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**THE POWER OF MANY:  
A FOLLOWER-CENTRIC CONCEPT OF LEADER ERROR AND INFLUENCE**

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by

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## ABSTRACT

Through a multi-study, multi-method approach, the present research aimed to address the impact of both leader error characteristics and timing on the influence attributions of followers. Study 1 consisted of a live laboratory study, in which leader error timing, type, and severity were manipulated in a 2x2x2 factorial design. Participants took on the role of a subordinate of the leader to complete a task during which the error occurred. Historiometric analysis was employed in Study 2, where academic biographies of historical leaders were coded for instances of error, error attributes, and affects the errors had on both leaders and their followers. Results indicated that followers reacted more negatively to errors that damaged their view of the leader as a person than errors that affected their ability to execute job tasks. Additionally, subordinate willingness to follow was found to act as a mediator of the relationship between error severity and the number of errors leaders committed over a career, indicating that leaders may alter their behavior in response to follower reactions to error. Surprisingly, the impact of error timing on follower attributions was largely negligible, both as a main effect and a moderator of other relationships. Theoretical and research implications of these results and others are discussed in further detail.

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## **The Power of Many:**

### **A Follower-Centric Concept of Leader Error and Influence**

As the study of leadership has advanced, a bias towards only viewing leadership in the most positive light has become evident (Hunter, Bedell-Avers, & Mumford, 2007; Meindl, Ehrlich, & Dukerich, 1985). Much of the most heavily cited leadership research relates to outcomes such as leader effectiveness (House, 1971; House, Spangler, & Woycke, 1991; Zaccaro, Gilbert, Thor, & Mumford, 1991), firm performance (Dalton, Daily, Ellstrand, & Johnson, 1998; Hart & Quinn, 1993; Peterson, Walumbwa, Byron, & Myrowitz, 2008; Tosi, Misangyi, Fanelli, Waldman, & Yammarino, 2004) and follower satisfaction (Conger, Kanungo, & Menon, 2000; Lowe, Kroeck, & Sivasubramaniam, 1996). Although this research is both important and informative, paying attention only to the positive and directly pro-organizational outcomes of leadership leaves questions about what happens when leadership goes wrong virtually unanswered.

The need to grant attention to “dark side” phenomena in leadership is rapidly gaining ground, with scholars acknowledging that a complete perspective of leadership is not possible without accepting that leaders and their actions are not always positive. Recent research has focused on “destructive leadership” broadly in an attempt to draw distinct differences between destructive and productive leaders (e.g. Krasikova, Green, & LeBreton, 2013; Thoroughgood, Tate, Sawyer, & Jacobs, 2012; Thoroughgood, Hunter, & Sawyer, 2010), as well as specific behavioral tendencies that are seen as antithetical to what one would expect or desire in a leader (Einarsen, Aasland, & Skogstad, 2007; Farh & Chen, 2014; Tepper, 2007). Spurred by highly public displays of leader ineptitude,

scandal, and controversy in the recent past (e.g. the Enron and Adelphia scandals, the 2008 financial crisis, and the attack on the U.S. embassy in Benghazi, Libya in 2012), both the academic community and the lay-public are becoming increasingly aware, and critical, of leaders and leader behavior.

The attention granted to “dark” leadership research is not to insinuate that we must only look to the extremely malicious and deliberately destructive elements of leadership in order to better understand the phenomenon. Rather, this literature serves to demonstrate that there are meaningful advances to be made in understanding the complexities of the leadership process. Of particular interest is the small but growing research literature regarding leader errors; work dedicated to understanding why leaders make mistakes and how those mistakes impact the people and organizational systems in which the leaders exist. Much of this research has focused on the types of errors that are committed by leaders (Bedell-Avers et al., 2008; Thoroughgood, Sawyer, & Hunter, 2012) as well as how leaders attempt to recover from errors (Cushenbery, 2010; Hetrick, Cushenbery, Fairchild, Hunter, Shapiro, & Shah, 2014). Due to the relative infancy of leader errors research, the influence of many individual differences, boundary conditions and contextual factors, and process effects have yet to be considered.

The present research contributes to the leadership literature by attempting to expand our understanding of leader errors from both theoretical and empirical standpoints. Specifically, the majority of existing errors research tends to consider leadership cross-sectionally and fails to recognize that the leadership process is dynamic and unfolds over time. As leaders progress through time their relationships with followers, stakeholders, and their environments are liable to change in ways that may

impact the interpretation and overall effect of errors. Understanding these dynamics may provide insights into complex leader-follower relationships, centered on how followers interpret the mistakes that leaders make and what comes of those interpretations. As such, this research endeavor is two-fold. First, I will present arguments for the importance of understanding the influence of both time and errors in the leader-follower relationship, grounded in theories of choice (Kahneman & Tversky, 1979) and leader tenure (Hambrick and Fukutomi, 1991). Second, multi-method tests of a theoretically justified model will predict the willingness of others to follow a leader after the commitment of errors, dependent on when the error occurs during a leader's tenure.

### **Research on Leader Error**

It has been widely established that, at the strategic levels of organizations in particular (e.g. the CEO and top management team (TMT)), leaders are responsible for decisions that drive the important bottom-line outcomes for their firms (Fiedler, 1996; Hambrick & Mason, 1984; Shimizu & Hitt, 2011). As such, an extensive and diverse literature works toward understanding leaders' decision-making processes and their outcomes (e.g. Eisenhardt & Zbaracki, 1992). However, research regarding leader decision-making rarely examines the causes and consequences of leader mistakes, an extension of the bias to view leaders as "heroic" rather than human (Hunter, Bedell-Avers, & Mumford, 2007).

Leaders, being fallible human beings, are far from immune to the personal and environmental influences that make mistakes more likely. Cognitive biases, coordination issues, physical or cognitive limitations, and group dynamics provide obstacles that are

difficult for all people to successfully overcome and create decision-making environments that are primed for the commitment of errors (Hofmann & Frese, 2011; Hunter, Tate, Dzieweczynski, & Bedell-Avers, 2011). These error sources have the potential to interrupt processes that are critical to the understanding of tasks, successful implementation of human and material capital, and the structuring of information (Hunter et al., 2011). However, defining errors in the context of leadership presents a challenge that has likely contributed to the relative dearth of academic research regarding the topic. The strategic properties of leader decision-making make assessments of those decisions difficult until their outcomes have been fully realized. This is opposed to more procedure-driven organizational roles (e.g. an assembly line worker) where errors can be easily identified be deviations from previously established processes (Shimizu & Hitt, 2011).

Hunter and colleagues (2011) provide a definition of leader error that is useful in an effort to ground our understanding of how leader behaviors should be assessed for appropriateness and the possibility of mistakes. The authors contend that a leader error occurs when “An avoidable action (or inaction) is chosen by a leader which results in an initial outcome outside of the leader’s original intent, goal, or prediction” (Hunter et al., 2011, pg. 240). This definition provides a framework that considers interpreting leader errors only after understanding their outcomes, attending to the strategic nature of leader decision-making and acknowledging that leadership cannot be judged through the analysis of any rote, standardized procedures (Shimizu & Hitt, 2011). It is worth noting that this definition does not specify that the ultimate outcome of an action, inaction, or decision must be negative in order to be considered an error. Although most would agree that mistakes are generally categorized by negative outcomes, Hunter and colleagues’

(2011) inclusive definition of leader error allows for researchers to interpret any departure from the expected outcome as a potential error, whether the outcome is positive or negative.

Researchers have further defined leader errors by exploring whether or not differences exist in the ways that errors manifest themselves. Specifically, research has attempted to categorize errors such that there are identifiable groups of errors with distinct and predictable outcomes. The results of research by Thoroughgood, Sawyer, and Hunter (2012) demonstrate that errors largely decompose into task-focused and relationship-focused errors, similar to the decomposition of leader behavior seen in the classic Ohio State and Michigan leadership studies (e.g. Stogdill, 1948, 1950). Task errors are those that are directly related to the execution of tasks and accomplishment of goals for the group or organization in question. These are opposed to relationship errors, which center on decisions, actions, and inactions that impact one's personal relationships with others in an unexpected way. Thoroughgood and colleagues (2012) argue that understanding the different categories of errors is important as task and relationship errors may have differential impact on organizationally relevant outcomes. Emergent research has lent preliminary support to this argument. For example, researchers have found that relationship errors are more difficult to recover from and more deleterious to perceptions of leader competence and efficacy than task errors, despite the fact that task competence is critically important in the establishment of leader power (Bedell-Avers et al., 2008; Hollenbeck, McCall, & Silzer, 2006). This taxonomy, along with the creation of a working definition for leader error, provide the building blocks for understanding

errors in context and predicting how they will influence the environments in which they occur.

A substantial portion of the research regarding leader errors examines outcomes at the firm level, with particular attention paid to the impact of leader decision-making and behavior on the firm's performance in primary business activities (Hart & Quinn, 1993; Jung, Chow, & Wu, 2008; Peterson et al., 2008). These issues are clearly of great importance as leaders have been shown to have substantial influence on firm-performance outcomes (e.g. Thorlindsson, 1988) and are often held accountable for the successes and failures of their enterprises (Meindl & Erlich, 1987). However, underappreciated is the impact that a leader's mistakes may have on the individuals who follow him or her directly. Given their roles as executors of the leader's ultimate strategy, subordinates and other non-leader stakeholders have the potential to act as mediators between a leader's actions and the firm's outcomes, emphasizing their instrumentality in the discussion of leader errors.

### **Consideration of Followers in Leadership Research**

Historically, a bias of leader-centrism has existed in organizational scholarship whereby research efforts and theory have viewed leaders as the sole source of influence, power, strategy, and structure within organizations (Bass, 2008). Moreover, non-leaders (e.g. subordinates, stakeholders) are widely viewed as passive recipients of leadership rather than active agents in the leadership process (Bass, 2008). Why this perspective has dominated leadership research is unclear, as a number of prominent leadership scholars have promoted a systems perspective of leadership (e.g. Klein & House, 1995; Luthans,

Peterson, & Ibrayeva, 1998; Padilla, Hogan, & Kaiser, 2007; Weber, 1947) whereby leadership is viewed as the “confluence of leaders, followers, and circumstances rather than just the characteristics of individual leaders” (Padilla et al., 2007, pg. 179). This interactive model, colloquially referred to as the “leadership triangle”, stresses that leadership cannot be understood through the perspective of the leader only, but must also account for those with whom the leader interacts. Fairhurst and Uhl-Bien (2012) stress the importance of this relation-centered view of leadership, bemoaning the limited attention such paradigms have received in the leadership literature despite a widespread understanding that leadership cannot exist without followers. This is a limitation in the study of leadership thus far; in order to continue to advance the field we must advocate for research that answers questions regarding the complex relationships and processes that underlie leadership.

### **Leader Errors and Followers**

The actions and decisions of leaders do not exist in a vacuum. Followers, while asked to execute tasks provided by the leader, are not mere automaton workers who produce without thinking. To the contrary, these individuals experience a leader’s decisions cognitively, emotionally, and physically through the structure of their work tasks (e.g. Howell & Shamir, 2005; Piccolo & Colquitt, 2006). Moreover, the decisions a leader makes are likely to at least indirectly influence a follower’s personal conditions, goals, and outcomes. Acknowledging that there are elements of a leader’s role that are not directly visible to them (Mintzberg, 1975), through their direct participation in the leadership process followers develop validity as reporters on the success, accuracy, and



appropriateness of leader behavior with regard to themselves as well as the goals of the organization.

With this in mind, the importance of followers in discussions of leader errors is paramount. As followers are highly appropriate interpreters of leader behaviors and decision-making, so too are they valuable in understanding the consequences of leader mistakes. This analysis and critique of the leader is ongoing; as a leader's tenure progresses, so too does the assessment of their success at the hands of followers. This process of continued evaluation allows subordinates and other stakeholders to adjust their perceptions of the leader in response to recent events. As such, they are able to alter their judgments of the leader at a given moment and determine whether or not they wish to continue endorsing the leader as an influential agent. This perspective, that followers *allow* themselves to be influenced rather than passively accept influence, runs counter to the bulk of traditional thinking on leadership dynamics but has fundamental theoretical support.

For example, French and Raven's (1959) framework of the bases of social power (expert, referent, reward, coercive, and legitimate power) outline succinctly the criteria through which individuals are able to exert influence over others. One example used by the authors is that of a doctor holding expert power; a doctor's reputation for skill and knowledge is established by a perception of his title and, therefore, he holds an influential position over patients. This speaks to the concept that those who do not meet the criteria for expert power in that circumstance would not be allowed to influence the individual patient in question, but not to the idea that these criteria are subject to change. Indeed, this is an extension of the bases of social power that is essentially unaddressed by French

and Raven (1959). The leader-centric idea that those who have power are the ones who direct its influence ignores the possibility that non-leaders evaluate others on these criteria and choose whom they will allow themselves to be influenced by. That is, as followers observe the actions and decisions of leaders over time their attributions towards those leaders are liable to change, potentially in a way that detracts from their standing in the eyes of said followers. As scholars have continued to accept a process model of leadership, a one-way perspective of power and influence seems less likely to explain the dynamics that truly underlie these phenomena. Instead, a model that acknowledges the roles that followers play in allowing themselves to be influenced by others may be more appropriate.

This is echoed by Barbuto (2000), who presented a theory of leader influence as the combination of traits and circumstances within the follower that make compliance with a leader's wishes more or less likely. Barbuto (2000) contends that followers are compliant (i.e., allow influence) when leader power bases, personal motivation, personal resistance to the leader's request, and "influence triggers" (individual differences that motivate compliance) are aligned correctly. Should the balance be altered in one of several ways, dependent on the follower, the leader will have considerable difficulty influencing the follower and acquiring compliance. Thus, between these two paradigms we see that the influence that leaders hold is dependent on how they and their actions are interpreted by followers.

Understanding this process is important in the discussion of errors, as errors may alter the way that leaders are viewed by others. A doctor who continues to misdiagnose a patient will damage other's perceptions of his expertise, diminishing his ability to

influence that patient in the future. This potential exists in organizations as well, with followers able to interpret leader errors with varying severity given their context and impact on personal and organizational goals. This succession of errors naturally implies that follower perceptions of leader error are generated over time. Given that time is known to influence how events are viewed (e.g. Bjork & Whitten, 1974), there are likely substantial differences in the way that followers, view said errors in relation to when they occur in a leader's tenure. As such, leaders may be subject to differential capability to influence followers depending on at what point in their leadership tenure the errors are committed.

The purpose of the present research is to understand how followers perceive the leaders at different points in their tenure and influence cycle and how that perception changes their acceptance of and reaction to leader errors. The leadership literature is replete with theoretical efforts to understand under what conditions followers are most likely to invest in leaders; this notion is a principal component of the entire field of leadership scholarship. However, the vast majority of these efforts are taken from the leader's perspective (i.e. "What can the leader *do*?") rather than the perspective of the follower, who is the ultimate judge of how deserving a potential leader is of influence (i.e. "What has this leader *done*? What *might* this leader do?"). One way by which followers may make these judgments is through an assessment of the leader's temporal phase, where the leader exists in his or her leadership trajectory, and how appropriate, acceptable, and influential actions and errors are given those temporal properties.

### **The Importance of Time and Temporality to Leadership Research**

The application of a temporal element to leadership research has been called for by previous scholars, but rarely addressed by empirical or theoretical work (Shamir, 2011). This presents a disconnect between leadership study and the remainder of organizational science. Temporal elements have been widely integrated into other areas of organizational research (e.g. Hassard, 1991; Huy, 2001; Massey, Montoya-Weiss, & Hung, 2003; Orlikowski & Yates, 2002; Schriber & Gutek, 1987; Staudenmayer, Tyre, & Perlow, 2002), with scholars across many disciplines of social science acknowledging the importance and influence of time and perceptions of time on human behavior. For example, the assessment of time as a valuable and scarce resource in the economics literature (e.g. Becker, 1971) is echoed by organizational psychologists via conservation of resources theory (COR; Hobfoll, 1989) and other paradigms. Understanding that leadership, as a process, fundamentally exists over a course of time rather than within a temporal cross section, it is critical to gain understanding of how temporality may impact leaders, followers, and outcomes for organizations. However, before addressing the influence of time on leaders and perceptions of leaders directly, we must first understand philosophically what time “is” and how certain conceptualizations of time may be more appropriate than others given a specific research question.

Human beings general experience and categorize time as one of two distinct temporal perspectives: *clock* time or *event* time (Orlikowski & Yates, 2002). The clock time perspective holds that time exists as a rote and mechanical function that operates independently of the influence of people, e.g. quantitative time (Clark, 1990, p. 142; Starkey, 1989, p. 42). It is from this perspective that most organizational literature approaches time, as evidenced by the attention paid by many academic journals to

longitudinal research, which standardizes temporality across all measured subjects. From the event time perspective, however, time is established by interpreting the events that occur with regard the specific individual (or group or organization) in question. This perspective considers time to be dynamic and existing "...in the events, and events are defined by organizational members" (Clark, 1985, p. 36). Time is therefore contingent on the interpretation of those who are perceiving events rather than defined by the clock, allowing for time's influence to be flexible and dependent on circumstance rather than standardized. For example, an event time perspective applied to a presidential election would hold that a president's time as a leader is defined by what elapses between the day he or she is inaugurated and the day that their successor officially takes office.

In the discussion of leader errors and follower perceptions of leader efficacy, the event time perspective may be the most fruitful. This concept of time accounts for the expectations and biases that followers bring to situations in which they are being led or observing a leader's behavior. Additionally, categorizing time through events allows for an individual leader to experience differences in the trajectory of his leadership experiences, his "seasons" as Hambrick and Fukotomi (1991) would say, without being directly compared to the same process in others. Instead, followers will perceive a leader's "time" relative to his actions and circumstances.

### **Time, Followers, and Leader Errors**

Although individual leaders progress through their tenures at different rates and with different results, the general temporal structure of leadership is likely to be similar across individuals. Moreover, leaders can be thought to progress through distinct

temporal phases which correspond to their efficacy in influencing others and driving organizational initiatives. A phasic conceptualization of leadership is not entirely new to the literature; Hambrick and Fukutomi (1991) established a phase-driven theory of leadership in their discussion of the “seasons” experienced by CEOs. As leaders progress through time, the author’s argue, they progress through distinct phases in which they establish their efficacy, develop support, execute their vision, and eventually progress towards dysfunction. However, Hambrick and Fukutomi’s (1991) work leans heavily on a clock time perspective and assumes that a leader’s temporal phase is generally predictable based on their tenure. In this way the theory continues to perpetuate leader-centrism, as it effectively ignores the influence of followers on a leader’s ability to build influence and progress within his or her role.

If we are to take a more follower-centric view of leadership, wherein leadership is defined by a follower’s willingness to be influenced by another individual, then the temporal phases need to simply represent the amount of influence the leader maintains at a given moment relative to the moments that have come before it. As such, a simple three-phase model of leader influence is appropriate with phases identified as a leader’s “*rise to influence*”, “*peak of influence*”, and “*decline from influence*”. Similar models have been used to understand differences in leader-related phenomena over time in previous research (e.g. Bedell-Avers, Hunter, Angie, Eubanks, & Mumford, 2009). This establishes an easily interpretable timeline through which to view a leader’s career, driven by events that either develop or detract from a leader’s status as an influencer of others.

Such influential status is afforded to leaders based on their demonstration to others that they are worthy of it. Indeed, research shows that establishing competence is a critically important function for leaders (Hollenbeck, McCall, & Silzer, 2006; Lord & Hall, 2005). Competence perceptions are largely driven by the leader's perceived success in his or her functional role, establishing a track record of performance that demonstrates the individual's worthiness of influence (Gabarro, 1987; Hambrick & Fukutomi, 1991; Pfeffer, 1981). This is not a fact that is lost on the leaders themselves; newly hired managers are more likely to begin their tenures with large-scale change initiatives that fall in their comfort zone of previous experiences, likely in an effort to make failure less likely and build support from others through quick successes (Gabarro, 1987). Therefore, the goal of leaders should be to maximize their ability to influence others by increasing, and at a minimum maintaining, how competent these other stakeholders view them to be.

This effort toward establishing competence can be easily undermined when leaders commit errors. Errors, regardless of whether or not they result in negative outcomes, remove the veneer of heroism that leaders are naturally imbued when they are first allowed to take power. Further, they have the potential to not only humanize the leader in the eyes of stakeholders, but to demonstrate that the person may have outlived his or her usefulness; perhaps they were not ever that competent to begin with. Thus, errors have the potential to act as driving forces through the leadership influence cycle. They may act as the events that dictate which phase the leader finds himself in, shaping the attributions that followers make and driving their willingness to continue following the leader in question.

### **Empirical Model Development**

The above discussion has made the case for a model that considers the relationship between leader errors and the perceptions of followers, with the central argument being that it is through those perceptions that leaders generate and maintain influence. This perspective holds fundamentally to the idea that leadership, being a multi-faceted process, can only exist when followers and other stakeholders attribute enough influence to an individual that they are willing to follow their direction, comply with their requests, and acknowledge their separation from the group as a leader. An individual's willingness to follow, therefore, is the clear cornerstone of the leader-follower relationship. Granted that willingness to follow is a momentary attribution, it is subject to change in response to social and environmental cues, such as leader errors. Although acknowledging this connection is useful, the inclusion of contextual boundary conditions (such as time) serves to advance our understanding of these relationships further, specifically the severity of the errors and the time at which the errors occur.

### **The Importance of Error Timing**

As is discussed in Hambrick and Fukutomi's (1991) theory of CEO seasons, the different temporal phases that leaders move through are categorized by qualitatively different relationships between leaders and their environments. These environments include not only the physical space and the organization, but also the followers and stakeholders who are associated with them. This proposition still holds in the simplified temporal structure outlined by the present research, with leaders assumed to move through these career phases as the result of changing dynamics between leaders and followers. These dynamics may be somewhat dictated by leader errors, insofar as they



alter the way in which leaders are viewed and appreciated by those who are invested in them.

New leaders emerge by attracting followers through demonstrations of competence and efficacy, which followers admire and wish to emulate. Leaders in this position have been afforded a small amount of influence at the outset, which is how they separate themselves from others, but this influence is likely to be highly unstable. Followers and other stakeholders in this phase are likely to draw on past-focused bases of social power such as expert and referent power (French & Raven, 1959) when judging a new potential leader, given that the individual has only his or her previous track record to speak as qualifications for this new leadership role. These perceptions, as previously discussed, can be quickly changed when more recent and visible behaviors undermine a previously established perception of power. For this reason leaders are highly vulnerable to poor performance during this rise to influence (Fredrickson, Hambrick, & Baumrin, 1988) and are likely to be severely impacted by any errors they commit.

Leaders who make mistakes and demonstrate poor performance early in their careers are usually quickly ousted from their positions of influence as opposed to finding support through any “honeymoon period” (Fredrickson et al., 1988). This may be driven by a kind of cost-benefit analysis within stakeholders. Prospect theory (Kahneman & Tversky, 1979) states that individuals are likely to opt for the most certain prospect between two choices in an effort to limit the potential for losses. With a new leader the conceivable prospects are continuing to allow this person to lead or to seek a replacement; with little currently invested in the new leader and competence perceptions slipping, the probability of finding a suitable replacement may seem quite high. This is

less likely to be the case, however, with leaders who have demonstrated competence and performance ability over a period of time. As a leader supports his initial influence attributions through his subsequent behavior and successful decision-making is likely to more firmly establish his role as an appropriate leader (Hambrick & Fukutomi, 1991), possibly converting unstable past-focused power perceptions to more stable, present-focused ones (e.g. legitimate and reward power; French & Raven, 1959). Moreover, proponents of prospect theory would argue that after consistently demonstrating competence over time, these leaders become more valuable than their potential replacements despite the mistakes they may make. In this way previous successes and the entrenchment of competence perceptions protect leaders in this “peak of influence” phase from the impact that their subsequent mistakes may have on the attributions followers make towards them.

For the vast majority of leaders, however, this protective factor does not last indefinitely. Most leaders, eventually, will decline in both influence and impact within their organizations. It is important to understand this in the context of event time, as even anecdotal evidence shows that predicting a leader’s decline based solely on chronology is misguided. In Hambrick and Fukutomi’s (1991) seasons work, they describe the late “dysfunctional” phase of CEO tenure as a time where the leader may be highly ineffective but difficult to remove from position-driven influence given the large cadre of supporters and substantial clout within the organization they have likely developed over time. However, this does not speak to the impact that mistakes and errors may have on these power and influence perceptions at this stage. Understanding that errors detract from perceptions of competence, it is likely that those who have already begun declining

in influence will once again be vulnerable to the impact of errors. However, this relationship may be different than that seen in the “rise to influence” phase, as some followers in the decline phase have, conceivably, already begun withdrawing influence from the leader. In this way, errors may act as more of a confirmation that the leader should be replaced rather than a general warning sign that the person is not fit to lead, as is the case during an attempted rise to power.

*H1: Error timing will influence the relationship between leader error and followers' willingness to follow such that willingness to follow will be lowest during the “rise to influence” phase and highest during the “peak of influence” phase.*

### **The Influence of Error Type**

Leader behavior has been demonstrated to generally decompose into two distinct behavioral categories: task behaviors, which relate to the execution of work tasks and the completion of group goals, and relationship behaviors, which encompass the social elements of leadership such as consideration for followers (Fleishman, 1995; House & Podsakoff, 1994; Stogdill, 1950; Tsai, Huang, Wu, & Lo, 2010). Thus, leader errors may be categorized as “task errors” or “relationship errors” depending on whether or not their context is driven by elements of the work task or social engagement (Thoroughgood et al., 2012). Task errors are those that impact the execution or success of work tasks directly, such as a construction foreman relaying incorrect building material measurements to his crew. Relationship errors need not directly affect the task or work at hand, but alter the personal relationships between individuals or groups in an unanticipated way. For example, a manager publicly admonishing a subordinate may

damage the relationship between the parties on a personal level, even if the issues raised were justified.

Although both error types are considered in the assessment of leader competence, research has demonstrated that task and relationship errors differ in how they are considered by those they impact. Thoroughgood and colleagues (2012) demonstrated that committing task and relationship errors resulted in lower follower perceptions of competence in those areas and desire to work for the leader. Emergent research has continued this line of work, demonstrating that relationship errors are the most holistically damaging for leader-follower relationships and the most difficult for leaders to recover from (Bedell-Avers et al., 2009). It appears that followers are more likely to abandon a leader and disallow their influence if they feel personally harmed by the leader's actions or decisions, as opposed to when the leader's behavior impacts the group or organization generally. Although one may assume that followers would view task success as the most important aspect of leadership, it is understood that the leadership process requires more personal connection than what can be generated by the task itself. In this light, errors in the relational aspects of leadership are likely to be highly damaging to these important personal connections and difficult to repair going forward.

*H2: Relationship errors will be associated with lower willingness to follow than task errors.*

However, unexplored is how the influence of error type may differ contingent upon when during a leader's tenure the error is committed. Previous research has demonstrated that newly instated leaders and executives focus their early efforts on

creating a task and organizational structure that best suits their personal expertise and previous experiences (Gabarro, 1987). This focus on tasks is likely an effort to both make early successes more likely and to limit the negative backlash that often results from early-tenure failures (Fredrickson, Hambrick, & Baumrin, 1988). Because early focus is placed on the leader's ability to succeed in the tasks and responsibilities of the organization, it is likely that this stage is where errors in that area are most impactful. Relationship errors, in contrast, may have their largest impact later in a leader's tenure. Because relationships and personal expectations take time to form, violations of those relational elements are likely to be most impactful after they have had the opportunity to fully form. Therefore:

*H3a: The relationship between error type and willingness to follow will be moderated by error timing such that relationship errors will be most detrimental during the "peak of influence" phase.*

*H3b: The relationship between error type and willingness to follow will be moderated by error timing such that task errors will be most detrimental during the "rise to influence" phase.*

### **The Influence of Error Results**

Despite the clearly negative impact that errors may have on attributions made by followers to leaders, we must also consider that followers may ultimately operate as pragmatists. Given that errors need not result in negative outcomes (Hunter et al., 2011), one must consider how the ultimate results of an error factor in to a follower's judgment of the leader who committed it. If follower assessments of competence are driven by

results (Hollenbeck et al., 2006; Lord & Hall, 2005), it is reasonable to assume that errors that do not result in severe outcomes will have less impact on those competence perceptions than those errors that do. Severity in this instance can be defined as the degree to which the interests of the perceiving party (i.e. the follower) are disrupted, delayed, or altered from their intended course. Reactions to errors should be commensurate with the size and scope of the deviations that result from them. As such, leaders who commit errors for which the outcomes are negligible may be protected from a loss of influence because the results are not salient enough to followers to warrant a reduction in followership. To the opposite end, factors that would normally be protective to the leader (such as well established influence and long tenure) may be less so in cases of massive failure.

It is important to note that error severity, and other follower perception-driven phenomena, can be assessed from both micro and macro perspectives. That is, followers experience leader behavior and make judgments as individuals, but they also exist as part of a larger collective that is exposed to the same processes. What's more, the reactions of individuals and the collective follower group may sometimes be at odds; what's highly detrimental to the goals of a single person may be negligible to the overall expectations of the group. Scholars must choose from these perspectives based on their particular research question, for if the outcome of interest exists at the group level observations at the individual level are less informative, and vice versa. However, this levels of analysis issue does not detract from the central premise around error severity, its perception, and its impact on a leader's ability to influence others.

Of additional interest is how followers may consider error severity for those leaders who are already losing influence among followers and the organization. As was discussed previously, these declining individuals may fall into a different perceptual category for followers who are actively divesting influence from them. Being that these leaders are seen as undeserving of influence at this point anyway, the severity of subsequent mistakes is unlikely to dramatically alter the attributions followers make towards them. To the contrary, it is more likely that the only significant successes could impact this influence decline by reversing it and rebuilding competence perceptions; all errors serve as confirmation of already held beliefs about the leader.

*H4: The relationship between leader error timing and willingness to follow will be moderated by error severity, such that followers will be least willing to follow during the “rise to influence” and “peak of influence” phases.*

### **Error Quantity as an Indication of Leader Learning**

The severity of leader errors may also serve as a catalyst for learning and subsequent behavioral adjustment. If leaders are more likely to lose followers after severe errors, and less likely to lose them after non-severe errors, then they should be predicted to learn more about error avoidance after committing a severe error. That is, the consequences of a severe error may be great enough to condition the individual away from similar actions in the future in an effort to avoid similar outcomes (Honing, 1966; Skinner, 1938; Staddon, 2003). In the same vein, leaders who commit non-severe errors and have fewer repercussions as a result may be less likely to take lessons from the

experience. As a result, those who commit non-severe errors, especially early in their tenures, may be more likely to repeat those mistakes or make similar ones in the future.

Willingness to follow a leader is likely to be one of these tangible repercussions from error. Having previously established that willingness to follow is a momentary assessment of a leader's credibility and worthiness of influence, this attribution is liable to change dramatically in reaction to leader error. Much like the influence of punishment in operant behavioral conditioning (Skinner, 1938), leaders who recognize this loss of status and influence are likely to avoid placing themselves under similar conditions in the future. Thus, those who commit errors severe enough to warrant loss of followers in the short term (because errors and their outcomes must be considered moment to moment) may be more likely to learn from those experiences and avoid such mistakes going forward. The opposite is true for those whose mistakes are of little immediate consequence; relatively little loss of status and power is unlikely to motivate learning or corrective action in similar future situations. This presents a double-edged sword of error severity, whereby severe errors may cause considerable damage to a leader's standing in the eyes of followers immediately yet allow for a learning experience that will result in fewer issues in the future. Those who avoid catastrophe or commit errors that are of lower impact will preserve their current standing and influence, but may be more likely to keep themselves open to similar, more frequent mistakes in the future.

Thus, although low error severity may act as a protective factor in the short term, this may be negated by one's likelihood to persist in making mistakes due to a less salient learning experience. This is unlikely to be well taken by followers, who will begin to view these large clusters of smaller mistakes as systematic and indicative of



incompetence. This is opposed to errors that are more impactful but less frequent, which may be viewed as more indicative of the difficulty and unpredictability of the leader's position rather than of his or her general efficacy. As a result, those who commit a considerable number of errors over time may see themselves with very little follower support, even when compared to those who have made more severe errors but in smaller numbers.

*H5a: Error severity will be negatively related to followers' willingness to follow.*

*H5b: Error severity will be negatively related to the total number of errors a leader commits during his or her tenure*

*H5c: The relationship between error severity and the total number of errors a leader commits will be mediated by follower willingness to follow after the error is committed, such that a severe error will predict a lower number of total errors than a non-severe error.*

In order to test this hypothesized model, seen in Figure 1, I present below a multi-study, multi-method research program.

## **Study One**

An initial test of hypothesized model was conducted in a laboratory setting at a large northeastern university. Although considered the gold standard for generating generalizable findings in work populations, these research efforts in the field have some serious limitations. The most serious of these is a lack of control over the testable conditions, which places the potential for causal inferences in jeopardy. This is particularly salient in leadership research, where leaders are difficult to access, especially for long periods of time. What's more, the difficulty of examining leader-follower relationships is made more difficult due to logical and ethical issues inherent in manipulating interpersonal processes within an active firm. This is not the case in the laboratory, where the researcher can ensure that conditions are held equivalent aside from the intended manipulations. As such, several top leadership scholars have openly advocated for the use of laboratory studies in leadership research as opposed to a focus on fieldwork (Colquitt, 2008). By sacrificing some potential face validity for increased control, leadership researchers can circumvent many of the obstacles faced by research in the field.

## **Method**

### *Participants*

Participants were all enrolled undergraduate students recruited through the Penn State University student participant pool. The final sample consisted of 286 individuals, of whom 79% were female.

### *Measures*

Several predictor variables used in this study were categorical indicators of the research condition (e.g. error timing, error type, error severity). As such, participant responses were not used to directly indicate these values. All analyses including these variables utilized the automatic dummy coding feature provided by the R programming language, through which all statistical procedures were conducted.

*Willingness to Follow.* Willingness to follow was measured using the six-item scale developed by Cushenbery, Thoroughgood, and Hunter (2009). Participants responded to each item on a Likert-type scale ranging from ‘strongly disagree’ to ‘strongly agree’. The Chronbach’s alpha for this measure was .93. A sample item reads, “I would be willing to serve under this leader”.

*Error Occurrence.* Participants were asked to indicate to what degree they believed the leader had committed task and relationship errors. Each participant was presented with a definition of task and relationship errors via a brief prompt before each question set. Responses were recorded on a Likert-type scale ranging from ‘strongly disagree’ to ‘strongly agree’. It should be noted that prompts did not force participants to choose either task or relationship errors as having had occurred (e.g. if task error, then not relationship error). If a participant viewed a leader error as both strongly task related and strongly relationship related they could respond to indicate as such. A sample item reads, “This leader committed a relationship error during our interaction”.

*Error Impact.* Error impact was measured similarly to error occurrence. After reading the error definitions, participants were asked to indicate how impacted they were by a task or relationship error the leader committed, respectively. Responses ranged from an indication of no perceived error to highly impactful error. The responses to these two items were also aggregated to create a composite score of error impact for use in other analyses. A sample item read, “This leader’s relationship error had [amount of impact]”.

### *Procedure*

After arrival at the laboratory site, participants were greeted by a research assistant and provided consent documents as well as a brief description of their upcoming exercise. The research assistant informed the participant that he or she would be participating in a developmental opportunity for MBA students, in joint sponsorship between the Department of Psychology and the College of Business. Participants were told that this developmental procedure was intended to train MBA students on how to effectively lead team members virtually, as remote work represents a rapidly growing trend in workplaces. As such, during the exercise participants expected to always be physically separate from their MBA leader and were instructed to communicate with their leader only through email. Participants were informed that they would be asked to provide feedback on the leader’s performance after the task ended so that a feedback report could be developed and administered for use in his or her efforts to develop as a leader. In actuality, however, a confederate leader was used initially, followed by a script for virtual interactions. After this briefing individual participants were taken to separate

laboratory spaces, equipped with laptop computers that were pre-loaded with lab-controlled email accounts and materials necessary for exercise completion.

Once participants had been assigned to their individual workspaces, a confederate research assistant posing as the MBA student leader entered the room. This brief initial interaction between participant and confederate was deemed necessary for developing a sense of realism within the laboratory setting. The confederate's communication was scripted and those playing the role of MBA leader were trained prior to the start of data collection in order to standardize these initial interactions. Part of this interaction was a re-iteration of the overall task and procedure, presented by the leader to his or her new "subordinate". Participants were tasked with completing an activity similar to that in the work of Hunt, Boal, and Dodge (1999), where students were asked to develop a plan to improve the ranking of their university within a short period of time. In the present study, participants were asked to conduct independent research and develop a plan for increasing the standing of Penn State based on the criteria established by the *US News and World Report* (USN&WR). These criteria, and their weighting according the USN&WR, were provided to each participant before the exercise began. Each individual was also provided with a series of deadlines at which they were instructed to email their work to the MBA leader for review, thus creating a need for communication between subordinate and leader. They would then receive feedback from the leader and continue working toward a final submission. These email interactions were also scripted, depending on experimental condition, and facilitated by a team of research assistants monitoring lab-controlled email accounts in another part of the building.

The primary manipulations in this exercise were the presentation of leader error: its timing, type, and severity to the participant. The participant groups were created using a 2x2x2 factorial design in order to vary the type of error, error timing, and error severity efficiently. Errors themselves occurred as responses to the communications between the participant and his or her leader, in order to simulate the results of a naturally developing personal interaction. The content of these error-laden communications determined the type of error intended by the condition. Below, I provide greater detail describing the specific elements that were manipulated. Full scripts and materials outlining these conditions are located in Appendix A.

*Error Timing*<sup>1</sup>. The temporal point during the exercise at which an error was intended to occur defined the error timing condition. All manipulations were designed to have two content-related interactions between participant and confederate, whereby work products were passed from the participant to the confederate and then to the participant. The participant initiated this process, by submitting a draft of his or her work after the first 15 minutes. In early error conditions, the research team responded to the participant's initial submission after three minutes with an error-laden message corresponding to the other

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<sup>1</sup> Of note in these manipulations is that the "decline" condition is not represented in the study design, where the "rise" and "peak" are conceptually represented by the early and late-stage interactions between participant and leader. This is due to conceptual difficulty in saliently manipulating a leader's decline in the laboratory. A leader's decline from power is, in large part, a perception driven by invested followers who attribute decreasing influence to the leader over a period of time. This cognitive and emotional context would be difficult to establish in participants who are only cursorily acquainted with the leader. However, this phase of the leader's temporal trajectory is likely to provide the least amount of unique information, as leaders in their final "season" are heavily entrenched in methods of thinking and behaving. As such, they are unlikely to diverge from those patterns in meaningful ways (Hambrick & Fukutomi, 1991).

condition criteria. In late error conditions, this error-laden message was sent after the participant had received feedback, made edits and additions, and re-submitted the work a second time. The late error condition was also designed to leave the participant with no opportunity to make additional corrections or adjustments to their work product.

*Error Type.* Error type, either task or relationship error, was construed by how the confederate responded to a participant's work submission. In task error conditions, the confederate admitted that the task they had asked the participant to complete was incorrect and that the participant was actually responsible for a separate piece of work. This admission of fault on the part of the leader was necessary given the other conditions of the test environment, specifically the required in-person meeting between confederate and participant to develop realism. In relationship error conditions, confederates responded with a message that conveyed general dissatisfaction with the work produced by the participant. This message compared the participant's work unfavorably with that of hypothetical others and admonished the draft for "lacking effort". It was crucial in the design of this condition to have relationship errors focus on the work of the participant rather than the participant as an individual, to mitigate the possibility of psychological harm. Depending on the timing condition, participants were either presented with a standardized set of additional instructions for their next draft (early condition), or told that time was up and the exercise was finished.

*Error Severity.* The error severity manipulation varied depending on both the type of error that was committed in the participant's research condition and the timing condition. Task error severity was manipulated by the actions requested of the participant after the confederate leader acknowledged that a mistake had been made. In non-severe,

early conditions, the confederate stated that although the participant is working on the incorrect assignment, he or she should continue the work that was already started. When this occurred as a late error the message was similar, but amended to state that the leader will submit the work as-is without having the participant make any adjustments to correct the error. Severe, early error conditions required the participant to start the work over again, pivoting from an analysis of Penn State to a comparison between Penn State and similar universities. The severe, late error condition also required this re-work under limited time constraints. Relationship error severity was manipulated by the presence of a second portion of the error-laden message sent to the participant. In severe error conditions, participants were told that the confederate was not able to give them feedback on their work as was originally promised. This violation came after the participant was admonished for his or her work effort. In the non-severe condition, however, the confederate stated that the issues seen in the participant's work may have been the result of lack of clarity in the leader's initial instructions.

Following the final interaction and submission of deliverables between the participant and the confederate leader, a research assistant returned to the laboratory and instructed the participant to engage in a "developmental" survey for leader feedback. This series of questionnaires captured personality and perceptual variables, particularly information regarding the individual's willingness to follow this particular leader in the future, perceptions of error occurrence and severity, and assessments of the impact of leader error on their work. Following successful submission of these surveys the participant was debriefed by the research team, thanked, and dismissed from the study.



## Results

### *Manipulation Checks*

Manipulation check analyses were conducted in order to ensure that participants viewed the research conditions as different from one another. Of particular interest were the participant's perceptions of error type and error severity. Two variables included in the participant questionnaires were intended to gauge whether or not an individual felt that a task or relationship error had been committed during their exercise as well as to what degree these task or relationship errors influenced their work outputs. It should be noted that all of these questions were assigned regardless of the established research condition. This meant that, should a participant view an intended relationship error as high in task error characteristics, he or she was free to make that rating. Participants were provided definitions and examples of task and relationship errors to aid them in representing their experiences accurately. Perceived impact of the error in each condition, used as continuous proxy for the dichotomized error severity variable, was measured by averaging the task and relationship error influence scores. The eight unique conditions created in the 2x2x2 design were expected to vary in a manner that was appropriate to their intended influence; for example, task error occurrence scores should be higher in task error conditions than in relationship error conditions.

The ANOVA results presented in Table 1 indicate that the groups included in this study did significantly differ from one another with respect to perceptions of error occurrence and impact. Task error occurrence ( $F(7, 271) = 6.44, p < .001$ ), task error impact ( $F(7, 271) = 3.77, p < .001$ ), relationship error occurrence ( $F(7, 273) = 10.42, p < .001$ ), and relationship error impact ( $F(7, 273) = 7.52, p < .001$ ) were viewed

differently depending on individual error type condition. Additional Tukey's HSD post hoc analyses confirmed these significant results in the vast majority of cases, and an analysis of the group difference trends in matched condition pairs through Tukey's tests were in the appropriate direction in all comparison cases regardless of statistical significance. However, due to the large number of included conditions, not all individual group pairings were significantly different from each other.

An additional set of analyses, seen in Table 2, re-categorized the conditions as dichotomies around error type (e.g. Task or Relationship error conditions) rather than treating each condition as independent. The goal of these analyses was to establish whether or not overall trends in the data indicated that participants viewed the conditions in the manner they were intended. Results were in keeping with expectations, with task error conditions scoring higher in perceptions of task error occurrence ( $F(1, 277) = 40.14, p < .001$ ) and task error impact ( $F(1, 277) = 7.95, p < .01$ ) than relationship error conditions, and vice versa ( $F(1, 279) = 64.66, p < .001$ ;  $F(1, 279) = 44.73, p < .001$ ). Additional Tukey's tests confirmed that these differences were in the theoretically appropriate directions, providing additional evidence that participants viewed errors differently depending on the condition to which they were assigned.

Similar analyses were conducted to demonstrate the efficacy of error severity manipulations using the aggregated error impact score. As seen in Table 3, perceived error impact was found to vary as a function of experimental condition ( $F(7, 270) = 2.78, p < .01$ ). However, examination of the means and results from Tukey's tests indicate that this result was driven by one specific condition (ETNS). An additional analysis using a dichotomized indicator of error severity failed to support a significant difference in

impact perceptions between conditions ( $F(1,276) = 0.43, ns$ ). These results are found in Table 4.

Having examined the efficacy of the manipulations, tests of specific hypotheses were possible. Of initial interest in this study was the influence of error timing on individual willingness to follow, where through the research of Fredrickson and colleagues (1988) it was assumed that errors occurring early would result in stronger opposition to the leader than those that occurred later. The results of a regression testing differences between early and late error conditions on willingness to follow yielded a non-significant effect ( $b = -0.16, ns$ ), with trends indicating that errors occurring late may be more detrimental to leader's overall followership. These results fail to provide support for Hypothesis 1. Additional analysis addressed the influence of error type on willingness to follow, finding that relationship errors resulted in significantly less willingness to follow than task errors ( $b = -0.61, p < .001$ ), providing support for Hypothesis 2. These results from these analyses can be found in Table 4.

In addition to these main effects, several moderated relationships were tested. Hypotheses 3a and 3b predicted the influence of error timing on the relationship between error type and subordinate willingness to follow, predicting that task and relationship errors would be differentially impactful depending on when they occurred. Due to the categorical nature of both the predictor and moderator variables, regression results equate to a group differences test wherein the group means for the independent variable differ depending on group "membership" in the moderator. A regression analysis (Table 6) indicated the presence of a significant moderation effect ( $b = 0.42, p < .05$ ). An analysis of simple slopes (Figure 2) shows that the impact of relationship errors on willingness to

follow did not vary appreciably between time conditions ( $b = 0.06, ns$ ). Task errors, however, were found to vary significantly as a product of error timing ( $b = -0.36, p < .01$ ), with late task errors resulting in considerably less willingness to follow the leader. In order to test the nuances of this relationship further, the data were divided into subsets consisting of early and late occurring errors. Group comparison tests were conducted after data separation, and results demonstrated that relationship errors had the strongest negative impact on willingness to follow in both the early and late stages ( $F(1, 132) = 23.91, p < .001$ ;  $F(1, 136) = 3.19, p < .10$ ). As an additional test of these effects, the complete dataset was divided into subsets around error type rather than timing in order to see whether or not the influence of error timing on willingness to follow varied by error type. Relationship errors were found to equally detrimental to subordinate willingness to follow regardless of when the error occurred ( $F(1, 137) = 0.24, ns$ ), while task errors were found to be significantly more impactful in when occurring in a late stage than an early stage ( $F(1, 131) = 7.34, p < .01$ ). These results provide support for Hypothesis 3a but not for 3b, demonstrating that relationship errors are globally more impactful than task errors and that task errors, when considered in a vacuum, are more impactful when they occur late than early.

Hypothesis 4 predicted that manipulated error severity would differentially impact the relationship between error timing and willingness to follow, such that more severe errors would make this relationship more negative in the “rise to influence” and “peak of influence” phases. Because the laboratory conditions manipulated only these two conditions, and excluded a “decline from influence” manipulation, analyses were restricted to a simple moderation test. Results presented in Table 7 demonstrate a lack of

significant moderation for this relationship on the part of error severity ( $b = 0.03$ , *ns*), indicating that the manipulated severity of the error condition did not have a global influence over the relationship between error timing and willingness to follow. The composite measure of self-reported error impact was used as an alternative measure of error severity (Table 8), with results also failing to reach statistical significance ( $b = -0.03$ , *ns*). Thus, Hypothesis 4 was unsupported.

Related to these results, Hypotheses 5a-5c presented predictions around the relationship between error severity and various error outcomes. From the laboratory study only Hypothesis 5a was testable, as predictions 5b and 5c require multiple error inputs from the error perpetrator as opposed to the singular error manipulated in the laboratory. Specifically, Hypothesis 5a predicted a negative relationship between error severity and willingness to follow. Similar to the results found in tests of Hypothesis 4, willingness to follow was not found to vary as a product of error severity condition ( $b = 0.11$ , *ns*). However, self-reported error impact was found to predict willingness to follow such that willingness to follow decreased as perceived impact increased ( $b = -0.36$ ,  $p < .001$ ). These results (Table 9) provide support for Hypothesis 5a.

## **Discussion**

The results of this laboratory study provide some independent contributions, as well as set the stage for further analyses in Study 2. First, results demonstrated that individuals in the laboratory were able to make clear distinctions between task and relationship errors, and that these errors were perceived differently in terms of impact to the participants. Moreover, relationship errors were perceived more negatively than task

errors in all manipulations, adding to a growing body of findings that supports this concept.

Relationship errors were found to be considerably more damaging to followership attributions than task errors, in keeping with the emerging literature on the subject (e.g. Bedell-Avers et al., 2009). These results reinforce the assertion that followers are more lenient and accepting of errors that influence how they perform work than how they view the leader as an individual. An exploratory analysis provided additional support to this argument as relationship error conditions were viewed by participants to be significantly more impactful than task errors, using the composite error impact score as a measure of error severity. These results coupled with previously published research work to solidify the thinking on error types and how they are viewed by those who experience their impacts. Future research might expand upon this work by exploring additional nuances within error types that may explain these reactions further (e.g. relationship errors of omission vs. relationship errors of commission).

Contrary to predictions, task errors were found to have the most negative impact when they occurred late in a work process rather than early. This result may be due to one of several possible factors. For example, such results may be the product of the task environment. Participants were brought into the lab under time constraints and assigned a complex task; errors that occurred late in their process may have invoked a feeling of stress that may be less likely when tasks are familiar or routine. Moreover, individuals executing routine tasks for which they possess experience or expertise may be more likely than functional novices to react negatively to early leader errors as it invalidates the leader's ability to direct the process in which this person is knowledgeable. This would

explain the lack of a “honeymoon” effect experienced by newcomer executives and organizational leadership (Fredrickson et al., 1988), as those they are leading are likely to be experienced incumbents with little tolerance for leadership that doesn’t not possess intimate knowledge of their function. Additionally, followership attributions in the late error condition may have been subject to a recency effect (see Murdock, 1962). It is possible that the closeness in time between error occurrence and outcome measurement in the late error conditions did not allow participants to consider the whole of their interaction with the leader when making judgments. Instead the most recent interaction, the leader error, is granted more weight on the participant’s ratings than it would have if more time had elapsed. Should future researchers account for the potential for this bias, follower reactions to leader error may present differently.

To the contrary, this effect could also be explained by the use of time as a recovery mechanism. Although task errors interrupt the work processes of those that experience them, those who experience errors early are unlikely to cease their work entirely as a result. In the present laboratory study, all participants experiencing early-occurring errors were able to complete their assignment in the allotted time. As time elapses, recollection of the error’s impact on the work process may dissipate resulting in a reduced overall assessment of the error and, subsequently, the leader. It should be noted that the data only support the possibility of this recovery effect for task errors, as relationship errors were equally impactful regardless of what point in the work process they occurred.

Analyses did not demonstrate a difference in willingness to follow as a result of error timing, contrary to prediction. This may have been due in part to the general brevity

of the laboratory exercise, which was designed not to exceed one hour in order to avoid burnout and lapses in attention. As a result, participants may not have recognized a meaningful difference in error timing because of their temporal closeness overall. The analysis did, however, indicate through trends that late errors may be more impactful than those that occur early. Future research should approach these issues more longitudinally, so as to make clearer distinctions between early and late errors and their respective impacts.

A lack of evidence supporting error severity as a moderator of the relationship between error timing and willingness to follow may be a result of only moderate effectiveness in the severity manipulation, as was originally demonstrated during the pre-analysis manipulation checks. Given the time and context restrictions provided by the laboratory, creating scenarios that constituted salient errors varying appreciably in perceived severity was particularly challenging. One notable potential confound was that individual participants did not have a vested interest in the ultimate product they were asked to produce in the laboratory. Without attaching some real value to the project outcome, participants may not have been as sensitive to the overall impact a leader error had on them or their work. Additionally, the framing of the exercise as an avenue for developmental feedback may have inadvertently led to an increased likelihood of a leniency bias, whereby participants judged leader errors less harshly than they would have if they did not think their data would contribute to the leader's development. Future researchers should consider restructuring the tasks such that the importance of the outcomes are more salient for participants. If participants are more connected to the tasks they are engaging in, actions by the leader that jeopardize their success may be viewed as



more impactful. Indeed, this issue may be as much a problem of participant buy-in as it is with research design; giving participants more reason to viscerally react to the occurrence and circumstances of an error is likely key to successfully manipulating error severity. Alternatively, these findings may result from the inability of error timing to predict differences in willingness to follow. Having established that individual perceptions of severity do predict attributions of followership, the lack of moderation effect may speak more to the ineffectiveness of error timing as a predictor than error severity as a moderator.

Finally, the laboratory provided support for the assertion that errors which are perceived to be more severe will result in lower willingness to follow the error perpetrator. This result follows logically, as error severity may be used as a barometer for a leader's competence. Those errors that are viewed as more severe will detract more significantly from a leader's power bases, damaging their ability to influence others and garner the support of subordinates. As such, leaders must be careful to monitor not only whether or not an error was perceived by subordinates, but how that error was assessed in terms of overall impact. Indeed, inaccurate assessment of this variable may leave a leader open to unanticipated resistance and criticism from those he or she intends to direct.

## **Study Two**

One limitation of the laboratory method in Study 1 was the practical inability to manipulate the number of errors the leader committed during the participant's session. The root of this limitation was time, as participants were to be engaged in the study protocol for a maximum of one hour. Additionally, should the study have attempted to develop the presence of multiple leader errors within one session, the subsequent result on participants may have been subject to recency bias (Murdock, 1962). In this case, participants attempting to report their reaction to errors that occurred earlier in the study session would be biased by a clearer recall of the error that occurred most recently. As a result, it was not possible to test a small number of elements in a hypothesized model that required the possibility of multiple errors occurring over one's tenure as a leader. Study 2 uses the historiometric method (Simonton, 1990), a process of converting rich qualitative information into quantitative data, to overcome this challenge.

The historiometric method has been widely used in leadership research, where high profile and archetypal leaders can be content analyzed through the wealth of high-quality academic research that exists regarding their lives and careers. As has been demonstrated by the work of Mumford and his students (Bedell, Hunter, Angie, & Vert, 2006; Eubanks & Mumford, 2010; Hunter et al., 2011; Ligon, Harris, & Hunter, 2012; Mumford et al., 2007; O'Connor, Mumford, Clifton, Gessner, & Connelly, 1995), in particular, leaders present a uniquely appropriate sample for historiometric analysis insofar as serious and complete academic accounts of leader lives are fairly ubiquitous and the availability of such accounts is not restricted to any certain leader population or occupation. Thus, a broad and diverse body of knowledge regarding leaders is available

for comparative analysis and research. Moreover, leaders who are written about in academic biographies and case accounts have often had high-impact during their careers, both positively and negatively, and present a range of experiences that are likely difficult to replicate in traditional field research. These experiences include errors, both subtle and high profile, which are likely to be captured and discussed in serious and rigorous reports of leader lives. Thus, capturing the occurrence and impact of multiple errors across the life and tenure of a leader via academic biography provides a solution to the challenge in Study 1.

The present study faces an additional challenge in that the central focus is the errors that leaders commit and the tangible results of those errors. This is a particularly difficult area of research in the field in that leaders of organizations, understandably, are unlikely to acquiesce to efforts to quantify, understand, and report on their mistakes. However, leaders from the past (or those who are prominent enough to be written about during their lives and tenures) have both their successes and their foibles documented within un-biased scholarly biographies. Thus, historiometric analysis presents an opportunity for particularly high-fidelity data collection with regard to leader errors.

## **Method**

### *Data Collection*

The research team acquired a preliminary sample of 100 leader biographies from a large academic library. To be included in the original sample the biography must have been written by a source other than the subject (i.e. no autobiographies), reported on a single leader that lived between the late 19<sup>th</sup> and early 21<sup>st</sup> centuries, and shown evidence of scholarly research and citation. Once this original sample was acquired, additional

screening procedures were applied in order to vet the source material thoroughly. Of particular importance was evidence of historical accuracy and completeness, represented by the presence of a significant reference section and consistent citation of other sources. Additionally, the research team read excerpts from each book to look for evidence of bias on the part of the author. Although no written narrative is completely free from the personal opinions and framing of its author, certain ‘red flag’ characteristics (e.g. author’s tone, framing of certain historical events, advocacy) would suggest that the information presented may be presented selectively and obscure certain important details. Applying these two basic criteria led to the removal of several biographies from the sample.

After vetting the remaining source materials, the research team was tasked with identifying instances of leader error within each biography. The team was trained on the definition of leader error using the framework provided by Hunter and colleagues (2011). Research assistants were also trained to identify and categorize distinct error types (task, relationship, ethical), as defined by Thoroughgood and colleagues (2012), as well as error timing (rise to influence, peak of influence, decline from influence). Following training, each member of the research team was assigned specific biographies for error identification. The coders were responsible for carefully reading these biographies and identifying as many errors as was possible. The context and circumstances of each error was noted, as well as the leader who committed the error and book details such as page number for ease of identification in the future. This effort resulted in the identification of 402 unique errors from a sample of 86 individual leaders, having removed some leaders from inclusion due to challenges to the accuracy and/or impartiality of their biographies.

### *Codebook Development and Training*

Following error identification it was necessary to design a codebook for use in the historiometric analysis. A historiometric coding scheme is meant to identify predictor, outcome, and covariate variables in accordance with what is specified in the hypothesized model (Ligon et al., 2012). Using an iterative process of item writing and refinement (Mumford, Strange, Gaddis, Licuanan, & Scott, 2006), whereby both discussion and pilot testing were used to identify opportunities to improve the codebook, a series of items were developed for inclusion. These items were written in accordance with the established rules and procedures of psychometrically sound item writing and validation (see Osterlind, 1998), including clarity, interpretability, and appropriate anchoring. After several iterations of item refinement, the final codebook contained 112 variables in 9 distinct categories (e.g. leader individual differences, error characteristics, error outcomes). These categories were intended to capture the elements of the hypothesized model as well as potential covariates to be included in exploratory analyses. Two variables in particular, loss of followers and loss of trust, were intended to serve as the primary outcome measures as proxies for willingness to follow.

Following the development of the coding scheme, the rating team required extensive training on the objectives of the project, the variables and theory included in the hypothesized model, and use of the codebook. The ultimate objective of this rater training was the development and maintenance of interrater agreement in the coding process. Hak and Bernts (1996) observed that training for interrater agreement or reliability should include traditional instruction on standardized materials and procedures

as well as a deliberate effort to develop mental models within the rating team. This conclusion was drawn from the work of Garfinkel (1967), and Katz and Sharrock (1976) who observed that coders are prone to apply their own coding rules to content that they find confusing or ambiguous, which is not uncommon when gathering information from rich text. To combat this issue, coders engaged in several pre-study piloting sessions through which they could develop a collective understanding of the type of material they would be working with, as well as the coding scheme. All members of the coding team were provided the same set of errors to read and code after being instructed in the other elements of the project. The resulting data was analyzed for interrater agreement using the  $r^*_{wg(j)}$  statistic (James, Demaree, & Wolf, 1984), and the coding process was discussed at length at coding team meetings. These discussions allowed the research team to clarify misconceptions about content, debate the assignment of certain ratings, and otherwise develop robust mental models. This process repeated several times until mathematical interrater agreement was consistently high and raters could be considered ‘interchangeable’. Once this level of training sophistication was achieved the raters were allowed to take on coding assignments to be used in the study.

### *Procedure*

Raters were assigned a series of errors to code from the master list of 402 errors. In keeping with the recommended standards of historiometric analysis (see Ligon et al., 2012) each error was assigned to be coded at least twice by distinct coders. A deliberate effort was also made to limit the number of times the same coders were paired together, in order to minimize the influence of any lingering biases. In addition to their coding

duties, coders were responsible for critically reviewing the content of the identified error and flagging instances where the error's validity could be questioned. When such a discrepancy occurred the issue was brought to the attention of the larger group and an additional review of the source material was conducted. Relying on the previous literature regarding leader errors (Hunter et al., 2011; Thoroughood et al., 2012), the research team determined whether or not the identified error should be included in further coding and analysis. These questionable errors did occur with some frequency, resulting in the removal of 141 previously identified errors. This additionally eliminated several leaders from the analysis, as the errors removed constituted their contribution to the research effort. The result of this final culling process was a complete sample of 261 individual errors emanating from 52 distinct leaders.

Using the previously described historiometric codebook, raters analyzed each of their assigned errors and provided ratings for the codebook variables. Each coder maintained his or her own individual dataset, which could be merged with the datasets of other raters for use in analyses. These datasets were periodically aggregated for checks of interrater agreement, to ensure that agreement did not decay appreciably over the course of the study. Once all coding tasks were completed, datasets were merged and duplicate error ratings were aggregated. The resulting dataset contained one complete series of ratings for each of the 261 errors, with the average of rater scores serving to quantify each variable. This final dataset was then prepared for hypothesis testing.

## **Results**

In order to monitor rating consistency over time, periodic checks of interrater agreement using  $r^*_{wg(j)}$  were conducted as the study progressed. When requested,

research assistants provided a subset of their work related to one specific leader (e.g. all errors for Mohandas Gandhi). Because each error was rated by at least two independent members of the research team it was possible to look for consistency across raters. These spot-checks returned interrater agreement estimates greater than the conventional standard of 0.70, suggesting consistency and interchangeability among raters. Having maintained sufficient interrater agreement, it was determined that it was appropriate to proceed with hypothesis testing.

The results presented in Table 10 fail to provide support for Hypothesis 1, which predicted both that early errors would be the most detrimental to willingness to follow and that errors occurring at the peak of a leader's influence would be the least detrimental. Initial ANOVA results using loss of followers as the outcome variable indicated that tangible loss of followers did not vary significantly as a function of error timing ( $F(2, 258)=2.79, ns$ ). However, the p-value of this analysis strongly trended towards statistical significance ( $p = .06$ ), suggesting that further analysis may be appropriate. Additionally, summary statistics of the loss of followers variable suggested that objective loss of followers was a low base rate phenomenon ( $M = 2.32$ ), which may have some influence over the results. Subsequently, using loss of trust as an outcome in place of loss of followers resulted in a highly significant outcome ( $F(2, 258)=7.16, p < .001$ ). Due to the categorical nature of the predictor variable, error timing, a Tukey's honest significant difference test was appropriate in order to better understand the extant differences among the three error timing conditions with regard to loss of follower trust. The results of this test showed that rise to influence and peak of influence conditions differed significantly at  $p < .01$ . The same result was found for the relationship between



rise to influence and decline from influence conditions. The decline from influence and peak of influence conditions were not found to significantly differ from one another, suggesting that the rise to influence phase resulted in the most dramatic difference among the three groups. However, in all conditions errors occurring in the rise to influence phase resulted in the lowest amount of trust loss, indicating that those errors had the least negative impact on the leader. Thus, Hypothesis 1 was unsupported.

Hypothesis 2 tested whether or not differences existed in willingness to follow as a result of error type, predicting that relationship errors would be the most detrimental to leaders. Unlike Study 1, the present study endeavored to identify ethical errors, those errors which stem from a violation of established moral or ethical norms, as well as task and relationship errors. However, such errors occurred at an extremely low base rate ( $n = 17$ ) and could not be statistically distinguished from relationship errors. As a result, analyses proceeded using only the two basic error types. The regression results presented in Table 11 show that, when using loss of follower trust as a willingness to follow outcome, task errors result in less loss of trust than relationship errors ( $b = -0.25, p < .10$ ). However, this relationship was only marginally significant. Results improve, strongly trending significance and holding the same trend, when loss of followers is used as an outcome ( $b = -0.23, p = 0.058$ ). These two results taken together support H2, which predicted the more deleterious effects of relationship errors over task errors, albeit marginally so.

A series of moderated regressions were conducted in order to test Hypotheses 3a and 3b. The results of these analyses (Table 12) did not support either prediction, demonstrating no moderation effect of error type on the relationship between error timing

and willingness to follow. These results were non-significant using either loss of followers ( $b = -0.16, ns; b = -0.15, ns$ ) or loss of trust ( $b = 0.06, ns; b = -0.43, ns$ ) as an outcome variable. Two models were estimated in each instance due to dummy coding. Following these initial analyses the data were separated into subsets, each representing the phase in which the error occurred, much in the same way as Study 1. An additional series of regressions failed to yield appreciably different results with either loss of followers or loss of trust as the respective outcome, with rise to influence ( $b = -0.11, ns; b = -0.18, ns$ ), peak of influence ( $b = -0.28, ns; b = -0.12, ns$ ), and decline from influence ( $b = -0.27, ns; b = -0.60, ns$ ) conditions failing to support predictions.

The previously discussed tests categorized leader error type by using a dichotomous indication of whether or not an error was task or relationship focused, resulting from the coding work of the research team. In addition to this grouping, each error was also coded with regard to certain error characteristics that were either task or relationship focused. For example, raters were tasked with determining to what degree a particular error constituted a planning error (task-related), supporting error (relationship-related), and others. These scores could then be aggregated to create alternate task and relationship error scores to be used in analyses. However, these aggregate measures were also generally ineffective at demonstrating a significant moderation, with the relationship between error timing and loss of followers ( $F(5, 255) = 0.71, ns; F(5,255) = 0.69, ns$ ) and loss of trust ( $F(5, 255) = 1.44, ns$ ) unaffected by overall task and relationship error scores, respectively. The aggregate relationship error score did have a significant ANOVA result ( $F(5,255) = 4.46, p < .05$ ), indicating that the aggregate variable moderated the relationship between error timing and loss of trust. Follow-up analyses

using the error-timing subsets showed that this relationship was significant only in rise to influence ( $b = 0.96, p < .001$ ) and decline from influence ( $b = 1.03, p < .01$ ) phases and non-significant during the peak of influence phase ( $b = 0.23, ns$ ). Despite the statistical significance of these results, the trends were not in keeping with those that were predicted. The results of these analyses taken together, Hypotheses 3a and 3b were unsupported by the data.

Hypothesis 4 predicted that error severity would act as a moderator of the relationship between error timing and willingness to follow, and that these effects would be present only in the rise to influence and peak of influence phases. A composite score for overall error severity was created by aggregating the values of five error outcome variables: number of observed negative consequences, number of individuals adversely affected, total negative social reaction to the error, total negative impact on followers, and a reverse scored measure of goal achievement. All variables were measured using identical five-point Likert scales. As seen in Table 13, results of moderated regression analysis show non-significant effects when using either loss of followers ( $b = -0.17, ns; b = 0.20, ns$ ) or loss of trust ( $b = -0.13, ns; b = 0.05, ns$ ) as moderators in peak and decline conditions, respectively. As a result, Hypothesis 4 was not supported.

Unlike in Study 1, Hypotheses 5a-5c were all testable in the present dataset, as total number of errors committed was a quantifiable variable. The results presented in Table 14 show that, using the previously created composite error severity measure, error severity strongly predicts both loss of followers ( $b = 0.88, p < .001$ ) and loss of trust ( $b = 0.65, p < .001$ ). These results support the predictions of Hypothesis 5a. Hypothesis 5b predicted that error severity would be negatively related to the total number of errors a

leader would commit during his or her tenure, such that leaders who committed more severe errors would commit fewer errors in the long run. Testing this prediction called for the use of two new variables, specific to each individual leader included in the dataset. The first was the average severity of his or her cumulative errors, represented by the composite severity score of each error. Regression results in Table 15 suggest a strong trend in support of the hypothesis ( $b = -0.89, p = .056$ ); however, the result was only marginally significant, lending partial support to Hypothesis 5b. The second analysis limited the dataset to only the first error committed by each leader, in an effort to see whether the severity of the leader's first error predicted the number of errors that would be committed overall. Results of this analysis were non-significant ( $b = -0.54, ns$ ), and were unaffected by the potential moderating influence of error type ( $b = -1.16, ns$ ). Hypothesis 5b was, thereby, unsupported.

A mediation effect was predicted in Hypothesis 5c, where willingness to follow mediated the relationship between error severity and total number of errors committed. These relationships were tested using the 'mediation' package for R, which indicates the presence of mediation through calculation of the 'average causal mediation effect' (ACME) statistic (Tingly, Yamamoto, Hirose, Keele, & Imai, 2013). Due to the unique structure of the data, in which multiple errors could stem from a single individual, these mediation effects were tested in three different ways. First, each individual error's severity and subsequent willingness to follow scores were used to predict the total count of errors committed by the leader. There were no discovered mediation effects in this instance for either loss of followers (ACME = -0.15, 95% CI [-0.49, 0.18]) or loss of trust (ACME = -0.11, 95% CI [-0.31, 0.07]). A subsequent series of analyses limited the

dataset to only the first errors committed by each leader, in order to determine whether the severity of and follower reactions to an initial error explained future career outcomes. These analyses did not yield significant mediation effects with either loss of followers (ACME = -0.72, 95% CI [-1.71, 0.23]) or loss of trust (ACME = -0.15, 95% CI [-0.62, 0.25]) acting as the mediator. Finally, mediation analyses were conducted using each leader's averaged error severity and willingness to follow scores, in order to determine whether the overall trend in those variables was likely to predict the number of errors an individual committed. These results were also non-significant, using loss of followers (ACME = -0.43, 95% CI [-1.10, 0.19]). Average loss of trust, however, was found to significantly explain the relationship between average error severity and total errors committed (ACME = -0.22, 95% CI [-0.50, -0.01]), such that greater average error severity led to greater loss of trust and subsequently fewer career errors. This result provides some preliminary support for Hypothesis 5c.

## **Discussion**

The results from this historiometric analysis mirror, in many ways, those of the laboratory research conducted in Study 1. To that effect, Study 2 also failed to support the prediction that willingness to follow would be differentially impacted by the temporal phase in which an error was committed. However, some key differences exist between these results and those that were collected in the lab. One fundamental difference was the inclusion of a 'decline from influence' phase in the historiometric analysis, which was not included in the laboratory study due to structural constraints. Additionally, the use of two distinct variables as proxies for willingness to follow allowed for more specificity in each analysis, and permitted the loss of influence over followers (or lack, thereof) to be

demonstrated in multiple ways. The advantages here were evidenced by a significant result when loss of trust was used as the outcome variable, which did not emerge when using loss of followers. However, the results did not support the initial prediction, instead indicating that errors in the 'rise to influence' phase were the least detrimental to leader outcomes overall. This result counters the work of Fredrickson and colleagues (1988), who posited that new leaders would not be subject to a grace period in which they would be less likely to be penalized by followers for the mistakes that they made. In keeping with the outcomes of Study 1, the historiometric results suggest that reactions to leader errors will get progressively more severe as leader tenure increases, placing new leaders at a distinct performance advantage.

One surprising effect was the absence of a conventionally significant impact of error type on willingness to follow. These tests failed to reach conventional significance using both loss of followers and loss of trust as measures of willingness to follow. The extant literature strongly supports the idea that relationship errors have considerably worse outcomes for leaders (Bedell-Avers et al., 2009; Thoroughgood et al., 2012), a premise that was reinforced by the results of Study 1. The trends in the historiometric data concur with this research, and examination of the results shows that relationship errors have generally worse outcomes than task errors. One potential confound that should be noted is that both outcome variables, loss of followers and loss of trust, were generally low base rate phenomena, yielding means of 2.33 and 2.50, respectively, on a 5-point scale. Because this content was derived from how the author of each narrative described the errors in question, it is possible that these results are partly the result of ineffectual reporting. Additionally, the unique sample of highly influential leaders used in

this study may have been in unique enough positions that loss of followers and trust were both more difficult to capture and less likely to occur regardless of the error that was committed. Future researchers should consider these issues when planning a historiometric study in order to make the necessary adjustments to their coding schemes.

The moderation of error timing by error type also failed to yield significant results. As was stated previously, this may be the result of generally low means and limited variance (1.18, 0.99) of the loss of trust and loss of follower variables, respectively. Alternatively, it is possible that some errors were misidentified as either task or relationship errors in the initial coding process. This is partially evidenced by the significant results garnered after creating composite task and relationship error measures from individual error characteristics. Indeed, the lines between task and relationship errors may, in reality, be more difficult to see than was previously anticipated. As a result, it may be more fruitful in the future to define errors through a larger set of characteristics rather than attempting to isolate them in to task or relationship error “boxes” as you would in the laboratory.

Although error severity was found to predict both loss of followers and loss of trust independently, these relationships did not vary according to error timing. This speaks to the global influence of error severity, in that the consequences of errors are a critical component to followership regardless of other factors. Despite running counter to predictions, this result reinforces the idea that competence judgments, and subsequent attributions of influence, are heavily reliant on the results of actions (Hollenbeck et al., 2006; Lord & Hall, 2005). Given that the majority of errors result in negative outcomes, error commission in any form does not bode well for the leader.

Finally, mixed results lent some support to the role of willingness to follow in the relationship between error severity and the total number of errors a leader was likely to commit during his or her tenure. Specifically, the average severity of a leader's errors is likely to have increased the average amount of trust lost on the part of followers. This loss of trust in turn made the commission of future errors less likely. Research has consistently supported the significance of trust in leader-follower relationships and as a predictor of subordinate job performance, organizational citizenship, and other positive outcomes (e.g. Dirks & Ferrin, 2002). In their meta-analysis of the leader trust literature, Dirks and Ferrin (2002) describe unmet expectations or "breaches" of psychological contracts (pg. 614) as having influence over follower perceptions of leader dependability and fitness for leadership. Should followers express a leader's loss of influence through removal of trust, leaders may be more diligent in creating similar situations in the future. Alternatively, leaders who commit errors resulting in high loss of trust consistently may lose their positions of influence more quickly than others, resulting in a lower total number of errors committed overall. These preliminary results should be further explored, preferably in a controlled setting where causality can be more readily inferred from the results.



## **Exploratory Interviews**

Although there exists an extensive scholarly literature on leadership and its related phenomena, the challenges inherent in studying these social constructs cannot be understated. Leadership is complex, as evidenced by the upwards of 60 independent leadership theories in the applied psychology and management literatures (Dinh, Lord, Gardner, Meuser, Liden, & Hu, 2013). Some early studies on the nature of leadership have spoken to this contextual complexity (e.g., Mintzberg, 1975), and demonstrated that supplementing empirical inquiry with a qualitative understanding of how leaders (and followers) view the phenomenon of interest can be useful for both interpreting current results and directing future work. With this in mind, I conducted a series of interviews with active organizational leaders to gauge their general attitudes and experiences with regard to the hypothesized model.

### *Participants*

Participants were working adults currently engaged in roles that were strategic, managerial, or otherwise provided the capacity to lead others in an organization. These individuals were recruited through snowball sampling at a multi-national consulting firm. A final sample of 10 individuals were interviewed: 5 male and 5 female.

### *Procedure*

The exercise consisted of asking participants a series of interview questions derived from the findings of studies one and two, in an effort to qualitatively “confirm” the results of those studies through the reported experiences of real-world leaders. Interview participants were informed of the concept of the study, the definition of critical

variables (e.g., task and relationship errors), and other logistical information. They were then asked to predict the outcomes of hypotheses, rephrased for clarity in conversation and lack of jargon, based on their own personal experiences. Following the conclusion of that conversation, participants were presented with the results of both study one and study two and whether or not the hypotheses were supported. They were then asked to elaborate on their opinion or perspective on any discrepancies between their initial experience-based expectations and the study's results.

## **Discussion**

When asked to predict the outcomes of hypotheses based on their experiences (e.g. “In your experience, would followers react more negatively to task or relationship errors?”), participants generally agreed with the initial research predictions. Participants expected followers to react most negatively to errors that occurred when a leader was “rising to influence”, and to relationship errors rather than task errors. Rationale for both of these predictions centered heavily on trust, which participants hailed as critical to success in leader-follower dynamics. Early errors were assumed to be more detrimental to followership than errors occurring later because followers would not yet have a baseline for how much a leader should be trusted. Thus, leaders are not likely to be granted leeway when committing errors before this baseline has been established, in keeping with the predictions of Fredrickson and colleagues (1988). The impact of error type was also thought to be related to trust, with participants reporting that relationship errors would be more damaging to critical trust attributions at the core of the leadership process. Further still, one participant stated her perspective that relationship errors may damage trust to an extent that future task errors are viewed as more severe than they

would have been otherwise. This is opposed to the participants' views on task errors, which were universally viewed as an accepted part of working and mistakes that most followers can "get over". However, trust was viewed as a lynchpin element in both a follower's ability to move on from a task error and his or her willingness to confront a leader about a mistake. It is clear from these discussions that leaders must emphasize the quality of their trust relationships with subordinates and avoid actions that directly challenge their trustworthiness.

Counter to prediction, most participants expected that task errors would be most detrimental to follower attributions in later stages of leader tenure. The hypothesis that task errors would be most impactful in early stages was based on the idea that new leaders would be expected to quickly demonstrate their functional proficiency in order to garner attributions of influence. However, participants disagreed stating that, in their experience, followers react more severely when leaders who have experience commit errors that impede their ability to complete work. This raises interesting questions regarding the likelihood that followers pre-suppose how much experience a new leader has, and how such pre-supposition may influence their reaction to leader errors. For example, a follower who assumes a new leader is highly skilled in the function he or she is meant to lead may be more judgmental of an early task error than a follower who does not make those assumptions, allowing the leader time to acclimate and learn his or her new role.

When asked if they believed that follower reactions to leader errors were likely to inform the way that a leader behaved in the future, or if followers held any power in leader-follower relationships, reactions centered on similar themes. Several participants

were skeptical of leaders' propensity to use follower reactions as feedback and information for future behavior. These opinions stemmed from a view of leaders and managers as creatures of habit, who may receive and accept feedback but are not likely to implement it in any clearly meaningful way. This lack of direct acknowledgement underscored the broader assertion that followers did not hold much power in relationships with their leaders. When presented with the idea of willingness to follow and other followership attributions as an expression of power, participants were unclear of how those attributions would affect the average leader in practice. These interviewees framed their argument from what French and Raven (1959) would label a "legitimate power" perspective, where attributions themselves do not disrupt the established organizational hierarchies that direct much of organizational life. However, participants universally stated that the best leaders actively engage with their subordinates and allow subordinates to influence them. To their dismay, these individuals simply appear to be in short supply within organizations.

One potential confound to note in these interviews was the propensity for interviewees to answer questions from their perspective as followers rather than leaders. Although the questions were asked from a leadership perspective, participants in many instances reverted to speaking from their experience as someone who has been lead rather than as a leader of others. This may have been the result of the way questions were initially framed; however, the frequency with which this issue occurred leads me to believe that the premises themselves are easier to relate to when viewed from a follower's perspective. Because nearly all working adults have been subordinate to another person at some point, participants found it easier to express their opinions through that perspective

even when they did not initially intend to. This tendency may be worthy of consideration in future studies exploring leader-follower dynamics and perceptions thereof.

## **General Discussion**

Before discussing the broader contributions of these studies, it is prudent to acknowledge some limitations. First, laboratory research has been viewed traditionally as improper for the study of organizational phenomena as participants are usually college students rather than employed peoples (see Gordon, Slade, & Schmitt, 1986). Further, the laboratory is viewed as deficient in external validity, and the ability to generalize results from the research lab to the working world has been questioned. These arguments have been refuted both theoretically (e.g. Greenberg, 1987) and empirically (e.g. Mitchell, 2012), with recent research demonstrating an absence of significant differences between results gathered in laboratory or field settings.

Laboratory studies have been used throughout the history of leadership research with great success (e.g. De Cremer, van Knippenberg, van Knippenberg, Mullenders, & Stinglhamber, 2005; De Cremer, 2006; Dobbins, 1986, 1990; Erez, Misangyi, Johnson, LePine, & Halverson, 2008; Hoyt & Blascovich, 2010; Pastor, Mayo, & Shamir, 2007). This is not wholly surprising, as across organizational research domains the correlation between lab and field research results is consistently high (see Colquitt, 2008). Yet, a bias against laboratory work persists, with perhaps the most impactful argument being that participants recruited to the lab are often not leaders in their own right and, therefore, are unlikely to generalize in experience and perspective to the leader population. While this point in itself is debatable (e.g. Avolio, Reichard, Hannah, Walumbwa, & Chan, 2009), the present study is able to avoid the brunt of this problem methodologically.

Although leaders are and their errors are central to the present research, the perceptions of and outcomes for followers in response to leader behavior were the

primary focus. This is an important distinction to make when justifying the use of a laboratory sample, which is likely to be primarily composed of undergraduate university students. Undergraduate students, particularly those who are reaching the end of their academic careers and are seeking full-time employment, can logically be considered similar to other new entrants to the workforce and, as such, sufficient models for subordinates. Unlike models for leadership, these individuals need not have experience in a specific line of work in order to understand what is and is not desirable or important to them with regard to leadership in a work setting. Previous research regarding implicit theories of leadership (e.g. Epitropaki & Martin, 2004; Epitropaki, Sy, Martin, Tram-Quon, & Topakas, 2013; Offermann, Kennedy, & Wirtz, 1994) suggests that all individuals create mental models regarding what they expect and desire from leaders regardless of their experience with leadership directly. Thus, an established leader's actions have similar opportunity to confirm or violate these implicit assumptions regardless of whether this occurs in the workplace or in the laboratory, a point that is evidenced by the use of students in follower-focused studies in the leadership literature (e.g. De Cremer, Mayer, van Dijke, Bardes, & Schouten, 2009; Ehrhart & Klein, 2001; Hunt, Boal, & Dodge, 1999; Schaubroeck & Shao, 2012).

However, the laboratory does place certain restrictions on the researcher that are difficult to overcome, particularly in leadership research. The clearest of these is the artificial creation of a leader-follower dynamic, which may not mirror the complexity of those relationships that develop organically within an organization. Although measures were taken to combat this potential bias, the shortfalls of laboratory research should be addressed. Additionally, a considerable majority of participants in the laboratory were

female, potentially raising questions as to the generalizability of results to male populations. The study's demographics come as a by-product of the available university sample, mainly consisting of undergraduate students in psychology programs. Psychology has shown to be a female-dominated undergraduate major, with women representing far greater than 50% of the student population (Kyle & Williams, 2000). Thus, the available pool of participants may have been naturally restricted to a majority of female students. Although this demographic discrepancy is not ideal, research has questioned the existence of relevant gender differences in leadership research (e.g. Dobbins & Platz, 1986). Despite this caveat, future research should endeavor to acquire a more balanced sample than that which was used in this effort.

Additionally, the manipulation of both time and error severity as conditions were not fully effective in the laboratory study. These issues were the result of fundamental study design elements that attempted to maximize the engagement of participants and avoid burnout. As a result, the exercise was relatively brief, with errors occurring close together in time. This may have led to a less effective manipulation of early and late error occurrence, which could be remedied in the future through a longer and more complex laboratory protocol. The severity manipulation was also tempered in an effort to keep participants engaged and avoid any possibility of psychological harm. Although these goals were largely met, it is possible that the scenario created was not salient enough to participants to warrant substantial responses to errors of differing severity.

The second study employed historiometric analysis, which converts the qualitative information in narrative sources to quantifiable and analyzable data. A key limitation of this method in the context of leadership research is that of restriction of



range. As Simonton (1999) described, historiometric analysis is excellent for the study of “eminent individuals” due to the vast documentation that exists regarding their lives and careers. In order to conduct a historiometric analysis on leaders, the most readily available and verifiable sources are related to these eminent individuals; academic biographies are rarely written about middle managers or line workers in factories. However, for these individuals to have the prestige and historical influence great enough to warrant research and writing about their lives, their experiences and tenures as leaders are likely to have differed in some ways from those of the average person. As a result, leadership-related variables may either be inflated or suppressed from the population average because of outlier exceptionalism. Further still, the bias of the author with regard to their subject must be considered. Systematic analysis of the text can help to identify and weed out problematic or biased writing, but the presentation of historical information may still lack detail or context. As a result, the generalizability of historiometric research results may be questioned, and historiometric studies should be paired with more quantitative methods to bolster the impact of results.

Finally, several analyses supporting the predictions of the discussed studies failed to reach conventional levels of statistical significance. Although the established traditions in psychological research maintain that these results be caveated as lacking sufficient support for the stated predictions, a growing trend of acceptance for “marginally significant” results appears to be emerging. A recent study by Pritschet, Powell, and Horne (2016) found that articles published in top-tier psychology outlets in 2010 were more than twice as likely to claim “marginally significant” results as articles published in 1970. These results were particularly profound in the social psychology literature, the

most closely related psychology subfield to the industrial-organizational focus of the present research (Pritshcet et al., 2016). The authors cite the rise in popularity of non-Fisherian approaches to statistical inference (e.g. Bayesian statistics) and challenges to the status quo of research practices in psychological science as potential catalysts for this trend. As such, the marginally significant results reported here may hold more weight with the current scientific community than they would have in the past.

Having acknowledged the limitations above, these studies provided several contributions to the leadership research literature. First among these is the continued development of the small literature regarding leader errors, specifically highlighting the differential influence of task and relationship errors on leader and follower outcomes. Although challenges emerged in Study 2, relationship errors were generally more detrimental to continued followership in the laboratory than were task errors. Participants would anecdotally report anger and frustration with their MBA leader to research assistants and administrators several long after a relationship error condition had ended, demonstrating a visceral reaction that was not seen in task error conditions. As previous research on error types has discussed (Cushenbery, Hetrick, Fairchild, & Hunter, 2014), relationship errors are not only thought to be more generally harmful than task errors, but also more difficult for leaders to recover from. As such, leaders who consistently commit relationship errors may be more likely to have their leadership challenged and to lose followers and influence rapidly. A solid foundation of research on this emergent topic having been established, future research should now focus on identifying the nuanced features of these relationships, such as the existence of error subtypes, recovery tactics,

and preventative interventions to mitigate the both the functional and psychological impact that leader errors have on subordinates.

A central point of interest in these studies was the influence of time on leaders and the attributions that are made toward them. Established leadership scholars such as Shamir (2011) have lamented the absence of temporality in leadership research, and hold that leaders and their ability to influence others cannot be divorced from considerations of time. The results of these studies suggest that, counter to the theory of Fredrickson and colleagues (1988); leaders may be at an advantage when committing errors early in their tenure. Indeed, these errors appear to be less impactful overall, result in less loss of followers than later errors, and may require less effort and time for recovery. These results ran counter to predictions, and suggested that followers may be reluctant to retract influence attributions that have been made recently. This may be partially explained by the defensive attribution hypothesis (DAH), which stems from attribution theory (Heider, 1958). The DAH proposes that individuals will perceive events in a manner that shields them from attributions of blame or fault in the event of an error. In particular, research has shown that individuals who view themselves as more similar to one who commits and error are less likely to attribute blame to that individual for the mistake that was made, in an effort to preserve their own self-image (Burger, 1981; Shaver, 1970). In the case of attributions of influence, followers may be more likely to view new leaders as similar to them and provide them with empathy and leniency early on. Alternatively, followers may be motivated to preserve the integrity of the attribution election they have made in this individual and treat early errors as more reasonable in order to do so. Future researchers

can explore these concepts more deeply, and continue to include temporal elements in the study of complex leadership phenomena.

The present research also reinforced the importance of considering error severity in both follower reactions to leader error and the phenomenon of leader error itself. Having established that followers consider the severity of errors when choosing whether to continue attributing influence to a leader, a promising avenue of future research may be in how that relationship works to explain other phenomena. One goal in this work was to demonstrate that leaders were likely to learn from errors through error severity, as the reactions of followers would inform their future erroneous behavior. The extant theory and research results on learning from error present a mixed argument, with some theorists contending that organizations are unlikely to learn from their errors at all (e.g. Baumard & Starbuck, 2005) and others stating that even small mistakes create opportunities to activate learning and correction (Sitkin, 1992). A recent study by Homsma, Van Dyck, De Gilder, Koopman, and Elfring (2009), demonstrated that organizations were more likely to learn from errors with more severe consequences. However, apart from Homsma and colleagues' (2009) work, the empirical literature discussing the influence of error severity on learning in organizations is extremely limited. The available body of research is further narrowed when aiming to understand these processes at the leader-level specifically, as research in this space is typically focused on both errors and learning occurring at subordinate levels of the organization (e.g. Ramanujam & Goodman, 2003; Salminen, 1992; Zackay, Ellis, & Shevalski, 2004).

Although there was some support for the hypothesized model in the research presented here, additional work is required to better understand the role that previous

errors play in the future behavior and learning of leaders. Scholars should endeavor to identify variables that explain these relationships and provide context to how and why they may manifest. My research has provided some preliminary evidence for the role of follower reactions, and subsequent followership attributions, in explaining why some leaders commit more errors than others. These results provide additional fodder for those in the leadership research community who advocate for increased attention to followers in the leadership process (e.g. Uhl-Bien, Riggio, Lowe, & Carsten, 2014). However, these complex relationships require further discussion and dedicated empirical exploration.

### **Theoretical Contributions**

Apart from their empirical contributions, these studies also work to develop theory in the leadership and organizational behavior literatures. These theoretical contributions center on advancing a perspective of leadership as a process in which followers are a critical element. The constructionist model proposed by Uhl-Bien and colleagues (2014) assumes that leadership cannot exist without “combined acts of leading and following” (pg. 99), supporting the importance of willingness to follow as an outcome for leaders. The present research leans on this concept of followers and attempts to measure how the actions (or inactions) of leaders alter their ability to influence and lead others in the future. In addition, some evidence was provided showing follower reactions to leader error having influence over future leader behavior. This line of thinking represents a step forward for follower-centric theories of leadership and for the consideration of followers as important contributors to the leadership process. Building on the results gathered here and in past research (e.g., Fairhurst, Rogers, & Sarr, 1987;

Larsson & Lundholm, 2013), we can continue to build our understanding of the importance of followers in the emergence, development, and success of leaders.

The research did not support the theoretical assumptions of Hambrick and Fukutomi (1991), who proposed that leaders move through distinct phases in both their personal perspectives and their relationships with subordinates as they progress in their leadership tenure. Although time was not shown to significantly influence the relationships of interest in these studies, it is possible that the design of these particular studies were not sufficient to capture these nuanced changes. Therefore, I do not propose that we should ‘throw out the baby with the bath water’; instead, we should consider the subtleties that exist in leader-follower relationships and endeavor to capture them more completely in future research.

These studies also contribute to the literature’s general understanding of leader errors, their interpretation, and their outcomes. Theoretical frameworks through which leader errors can be interpreted are not prevalent in the leadership literature, with the work of Hunter and colleagues (2011) acting as a trailblazer in that space. The present research uses the characteristics of errors defined by Hunter et al. (2011) and re-categorized by Thoroughgood and colleagues (2012) in both the creation of leader error manipulations in the laboratory and as criteria for identifying errors within narrative biographical sources. The consistency of results when implementing that framework provides evidence for its robustness as a theory and advocates for continued research in that paradigm. In addition, results supported followers’ willingness and ability to retract attributions of influence from leaders as a result of expectation violations in the form of errors. These results lend support to follower-centric theories of influence (e.g. Barbuto,

2000), although further research is needed in order to capture the distal outcomes from these influence attribution adjustments.

This work also highlights the absence of a formal theory of error interpretation in the literature. Although research into the causes and consequences of human error is prevalent (see Reason, 1990), and theory exists through which leader errors can be explained and categorized (e.g. Hunter et al., 2011), no formal theory endeavors to explain how leader errors are interpreted and responded to by followers. Taking a process perspective of leadership, which views followers responding to the influence attempts of leaders as critical to defining leadership (e.g. Uhl-Bien & Pillai, 2007), it is prudent to synthesize the emerging leader errors research to develop a theoretical framework for understanding error interpretation. Indeed, developing an understanding of leader errors themselves is not sufficient for understanding the ‘big picture’ in leadership. We must also be able to predict the outcomes of these errors and understand who they effect and why. The research at hand can serve as a step toward the development of such theory, and the continued advancement of leadership as a research field.

## **Conclusion**

The goal of this research effort has been to advocate for the value of follower perceptions in the leadership process and the impact that leader errors and error characteristics may have on these perceptions. At its core, leadership is the process of bringing followers to goals, but followers are unlikely to undertake those goals willingly if they do not endorse the individual leading them. Research has demonstrated that leader influence is a complex phenomenon that can be partially explained by several variables, particularly leader characteristics (e.g., charisma; Shamir, 1992; Yorges, Weiss, &

Strickland, 1999). In keeping with the theory of Barbuto (2000), and French and Raven (1959), reductions in influence attributions are likely when either follower expectations of leaders are altered or leaders fail to meet follower expectations that currently exist. Leader errors make both of these scenarios more likely, as error commitment may both violate expectations and alter the way leaders are viewed by others in the future. Because influence is an attribution that can be altered or removed, and because influence is a necessary component of leadership, an argument can be made for followers as significant powerholders in the leadership process. As Barbuto (2000) discussed, the loss of influence over followers is likely to make execution of the leader's vision through those followers more difficult. As such, understanding the conditions under which subordinate willingness to follow is negatively impacted is important for both leaders and the organizations relying on their ability to influence others and execute strategy.

It is my opinion, and that of others (e.g., Baker, 2007; Uhl-Bien et. al., 2014) that the importance of followership has been underappreciated by both the popular press and leadership research, which generally view followers as the recipients of leadership rather than meaningful participants and power-holders in the process. The present research has worked to demonstrate how the errors leaders commit alter their ability to influence those who execute their vision and, effectively, define them as leaders. To understand the distal outcomes that result from this process will require additional work. However, continuing to think of followers in this way, where their outcomes are important outcomes for leaders as well, opens new doors for the development of leadership research, theory, and thought.



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## Appendix A:

### Scripts for Participant Interaction Responses to Participant Emails

Participants will be emailing their work to the leader email account expecting feedback and guidance. What is sent back to them will depend on the experimental condition.

Below there will be guidelines for how to respond to participant emails given the condition they are in.

**Key:** E = Early timing, L = Late timing, T = Task error, R = Relationship error, S = Severe, NS = Not Severe

#### **ETS:**

- 3 minutes after receiving the **first submission**, respond with this email:
- **Hi [participant name],**

**I realize I made a mistake. Apparently I was supposed to do the analysis of Penn State and prepare that for the researchers, not you. You are supposed to create a comparison of Penn State against some of the top Universities in the current rankings. Please put that together quickly and send it back because we are running out of time for feedback. If the final document doesn't have that comparison, I don't think they will count the submission as complete.**

**Thanks,  
[leader name]**

- 3 minutes after receiving the **second submission**, respond with this email:
- **Hi [participant name],**

**Thanks for sending your work over. I think you may need to put more focus on the role of {insert non-prioritized US News and World factor} in this comparison. A lot of market research shows that {chosen factor} is a critical factor for bolstering how people around the country view a University. Make sure that it gets some priority because I'm positive that improving in that area will play a large role in building up Penn State's standing with U.S. News and World.**

**Make some adjustments to your current plan with that in mind and send those back to me.**

**Thanks,  
[leader name]**

- If the participant asks when you need the next draft by, send this email:
- **Hi [participant name],  
Please send me your final product as fast as you can, because time is running out.**

**Thanks,  
[leader name]**

- After they have provided **their final submission** you should send this email:
- **Hi [participant name],**

**Thank you for sending me your final product. I'm going to send this over to the research team, so I think you and I are finished working together. I'll let the researchers know that we're done and they will come in and talk to you.**

**Thanks,  
[leader name]**

**ERS:**

- 3 minutes after **the first submission** is received, send the participant this email:
- **Hi [participant name],**

**I have to tell you that at this point I'm not confident in your ability to put together what we need for this project. Compared to the other submissions I've received this initial product is not up to my standards. Overall it doesn't look like much thought or effort went into this draft and I was expecting more.**

**I don't think I can give any feedback or suggestions at the moment before your next submission. In the next round you should try to generally clarify your arguments so that any reader could easily see how your proposal might benefit Penn State's ranking. Just do your best.**

**Thanks,**

[leader name]

- After they have provided **their final submission** you should wait 3 minutes and send this email:
- **Hi [participant name],**

**Thank you for sending me your final product. I'm going to send this over to the research team, so I think you and I are finished working together. I'll let the researchers know that we're done and they will come in and talk to you.**

**Thanks,  
[leader name]**

**ETNS:**

- 3 minutes after receiving the **first** submission, respond with this email:
- **Hi [participant name],**

**I realize I made a mistake. Apparently I was supposed to do the analysis of Penn State and prepare that for the researchers, not you. You are supposed to create a comparison of Penn State against some of the top Universities in the current rankings. Since you already started this I think you should keep working on it. Hopefully they will accept it as a final submission even though the tasks are reversed.**

**I think you may need to put more focus on the role of {insert non-prioritized US News and World factor} in this analysis. A lot of market research shows that {chosen factor} is a critical factor for bolstering how people around the country view a University. Make sure that it gets some priority because I'm positive that improving in that area will play a large role in building up Penn State's standing with U.S. News and World.**

**Make some adjustments to your current plan with that in mind and send those back to me.**

**Thanks,  
[leader name]**

- After they have provided **their second submission** send this email:
- **Hi [participant name],**

**Thank you for sending me your final product. I'm going to send this over to the research team, so I think you and I are finished working together. I'll let the researchers know that we're done and they will come in and talk to you.**

**Thanks,  
[leader name]**

**ERNS:**

- **3 minutes after receiving the first submission, respond with this email:**
- **Hi [participant name],**

**I have to tell you that at this point I'm not confident in your ability to put together what we need for this project. Compared to the other submissions I've received this initial product is not up to my standards. Overall it doesn't look like much effort went into this draft and I was expecting more.**

**Some of these issues may have been from a lack of clarity on my part. I will have to provide more information about expectations in the future.**

**I think you may need to put more focus on the role of {insert non-prioritized US News and World factor} in this analysis. A lot of market research shows that {chosen factor} is a critical factor for bolstering how people around the country view a University. I think you should spend some time seeing where that fits in here, and make sure that it gets some priority because I'm positive that improving in that area will play a large role in building up Penn State's standing with U.S. News and World.**

**Make some adjustments to your current plan with that in mind and send those back to me.**

**Thanks,  
[leader name]**

- After they have provided **their final submission** you should wait 3 minutes and send this email:

**Hi [participant name],**

**Thank you for sending me your final product. I'm going to send this over to the research team, so I think you and I are finished working together. I'll let the researchers know that we're done and they will come in and talk to you.**

**Thanks,**

[leader name]

**LTS:**

- After they provide **their initial submission** you should wait 3 minutes and then send this email:

**Hi [participant name],**

**Thanks for sending your work over. I think you may need to put more focus on the role of {insert non-prioritized US News and World factor} in this analysis. A lot of market research shows that {chosen factor} is a critical factor for bolstering how people around the country view a University. I think you should spend some time seeing where that fits in here, and make sure that it gets some priority because I'm positive that improving in that area will play a large role in building up Penn State's standing with U.S. News and World.**

**Make some adjustments to your current plan with that in mind and send those back to me.**

**Thanks,  
[leader name]**

- After they provide **their second submission**, wait 3 minutes and send this email:

**Hi [participant name],**

**I realize I made a mistake. Apparently I was supposed to do the analysis of Penn State and prepare that for the researchers, not you. You are supposed to create a comparison of Penn State against some of the top Universities in the current rankings. Please put that together quickly and send it back because we are running out of time in the session. If the final document doesn't have that comparison, I don't think they will count the submission as complete.**

**Thanks,  
[leader name]**

- If the participant asks when you need the next draft by, send this email:
- **Hi [participant name],  
Please send me your final product as fast as you can, because time is running out.**

**Thanks,  
[leader name]**

- After they have provided **their final submission** send this email:

**Hi [participant name],**

**Thank you for sending me your final product. I'm going to send this over to the research team, so I think you and I are finished working together. I'll let the researchers know that we're done and they will come in and talk to you.**

**Thanks,  
[leader name]**

**LRS:**

- After they provide **their initial submission** you should wait 3 minutes and then send this email:

**Hi [participant name],**

**Thanks for sending your work over. I think you may need to put more focus on the role of {insert non-prioritized US News and World factor} in this analysis. A lot of market research shows that {chosen factor} is a critical factor for bolstering how people around the country view a University. I think you should spend some time seeing where that fits in here, and make sure that it gets some priority because I'm positive that improving in that area will play a large role in building up Penn State's standing with U.S. News and World.**

**Make some adjustments to your current plan with that in mind and send those back to me.**

**Thanks,  
[leader name]**

- 3 minutes after the second draft of the work is received, send the participant this email:

**Hi [participant name],**

**I have to tell you that at this point I'm not confident in your ability to put together what we need for this project. Compared to the other submissions I've received this final product is not up to my standards. Overall it doesn't look like much thought or effort went into this draft and I was expecting more.**

**I was expecting a more thorough outline of the issues all around, so I don't have a lot of feedback to give. In terms of a final submission, I will probably have to use another participant's work.**

**Thanks,  
[leader name]**

**LTNS:**

- After they provide **their first submission** you should wait 3 minutes and then send this email:

**Hi [participant name],**

**Thanks for sending your work over. I think you may need to put more focus on the role of {insert non-prioritized US News and World factor} in this analysis. A lot of market research shows that {chosen factor} is a critical factor for bolstering how people around the country view a University. Make sure that it gets some priority because I'm positive that improving in that area will play a large role in building up Penn State's standing with U.S. News and World.**

**Make some adjustments to your current plan with that in mind and send those back to me.**

**Thanks,  
[leader name]**

- After they provide **their second submission**, wait 3 minutes and then send this email:

**Hi [participant name],**

**I realize I made a mistake. Apparently I was supposed to do the analysis of Penn State and prepare that for the researchers, not you. You are supposed to create a comparison of Penn State against some of the top Universities in the current rankings. Since you already worked on this we will just submit it as it is. Hopefully they will accept it as a final submission even though the tasks are reversed.**

**I'm going to send this over to the research team, so I think you and I are finished working together. I'll let the researchers know that we're done and they will come in and talk to you.**

**Thanks,  
[leader name]**

**LRNS:**

- After they provide **their initial submission** you should wait 3 minutes and then send this email:

**Hi [participant name],**

**Thanks for sending your work over. I think you may need to put more focus on the role of {insert non-prioritized US News and World factor} in this analysis. A lot of market research shows that {chosen factor} is a critical factor for bolstering how people around the country view a University. I think you should spend some time seeing where that fits in here, and make sure that it gets some priority because I'm positive that improving in that area will play a large role in building up Penn State's standing with U.S. News and World.**

**Make some adjustments to your current plan with that in mind and send those back to me.**

**Thanks,  
[leader name]**

- 3 minutes after the second draft of the work is received, send the participant this email:

**Hi [participant name],**

**I have to tell you that at this point I'm not confident in your ability to put together what we need for this project. Compared to the other submissions I've received this final product is not up to my standards. Overall it doesn't look like much effort went into this draft and I was expecting more.**

**Some of these issues may have been from a lack of clarity on my part. I will have to provide more information about expectations in the future.**

**I appreciate the work you did put in and that you gave it your best try. I will include this in my final submission that I send to the researchers.**

**Thanks,  
[leader name]**



## **Appendix B: Protocol for Research Assistants**

### **Prepare the Lab Space**

There should be separate lab rooms for each participant, as well as a room for our confederate leader to occupy. Make sure that each of the lab spaces has the following:

- Table
- Chair
- Computer that is connected to power and the internet
- Protocol materials for the participants

Log in to the computers to set them up using this username and password. Password is case sensitive

Username: XXXXXX

Password: XXXXXXXX

Check the computers to make sure that they are set up for the internet, with the Qualtrics survey link ready in the middle of the screen. We don't want participants to have to do a lot of searching for anything. All necessary programs and materials should be easy to access.

**Log in the participant to one of the two Gmail accounts we created for them. DO NOT DELETE THE RESPONSES OR SUBMISSIONS FROM PARTICIPANTS. SEND THEM TO THE ARCHIVE (Little box with a downward arrow two spaces away from the trashcan button)**

Username: [psuparticipant1@gmail.com](mailto:psuparticipant1@gmail.com) (Rm. 613) \_\_\_\_\_ [psuparticipant2@gmail.com](mailto:psuparticipant2@gmail.com) (Rm. 611)

Password: XXXXXX

### **Check-in Participants**

Participants will enter the building looking for the study. One research assistant must be out in the hallway and available at all time to check in the participants. Another research assistant must be playing the role of the leader and must be **hidden** from participants until the appropriate time (do this in an unused lab space).

Using the **Sign-In Sheet**, ensure that the participant is there on the correct day and at the correct time that corresponds with their SONA registration. Record their attendance so that they can be granted credit. This form also has their **participant number** and **condition code** which participants will need to be provided

**Record each participant's number and condition code on a yellow post-it (found in 609) and give that to them so that they know this information.** That way we don't have to waste participant forms, etc.

Show the participant to their lab space and provide them with the informed consent document. Make sure that they read it and understand it. Be sure to remind them that their participation is voluntary and they may decide to leave at any time. Responses are completely confidential. Once

the participant signs the informed consent you may be briefing him/her on their lab assignment.

### **Execute Study Protocol**

**Note:** There are two Gmail accounts used for the study. Depending on the condition, participants will be sending their work to / communicating with one or the other. **The leader will provide the participant with the email address depending on the condition they are in.** Here are the usernames and password:

Username: psuleader1@gmail.com \_\_\_\_\_ psuleader11@gmail.com

Password: hunterpsu

The RA that shows the participant in to the room and provides informed consent should then provide a brief description of what the participant is supposed to do. A basic script will be provided in the **RA Script** document. You will outline the participant's general task and what its intent is (i.e. developing Smeal MBA students for virtual leadership). **Make sure to give them the code that indicates what condition they are in and their participant number. Write it down for them and tell them it is for organizational purposes and they will need to record it later.**

The RA will then go and get the "leader" confederate from his/her holding room. The confederate will enter the participant's room and have a brief discussion about the activity. A basic script for this will be provided in the **Scripts for Participant Interaction** document. It is **very important** that the leader **does not read directly from the script**. This must seem natural, so remember the key points of the leader script and use them in your conversation with the participant.

The leader will then leave and return to the holding room where he/she will presumably be "working". The participant then begins the study.

Participants are given **45 minutes** to complete the study. Their task is to use the US News and World Report criteria to develop a plan for Penn State to raise its ranking by 25% in the next 5 years. They are told that they will be sending the work to the leader, who is also working with other participants doing the same task, and that he/she will check the work and make suggestions on how it might be changed or improved. These check-ins should come early (**15-20 minutes in**) and then before the procedure ends (**35-40 minutes**). **Someone must be keeping time to ensure that we stay on schedule.**

Participants will be assigned to different experimental conditions. **The condition the participant group is in will be indicated by the sign-in sheet.** This group corresponds with specific instructions for how the "leader" should be interacting with the participant via email (e.g. when communications are sent, what kind of error is committed, what severity of error, etc.).

**All communications to be sent to the participants, containing all errors, are listed in the Scripts for Participant Interaction document.** They are grouped in the same way that the participants are, so if you have a low severity, early, task error condition there will be a subset of things specifically designed for that condition.

Communicate with the participant according to the scripted protocol. After that activity is finished, the RA (**not the leader**) returns to the participant's room to remind them to complete the Qualtrics survey. Re-emphasize that this is developmental feedback for the leader so they should be as honest as possible.

Make sure that completed consent forms are placed in the appropriate file cabinet folder.

Figure 1. Hypothesized Model

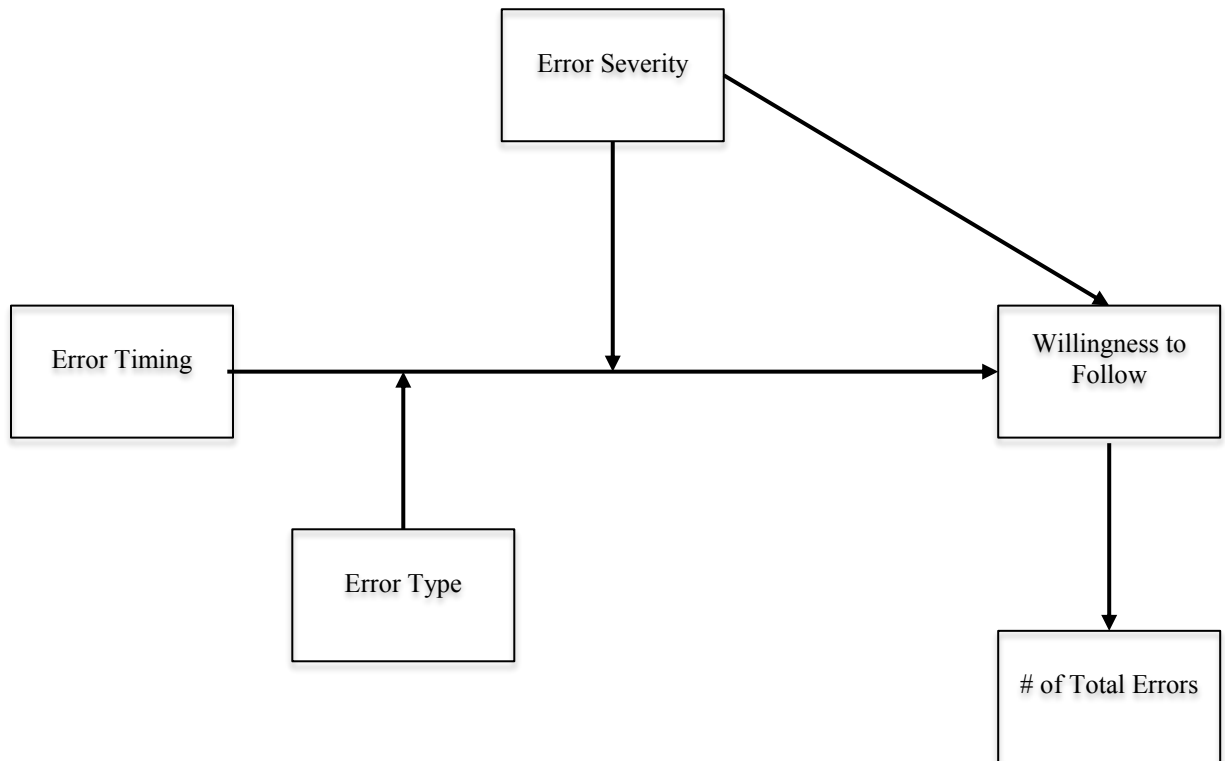


Figure 2. Moderated Relationship of Error Timing and Error Type on Willingness to Follow

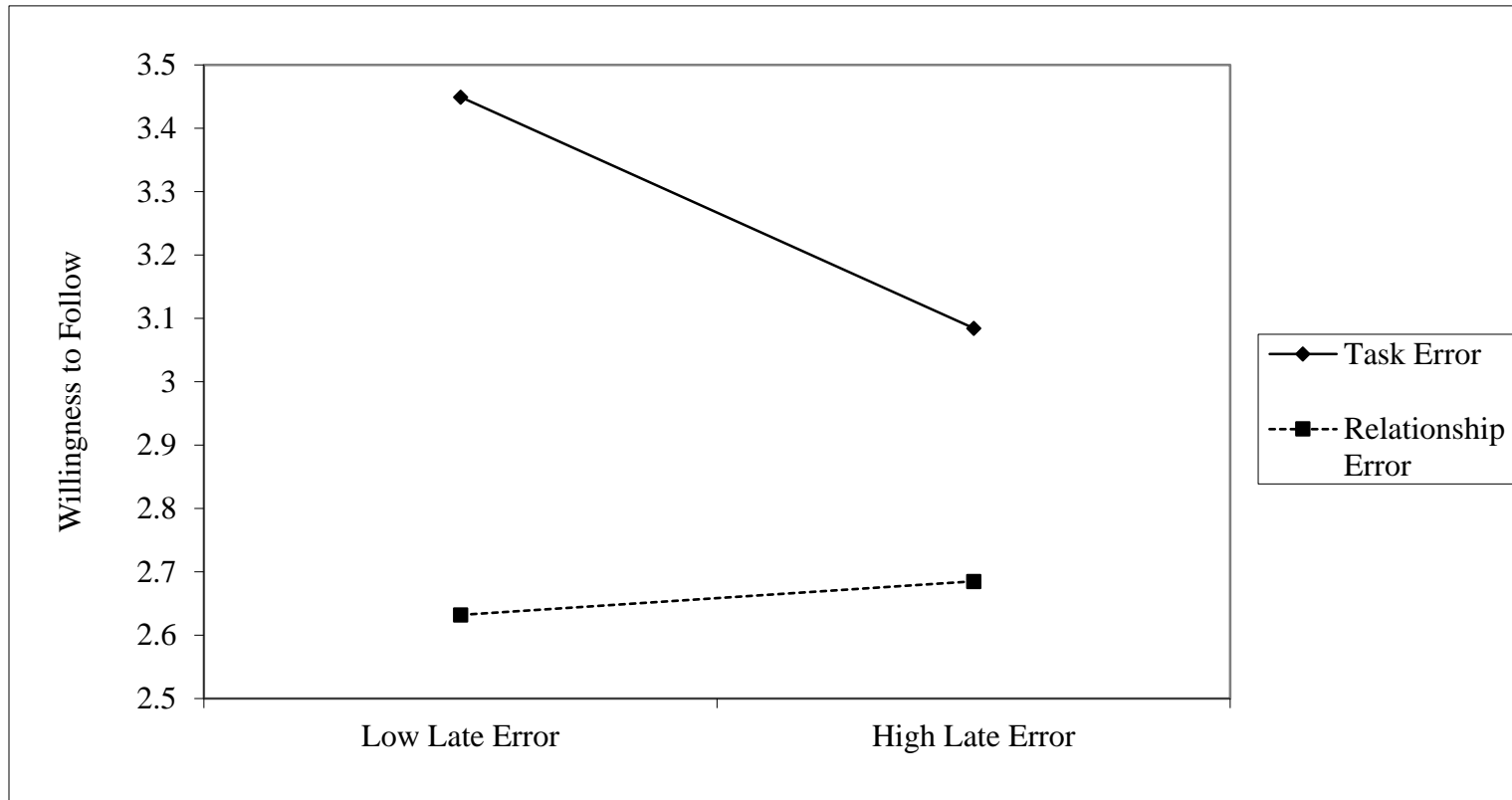


Table 1

*One-Way ANOVA of Leader Error Test Conditions on Measures of Error Occurrence and Impact*

	ETS (n=36)		ERS (n=36)		ETNS (n=36)		ERNS (n=32)		LTS (n=32)		LRS (n=37)		LTNS (n=35)		LRNS (n=35)		<i>F</i>
	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>	
Task Error occurrence	4.08	0.97	3.09	1.25	3.94	1.04	3.42	1.12	4.27	0.84	3.19	1.17	4.17	0.86	3.50	1.31	6.44*
Task Error Impact	4.36	1.48	3.17	1.63	3.42	1.27	3.84	1.27	4.44	1.08	3.38	1.69	4.00	1.06	3.89	1.59	3.77*
Rel. Error occurrence	1.86	1.05	3.11	1.30	1.56	0.77	2.88	1.30	2.21	1.24	3.05	1.35	1.68	0.94	2.77	1.35	10.42*
Rel. Error Impact	1.83	1.28	3.22	1.62	1.67	0.99	3.12	1.32	2.47	1.57	2.84	1.62	1.80	1.37	3.20	1.73	7.52*

Note: E= Early, L = Late, T = Task Error, R = Relationship Error, S = Severe, NS = Not Severe. \*  $p < .001$

Table 2  
*One-Way ANOVA of Dichotomized Leader Error Test Conditions and Measures of Error Occurrence and Impact*

	Task Errors (n=140)		Relationship Errors (n=139)		F
	M	SD	M	SD	
Task Error occurrence	3.71	1.15	3.29	1.21	40.14**
Task Error Impact	3.81	1.45	3.56	1.57	7.95*
Rel. Error occurrence	2.39	1.31	2.96	1.32	64.66**
Rel. Error Impact	2.51	1.56	3.09	1.58	44.73**

Note: \*  $p < .01$  \*\*  $p < .001$

Table 3

*One-Way ANOVA of Leader Error Test Conditions on Aggregate Measure of Error Impact*

	ETS (n=36)		ERS (n=36)		ETNS (n=36)		ERNS (n=32)		LTS (n=32)		LRS (n=37)		LTNS (n=35)		LRNS (n=35)		<i>F</i>
	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>	
Impact	3.10	1.07	3.20	1.43	2.54	0.89	3.47	1.12	3.42	1.03	3.11	1.30	2.90	1.06	3.54	1.34	2.78*

Note: E= Early, L = Late, T = Task Error, R = Relationship Error, S = Severe, NS = Not Severe. \*  $p < .01$



Table 4  
*One-Way ANOVA of Dichotomized Error Severity Conditions and Measures of Error Impact*

	Severe (n=143)		Non-Severe (n=140)		F
	M	SD	M	SD	
Impact	3.20	1.22	3.10	1.78	0.43

Table 5

*Willingness to Follow Predicted by Error Timing and Error Type*

	Beta	Std. Error	<i>t</i>	<i>R</i> <sup>2</sup>
Error Timing	-0.16	0.10	-1.54	0.01
Error Type	-0.61*	0.10	-6.20	0.12

Note: Error timing and type variables were dummy coded with late and relationship errors as referent groups. \*  $p < .001$

Table 6

*Moderated Regression Analysis Predicting Willingness to Follow By Error Timing and Type*

	Beta	Std. Error	<i>t</i>
Error Time	-0.37**	0.14	-2.64
Error Type	-0.82***	0.14	-5.92
Error Time x Error Type	0.42*	0.20	2.10
	<i>F</i>	15.42	
	<i>R</i> <sup>2</sup>	0.15	

Note: Note: Error timing and type variables were dummy coded with late and relationship errors as referent groups. \*  $p < .05$ , \*\* $p < .01$ , \*\*\* $p < .001$

Table 7

*Moderated Regression Analysis Predicting Willingness to Follow by Error Timing and Severity*

	Beta	Std. Error	<i>t</i>
Error Time	-0.18	0.15	-1.20
Error Severity	0.10	0.15	0.65
Error Time x Error Severity	0.03	0.21	0.14
	<i>F</i>	1.17	
	<i>R</i> <sup>2</sup>	0.01	

Note: Error timing and severity variables were dummy coded with late and not severe errors as referent groups.

Table 8

*Moderated Regression Analysis Predicting Willingness to Follow by Error Timing and Impact*

	Beta	Std. Error	<i>t</i>
Error Time	-0.02	0.26	-0.09
Error Impact	-0.34*	0.05	-6.26
Error Time x Error Impact	-0.03	0.08	-0.39
	<i>F</i>	30.33	
	<i>R</i> <sup>2</sup>	0.25	

Note: Error timing was dummy coded with late errors as the referent group. \* $p < .001$ .

Table 9

*Willingness to Follow Predicted by Error Severity and Error Impact*

	Beta	Std. Error	<i>t</i>	<i>R</i> <sup>2</sup>
Error Timing	0.11	0.10	-1.04	0.00
Error Impact	-0.36*	0.04	-9.41	0.25

Note: \*  $p < .001$

Table 10  
*One-Way ANOVA of Dichotomized Leader Error Test Conditions and Measures of Willingness to Follow*

	Rise (n=89)		Peak (n=118)		Decline (n=54)		F
	M	SD	M	SD	M	SD	
Loss of Followers	2.12	1.06	2.43	0.91	2.44	1.04	2.79
Loss of Trust	2.14	1.15	2.62	1.09	2.83	1.27	7.95*

Note: \*  $p < .001$

Table 11  
*Willingness to Follow Predicted by Error Type*

	Beta	Std. Error	<i>t</i>	<i>R</i> <sup>2</sup>
		Loss of Followers		
Error Type	-0.23	0.12	-1.90	0.01
		Loss of Trust		
Error Type	-0.25	0.15	-1.70	0.01

Note: Error type is dummy coded, with relationship errors as the referent group.



Table 12

*Moderated Regression Analysis Predicting Willingness to Follow by Error Timing and Error Type*

	Beta	Std. Error	<i>t</i>
		<u>Loss of Followers</u>	
Error Type	-0.12	0.15	-0.56
Error Timing: Peak	0.35	0.19	1.84
Error Timing: Decline	0.41	0.26	1.60
Error Type x Peak	-0.16	0.28	-0.58
Error Type x Decline	-0.15	0.34	-0.45
F	1.83		
R <sup>2</sup>	0.03		
		<u>Loss of Trust</u>	
Error Type	-0.18	0.24	-0.73
Error Timing: Peak	0.43	0.22	1.96
Error Timing: Decline	0.94*	0.30	3.17
Error Type x Peak	0.06	0.33	0.18
Error Type x Decline	-0.43	0.40	-1.07
F	3.78		
R <sup>2</sup>	0.07		

Note: Error type and timing are dummy coded, with relationship and rise errors as the referent groups. \* $p < .01$

Table 13

*Moderated Regression Analysis Predicting Willingness to Follow by Error Timing and Error Severity*

	Beta	Std. Error	<i>t</i>
		<u>Loss of Followers</u>	
Error Severity	0.90*	0.14	6.28
Error Timing: Peak	0.65	0.57	1.14
Error Timing: Decline	-0.46	0.68	-0.68
Error Severity x Peak	-0.17	0.19	-0.91
Error Severity x Decline	0.20	0.22	0.88
	F	24.58	
	R <sup>2</sup>	0.33	
		<u>Loss of Trust</u>	
Error Severity	0.64*	0.19	3.41
Error Timing: Peak	0.74	0.75	1.00
Error Timing: Decline	0.42	0.90	0.46
Error Severity x Peak	-0.13	0.25	-0.52
Error Severity x Decline	0.05	0.30	0.16
	F	9.35	
	R <sup>2</sup>	0.16	

Note: Error type is dummy coded, with relationship error as the referent groups. \* $p < .001$

Table 14  
*Willingness to Follow Predicted by Error Severity*

	Beta	Std. Error	<i>t</i>	<i>R</i> <sup>2</sup>
		Loss of Followers		
Error Severity	0.88*	0.08	10.86	0.31
		Loss of Trust		
Error Severity	0.65*	0.11	5.94	0.12

Note: \**p* < .001

Table 15

*Total Errors Committed Predicted by Average and Initial Error Severity*

	Beta	Std. Error	<i>t</i>	<i>R</i> <sup>2</sup>
		Loss of Followers		
Error Severity (Average)	-0.87	0.45	-1.92	0.01
Error Severity (first error)	-0.54	0.54	-0.99	0.02

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## Education

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### Ph.D.

Industrial and Organizational Psychology

Dissertation Title: "The Power of Many: A Follower-Centric Concept of Leader Error and Influence"

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The Pennsylvania State University

### B.A.

Psychology

Concentration: Industrial and Organizational Psychology

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The University of Connecticut

## Professional Experience

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PricewaterhouseCoopers LLP, New York: NY

*Experienced Associate: Human Capital and Organization Design, February 2016 – Present*

## Publications

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**Crayne, M.P.**, & Hunter, S.T. (CONDITIONALLY ACCEPTED). Historiometry in Organizational Science: Renewed Attention for an Established Research Method. *Organizational Research Methods*.

Hunter, S.T., Shortland, N.D., **Crayne, M.P.**, & Ligon, G.S. (IN PRESS). Recruitment and selection in violent extremist organizations: Viewing through an Industrial and Organizational psychology lens. *American Psychologist*.

Weaver, K., **Crayne, M.P.**, & Jones, K.S. (2016). I/O at a Crossroad: The Value of an Intersectional Research Approach. *Industrial-Organizational Psychology*, 9(1), 197-206.

Hunter, S.T., Gutworth, M., **Crayne, M.P.**, & Jayne, B.S. (2015). Planning for Innovation: The Critical Role of Agility. In M. Mumford & M. Frese (Eds.), *Planning in Organizations: The Psychology of Performance*. pp. 146-165.

## Recent Research Presentations and Invited Talks

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**Crayne, M.P.**, Howard, M.C., & Jacobs, R.R. (2017, April). Surviving the Game: Examining Discriminatory Hiring and Rehiring Practices in NCAA Football and Basketball. In C. Hanvey (Chair), *Thespians, ballers, and charlatans: Adverse impact in Hollywood, the NBA, and politics*. Symposium conducted at the 32<sup>nd</sup> annual meeting of the Society for Industrial & Organizational Psychology, Orlando, FL.

**Crayne, M.P.**, Neely, B.H., & Hunter, S.T. (2017, April). *Leaders in the Laboratory: A meta-analysis of laboratory efficacy*. Presented at the 32<sup>nd</sup> annual meeting of the Society for Industrial & Organizational Psychology, Orlando, FL.

**Crayne, M.P.**, & Jones, K.S. (2016, May). *Interests or Obstacles: The Influence of Social Context and Barrier Perceptions on Occupational Pursuit*. Presented at the 28<sup>th</sup> annual conference of the Association for Psychological Science, Chicago, IL.