMR = Standardized root mean square residual, CFI = Comparative fit index.

* $p < .05$

Comparison of Alternative Measurement Models

To further examine the validity of the measurement model, I compare the fit of the hypothesized nine-factor measurement model to four alternative models. The first alternative model combined two of the mediators, negative feedback seeking and fear of failure, into one factor by setting the correlation between the two latent variables to one. Theoretically, these two factors could be related because they could both represent avoidance of negative experiences. The second alternative model combined the three mediators, negative feedback seeking, fear of failure, and reflection, into a single factor by setting the correlations between each of the latent variables to one. Although reflection may initially seem unrelated to negative feedback seeking and fear of failure, research in depressive rumination suggests that reflection is a subcomponent of rumination (Schoofs, Hermans, & Raes, 2010). Previous research has demonstrated a significant relationship between rumination and depression (Papageorgiou & Wells, 2003), so it is theoretically plausible that negative feedback seeking, fear of failure, and reflection (as a subcomponent of rumination) may load on a single negativity factor. The third alternative model combines all of the mediators (negative feedback seeking, fear of failure, and reflection) and all of the moderators (challenging job assignments, formal leadership training, coaching, and the developmental opportunities) into one factor by setting the correlations between each of these latent variables to one. It is possible that the mediators and moderators may be related because individuals may choose to avoid developmental opportunities if they have a fear of negative outcomes (such as a fear of failure or negative feedback). In the final alternative model, the moderators challenging job assignments, formal leadership training, coaching, and the developmental

opportunities) are combined with leadership growth into one factor again by setting the correlations between the latent variables to one.

Results in Table 3 indicate that compared to any of the alternative models, the hypothesized nine-factor measurement model fit the data best. The chi-square difference tests revealed that the fit of the nine-factor model was significantly better than the fit of each alternative model. Thus, I retained the nine-factor measurement model and proceeded with the causal model analysis.

Tests of Hypotheses

I began my hypothesis test by performing a simple regression test to examine the Hypothesis 1, that leadership mindset is positively related to leadership growth, such that individuals with a more incremental mindset are more likely to have leadership growth. As a reminder, leadership mindset is operationalized so that larger values on the leadership mindset measure mean more incremental, whereas lower values on the leadership mindset measure represent more fixed mindsets. It is worth noting that the correlation between leadership mindset and leadership growth is significantly negative ($r = -.40, p < .05$), which is opposite the hypothesized direction, essentially meaning a more fixed mindset is related to leadership growth. To further examine the relationship I ran a regression, entering the controls leadership self-efficacy, supervisor leadership mindset, and data source as predictors of leadership growth in the first step and then entering leadership mindset in the second step. The relationship between leadership mindset and leadership growth is not significant ($\beta = -.09, B = -.05, 95\% \text{ CI: } -.20, .09$). Therefore, results of the regression analysis, shown in Table 4, do not support Hypothesis 1.

Table 4. Relationship between Leadership Mindset and Leadership Growth

Variable	Model 1		95% CI (LL, UL)	Model 2		95% CI (LL, UL)
	β	B		β	B	
Constant		1.45*	(.11, 2.79)		1.57*	(.19, 2.94)
<i>Control variables:</i>						
Leadership Self-Efficacy	.33*	.54*	(.24, .83)	.33*	.55*	(.25, .84)
Supervisor Leadership Mindset	-.12	-.08	(-.20, .05)	-.08	-.05	(-.19, .08)
Data Source	.33*	.56*	(.21, .91)	.29*	.49*	(.09, .88)
<i>Independent variables:</i>						
Leadership Mindset				-.09	-.05	(-.20, .09)
Model R ²	.38*			.39*		
ΔR^2 from Model 1				.01		

Note: N = 98. Data source control: 0 = Leadership development group, 1 = Qualtrics panel.
*p < .05

To ensure the robustness of the results, I also tested this Hypothesis 1 with alternative measures of leadership growth. First, I examined the difference between the supervisors' ratings of the leader's performance for this year and last year. I did this by running another regression. In this regression the outcome was this year's leadership performance, and the predictors were last year's leadership performance, leadership self-efficacy, supervisor's leadership mindset, data source, and leader's leadership mindset. Again, leadership mindset was not significantly related to leadership growth (conceptualized as this year's performance controlling for last year's performance). Second, I tested this hypothesis with promotability as a proxy for leadership growth, as promotability may be conceptualized as potential for growth. Leadership mindset was not related to promotability after controlling for supervisor's leadership mindset, leadership

self-efficacy, and data source. In sum, these analyses suggest that Hypothesis 1 is not supported.

Although Hypothesis 1 was not supported, I continued my analysis of the second stage moderated mediation model as described in Chapter 3 to examine the relationship between leadership mindset and the mediators.

I began by running regression analyses to examine the relationship between leadership mindset and the mediators (Hypotheses 2, 4, and 6). I chose to run a regression to test these relationships to simplify obtaining standardized coefficients for the results. To examine the relationship between leadership mindset and the mediators, I did not control for supervisor's leadership mindset. There is no theoretical reason that the supervisor's leadership mindset should influence the leader's rating of his or her own feedback-seeking, reflection, or fear of failure. I also did not control for data source, as it was not significantly related to any of the mediators. I did add a control for age, as the correlation matrix showed a significant relationship between age and the fear of failure mediator. The results of the regressions are presented in Table 5.

Hypothesis 2 predicts a positive relationship between leadership mindset and negative feedback-seeking, such that individuals with a more incremental mindset are more likely to seek negative feedback. This hypothesis was not supported ($\beta = .16$, $B = .08$, 95% CI: $-.04, .20$).

Hypothesis 4 predicted a positive relationship between leadership mindset and reflection, such that individuals with a more incremental mindset are more likely to reflect on ways to improve their leadership abilities. Although the data did not support this hypothesis, it is worth noting that the relationship is in the hypothesized direction and

that the 95% confidence interval is nearly completely positive ($\beta = .19$, $B = .06$, 95% CI: $-.01, .13$).

Hypothesis 6 predicted a negative relationship between leadership mindset and fear of failure, such that individuals with a more incremental mindset are less likely to fear failure. This hypothesis was supported ($\beta = -.26$, $B = -.16$, 95% CI: $-.31, -.02$). Additionally, adding leadership mindset into the second regression step significantly increases the amount of variance accounted for from $R^2 = .09$ with only the controls to $R^2 = .16$ with leadership mindset and the controls.

Table 5. Regression Analysis: Effect of Leadership Mindset on Mediators

Variable	Outcome								
	Negative Feedback Seeking			Reflection			Fear of Failure		
	β	B	95% CI (LL, UL)	β	B	95% CI (LL, UL)	β	B	95% CI (LL, UL)
Constant		3.33	(1.91, 4.75)		2.53	(1.70, 3.36)		5.14	(3.38, 6.91)
<i>Control variables:</i>									
Age	-.05	-.04	(-.18, .11)	-.05	-.02	(-.10, .07)	-.25*	-.22	(-.40, -.04)
Leadership Self-Efficacy	-.16	-.22	(-.52, .09)	.41*	.34	(.16, .52)	-.13	-.23	(-.61, .15)
Motivation to Lead	.16	.26	(-.05, .58)	.00	.00	(-.18, .18)	-.01	-.01	(-.40, .38)
<i>Independent variable:</i>									
Leadership mindset	.06	.08	(-.04, .20)	.19	.06	(-.01, .13)	-.26*	-.16	(-.31, -.02)
Model R ²	.11*			.17*					

Note: N = 98.

*p < .05

Having examined the relationship between leadership mindset and the mediators, I then ran a mediation analysis to examine the relationship between the mediators and the outcome, leadership growth (Hypothesis 3, 5, and 7). For testing these hypotheses, I used the same controls as I did for examining the relationship between leadership mindset and leadership growth: leadership self-efficacy, supervisor's leadership mindset, and data source. Results from the second stage of the mediation are presented in Table 6.

Hypothesis 3 predicts a positive relationship between negative feedback seeking and leadership growth. This hypothesis was not supported ($\beta = .04$, $B = .05$, 95% CI: $-.15, .26$). Hypothesis 5, which predicts that reflection is positively related to leadership growth, was not supported ($\beta = .04$, $B = .10$, 95% CI: $-.28, .48$). Finally, Hypothesis 7, which predicts fear of failure is negatively related to leadership growth, was not supported ($\beta = .00$, $B = .00$, 95% CI: $-.17, .17$).

To further examine the relationship between the mediators and alternative outcomes, I ran two additional mediation analyses, one with performance this year as an outcome and one with promotability as an outcome. The controls were leadership self-efficacy, supervisor's leadership mindset, and data source (with the addition of a control performance last year when analyzing the mediation for performance this year). In each of these analyses, the relationship between negative feedback seeking and the outcome was significant. There was a positive relationship between negative feedback seeking and performance this year ($\beta = .08$, $B = .11$, 95% CI: $.00, .22$). There was also a positive relationship between negative feedback seeking and promotability ($\beta = .16$, $B = .23$, 95% CI: $.08, .37$). The relationships between the other two mediators (reflection and fear of failure) and these outcomes were not significant. Together, the results of the additional

analysis combined with the initial test of the relationship between the mediators and leadership growth suggest partial support for Hypothesis 3 and no support for Hypothesis 5 and 7.

Table 6. Basic Mediation Model

Variable	Leadership Growth		
	β	B	95% CI (LL, UL)
Constant		.76	(-1.08, 2.60)
<i>Control variables:</i>			
Leadership Self-Efficacy	.27*	.52*	(.17, .86)
Supervisor Leadership Mindset	-.07	-.05	(-.19, .09)
Data Source	.25*	.50*	(.09, .91)
<i>Independent variable:</i>			
Leadership mindset	-.09	-.07	(-.21, .08)
<i>Mediators:</i>			
Negative Feedback Seeking	.04	.05	(-.15, .26)
Reflection	.04	.10	(-.28, .48)
Fear of Failure	.00	.00	(-.17, .17)

Note: N = 98. Data source control: 0 = Leadership development group, 1 = Qualtrics panel.

I examined the indirect effects of each of the three mediators to determine whether they mediated the relationship between leadership mindset and leadership growth (Hypotheses 8-10). As expected, since the previous hypotheses are not supported and there is not a strong relationship between leadership mindset and leadership growth or between the mediators and leadership growth, none of the mediation hypotheses were supported. The indirect effect through negative feedback seeking was .01 (-.02, .05), through reflection was .00 (95% CI: -.01, .05), and through fear of failure was .00 (95%

CI: -.03, .03). However, there was evidence that negative feedback seeking mediated the relationship between leadership mindset and one of the alternative outcomes: promotability (indirect effect $B = .03$, 95% CI: .00, .10)⁴. These results suggest partial support for Hypothesis 8

I continued the analysis by creating a moderated mediation model to test the conditional indirect effects based on the four proposed moderators (Hypotheses 11-13). As explained in Chapter 3, I ran the moderated mediation with four models, one model for each moderator: formal training, coaching, challenging assignments, and developmental opportunities. Results from the moderated mediation analysis are presented in Table 7. The first model examined the conditional indirect effects of leadership mindset on leadership growth when the second stage of the mediation was moderated by formal leadership training. Formal leadership training did not moderate the relationship between reflection, fear of failure, or negative feedback seeking and leadership growth. The second model examined the conditional indirect effects of leadership mindset on leadership growth when the second stage of the mediation was moderated by coaching. Coaching did not moderate the relationship between reflection, fear of failure, or negative feedback-seeking and leadership growth. The third model examined the conditional indirect effects of leadership mindset on leadership growth when the second stage of the mediation was moderated by challenging assignments.

⁴ The bootstrap SPSS macros provided by Hayes produces only unstandardized coefficients. Thus, even if one was to use standardized variables as input for the bootstrap macros, the bootstrap 95% CI will not correspond to a bootstrap 95% CI for the product of the standardized paths simply because the macros perform on the basis of unstandardized coefficients. Therefore, the indirect effects are only reported as unstandardized coefficients. All future analyses where results from the PROCESS macro include interaction are reported with unstandardized coefficients.

Challenging assignments did not moderate the relationship between reflection, fear of failure, or negative feedback-seeking and leadership growth. Finally, the fourth model examined the conditional indirect effects of leadership mindset on leadership growth when the second stage of the mediation was moderated by developmental opportunities. Although this analysis showed a significant effect between fear of failure and leadership growth, and a significant interaction between fear of failure and developmental opportunities, the conditional indirect effects were not significant.

I concluded the analysis by examining the conditional indirect effects of leadership mindset through the mediators for the alternative outcomes of performance this year and promotability. There was some evidence of conditional effects through negative feedback-seeking for the promotability outcome. The results, presented in Table 8, show that while the significance of the indirect effects varies at different levels of the moderator, the proximity of all of the confidence intervals to zero in combination with the similarity of the effect sizes at all moderator levels, limits the practical significance of the differences. Therefore, I conclude that there is not sufficient evidence to support the assertion of conditional indirect effects and that Hypotheses 11-13 are not supported.

Table 7. Second Stage of Moderated Mediation Model

Variable	Model 1: Formal Classroom Moderator		Model 2: Coaching Moderator		Model 3: Challenging Assignments Moderator		Model 4: Developmental Opportunities	
	B	95% CI (LL, UL)	B	95% CI (LL, UL)	B	95% CI (LL, UL)	B	95% CI (LL, UL)
Constant	2.14*	(-1.77, 6.05)	2.02*	(-5.05, 9.10)	-1.08	(-7.36, 5.21)	-4.43	(-13.55, 4.69)
<i>Control variables:</i>								
Leadership Self-Efficacy	0.54*	(.16, .91)	.51*	(.15, .88)	.30	(-.08, .67)	.38*	(.02, .74)
Supervisor Lead. Mindset	-0.07	(-.21, .08)	-.04	(-.19, .11)	-.03	(-.18, .10)	.02	(-.12, .17)
Data Source	0.48*	(.01, .94)	.48*	(.04, .93)	.68*	(.25, 1.11)	.69*	(.26, 1.11)
<i>Independent variable:</i>								
Leadership Mindset	-0.06	(-.21, .10)	-.06	(-.21, .10)	-.01	(-.16, .14)	-.05	(-.20, .11)
<i>Mediators:</i>								
Negative Feedback Seeking	-0.03	(-.59, .52)	-.19	(-1.31, .93)	.30	(-.77, 1.38)	.89	(-.32, 2.09)
Reflection	-0.12	(-1.12, .87)	.30	(-1.42, 2.01)	.35	(-1.08, 1.78)	1.61	(-.59, 3.80)
Fear of Failure	0.00	(-.55, .56)	-.35	(-1.11, .41)	-.18	(-1.06, .70)	-1.45*	(-2.38, -.52)
<i>Moderator/Interactions:</i>								
MOD	-0.31	(-1.44, .83)	-.28	(-2.10, 1.53)	.96	(-.82, 2.73)	1.39	(-.92, 3.70)
Neg Feed. Seeking X MOD	0.02	(-.14, .19)	.06	(-.21, .34)	-.08	(-.36, .21)	-.20	(-.49, .10)
Reflection X MOD	0.07	(-.19, .33)	-.05	(-.46, .37)	-.10	(-.48, .28)	-.38	(-.90, .14)
Fear of Failure X MOD	-0.01	(-.14, .13)	.09	(-.10, .29)	.03	(-.20, .26)	.36*	(.13, .60)
Model R ²	.40*		.40*		.44*		.46*	

Note: N = 98. Data source control: 0 = Leadership development group, 1 = Qualtrics panel; MOD = Moderator for model (Formal Classroom Training for Model 1, Coaching for Model 2, Challenging Assignments for Model 3, and Developmental Opportunities for Model 4). Standardized coefficients could not be obtained using the SPSS macro with interactions.

*p < .05

Table 8. Conditional Indirect Effects

Moderator	Promotability Outcome	
	B	95% CI (LL, UL)
Formal Leadership Training		
Low	.01	(-.02, .07)
Medium	.03*	(.00, .09)
High	.05*	(.00, .14)
Coaching		
Low	.04	(-.01, .14)
Medium	.04*	(.00, .10)
High	.03*	(.00, .09)
Challenging Assignments		
Low	.03*	(.00, .09)
Medium	.03*	(.00, .10)
High	.04	(-.00, .12)
Developmental Opportunities		
Low	.03*	(.01, .15)
Medium	.02*	(.01, .11)
High	.02	(-.00, .09)

Note: N = 98. Low = 1 standard deviation below mean level of moderators, Medium = Mean level of moderator, High = 1 standard deviation above mean level of moderator.

Post-Hoc Exploratory Analysis

I conducted a post-hoc exploratory analysis to examine a) alternative models and b) the relationship between leadership mindset and goal orientation. These analyses are explained below.

Alternative Model

Edwards and Lambert (2007) suggest comparing the hypothesized model to a plausible alternative model. For example, it is useful to compare a second-stage model to a first-stage model to ensure that moderation is in fact occurring at the second stage of the model. For this study, it makes theoretical sense that leadership mindset may interact with developmental opportunities in predicting the mediators. It is possible that having more developmental opportunities will strengthen the relationship between leadership mindset and the mediators. Thus, for the current study, I compared the hypothesized second-stage moderation model to an alternative first-stage model. I did this by moving the developmental opportunities moderation path between leadership mindset and the mediators (at the first stage of the mediation).

I examined the relationship between leadership mindset and the mediators when the moderation occurs at the first stage (between the independent variable and the mediator). The results of this analysis are presented in Table 9 and described in the following paragraphs. Note that I used the same controls as in the original analysis between leadership mindset and the mediators (age and leadership self-efficacy), but the coefficients for these variables are not presented to abridge the table.

I first examined the relationship between leadership mindset and negative feedback seeking. There was not a significant relationship between leadership mindset and

negative feedback seeking, with no relationship between any of the moderators or interactions and negative feedback seeking. See results in the first column of Table 9.

I then examined the relationship between leadership mindset and reflection. There was a significant interaction (as well as significant main effects) between leadership mindset and three of the moderators: coaching, challenging assignments, and developmental opportunities. The pattern for all three of these interaction effects are similar, and follow the pattern displayed in Figure 7. Simple slopes analysis showed that the slope is not significantly different from zero at high levels of each of these mediators (one standard deviation above the mean), however at mean or lower levels, the simple slopes were significant. These results suggest that individuals with a more fixed mindset who have average or lower levels of coaching/challenging job assignments/developmental opportunities, reflect less than individuals with more fixed mindset who have higher levels of coaching/challenging assignments/developmental opportunities or individuals with more incremental leadership mindsets (no matter their level of coaching/challenges/ developmental opportunities).

Table 9. First Stage Moderation

		Outcome								
		Negative Feedback Seeking			Reflection			Fear of Failure		
Moderator	Variable	β	B	95% CI (LL, UL)	β	B	95% CI (LL, UL)	β	B	95% CI (LL, UL)
Formal Training	Leadership Mindset	.13	.06	(-.05, .18)	.18	.06	(-.01, .12)	-.31*	-.20*	(-.33, -.06)
	Formal Training	.11	.05	(-.04, .14)	.05	.01	(-.04, .07)	.32*	.19*	(.08, .31)
	LM x FT	.15	.13	(-.04, .29)	-.08	-.04	(-.14, .06)	-.17	-.18	(-.38, .03)
R ²		.16*			.17*			.21*		
Coaching	Leadership Mindset	.13	.06	(-.06, .19)	.25*	.07*	(.01, .14)	-.16	-.10	(-.24, .04)
	Coaching	.04	.03	(-.14, .21)	.22*	.11*	(.01, .21)	-.03	-.03	(-.24, .17)
	LM x C	.14	.10	(-.06, .26)	-.27*	-.12*	(-.21, -.03)	-.42*	-.40*	(-.58, .21)
R ²		.13*			.28*			.30*		
Challenging Assignments	Leadership Mindset	.18	.09	(-.04, .21)	.28*	.09*	(.02, .15)	-.19	-.12	(-.27, .02)
	Challenging Assign	.12	.12	(-.11, .36)	.34*	.22*	(.09, .34)	.33*	.44*	(.16, .71)
	LM x CA	.01	.01	(-.14, .16)	-.22*	-.09*	(-.17, -.01)	-.12	-.10	(-.27, .08)
R ²		.12			.29*			.25*		
Developmental Opportunities	Leadership Mindset	.13	.07	(-.05, .19)	.26*	.08*	(.01, .15)	-.20	-.13	(-.27, .02)
	Dev. Opp.	.11	.10	(-.10, .31)	.19	.11	(.00, .23)	.23*	.29*	(.04, .54)
	LM x DO	.17	.12	(-.03, .27)	-.29*	-.12*	(-.20, -.04)	-.17	-.15	(-.33, .03)
R ²		.15*			.27*			.23*		

Note: N = 98. Regressions were run after controlling for the following variables: age and leadership self-efficacy. CI = confidence interval; LL = lower limit; UL = upper limit

I then examined the relationship between leadership mindset and the final mediator, fear of failure. The first moderator examined was formal training. There was a positive main effect of formal training and a negative main effect for leadership mindset, but no significant interaction between the two. This suggests that participating in formal training is related to higher levels of fear of failure and that individuals with a more fixed mindset are more likely to fear failure. For the challenging assignments moderator there was a positive main effect of challenging assignments but no main effect for leadership mindset and no significant interaction between the two. This also suggests that participating in challenging assignments is related to higher levels of fear of failure. The developmental opportunities moderator showed pattern similar to challenging assignments with a positive main effect on fear of failure, and no significant main effect of leadership mindset (see lower right corner of Table 9). Finally, coaching and leadership mindset had a significant interaction on fear of failure. This interaction is presented in Figure 8. Simple slopes analysis suggest that the slope is not significantly different from zero at low levels of coaching. However, at high levels of coaching the slope is significant. This interaction suggests that individual with a more fixed mindset are more likely to fear failure if they have more coaching.

Having examined the first stage of the mediation on the proposed 1st stage moderated mediation, I now turn to the second stage, or the relationship between the mediators and the outcome. I used the PROCESS SPSS macro for running a 1st stage moderated mediation (Model 7 from Hayes (2012)), to analyze the relationship between the mediators and the outcomes. I ran the analysis for the direct measure of leadership growth, performance this year controlling for performance last year (alternate

operationalization of leadership growth), and promotability. Results of these analyses are presented in Table 10. Results suggest that none of the mediators are related to the direct measure of leadership growth. However, negative feedback seeking is related to performance this year (controlling for last year) and promotability ($B = .11$, 95% CI: .00, .23; $B = .23$, 95% CI: .08, .37, respectively).

Figure 7: Challenging Assignments Moderation

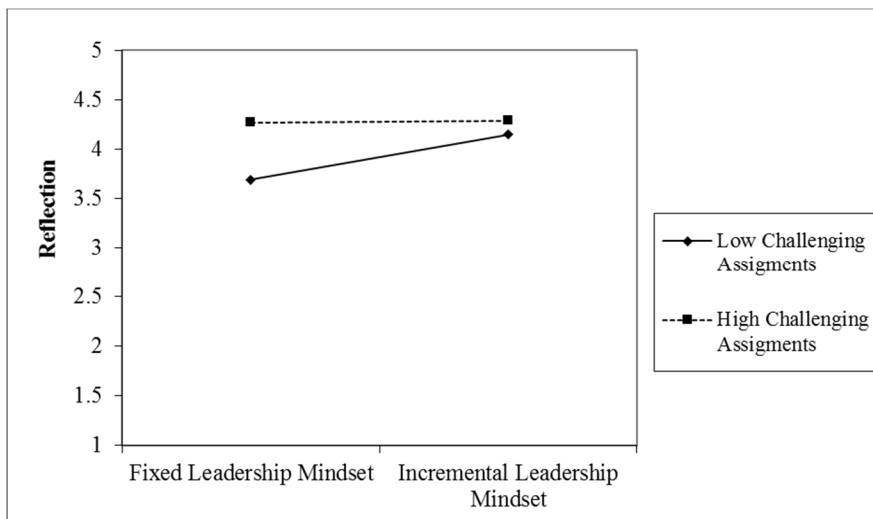


Figure 8: Coaching Moderation

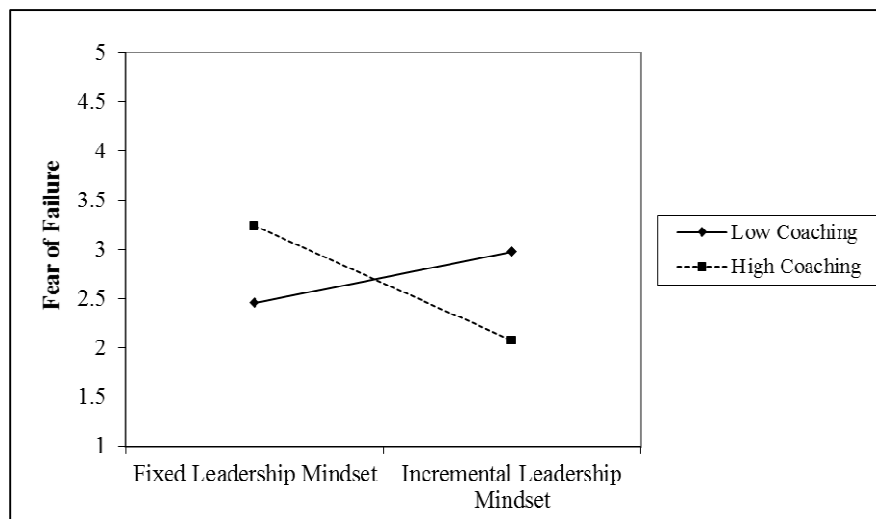


Table 10. Second Stage of 1st Stage Moderated Mediation Models

Variable	Leadership Growth ^a		Performance This Year (Controlling for Performance Last Year) ^b		Promotability ^a	
	B	95% CI (LL, UL)	B	95% CI (LL, UL)	B	95% CI (LL, UL)
Leadership Mindset	-.07	(-.21, .08)	.01	(-.07, .08)	-.02	(-.12, .09)
Negative Feedback Seeking	.05	(-.15, .26)	.11*	(.00, .22)	.23*	(.08, .37)
Reflection	.10	(-.28, .48)	.07	(-.13, .27)	.15	(-.12, .41)
Fear of Failure	.00	(-.17, .17)	.06	(-.04, .15)	-.05	(-.17, .07)
Model R ²	.39*		.76*		.18*	

Note: N = 98. ^aModerated mediation was run controlling for the following variables: leadership self-efficacy, supervisor's leadership mindset, data source. ^bModerated mediation was run controlling for the following variables: performance last year, leadership self-efficacy, supervisor's leadership mindset, data source. CI = confidence interval; LL = lower limit; UL = upper limit

*p < .05

I concluded the post-hoc analysis of a 1st stage moderate mediation by examining the conditional indirect effects of leadership on the outcomes. Conditional indirect effects were not found for the direct leadership growth measure. However, conditional indirect effects were found through negative feedback seeking for performance this year and promotability for all four moderators. The effects of leadership mindset were transmitted at high levels of each of the moderators, but not at low levels of the moderators. In sum, these results suggest support for a 1st stage moderated mediation of leadership mindset on performance and promotability through negative feedback seeking. The effects of leadership mindset are transmitted to the outcomes through negative feedback seeking for high (but not low) levels of formal training, coaching, challenging assignments, or overall developmental opportunities.

Relationship between Leadership Mindset and Goal Orientation

I ran a supplemental analysis to examine the discriminant validity between leadership mindset and goal orientation. The first step in the analysis was to run a CFA to examine the measurement model with leadership mindset and the three dimensions of goal orientation. Then I ran a step regression with the goal orientation constructs predicting leadership growth in the first step, then adding leadership mindset in the second step to determine if leadership mindset had predictive validity beyond that of goal orientation. Further details about the analysis and results follow.

I first ran a CFA to examine how the proposed four factor measurement model (leadership mindset, learning goal orientation, performance prove orientation, and performance avoid orientation) fit the data. Because each of the three goal orientation dimensions was measured with four items, I combined the first and fourth item into a

parcel (similar to the process used in the primary measurement model test) to create three measures for each dimension before performing the CFA. The results of this CFA are presented in Table 10. The proposed four factor model was an acceptable fit to the data ($\chi^2(48) = 79.05, p < .01; RMSEA = .08; SRMR = .06; CFI = .96$). I then ran three alternative models. In each model I fixed the correlation between the leadership mindset latent variable with one of the goal orientation dimensions to one to check whether or not leadership mindset was discriminate from the goal orientation dimension. For example, in the first alternative model I fixed the correlation between the leadership mindset latent variable and the learning goal orientation latent variable to one in order to determine whether leadership mindset and learning goal orientation were similar enough that they should be combined. This alternative model was a poorer fit to the data than the original model ($\chi^2(49) = 217.23, p < .01; RMSEA = .19; SRMR = .16; CFI = .79$), and a chi-squared difference test between the two models shows that the alternative model was a significantly poorer fit to the data ($\Delta \chi^2(1) = 138.17, p < .01$). Alternate models combining a) leadership mindset and performance prove orientation and b) leadership mindset and performance avoid orientation were also poorer fits to the data. These results suggest that leadership mindset is a separate construct from any of the dimensions of goal orientation.

Table 11. Confirmatory Factor Analysis: Goal Orientation

Model	χ^2 (df)	$\Delta\chi^2$ (Δ df) (compared to Model 1)	RMSEA	SRMR	CFI
1. Four factors (leadership mindset, learning, performance prove, performance avoid)	79.05 (48)		.08	.06	.96
2. Three factors (fixing the correlation between leadership mindset and learning goal orientation to one)	217.23 (49)	138.17 (1)*	.19	.16	.79
3. Three factors (fixing the correlation between leadership mindset and performance prove goal orientation to one)	233.47 (49)	154.42 (1)*	.20	.19	.77
4. Three factors (fixing the correlation between leadership mindset and performance avoid goal orientation to one)	200.93 (49)	121.88 (1)*	.18	.09	.81

To further examine the discriminate validity of leadership mindset and goal orientation, I used regression analysis to examine the relationship between these constructs and leadership growth. Results of the two step regression are presented in Table 12. Model 1, which does not include leadership mindset, shows that learning goal orientation was not related to leadership growth when entering data source as a control. I

entered leadership mindset into the model in a second step, leadership mindset was not significantly related to leadership growth.

In summary, while the CFA demonstrates that leadership mindset and goal orientation are distinct constructs, results of the regression analysis suggest that neither leadership mindset nor goal orientation are related to leadership growth.

Table 12. Regression Analysis with Mindset and Goal Orientation

Variable	β	Model 1		β	Model 2	
		B	95% CI (LL, UL)		B	95% CI (LL, UL)
Constant		1.66*	(.47, 2.85)		2.10*	(.40, 3.79)
<i>Control</i>						
Data Source	.55*	.94*	(.63, 1.25)	.50*	.85*	(.46, 1.25)
<i>Goal Orientation variables:</i>						
Learning	.16	.23	(-.05, .51)	.15	.21	(-.08, .49)
Performance Prove	.16	.18	(-.04, .40)	.17	.19	(-.04, .41)
Performance Avoid	-.05	-.04	(-.21, .12)	-.09	-.08	(-.27, .11)
<i>Independent variables:</i>						
Leadership Mindset				-.09	-.06	(-.21, .10)
Model R ²	.35*			.36*		
ΔR^2 from Model 1				.01		

Note: N = 98. Data source control: 0 = Leadership development group, 1 = Qualtrics panel; MOD

*p > .05

CHAPTER V: DISCUSSION

Organizational leaders generally agree that the development of the leaders within their companies is important for organizational success and competitive advantage (Carter, Ulrich, & Goldsmith, 2012), and as such, they spend millions of dollars annually on leadership development. Although leadership development programs are common within organizations, there is increased concern about the cost and effectiveness of these programs (Russon & Reinelt, 2004). There is a wide body of literature that discusses the overall effectiveness of leadership interventions (Cacioppe, 1998; Leskiw & Singh, 2007). Although research shows that individuals vary in the amount of leadership skills and abilities that they develop as a result of participating in a leadership development intervention (Black & Earnest, 2009; Day, 2001), much of the current research explores the overall effectiveness of leadership interventions instead of exploring the influence of the participant on the development outcomes. Although researchers have identified some individual traits and characteristics that influence leadership development, such as cognitive ability (Atwater, Dionne, Avolio, Camobreco, & Lau, 1999; Li, Arvey, & Song, 2011), self-esteem (Atwater et al., 1999; Li et al., 2011) and personality (Mumford et al., 2000; Smither, London, & Richmond, 2005) a large portion of individual variation in development remains unexplained.

The present study deepens our understanding of how individual's beliefs influence their leadership development and effectiveness by exploring the construct of leadership mindset. Leadership mindset is the belief that an individual holds about whether or not leadership skills can be developed through hard work and effort. Individuals with a more incremental leadership mindset believe that leadership skills can

be developed. Leadership scholar and author Warren Bennis is credited with stating: “The most dangerous leadership myth is that leaders are born – that there is a genetic factor to leadership. This myth asserts that people simply either have certain charismatic qualities or not. That’s nonsense; in fact, the opposite is true. Leaders are made rather than born.” Bennis’ statement represents a more incremental leadership mindset: leaders are not born that way; they work to become good leaders. Whereas international management consultant and author Gary Hamel, in his article “Nine Ways to Identify Natural Leaders” (2009) states: “The need to empower *natural leaders* isn’t an HR pipedream, it’s a competitive imperative” (emphasis added). Hamel’s statement is representative of a more fixed mindset: leadership skills can’t be substantially changed, and therefore ‘natural’ leaders should be selected/empowered. I propose that the belief an individual has about the malleability of leadership skills (or leadership mindset) influences their leadership growth. Specifically, I hypothesize that individuals with a more incremental mindset are more likely to develop their leadership skills. I further propose that this influence is transmitted through three mechanisms: negative-feedback seeking behaviors, reflection, and fear of failure. I hypothesize that individuals with a more incremental mindset are more likely to seek negative feedback and to reflect on ways to improve their leadership performance, and that they are less likely to fear failure.

I tested the hypothesized model using data from 98 leaders and their supervisors. Contrary to predictions, I found limited support for the hypothesis that leadership mindset was related to leadership growth. However, I did find support for the hypothesized relationships between leadership mindset and the mediators, negative

feedback seeking and fear of failure. I also found that leadership mindset interacted with developmental opportunities to predict reflection behaviors. I also found support for a conditional indirect effect in which the impact of leadership mindset on promotability, and leadership improvement from last year (through negative feedback seeking) was stronger for leaders who had more developmental opportunities. These results held when controlling for relevant characteristics, such as the leader's self-efficacy and the leadership mindset of the supervisor.

Theoretical Contributions and Implications

The findings of this study build and contribute to theory in several ways: first, by expanding Dweck's implicit self-theory into the domain of leadership; second, by linking leadership mindset to leader's behaviors; and third, by identifying developmental opportunities as a moderator of leadership mindset.

Extending Implicit Self-Theory to Leadership

At the outset of this study, I argued that Dweck's implicit self-theory (1986) should be expanded to the domain of leadership. I suggested that just as individuals have different beliefs about whether or not someone's intelligence can be changed through effort, they also have different beliefs about whether or not leadership skills could be developed through hard work. I proposed that individuals have a 'leadership mindset' and that individual's beliefs about leadership development fall on a scale from purely fixed (leadership skills cannot be changed, no matter how hard you try) to strongly incremental (leadership skills can be significantly improved through hard work). I suggested tangential evidence for the existence of different leadership mindsets by discussing how some individuals hold tightly to the belief that there are natural leaders

(who are believed to be good leaders without putting forth any effort) whereas some people strongly argue that leaders are made through hard work. One goal, then, of this study was to determine whether or not ‘leadership mindset’ was a valid construct using data as opposed to exemplars.

In order for leadership mindset to be a valid extension of implicit self-theory it is important to show that fixed and incremental leadership mindsets exist. Dweck’s study on the intelligence mindset domain found that an equal percentage of individuals have incremental intelligence mindsets as have fixed mindsets (Dweck & Molden, 2013). While I was not expecting an equal number of incremental and fixed mindsets, it was important that there was some variance. If everyone had approximately the same level of leadership mindset, then the predictive validity of the construct would be very limited. Leadership mindset was measured on a 6-point scale (ranging from 1 to 6), so the midpoint on the scale would be 3.5 (with smaller numbers representing a more fixed mindset and larger numbers a more incremental mindset). Data from this study showed that the mean score was 4.11 (slightly more incremental but close to mid-point) and the standard deviation was 1.42 (representing a relatively large standard deviation). These data suggest that individuals do differ in their beliefs about the malleability of leadership skills and that leadership mindset is a valid extension of Dweck’s implicit self-theory.

Although the finding that there is variation between individuals in their leadership mindset is significant, it is also important to determine whether or not these variations in leadership mindset are related to any important outcomes. As such, I examined the relationship between leadership mindset and different outcomes including leadership growth and promotability. I found no evidence of a direct effect of leadership

mindset on these outcomes, however this might be because the relationships are distal or contingent upon other variables. In support of the possibility of contingent effects, I found a conditional indirect effect of leadership mindset on promotability and leadership improvement in the last year (through negative feedback-seeking behavior) at high levels of developmental opportunities.

While the primary goal of this study was to better understand the relationship between leadership mindset and leader behaviors and outcomes, a smaller goal of this study was to ensure that the leadership mindset construct was distinct from the goal orientation constructs. Goal orientation has been widely studied in the management literature, so I wanted to ensure that leadership mindset was not essentially the same construct as goal orientation. Results of the CFA analysis show that leadership mindset and the three goal orientation factors are distinct. This, again, supports the assertion that leadership mindset is a valid extension of implicit self-theory.

Leadership Mindset and Leadership Behaviors

Having found that individuals had varying levels of leadership mindset, the next step was to examine the relationship between leadership mindset and leadership behaviors and attitudes. I used self-control theory as a basis for selecting attitudes and behaviors that may be influenced by leadership mindset. I hypothesized that leadership mindset would be positively related to negative feedback seeking and reflection, and negatively related to fear of failure.

This study found a negative relationship between leadership mindset and fear of failure. Individuals with a more incremental mindset are less likely to fear failure than individuals with a more fixed mindset. Although fear of failure has not been widely

studied in the management literature, fear of failure has been examined in high performance settings, like sports, education, and entrepreneurship. Fear of failure in those contexts has been linked to negative behaviors such as self-handicapping and procrastination. New ‘popular’ management strategies, such as the ‘Fail fast, fail often’ strategy (Babineaux & Krumboltz, 2013), are promoting failure as a shortcut to innovation and success. Therefore, understanding fear of failure and the individuals who are more at risk to fear failure may be an important component for implementing these strategies. Because fear of failure has both trait and state-like characteristics, and research suggests that the state-like characteristics are influenced by tasks, the relationship between leadership mindset and fear of failure may be moderated by the current responsibilities and tasks being performed by a leader. The current research takes an initial step to understanding fear of failure in a management context, but more research is needed to better understand the contexts where fear of failure is most influential and the boundary conditions of the relationship between leadership mindset and fear of failure.

Developmental Opportunities as a Moderator of Leadership Mindset

While the primary goal of this research was to explore the relationship between leadership mindset and leadership behaviors, I was also interested in examining the role that developmental opportunities played in influencing leadership growth. I initially proposed that developmental opportunities would moderate the relationship between leader behaviors (negative feedback seeking, reflection, and fear of failure) and leadership growth. Post hoc analysis suggested that developmental opportunities actually moderated the relationship between leadership mindset and the behaviors.

One of the leadership behaviors that was examined in this study was reflection, and while there was not a main effect from leadership mindset to reflection, there was a moderated effect. Developmental opportunities (including coaching and challenging assignments) moderated the relationship between leadership mindset and reflection. Individuals with a more incremental mindset had high levels of reflecting behavior whether they had high or low levels of developmental opportunities. However, individuals with a more fixed mindset only exhibited high reflecting behavior when they had high coaching or challenging assignments. Individuals with a more fixed mindset and low levels of developmental opportunities were less likely to reflect. Therefore, this study extends our understanding of the relationship between leader's mindsets and their reflection activities and provides information about the contexts under which fixed mindset leaders are more likely to reflect.

Another interesting interaction occurred between leadership mindset and coaching when predicting fear of failure. Results of this study showed that individuals with a more fixed mindset who had high levels of coaching were less likely to fear failure than individuals with a more fixed mindset and less coaching. These results suggest that providing coaching for individuals with a more fixed leadership mindset may lessen their fear of failure.

I conclude the section on theoretical implications by discussing the relationship between leadership mindset and leadership outcomes. One of the goals at the outset of this study was to better understand why some leaders developed more than others. I proposed leadership mindset as a possible factor. The results of this study provided some, albeit very limited, support for this assertion. The data suggest that leadership

mindset does have a small conditional indirect effect on leadership growth (operationalized as this year's leadership performance controlling for last year's leadership performance) through negative feedback seeking. This mediation occurs at high levels of developmental opportunities. The same pattern of conditional indirect effects was also found for promotability. In summary, the data suggests that when individuals with a more incremental leadership mindset are given high levels of developmental opportunities, they are more likely to seek negative feedback and thus have increased leadership growth and promotability.

Limitations and Future Directions

As with most research, this study contains some limitations that should be highlighted. One such limitation is that the independent variable and the mediators were collected at the same time point and thus do not provide evidence of the causal direction of these relationships. A related methodological issue is the measurement of leadership growth. While I attempted to mitigate the problems associated with retrospectively measuring growth by capturing it in two different ways (a direct measure and a comparison score of this year's performance to last year's performance), it is still likely that there was substantial measurement error in this measure. A longitudinal repeated-measure study design is needed to confirm the temporal nature of the study and capture a more accurate measure of leadership growth.

An additional concern is the substantial differences in measures between the two sample groups. The control for data source was significant in multiple analyses within this study, which suggests that the relationships between the study constructs may be different for the two populations. This study design included individuals who had people

or project management experience, but it may be necessary to more narrowly define ‘leader’ or examine different levels of leadership (first line leader versus top management team) to more fully capture the influence of leadership mindset. A study where the context of leadership is constant (such as a single organization) may help capture or control for some of the large variance seen in the present study design.

Another concern related to the sample is the leader mindset score and variance for the leadership development group. This group scored very high on incremental mindset (mean of 5 on a six point scale) and the variance in scores was relatively low (.7). Given that past research on implicit self-theories has found that incremental and fixed mindset are equally common (Dweck, 2006), and that the Qualtrics sample has a relatively equal balance of fixed versus incremental mindsets (mean 3.17, standard deviation 1.37), the high mean score and low variability in the developmental sample is suggestive of range restriction in the developmental sample. This range restriction could attenuate the relationships found in the analyses.

Although there were various limitations in the current study, it did pave the way for many exciting avenues to continue the examination of the influence of leadership mindset. One interesting finding in this study that may deserve further exploration is the influence of the interaction between coaching and leadership mindset on fear of failure. The current data suggests that coaching is associated with higher fear of failure for individuals with a more incremental leadership mindset, but lower fear of failure for individuals with a more fixed mindset. Future research is needed to confirm that this was not an anomaly with the current data and explore possible explanations for these differences. Additionally, the data suggests that individuals with a more incremental

mindset are less likely to fear failure when faced with a challenging assignment, future research could explore whether this lessened fear of failure leads to improved outcomes or learning.

Results of this study also suggest that the relationship between leadership mindset and leadership growth is complex. Further research is needed to better understand the contexts in which leadership mindset influences leadership growth. Research in intelligence mindsets suggests that mindsets are influential in the face of challenge or potential failure, so future research may employ an experiment to simulate a leadership failure to determine if leadership mindset is more likely to influence behaviors in challenging situations. Additionally, future research could determine if leadership mindset is more closely related to leadership outcomes at different levels of leadership within the organization. It is possible that leadership mindset is more significantly related to leadership growth at higher levels of leadership responsibility, where the challenges are greater. As the examination of leadership mindset is in early stages, there are a multitude of potential avenues for better understanding the construct.

Implications for Practice

Clawson and Haskins (2006) suggest that there are multiple levels at which learning can occur and the level at which learning occurs is integral to long term learning and action. They suggest that the most difficult, but perhaps most important, level of learning is the Values, Assumptions, Beliefs, and Expectations (VABEs). An example of the importance of underlying beliefs, as opposed to more easily identified conscious thoughts is as follows: Individuals may consciously know that investing for retirement is extremely important (conscious belief), but their action may be to not put money into a

retirement account because their VABE is ‘telling’ them that they have plenty of time to save for retirement later in life (underlying belief). Thus, their actions are being driven by their VABEs instead of their conscious thought, so ‘teaching’ them the importance of investing in retirement would not help change their actions, whereas teaching them about the importance and benefits of investing early for retirement may be a better choice.

I use the above paragraph and story to as an introduction to illustrate the important role that individuals’ leadership mindset has in the actions of leaders. Organizational leaders, researchers, and management consultants discuss the importance of certain actions in improving skills. Books are written and classes are taught about the importance of failure, seeking critical feedback, and reflecting on setbacks when trying to grow competencies in a subject. Generally, leaders ‘know’ that fearing failure can be paralyzing to learning and skill development and that seeking negative feedback and reflecting on ways to improve are positive behaviors, yet some leaders are more likely to implement these beneficial behaviors than others. This study suggests that individuals’ underlying beliefs about the rigidity of leadership skills may be related to why some leaders are more likely to exhibit these behaviors than others.

Although it is beyond the specific scope of this research, it is important to note that studies show that mindsets can be changed with repeated, systematic efforts. This study did not attempt to change the leadership mindset of individuals, but it is likely possible. I point this out because organizational leaders who note the importance of incremental leadership mindsets may do things to help their employees develop a more incremental mindset. This may include providing employees with regular examples of leaders who developed their leadership skills through hard work, providing praise to

employees who put forth a lot of effort in a leadership assignment even if the results did not reflect the amount of effort involved, or discussing the importance of stretching leadership skills, even if failure is a possibility. The following paragraphs discuss implications for individuals with more incremental or fixed mindsets, but some organizational leaders may decide that the best option is to develop more of an incremental leadership mindset for all employees.

Results of this study show that leadership mindset is positively related to negative feedback seeking, which is, in turn, related to promotability and positive differences in leadership performance in the last year. Individuals who more strongly believe that leadership can be improved through hard work and effort (incremental mindset) are more likely to seek negative feedback. Since individuals with a more fixed mindset are less likely to seek negative feedback, organizational leaders may need to implement policies and practices that proactively provide these individuals information about what they need to do to improve.

This study also found some interesting relationships between leadership mindset and reflection. While this study did not find a positive relationship between reflection and leadership growth, other evidence suggests that reflection is important for managerial learning and development (Daudelin, 1997; Moon, 2013; Schön, 1983). Results of this study suggest that individuals who have a more incremental mindset are more likely to reflect on ways to improve their leadership. Interestingly, the results also suggest that individuals with a more fixed mindset who are provided with high levels of developmental opportunities, such as coaching or challenging assignments, are just as likely to reflect on ways to improve their leadership as those with an incremental

mindset. Thus, organizational leaders who believe in the importance of reflection need not provide any additional motivation to individuals with a leadership mindset as they have a high tendency to reflect. However, individuals with a more fixed mindset should be provided systematic development opportunities, such as coaching or challenging assignments, to increase the likelihood that they reflect on ways to improve their leadership.

This study also provides insight on the relationship between developmental opportunities and fear of failure. This study found that developmental opportunities, such as challenging assignments and formal leadership training, are positively related to fear of failure. Organizational leaders should understand that with developmental opportunities comes greater fear of failure. This fear may stunt the growth opportunities for individuals, so it is important for organizations, whenever possible, to let individuals know the importance of learning versus success. For example, in a formal training class, individuals may be less likely to fear failure if a statement is made such as: “We know that this may be new for you, so it is okay if you don’t get it correct right away. We’re here to learn, not do everything perfectly.”

Results also suggest that a more incremental mindset may offset some fear of failure in these developmental opportunities. It seems individuals with a more incremental mindset will be less likely than those with a more fixed mindset to fear failure in formal leadership training settings and challenging assignments. Therefore, when learning is a higher priority than the success or failure of an assignment, it is especially important to emphasize learning (versus success) for individuals with a more fixed mindset.

One final interesting implication for organizational leaders is the relationship between coaching and fear of failure. Results from this study suggest that when individuals have a more fixed mindset, coaching is related to lower amounts of fear of failure. Therefore, coaching may be especially beneficial for individuals with a more fixed mindset.

In summary, organizational leaders may be able to increase the amount of negative feedback seeking and reflection of leaders within their organization, and lower the fear of failure, by understanding the leaders' beliefs about the malleability of leadership skills. Organizational leaders may decide to implement strategies to increase the overall incremental mindset of the leaders within their organization, or they may choose to tailor their developmental opportunities to better fit individuals with different leadership mindsets.

Conclusion

Although more work remains to be done on identifying the influence of leadership mindset on leader's behaviors and growth, this study represents a step toward understanding these influences. This study found that leadership mindset is related to negative feedback seeking, reflection, and fear of failure. Specifically, individuals with a more incremental mindset are more likely to seek negative feedback, which has been linked to leadership growth and effectiveness. Individuals with a more incremental mindset are also more likely to reflect on ways to improve their leadership skills. Finally, individuals with a more incremental mindset are less likely to fear leadership failures. Organizations should thus take steps toward understanding the leadership mindset of their leaders. By doing so, organizations will be better able to design

leadership development interventions specific to the individual and their mindset, thus improving the likelihood of leadership improvement.

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APPENDIX

Table A1: Levine's Test and t-test

	Levene's Test for Equality of Variances		t-test for Equality of Means						
	F	Sig.	t	df	Sig.	Mean Difference	Std. Error Difference	95% CI of the Difference	
								Lower	Upper
Leadership Mindset	32.55	0.00	8.35	96	0.00	1.85	0.22	1.41	2.29
Reflection	1.94	0.17	0.53	96	0.60	0.05	0.09	-0.13	0.22
Fear of Failure	0.32	0.58	-1.18	96	0.24	-0.22	0.18	-0.58	0.15
Negative Feedback Seeking	0.71	0.40	1.45	96	0.15	0.21	0.14	-0.08	0.49
Challenging Assignments	0.86	0.36	-0.66	96	0.51	-0.09	0.14	-0.37	0.18
Formal Training	4.47	0.04	1.03	96	0.31	0.31	0.30	-0.29	0.92
Coaching	0.32	0.58	-0.74	96	0.46	-0.13	0.17	-0.48	0.22
Developmental Opportunities	1.91	0.17	-1.97	96	0.05	-0.29	0.14	-0.57	0.00
Leadership Growth	0.51	0.48	-6.09	96	0.00	-0.90	0.15	-1.19	-0.61
Promotability	3.98	0.05	-0.50	96	0.62	-0.05	0.10	-0.26	0.16
Performance This Year	0.08	0.78	-1.66	96	0.10	-0.23	0.14	-0.51	0.05
Performance Last Year	0.07	0.80	-3.60	96	0.00	-0.50	0.14	-0.78	-0.23
Age	5.40	0.02	2.14	96	0.04	0.44	0.20	0.03	0.84
Sex	0.23	0.63	1.84	96	0.07	0.18	0.10	-0.02	0.38
Leadership Self-Efficacy	0.20	0.66	-4.58	96	0.00	-0.44	0.10	-0.63	-0.25

Table A1 - Continued

	Levene's Test for Equality of Variances		t-test for Equality of Means						
	F	Sig.	t	df	Sig.	Mean Difference	Std. Error Difference	95% CI of the Difference	
								Lower	Upper
Motivation to Lead	4.51	0.04	1.69	96	0.09	0.19	0.11	-0.03	0.40
Tenure with Supervisor	4.14	0.05	-1.86	96	0.07	-0.56	0.30	-1.15	0.04
Supervisor's Leadership Mindset	14.42	0.00	6.49	96	0.00	1.50	0.23	1.04	1.95
Learning Goal Orientation	2.02	0.16	2.26	96	0.03	0.27	0.12	0.03	0.51
Performance Prove	11.15	0.00	-2.08	96	0.04	-0.32	0.16	-0.63	-0.02
Performance Avoid	7.42	0.01	-3.63	96	0.00	-0.67	0.19	-1.04	-0.31

Table A2. Descriptive Statistics and Intercorrelations for Developmental Sample

Variable	<i>M</i>	<i>SD</i>	1	2	3	4	5	6	7	8	9	10	11	12
1. Leadership Mindset	5.00	.70												
2. Negative Feedback Seeking	3.67	.70	.01											
3. Reflection	4.14	.38	.41*	.16										
4. Fear of Failure	2.64	.84	-.29*	.18	-.09									
5. Challenging Assignments	3.70	.63	.02	.05	.24	.14								
6. Formal Leadership Training	3.40	1.63	-.12	.09	-.18	.28	-.21							
7. Quality of Formal Training	3.63	1.71	-.13	.08	-.10	.11	-.11	.86*						
8. Coaching	3.77	.73	-.08	-.04	-.06	-.20	-.24	.09	.17					
9. Developmental Opportunities	3.72	.64	.01	.07	.08	.19	-.19	.41*	.31*	.38*				
10. Leadership Growth	3.24	.78	.30*	.17	.23	-.23	.33*	-.07	-.05	-.15	-.10			
11. Leadership Performance this year	3.84	.72	.10	.20	.19	-.29*	-.09	.16	.21	.48*	.10	.23		
12. Leadership Performance last year	3.43	.72	.13	.10	.23	-.48*	-.19	-.02	.10	.45*	.05	.09	.88*	

Note. N = 50. * $p < .05$,

Table A2 - Continued

Variable	<i>M</i>	<i>SD</i>	1	2	3	4	5	6	7	8	9	10	11	12
13. Promotability	4.28	.63	.20	.44	.27	-.15	-.09	.07	.00	.28	.20	.37*	.79*	.62*
14. Leadership Self-Efficacy	3.98	.48	.49*	-.10	.57*	-.32*	.22	-.18	.01	-.16	.07	.30*	.21	.33*
15. Motivation to Lead	3.72	.62	.22	.00	.19	.02	.30*	-.07	-.04	.01	.17	.32*	.30*	.14
16. Supervisor's Leadership Mindset	4.76	.87	.04	.07	-.03	.15	.00	.23	.10	-.22	-.05	.02	-.24	-.23
17. Tenure with Supervisor	3.42	1.60	.20	.16	.17	.07	-.20	.06	-.13	.01	.16	.14	.02	-.06
18. Sex (0 = male, 1 = female)	1.56	.50	.14	-.09	.05	-.28	.16	.01	-.01	.09	.13	-.02	.32*	.33*
19. Age	3.54	1.11	.10	-.14	.22	-.14	-.10	-.09	-.10	-.22	-.09	-.05	-.15	.02
20. Learning Growth Orientation	4.40	.61	-.03	.04	.33*	-.12	.25	-.15	.06	.07	-.13	.33*	.34*	.18
21. Performance Prove Orientation	3.70	.90	-.24	.03	.10	.02	.46*	-.17	.02	.25	-.06	.21	.31	.22
22. Performance Avoid Orientation	2.37	.82	-.52*	-.06	-.32*	.26	.02	.20	.33*	.16	.12	-.26	-.11	-.05

Note. N = 50. * $p < .05$,

Table A2- Continued

Variable	14	15	16	17	18	19	20	21	22	23
13. Promotability										
14. Leadership Self-Efficacy	.20									
15. Motivation to Lead	.44*	.49*								
16. Supervisor's Leadership Mindset	-.08	-.20	-.11							
17. Tenure with Supervisor	.19	-.03	-.14	.26						
18. Sex (0 = male, 1 = female)	.35*	.21	.25	-.15	-.03					
19. Age	-.27	.13	-.29*	.07	.35*	-.10				
20. Learning Growth Orientation	.38*	.38*	.42*	-.41*	-.15	.11	-.26			
21. Performance Prove Orientation	.16	.06	.32*	-.34*	-.57*	.14	-.31*	.32*		
22. Performance Avoid Orientation	-.35*	-.28	-.20	.07	-.33*	-.12	-.07	-.36*	.32*	

Note. N = 50. * $p < .05$,

Table A3. Descriptive Statistics and Intercorrelations for Qualtrics Sample

Variable	<i>M</i>	<i>SD</i>	1	2	3	4	5	6	7	8	9	10	11	12
1. Leadership Mindset	3.17	1.39												
2. Negative Feedback Seeking	3.48	.73	.34*											
3. Reflection	4.09	.48	-.07	-.02										
4. Fear of Failure	2.85	.96	-.29*	-.11	.33*									
5. Challenging Assignments	3.78	.72	-.35*	.05	.49*	.39*								
6. Formal Leadership Training	3.15	1.37	-.18	.15	.16	.40*	.47*							
7. Quality of Formal Training	3.91	1.62	-.24	-.05	.35*	.49*	.58*	.82*						
8. Coaching	3.86	.97	-.11	.08	.44*	.41*	.55*	.65*	.79*					
9. Developmental Opportunities	4.00	.79	-.19	.03	.41*	.34*	.72*	.49*	.75*	.75*				
10. Leadership Growth	4.13	.67	-.33*	-.19	.21	.28	.51*	.35*	.45*	.22	.42*			
11. Leadership Performance this year	4.09	.68	-.13	-.03	.32*	.08	.36*	.39*	.45*	.30*	.36*	.60*		
12. Leadership Performance last year	3.95	.65	-.12	-.17	.24	-.01	.36*	.33*	.43**	.20	.38*	.75*	.81*	

Note. N = 48. * $p < .05$,

Table A3 - Continued

Variable	<i>M</i>	<i>SD</i>	1	2	3	4	5	6	7	8	9	10	11	12
13. Promotability	4.35	.39	.00	.06	.23	.03	.28	.21	.25	.11	.26	.50*	.54*	.65*
14. Leadership Self-Efficacy	4.41	.48	-.12	-.07	.32*	-.01	.59*	.14	.19	.20	.36*	.42*	.50*	.53*
15. Motivation to Lead	3.54	.46	.54*	.49*	.18	-.25	.07	-.02	-.19	.08	-.08	-.21	.10	-.01
16. Supervisor's Leadership Mindset	3.27	1.38	.56*	.16	-.13	-.51*	-.35*	-.09	-.29*	-.29*	-.31*	-.25	-.10	.04
17. Tenure with Supervisor	3.92	1.35	-.20	-.10	-.07	-.25	.03	-.44*	-.45*	-.42*	-.26	.08	.05	.08
18. Sex (0 = male, 1 = female)	1.40	.49	.34*	-.11	-.17	.18	-.23	-.28	-.23	-.33*	-.25	-.08	-.16	-.14
19. Age	3.08	.92	.09	-.02	-.23	-.46*	-.24	-.57*	-.63*	-.61*	-.29*	-.13	-.23	-.07
20. Learning Growth Orientation	4.13	.58	-.21	.14	.42*	.07	.51*	.21	.24	.45*	.41*	.24	.44*	.29*
21. Performance Prove Orientation	3.99	.61	-.15	.03	.54*	.20	.72*	.23	.35*	.45*	.48*	.33*	.31*	.29*
22. Performance Avoid Orientation	3.03	1.02	-.48*	-.32*	.22	.58*	.17	.13	.36*	.31*	.26	.18	.00	-.04

Note. N = 48. * $p < .05$,

Table A3 - Continued

Variable	14	15	16	17	18	19	20	21	22	23
13. Promotability										
14. Leadership Self-Efficacy	.40*									
15. Motivation to Lead	.25	.25								
16. Supervisor's Leadership Mindset	.09	.05	.50*							
17. Tenure with Supervisor	-.14	.42*	-.03	-.16						
18. Sex (0 = male, 1 = female)	-.17	-.22	.00	.08	-.05					
19. Age	-.07	.13	-.03	.14	.68*	-.07				
20. Learning Growth Orientation	.49*	.60*	.39*	-.11	.01	-.52*	-.18			
21. Performance Prove Orientation	.47*	.66*	.29*	-.13	.13	-.43*	-.01	.70*		
22. Performance Avoid Orientation	.02	.04	-.59*	-.67*	-.01	-.06	-.26	.11	.19	

Note. N = 48. * $p < .05$,

Leader Survey

Please rate the extent to which you agree with the following statements:

- 1 = Strongly agree
- 2 = Agree
- 3 = Somewhat agree
- 4 = Somewhat disagree
- 5 = Disagree
- 6 = Strongly disagree

1. I have a certain amount of leadership ability and I really can't do much to change it
2. My leadership ability is something about me that I can't change very much
3. I can learn new skills, but I can't really change my basic leadership ability

Please rate how confident you are in the following aspects of leadership:

- 1 = Not at all confident
- 2 = A little confident
- 3 = Somewhat confident
- 4 = Quite confident
- 5 = Very confident

1. Planning ability
2. Setting direction
3. Delegating and assigning tasks
4. Coordinating tasks
5. Ability to communicate
6. Leading by example
7. Ability to motivate others
8. Creating team spirit
9. Holding people accountable
10. Confidence to lead a large team
11. Overall ability to be a leader

Please rate the extent to which you agree with the following statements:

- 1 = Strongly disagree
- 2 = Somewhat disagree
- 3 = Neither agree nor disagree
- 4 = Somewhat agree

5 = Strongly agree

1. I sometimes question the way others lead and try to think of a better way.
2. Concerning my leadership behaviors, I like to think over what I have been doing and consider alternative ways of doing it.
3. I often reflect on my actions as a leader to see whether I could have improved on what I did.
4. I often re-appraise my leadership experience so I can learn from it and improve for my next performance.

Thinking of the developmental opportunities offered by your company **over the past year**, please rate your agreement with the following statements:

- 1 = Strongly disagree
2 = Somewhat disagree
3 = Neither agree nor disagree
4 = Somewhat agree
5 = Strongly agree

1. This company provides opportunities for individual development other than formal training (e.g., work assignments and job rotation).
2. This company encourages managers to attend formal developmental activities such as training, professional seminars, symposia, etc.
3. There are people at this company who provide guidance and counsel regarding one's career.
4. In this company, career management is a shared responsibility of both employee and the manager.

Organizations often provide individuals with 'stretch' or 'developmental' challenges to increase the leadership skills of their managers. Thinking of your assignments **over the past year**, please rate the extent to which you have participated in the following activities.

- 1 = Not at all
2 = Rarely
3 = Occasionally
4 = Frequently
5 = A great deal

1. I have been required to work with a product, market, or technology I have not worked with before.

2. I have been required to use technical or functional skills, for which I lacked previous training or experience.
3. I was made responsible for executing a significant change, such as a new strategy, a re-organization, or a turn-around, in an organizational unit.
4. I have been made responsible for instituting new policies, procedures, systems, or technology in an organizational unit.
5. I have had to handle significant manager problems with my team members for the first time.
6. I have had to deal with significant performance problems among key members of my staff.
7. I have been given significant managerial responsibility.
8. I have been given direct responsibility for an entire project, product, service, function, or other identifiable unit of this magnitude.
9. I have had to exert influence over peers or supervisors over whom I have no direct authority in order to achieve my work objectives.
10. I have had to manage relations with external constituencies, such as clients, customers, suppliers, or government agencies.

Organizations also sometimes provide ‘formal’ classroom leadership training courses (either in person or computer-based). Please rate the amount of time you have spent formal leadership training programs offered by your organization **in the past year**.

- 1 = None
- 2 = Less than 1 day
- 3 = 1 day
- 4 = 2 – 5 days
- 5 = More than a week

1. **In the past year**, how much time have you spent attending leadership training courses run by your company

If you did attend company-sponsored leadership training, please rate the extent to which the following components were included in the training.

- 1 = none
- 2 = little
- 3 = some
- 4 = much
- 5 = a great deal

1. Provided you with a personal evaluation of your strengths and weakness (through assessments such as 360-degree feedback, personality assessments, StrengthsFinder assessment, etc.)

2. Provided the opportunity to work on real problems that you or your organization are currently facing
3. Provided the opportunity to practice skills through role-playing or simulations
4. Provided the opportunity to interact with high level executives or officers in your organization

The following questions seek to understand how you feel when you are **failing to reach your goals or to meet the expectations you have for yourself as a leader**. Read each statement below and thinking of your beliefs and feelings over the past year, mark how often you believed each was true of your performance as a leader.

- 1 – Did not believe at all
- 2 – Believed 25% of the time
- 3 – Believed 50% of the time
- 4 – Believed 75% of the time
- 5 – Completely believed

1. When I am failing, I lose respect for myself.
2. When I am failing, I doubt that I am as good as I thought I was.
3. When I am not succeeding, it bothers me that I was too confident before performing.
4. When I am not succeeding, I am less valuable than when I succeed.
5. When I am not succeeding, I still feel good about myself.
6. When I am not succeeding, I get down on myself easily.
7. When I am failing, it is embarrassing if others are there to see it.
8. When I am failing, I believe that everybody knows I am failing.
9. When I am failing, I believe that my doubters feel that they were right about me.
10. When I am failing, I worry about what others think about me.
11. When I am failing, I worry that others may think I am not trying.

Some individuals within organizations have formal or informal mentors or supervisors who provide coaching advice. We are interested in the extent to which you feel as though you have had someone who provides this support to you **in the past year**. Please rate the extent to which you agree or disagree with the following statements.

- 1 = Strongly disagree
- 2 = Somewhat disagree
- 3 = Neither agree nor disagree
- 4 = Somewhat agree
- 5 = Strongly agree

In the past year, I have had someone within the organization who...

1. helps me see areas in which I need more training
2. suggests ways to improve my performance
3. provides help to me
4. teaches me how to solve problems on my own
5. pays attention to my efforts
6. tells me when I perform well
7. supports my efforts
8. helps me focus on my goals

How characteristic is it of you to:

- 1 = Not at all characteristic
- 2 = A little characteristic
- 3 = Somewhat characteristic
- 4 = Quite characteristic
- 5 = Very characteristic

1. Ask others to be critical when they gave you feedback
2. Prefer detailed, critical appraisals even though they might hurt
3. React negatively to constructive criticism

Please rate the extent to which you agree with the following statements:

- 1 = Strongly disagree
- 2 = Somewhat disagree
- 3 = Neither agree nor disagree
- 4 = Somewhat agree
- 5 = Strongly agree

1. Most of the time, I prefer being a leader rather than a follower when working in a group.
2. I am the type of person who is not interested to lead others.
3. I am definitely not a leader by nature.
4. I am the type of person who likes to be in charge of others.
5. I believe I can contribute more to a group if I am a follower rather than a leader.
6. I usually want to be the leader in the groups that I work in.
7. I am the type who would actively support a leader but prefers not to be appointed as leader.
8. I have a tendency to take charge in most groups or teams that I work in.
9. I am seldom reluctant to be the leader of a group.

Individuals have different views about how they approach work. Please read each statement below and select the response that reflects how much you agree or disagree with the statement.

- 1 = Strongly disagree
- 2 = Somewhat disagree
- 3 = Neither agree nor disagree
- 4 = Somewhat agree
- 5 = Strongly agree

1. I am willing to select a challenging work assignment that I can learn a lot from.
2. I often look for opportunities to develop new skills and knowledge.
3. I enjoy challenging and difficult tasks at work where I'll learn new skills.
4. For me, further development of my work ability is important enough to take risks.
5. I like to show that I can perform better than my co-workers.
6. I try to figure out what it takes to prove my ability to others at work.
7. I enjoy it when others at work are aware of how well I am doing.
8. I prefer to work on projects where I can prove my ability to others.
9. I would avoid taking on a new task if there were a chance that I would appear rather incompetent to others.
10. Avoiding a show of low ability is more important to me than learning a new skill.
11. I'm concerned about taking on a task at work if my performance would reveal that I had low ability.
12. I prefer to avoid situations at work where I might perform poorly.

Demographics:

How old are you now?

- Under 21 years old
- 21-30 years old
- 31-40 years old
- 41-50 years old
- 51-60 years old
- Over 60 years old

What is your sex?

- Male
- Female

How long have you worked as a manager in any capacity at any company?

- Less than 6 months
- 6 months to 1 year
- 1-2 years
- 3-5 years
- 6-10 years

___ Over 10 years

How long have you held your **current** management position?

___ Less than 6 months

___ 6 months to 1 year

___ 1-2 years

___ 3-5 years

___ 6-10 years

___ Over 10 years

How long have you worked under your current supervisor?

___ Less than 6 months

___ 6 months to 1 year

___ 1-2 years

___ 3-5 years

___ 6-10 years

___ Over 10 years

How many employees report to you as their direct supervisor? _____

Supervisor Survey

We are seeking to understand how much **leadership growth** this person has exhibited over the past year (how much have they improved since last year). Please remember that we are asking about change, therefore if someone is exceptional at a skill, but has not improved that skill from last year (they were exceptional last year) then you would mark 'none.' Please rate the leadership **GROWTH** of this person in the following areas:

1 = none

2 = little

3 = some

4 = much

5 = a great deal

1. Managing individuals (e.g., mentoring, giving individual feedback, motivating)
2. Team management (e.g., conflict or change management, facilitating discussion)
3. Understanding the organization
4. Working with external stakeholders (e.g., consultants, customers)
5. Technical knowledge

We are seeking to understand your impressions of the potential of this individual. Please rate your level of agreement with the following statements.

- 1 = Strongly disagree
- 2 = Somewhat disagree
- 3 = Neither agree nor disagree
- 4 = Somewhat agree
- 5 = Strongly agree

- 1. I believe that this subordinate will have a successful career.
- 2. If I needed the advice of a subordinate, I would approach this employee.
- 3. If I had to select a successor for my position, it would be this employee.
- 4. I believe that this subordinate has high potential.
- 5. This subordinate seems to “fit in” well in my department.
- 6. This subordinate’s opinions have an impact on my decisions.
- 7. This subordinate is the type of individual our company seeks to hire.

Please rate the performance of this individual from **ONE YEAR AGO** (if you have not worked with this individual for a year, please rate the performance from when they first started reporting to you).

- 1 = Unsatisfactory performance
- 2 = Needs development
- 3 = Fully meets expectations
- 4 = Exceeds expectations
- 5 = Exceptional performance

- 1. Planning ability
- 2. Setting direction
- 3. Delegating and assigning tasks
- 4. Coordinating tasks
- 5. Ability to communicate
- 6. Leading by example
- 7. Ability to motivate others
- 8. Creating team spirit
- 9. Holding people accountable
- 10. Confidence to lead a large team
- 11. Overall ability to be a leader

Now, please rate the **CURRENT** performance of this individual.

- 1 = Unsatisfactory performance
- 2 = Needs development
- 3 = Fully meets expectations

- 4 = Exceeds expectations
- 5 = Exceptional performance

1. Planning ability
2. Setting direction
3. Delegating and assigning tasks
4. Coordinating tasks
5. Ability to communicate
6. Leading by example
7. Ability to motivate others
8. Creating team spirit
9. Holding people accountable
10. Confidence to lead a large team
11. Overall ability to be a leader

Considering the **CURRENT** overall managerial and leadership performance of the individual, please rate the extent to which you agree or disagree with the following statements:

- 1 = Strongly disagree
- 2 = Somewhat disagree
- 3 = Neither agree nor disagree
- 4 = Somewhat agree
- 5 = Strongly agree

1. This person is performing his/her job the way I would like it to be performed.
2. This person has met my expectations in his/her managerial roles and responsibilities.
3. If I had my way, I would change the manner in which this person is doing his/her job.

Please rate the extent to which you agree or disagree with the following statements:

- 1 = Strongly disagree
- 2 = Disagree
- 3 = Slightly disagree
- 4 = Slightly agree
- 5 = Agree
- 6 = Strongly agree

1. You have a certain amount of leadership ability and you really can't do much to change it

2. Your leadership ability is something about you that you can't change very much
3. You can learn new skills, but you can't really change your basic leadership ability

Demographics:

How old are you now?

- Under 21 years old
- 21-30 years old
- 31-40 years old
- 41-50 years old
- 51-60 years old
- Over 60 years old

What is your sex?

- Male
- Female

How long have you worked as a manager in any capacity at any company?

- Less than 6 months
- 6 months to 1 year
- 1-2 years
- 3-5 years
- 6-10 years
- Over 10 years

How long have you worked in your **current** management position?

- Less than 6 months
- 6 months to 1 year
- 1-2 years
- 3-5 years
- 6-10 years
- Over 10 year