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FOLLOWER MENTAL MODELS AND OUTSTANDING LEADERSHIP

A DISSERTATION APPROVED FOR THE
DEPARTMENT OF PSYCHOLOGY

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Abstract

Charismatic, ideological, and pragmatic (CIP) leaders use different mental models to understand and interpret the world. The present study uses this framework to gain a better understanding of how outstanding leaders interact and influence both proximal and distal followers. Participants engaged in a low-fidelity simulation, and their subsequent mental models and performance were analyzed to answer several research questions. First, how does leadership style influence creative outcomes? And second, how does leader-follower congruence of mental models relate to performance? These research questions were tested using a low-fidelity situation calling for creative problem-solving. Results indicate that leadership style does not have differential effects on follower performance but does interact with leader distance such that followers of charismatic leaders perform better with a low leader distance and followers of pragmatic leaders perform better with a higher leader distance. Lastly, mental model congruence may have some effects on the performance of followers. The implications of these findings for theory and practice are discussed.

Introduction

Outstanding leaders are the representatives of the movements that have changed history. With the Civil Rights Movement in America we picture Martin Luther King Jr., with Indian independence we see Gandhi, and with the movement to end South African apartheid we remember Nelson Mandela. With such individuals exerting a disproportionate impact on society, researchers have spent the last 25 years trying to understand these outstanding leaders (Bass & Riggio, 2005; Yukl, 2010). Historically, outstanding leadership has referred to transformational and charismatic leadership (Conger, 1999, 2013; House & Howell, 1992). In short, findings from this area of research suggest that the future-oriented visions articulated by these leaders are important for performance. However, more recent work suggests that transformational leadership is not the only type of outstanding leader.

Mumford and colleagues, across a series of studies, have outlined two additional routes to becoming an outstanding leader: routes based on ideology and pragmatism (e.g., Lovelace & Hunter, 2013; Mumford, 2006; Strange & Mumford, 2002, 2005). These classifications map roughly on to Weber's (1924) early work on the three different types of management authority. The three areas Weber identified were traditional, rational - legal, and charisma. Traditional managers tend to focus on the past and emphasize stability, core values, and customs. Rational – legal management is a more impartial type of leader who uses logic and leads followers through rational persuasion. Managers using charisma often push for change and a break from bureaucracy. More recent work (e.g., Ligon, Hunter, & Mumford, 2008; Mumford, 2006) has updated these original classifications to bring us to charismatic, ideological,

and pragmatic leadership. Underpinning this theory is the understanding that these three approaches are based on how leaders think about situations that create opportunities for outstanding leadership.

Charismatic leaders focus on the future, articulating a vision that is radically different from the present, providing multiple, positive outcomes if their goals are reached. These visions highlight the positive aspects of the future goals while still explaining aspects of the present conditions that are relevant (Strange & Mumford, 2002). Mumford's conceptualization of charismatic leaders differs slightly from earlier conceptions in that it places a greater emphasis on leader cognition, whereas earlier work often stressed the interactions between leaders and their followers or the outcomes of such leadership (van Knippenberg & Sitkin, 2013). That is, the CIP model assesses the multiple ways outstanding leaders build and convey their mental models to others (Mumford & Van Doorn, 2001; Strange & Mumford, 2002). The mental model of a charismatic leader is based on external demands. Classic examples include Franklin Roosevelt, John F. Kennedy, and Martin Luther King, Jr.

Ideological leadership focuses on past conditions in an often idealized form, either real or imaginary. Like their charismatic counterparts, ideological leaders still articulate a vision, but the vision emphasizes personal and internalized beliefs and values that have often come from negative historical or personal events. These leaders stress a set of shared values based on internal ideology, which is the focus of their mental model. Ideological leaders tend to selectively interpret or ignore information that is inconsistent with their ideology, which often leads to clear standards of acceptable

behavior for subordinates (Mumford, Espejo, et al., 2007). Classic examples include Dietrich Bonhoeffer, Ronald Reagan, and Joseph McCarthy.

Pragmatic leadership is problem-based. Rather than articulate a vision of the future or set of values, pragmatic leaders are concerned with the present. They are flexible on most things and ultimately concerned with being functional. They will use any skills or tactics that could be helpful in solving a given problem. Rather than stress goals or causes in their mental models, they are focused on problem solutions. Examples of pragmatic leaders include Dwight D. Eisenhower, Sam Walton, and Warren Buffet.

Problem-Solving Performance and Mental Models

Research suggests that outstanding leaders emerge during crises (Bligh, Kohles, & Meindl, 2004; Mumford, Friedrich, Caughron, & Byrne, 2007; Vessey, Barrett, & Mumford, 2011). Crises are a unique phenomenon, relative to most situations, due to the ambiguity in goals and how to attain said goals (House, 1977). Put another way, crises are a novel and ill-defined problem, which call for creative problem-solutions to effectively address them (Besemer & O'Quin, 1999; Mumford & Gustafson, 1988). Because of this ambiguity there are many ways a problem can be understood. Work on other theories of leadership have shown that leadership style has a direct relationship with follower task performance (Atwater & Carmeli, 2009; Ogbonna & Harris, 2000; Tierney, Farmer, & Graen, 1999), with different styles being associated with different levels of performance. In spite of their differences in mental model formation, a primary tenant of the CIP model is that these three leadership styles can all be equally effective. Past work has mostly supported this assertion, with the caveat that we are

discussing overall creative performance rather than individual dimensions of creativity, although some studies have found overall performance differences (e.g., Lovelace & Hunter, 2013).

While overall performance may be the same, there is evidence to suggest that there are differences in performance depending on several moderators. For example, Bedell-Avers, Hunter, and Mumford (2008) found no effect for overall performance but noted that while pragmatics average quality and originality across conditions, ideological and charismatic leaders performed especially well based on aspects of the situation and domain. Lovelace and Hunter (2013) found differences in performance at different stages of the creative process such that pragmatic leaders performed best on early creative tasks, charismatics performed best on middle stage creative tasks, and ideological best on late stage creative tasks. These mixed findings led us to our first research question:

Research Question 1: Are there performance differences for followers of charismatic, ideological, and pragmatic leaders?

The primary distinction among the three types of outstanding leader is how they make sense of crises. Leader sensemaking is grounded in the leader's mental model of a given system. Mental models are believed to be a representation of domain-specific knowledge (Al-Diban, 2008). Mental models rely on two components: a set of concepts, and a set of assumptions about the causal relationship between those concepts. Their purpose is to summarize how one views a complex area of information. These implicit relationships among concepts is how we make sense of the world around us, in terms of understanding current events and prediction of future events. Mental models are

important for the present effort because they act as a way of understanding how people (including leaders and followers) conceptualize an issue.

Integrating some of the topics covered thus far it is clear that different types of leaders have different mental models (Mumford, Strange, Scott, Dailey, & Blair, 2006; Mumford, 2006) that help them in the sensemaking process and in communicating with their followers. In turn, followers have their own mental models of a situation, though these are malleable. One unexplored question relates to the importance of mental model congruence between a leader and a follower (Hunter, Cushenbery, Thoroughgood, Johnson, & Ligon, 2011). Because mental models help us make sense of the world, it follows that if a leader and follower have similar mental models they will be more likely to successful interact with each other (Baker, 2007). Understanding this relationship may be of some value, which leads us to our second research question.

Research Question 2: What role does mental model congruence play in follower performance?

Directly tied to the mental model of a leader is the nature of their relationship to their follow. The need for followers is explicitly related to the realization of their mental models (Mumford, 2006). The charismatic leader needs lots of followers to advance their vision, and they appeal to the masses as their target audience. The ideological leader will not need as many but still need to main a closeness with a dedicated group, so they appeal to a base cadre of loyal followers. The pragmatic leader does not need to maintain any closeness with their followers, and they appeal to the elites. These key differences suggest that the distance between a leader and a follower will be important for how leaders and followers will relate.

Followership and Leader Distance

Many traditional theories of leadership have been criticized due to what is viewed by some researchers as an overemphasis on the leader, while neglecting followers. These leader-centric theories, such as trait and behavioral approaches to leadership, often focus on the processes by which leaders influence followers or the characteristics of a leader that lead to success (Derue, Nahrgang, Wellman, & Humphrey, 2011; Stogdill, 1948). This one-way process is inherently reductionist, but was a useful avenue for early research. As methods and theories have matured it has become clear that followership is an under-explored area in leadership research (Lord, Brown, & Freiberg, 1999; Uhl-Bien, Riggio, Lowe, & Carsten, 2014). More recent work (Baker, 2007; Howell & Shamir, 2005) has advanced theory regarding the role of followers in aspects of leadership processes, while at the same time calling for additional empirical work in this area.

The performance of followers is likely to be moderated by several key variables. The most noteworthy of these variables is leader distance (Antonakis & Atwater, 2002). Recent theoretical work has defined leader distance in terms of three dimensions, including physical distance, perceived social distance, and perceived task interaction frequency (Antonakis & Atwater, 2002). Most studies tend to focus on followers proximal to the leader. Large scale social leaders are, by their very nature and large following, distal to most of their followers. The ability of followers to influence leaders may be diminished in such cases, but it would still be unfair to classify the relationship between leader and follower as one direct path. Past work has framed the issue of distance as a potential neutralizer of leader effectiveness (e.g., Howell, Bowen,

Dorfman, Kerr, & Podsakoff, 1997; Kerr & Jermier, 1978), that is, with increased distance the leader will exhibit less influence on their follower, but also as a requirement for the emergence of charismatic leadership (Katz & Kahn, 1978). Individualized consideration is one of the key components of transformational leadership (Bass & Steidlmeier, 1999), which necessarily requires a lower leader distance. While much past work suggests a lower leader distance will be beneficial for performance, many outstanding leaders have clearly been successful when operating at a larger distance.

As noted earlier, the three types of leaders achieve high levels of performance through a different set of behaviors and skills. For instance, Mumford (2006) found that the emergence of pragmatic leaders occurs after the leader has developed a reputation for consistent performance. They gain support and trust from followers through rational appeals and a demonstrated track record. A pragmatic leader will have greater difficulty maintaining objectively if they are more proximal to their followers. Charismatic leaders, on the other hand, directly rely on how their followers perceive them (Northhouse, 2012). That is, a charismatic leader needs to have positive relationships with their followers. Taken together, the available evidence suggests that a charismatic leader will benefit from a lower distance as they would have greater opportunities to build relationships. Alternatively, a pragmatic leader may benefit from a larger distance because increased interactions with followers may impede goal attainment and make it difficult to maintain objectivity in their decision-making. Hence, our first hypothesis seems warranted:

Hypothesis 1: Leader distance will not have a main effect on performance but will moderate the performance of charismatic, ideological, and pragmatic followers.

Method

The sample that was used to test these research questions included 250 undergraduates in attendance at a large southwestern university. The 157 women and 93 men who participated in this study were recruited from undergraduate psychology classes using an online recruitment program and granted course credit or extra-credit for their participation. This website provides a brief description of available studies and gives the participants the opportunity to choose studies in which they are interested. The participants that selected the present study averaged 19 years of age. Their scores on college entrance tests (e.g., ACT, SAT) were around a quarter of a standard deviation above national averages of those entering four-year institutions. These demographic characteristics are representative of the psychology undergraduates taking courses at this university.

General Procedures

Participants were recruited for what was claimed to be a study of complex problem solving. In the first 20 minutes of this four-hour study, participants completed a battery of timed covariate measures including intelligence and divergent thinking. Next, they completed a short paper and pencil training program designed to teach them how to create mental models. After this training, participants were asked to complete a low-fidelity simulation task (Motowidlo, Dunnette, & Carter, 1990) in the educational domain that allowed students to draw their starting mental model of educational

effectiveness as well as a writing prompt to outline their thoughts and opinions on how schools are evaluated. After this task participants were exposed to a short speech by a leader that included the three independent variables in this study: leadership style (viz., charismatic, ideological, or pragmatic), leader distance (i.e., low or high distance), as well as stance on the topic (i.e., for or against standardized testing in education). After reading this speech participants completed a second low-fidelity simulation also coming from the education domain, and directly building on the scenario from the first situation, where they were asked to design a standard for how to evaluate the performance of this school. Upon the completion of this exercise, participants completed several untimed covariates measures including personality, need for cognition, self-concept clarity, and others.

Covariates

Past work has shown a relationship between creative problem-solving tasks and intelligence, expertise, and divergent thinking (Vincent, Decker, & Mumford, 2002). Accordingly, covariates were included to measure these three constructs as well as several other that have been implicated in past work on leadership and creativity. Participants were first asked to complete the two timed covariate measures. The remaining study sections, including mental model training, the experimental tasks, and the untimed covariates, were self-paced and administered after the timed covariates.

Timed Covariates

Due to the cognitively demanding nature of the task, participants were asked to complete a measure of intelligence, the Employee Aptitude Survey (EAS). This test of general logic takes the form of a 30-item measure where those taking the test are given

four or five factual statements and given several conclusions that they must indicate as either true, false, or not sure. This measure produces test-retest reliability coefficients above .80. Evidence speaking to the construct validity of this measure has been established by past work (Ford, Grimsley, Ruch, & Warren, 1958; Ruch & Ruch, 1980).

The second timed covariate was Merrifield, Guilford, Christensen, and Frick's (1962) consequences test. This ten-minute measure of divergent thinking presents participants with five hypothetical scenarios, such as "What would be the results if everyone lost the ability to read and write?" and, "What would be the results if it appeared certain that within three months the entire surface of the earth would be covered with water, expect for a few highest mountain peaks?" Participants are given two minutes to answer each of the five hypotheticals with as many responses as they can. This measure is scored for fluency, the number of ideas, and flexibility, the number of categories. Both of these variables yield internal consistency coefficients above .70. Construct validity has been established through past work (Guilford, 1966; Merrifield et al., 1962; Mumford, Marks, Connelly, Zaccaro, & Johnson, 1998).

Untimed Covariates

The first untimed covariate was Cacioppo and Petty's (1982) Need for Cognition scale. This self-report measure gives participants 18 items such as, "I feel relief rather than satisfaction after completing a task that required a lot of mental effort," and, "I would prefer a task that is intellectual, difficult, and important to one that is somewhat important but does not require much thought." For each of these 18 items, participants were asked to rate on a 5-point scale the degree to which they agree or disagree with a statement. The scale produces internal consistency coefficients above .75. Past work has

demonstrated the construct validity of this measure (Cacioppo & Petty, 1982; Medeiros, Partlow, & Mumford, 2014).

Personality was measured using Goldberg's (1992) adjective checklist. Previous work has demonstrated a significant relationship between personality and creativity (Feist, 1998), thus its inclusion in our study. For this measure participants are given 100 adjectives (e.g., simple, unstrained, vigorous, and efficient) and are to mark on a 9-point scale how accurate each of these words describes themselves. These 100 adjectives load onto the five scales of openness, conscientiousness, extraversion, agreeableness, and neuroticism. Past work has shown Cronbach's alphas of between .80 and .95 for each of the resulting scales (Gibson & Mumford, 2013). Construct validity evidence can be found in work by Saucier (2002).

Self-concept clarity is a covariate identified as relevant in issues of followership and influence (Howell & Shamir, 2005; Shamir, House, & Arthur, 1993). This 12-item measure asks participants to respond on a 5-point Likert scale the degree to which they agree or disagree with statements such as, "On one day I might have one opinion of myself and on another day I might have a different opinion," and "If I were asked to describe my personality, my description might end up being different from one day to another day." This test evidences internal consistency coefficients about .70, and the construct validity has been established by past work (Campbell et al., 1996).

Expertise in the area of education was measured using biographical information, or biodata (Mumford, Barrett, & Hester, 2012). This measure was taken from work by Lonergan, Scott, and Mumford (2004), and in it participants are given questions regarding their interest and involvement with issues relates to education. This measure

includes six questions such as, “How often have you debated with your friends about how to make schools/teaching better?” and, “How confident are you that you know the issues surrounding teaching and schools in general?” Participants are asked to rate on a one to five Likert style response their answer. This scale yields internal consistency coefficients above .70, and the construct validity can be found in past work (Lonergan et al., 2004; Strange & Mumford, 2005).

Leadership style was measured using work done by Bedell-Avers, Hunter, and Mumford (2008). The purpose of this measure was to assess charismatic, ideological, and pragmatic styles (Mumford, 2006). For this measure participants are given 12 pages, each describing the behaviors of a charismatic, ideological, or pragmatic leader. They are instructed to note to which leader they feel most similar and to circle the corresponding letter. The resulting scales from items results in internal consistency coefficients above .70. The construct validity evidence for this measure can be found in work by Bedell-Avers et al. (2008).

Mental Model Training

Next, participants completed the mental model training section. This training packet was created to help participants in creating mental models on a topic. The concept of mental models was unfamiliar to most participants in this study. To appropriately assess a participant’s model we first have to train each individual on how to draw out his or her mental model. Training on mental models was consistent with previous work on this topic by Hester et al. (2012). Individuals completed a self-paced packet created with the purpose of training how to illustrate a mental model of a given topic. This self-paced packet included several modules designed to scaffold the learning

of new concepts. In the first module, participants were introduced to the idea that lines between concepts indicate causal relationships, lines pointing toward other lines indicate moderator, and that a positive sign over a line indicates a positive relationship between two variables. In the second module, additional skills are taught including the use of curved lines to show correlations between concepts, multiple lines to show a reciprocal relationship, a negative sign to show a negative relationship between two concepts, and the use of a double plus sign to show a strong positive relationship between two concepts. In the third module the set of skills included feedback loops and variables operating to influence multiple outcomes. At the end of model three were several questions where they draw conclusions about the presented models. In the final module participants are to integrate the concepts they have learned and demonstrate them by adding several new concepts to a model of their own creation.

This self-paced training packet was necessary to train participants how to articulate their mental model. Hester et al. (2012) reported that a post-experiment questionnaire suggested that most participants found the training useful and that it was sufficient in providing the tools necessary for participants to draw out their mental model.

Experimental Task

Participants were asked to work on a complex, novel, and ill-defined problem presented in the form of a low-fidelity simulation task (Motowidlo et al., 1990; Mumford & Gustafson, 1988). In this simulation participants assumed the role of a principal assigned to an experimental middle school in Tulsa, Oklahoma, called Oklahoma Academy. Significant background information about the middle school and

the current situation was provided to students. Participants were told this information was gathered from the state school board and that they could refer back to it as needed. Oklahoma Academy was explained to be part of a national study aimed at increasing achievement in United States schools. Funding for this school was provided through a grant distributed by the National Education Agency (NEA) to each State Department of Education (SDoE). Oklahoma Academy was Oklahoma's representation in this national study. The ultimate goal was stated as the development and implementation of a new type of educational program that increases students' academic performance. This information provided context for the current situation as well as the tasks given to students.

In a section titled "Current Situation", it was explained that the Oklahoma State Board of Education is hopeful for a dramatic improvement of your students. In recent years Oklahoma public schools were ranked 47th in national performance on standardized tests and 49th in funding for education. Next, information about the specific middle school participants were managing was presented. Those attending Oklahoma Academy were students in grades 7-8. Around 400 students would be enrolled and represented varied ethnic backgrounds, including 73% Caucasian, 13% Native American, 10% African American, 3% Hispanic, and 1% other. Lastly, specific details such as the fact that enough teachers are provided for a 20:1 ratio of students to instructors and that they are willing to pay the teachers above average salaries, were included.

Participants' first task was to build their mental model of academic performance. To do so, participants were given a list of important issues. This lengthy list presented

many concepts, along with definitions and a short sentence regarding the importance each concept. For example, the list included "parental involvement" with a definition (parent participation in schools) and an explanation of importance (more parental involvement makes students feel better about the school). Other concepts included academic emphasis, behavior, classroom climate, resources, school climate, self-esteem, and student characteristics. Overall, 28 concepts were presented to participants. These concepts were taken from previous work (Mumford et al., 2012), and originally drawn from the educational literature (i.e., English, 2006a, 2006b; Gorton, Schneider, & Fisher, 1988). The instructions asked participants to draw a model of how to "achieve academic excellence," using whichever concepts that they thought were important to draw their model.

Next, they were to give their opinion on a current educational issue, program evaluation. In this section it was stated that currently schools were to be evaluated based on improvements of students in the schools, or more specifically, through a pre-test and post-test given over material selected by the NEA. Also, students will be compared to other students in Oklahoma based on scores on the Oklahoma Standardized Test. This test was stated to measure writing skills, reading comprehension, mathematic skills, and analytical skills, with subtests on sciences, social studies, geography, and a foreign language. After this background information, the participant, acting as the principal of Oklahoma Academy, which is noted to be high-profile in educational circles, was asked to provide comments on the current method of program evaluation for The Oklahoman, the largest daily newspaper in Oklahoma.

Upon completion of this packet participants were given an opportunity to take a short break while they waited for other study participants to complete their packets. This was to ensure that participants were not rushing through the study, as they understood that working quickly would not allow them to complete the study faster. Once all participants in a session had completed the first three packets they were instructed to read packet four, which contained the manipulations for this study. At the beginning of the fourth packet, background information was provided detailing several statistics regarding education in America. Some samples include statements like "only 69% of American high school seniors earn a diploma" and that America is "now ranked only 18 out of 23 in industrialized nations" in education. Next, it was explained that influential leaders have begun weighing in on debates and issues in education, including Dylan Geringer, whose role differs depending on what condition participants were in. Dylan Geringer is a fictitious outstanding leader with a clear stance on educational testing. The remainder of packet four explained some background information regarding this leader as well as providing a transcript of a speech he recently gave, which can be seen in Figure 4.

After reading through packet four participants were told to start the final packet of the simulation. Much of the information from the first packet of the simulation was presented to the participants a second time, including the context and goals of Oklahoma Academy. The new information states that there were to be changes to how the State Department of Education was to evaluate schools. Rather than provide a standardized method for all schools, they are allowing states to create their own evaluation standards, which will in turn be evaluated by the State Department of

Education. It was explained that states that did not create defendable standards would lose the ability to review themselves and will have federal standards implemented. After this information participants were asked to design a new method for evaluating middle schools in Oklahoma, with a note that, "The State Department of Education is interested to see how individual states will evaluate themselves, with the understanding that particularly successful standards may be implemented at a national level if they prove effective in achieving academic excellence."

Manipulations

All of the following manipulations occurred in a packet after participants had drawn out their mental model of academic excellence as well as written an explanation of their stance on educational testing, but before the creative problem-solving task.

Leadership style

The first manipulation was the style of the leader that was presented to the participant. To ensure that these speeches fit with their respective leadership style these speeches were written to align with the prescriptive mental models of the three types of outstanding leadership (Mumford, 2006). These variables included time frame, types of experiences used, audience, the number of outcomes sought, the locus of causation, and the controllability of causation. Table 1 shows each of these variables as well as the marker for the three types of outstanding leadership.

In the charismatic leadership condition the leader presents a speech that aligns with the prescriptive mental model of a charismatic leader. For the time frame, Dylan Geringer talks about the future and uses positive experiences to explain that America is a great nation and should give its citizens the best education available. Charismatic

leaders appeal to the masses to solve problems, so accordingly the text shown to participants is explained to be a transcript of a speech that was given on television, that is, a wide audience. The leader outlines several outcomes, including better school quality, greater student achievement, increased graduation rates, and higher quality teachers. Lastly, the leader stresses that people are the way we bring about this change, that is, people are the locus of causation and that causation is fully within their control.

In the ideological condition Dylan Geringer's speech aligns with the prescriptive mental model of an ideological leader. The time frame for an ideological leader is the past, which is how Dylan frames his speech. He states that, "America was once a great nation, but it has lagged behind the rest of the world in education," and in doing so, uses negative experiences to make his point. The material presented to participants is explained to be a transcript of a speech that was given to a core group of Mr. Geringer's local supporters, that is, the people an ideological leader would be speaking to. The ideological leader is only seeking one goal, stating that, "My ultimate goal is to build an educated society filled with citizens that can think for themselves and use their education to shape the world around them." Lastly, the speech emphasizes that situations are the key driver of causation, explaining that change can be brought about through the classroom climate and the school culture.

In the pragmatic condition the leader speech aligns with the prescriptive mental model of a pragmatic leader. The timeframe used is the present, whereby the leader states that it is easy to promise change for the future, but that such change will not help our students today. In the pragmatic speech the leader states that, "If we are honest with ourselves, America has fallen behind other countries when it comes to education. But

with some important changes, we can create a more effective system." This statement points out something negative but also notes that we can do better, thereby using both positive and negative experiences. Regarding the audience it was explained to participants that they were reading a transcript of a speech given to a large meeting of educators, that is, elites. Lastly, Dylan points out several important outcomes, including school quality, teacher quality, and student motivation, and stresses that some things we can change, while others we may not be able to, thereby displaying the selective nature of controllability demonstrated by pragmatic leaders.

Stance on issue

This second manipulation was used to assure a high degree of variability regarding agreement or disagreement with the leader. Many participants will agree with the leader in their condition and many will disagree, regardless of the participant's original stance on the topic. The issue used in this study is educational evaluation, specifically the use and value of standardized tests, which has had a long history of controversy (Airasian, 1987). This issue is something participants will be familiar with and have an opinion on, though unlike other potential topics, is unlikely to be something students would be ideological about.

In the "for" condition Dylan Geringer, the leader in the experimental packet, is for the use of standardized tests. He states that, "While it is great to experiment and try new things, the only way to truly understand what works in education is to define what we consider important and apply them as a set of consistent evaluation standards. The purpose of standardized testing is to figure out what students know and are able to do. These assessments are necessary to understand if our students are learning. Through

these standardized tests we can compare schools to each other and identify problem areas. The private sector uses benchmarks to compare across firms, so it seems clear that we should hold ourselves, at minimum, to the same standards. If education is an investment in our country's future, we need ways to determine whether we are investing wisely." Manipulation checks indicated that participants were able to correctly identify the leader's stance in the "for" condition.

In the "against" condition, Dylan Geringer is against the use of standardized tests. He states that standardized tests are, "a method I believe to have negative effects on how we teach our children. When we reduce learning and growing up to a set of numbers we lose sight of what we are trying to accomplish. By judging our schools based on a test we limit the creativity of our teachers and ensure that new approaches to education will never be tried. If we allow these schools the freedom to truly educate our children and not simply train them to perform on standardized tests we will find new ways to stimulate the minds of our children. In the same way that we should be trying new methods to educate students we must look for innovative ways to evaluate our schools." Once again, manipulation checks indicated those in the "against" condition were able to accurately identify the leader's stance on educational testing.

Leader distance

The third manipulation was based on the relationship of the participant to the leader. In the high leader distance condition it was stated that the leader, Dylan Geringer, is a man that you have not personally met. In this condition, Mr. Geringer is explained to be a Senator from Oklahoma that is a leading authority on educational reform. In the low leader distance condition Dylan Geringer is your district

superintendent, but still a leading authority on educational reform. It is explained that you work closely with Mr. Geringer in the past and that you greatly respect the man, both personally and professionally. He directly provided resources for you in the past.

Assessment of Leadership Style and Mental Models

To identify the leadership style implicated by a participant's mental model of academic excellence, three judges, all doctoral students in industrial/organizational psychology and familiar with the leadership literature, were asked to evaluate the participant's mental models and writing. This material was rated for eight aspects of mental models used to distinguish the different types of outstanding leaders, including 1) time frame orientation, 2) types of experiences used, 3) nature of outcomes sought, 4) number of outcomes sought, 5) locus of causation, 6) controllability of causation, 7) the use of emotions, and 8) a general assessment of style (Bedell-Avers et al., 2008; Mumford, 2006). Judges rated each participant for each variable according to the leadership style represented by the mental model (e.g., ideological leaders primarily use negative experiences, charismatics tend to use positive experiences). Figure 1 shows the ratings of leadership style produced by one participant.

Before evaluating the aspects of the mental models all judges participated in a 40-hour training program designed to familiarize them with the project. The judges were given the variables as well as operational definitions and given time to practice applying them to a set of participant responses. Next, the judges independently classified a larger sample of participant responses and met to discuss and resolve any differences in their ratings. Following this training the percent agreement coefficients for these dimensions were adequate, 1) time frame orientation (72%), 2) types of

experiences used (75.4%), 3) nature of outcomes sought (64.1%), 4) number of outcomes sought (62.1%), 5) locus of causation (64.1%), 6) controllability of causation (64.7%), and 7), use of emotions (74.7%), and a general assessment of style (71.4%). These percentages reflect when there was complete agree among all three judges. Data were used if at least two judges agreed on classification. A general assessment of style took the form of a holistic assessment where the judge took into account the preceding variables as well as their overall opinion regarding the style of the participant. All participant data was coded by the three judges. For the purpose of analyses the scores were averaged across judges to create one score for each variable for each participant.

Assessment of Creative Problem Solving

To assess the solutions to the education problem in this study, the same set of graduate student judges described earlier were asked to rate the quality, originality, elegance, perceived utility, and affective reactions of the plans created by the participants. This model of creativity comes from earlier work (Besemer & O'Quin, 1999; Christiaans, 2002) where quality was defined as a complete, coherent, and useful solution. The originality of a plan was defined as an unexpected and elaborated solution, and the elegance of a plan was defined as a clever, refined, solution where elements flowed well together. Perceived utility reflects the extent to which the solution is realistic and useful for this particular domain and affective reaction is the degree of attractiveness of the solution, which can be represented by the extent to which somebody would likely be intrigued, appealed, or interested in the ideas presented in the plan.

The ratings of quality, originality, elegance, perceived utility, and affective reaction were generated using benchmark ratings scales (Redmond, Mumford, & Teach, 1993). To create these scales an additional set of judges, all doctoral students in industrial/organizational psychology, were shown 30 problem solutions as well as operational definition of quality, originality, elegance, perceived utility, and affective reaction. They were asked to rate on a 5-point scale each of these five variables. Solutions consistently rated as high, medium, and low were abstracted and used as anchors for high, medium, and low points on the scale. Figure 2 shows the benchmarks for originality for the standard for how to evaluate academic excellence.

Before scoring the problem solutions for quality, originality, elegance, perceived utility, and affective reaction, judges participated in a similar training described for the assessment of leadership style and mental models described earlier. This frame-of-reference program (Bernardin & Buckley, 1981) familiarized judges with the task and the variables. Inter-rater agreement for the evaluation standard were acceptable, respectively for quality, originality, elegance, perceived utility, and affective reaction were .84, .81, .83, .79, and .82.

Analyses

In the first analyses conducted for the present effort the dependent variables, including quality, originality, and elegance of the standard to evaluate schools were correlated with the mental model variables and independent variables. Following this, multiple analyses of covariance were run assessing the impact of the manipulations on solution quality, originality, and elegance. Covariates were retained in analyses only if they were significant at the .10 level in initial analyses. Additionally, new variables

were created to assess leadership style congruence, which was then used to predict subsequent performance. A participant was defined as congruent if their classification on a mental model variable was the same as that of the leader they were assigned to (e.g., if the student focuses on multiple goals in their mental model and is assigned to read the charismatic speech they were classified as congruent on that variable). If a participant was not classified into the same category for an aspect of their mental model as their leader, they were scored as not congruent. That is, scores on congruence were either a 0, for not congruent, or a 1, for congruent.

Results

Tables 2 and 3 provide means, standard deviations, and correlations among relevant study variables, including significant covariates as well as mental model variables and performance outcomes. Our first research question asked whether there were performance differences for followers of charismatic, ideological, and pragmatic leaders. Table 4 summarizes the effects of the CIP variable. Overall, there did not appear to be significant differences across the three types leader speeches. For quality there were several significant covariates including intelligence ($F(1, 228) = 21.83$, $p < .01$, $\eta_p^2 = .087$), extraversion ($F(1, 228) = 3.37$, $p = .068$, $\eta_p^2 = .015$), self-concept clarify ($F(1, 228) = 2.80$, $p = .096$, $\eta_p^2 = .012$), gender ($F(1, 228) = 2.97$, $p = .086$, $\eta_p^2 =$ ..013), and GPA ($F(1, 228) = 6.82$, $p = .01$, $\eta_p^2 = .029$). Moving to performance outcomes, for quality ($F(2, 228) = .64$, $p = .58$, $\eta_p^2 = .006$) there were not significant differences across leadership style. Nor were there for originality ($F(2, 228) = 1.06$, $p = .35$, $\eta_p^2 = .009$), which included the significant covariates of intelligence ($F(1, 228) = 15.14$, $p < .01$, $\eta_p^2 = .061$), GPA ($F(1, 228) = 5.54$, $p < .05$, $\eta_p^2 = .025$), and education

interest ($F(1, 228) = 4.12$, $p < .05$, $\eta_p^2 = .017$). Likewise perceived utility($F(2, 228) = .45$, $p = .639$, $\eta_p^2 = .004$) was not significant, and used the covariates of intelligence ($F(1, 228) = 26.77$, $p < .01$, $\eta_p^2 = .077$), gender ($F(1, 228) = 3.95$, $p < .05$, $\eta_p^2 = .017$), and GPA ($F(1, 228) = 2.69$, $p = .10$, $\eta_p^2 = .012$). Lastly, there was not a main effect for leadership style on affective reaction ($F(2, 228) = .58$, $p = .562$, $\eta_p^2 = .005$), which had three significant covariates, including intelligence ($F(1, 228) = 19.11$, $p < .01$, $\eta_p^2 = .076$), extraversion ($F(1, 228) = 2.51$, $p = .115$, $\eta_p^2 = .011$), and gender ($F(1, 228) = 6.93$, $p < .01$, $\eta_p^2 = .029$). There was a significant main effect for leadership style regarding elegance ($F(2, 228) = 3.34$, $p < .05$, $\eta_p^2 = .028$) such that charismatics made the most elegant standards for evaluation ($M_{charismatic} = 2.90$, $SE = .075$) as compared to pragmatics ($M_{pragmatic} = 2.72$, $SE = .075$) and ideological leaders ($M_{ideological} = 2.63$, $SE = .078$). This finding may be because charismatic leaders are often speaking to the masses, and therefore may benefit from crafting more elegant visions as they are simpler to convey.

Our second research question asked the extent to which mental model congruence with a leader will influence follower performance. The first type of congruence was that of general style, that is, a participant would be classified as congruent with their leader if they were classified as the same type (e.g., a charismatic participant reads the speech by a charismatic leader). The covariates of intelligence, gender, extraversion, and GPA were significant and included for all tests of congruence. In this test there was no effect for assessment congruence for quality, ($F(1, 239) = .83$, $p = .363$, $\eta_p^2 = .003$). There was a significant effect of congruence for originality ($F(1, 239) = 4.96$, $p < .05$, $\eta_p^2 = .020$) such that those in the congruent group scored higher

($M_{congruent}$ = 2.95, $SE_{congruent}$ = .07) than those without congruence ($M_{incongruent}$ = 2.76, $SE_{incongruent}$ = .09), but not for elegance ($F(1, 239) = 2.05$, $p = .15$, $\eta_p^2 = .009$), perceived utility ($F(1, 239) = .507$, $p = .477$, $\eta_p^2 = .002$), or affective reaction ($F(1, 239) = 2.63$, $p = .106$, $\eta_p^2 = .011$).

While these results may seem to suggest that mental model congruence between a leader and a follower is not important for performance, using overall style may be too coarse of a method. To pursue this question further we examined whether congruence on certain aspects of mental models may be important for performance. For instance, congruence of the types of experiences used (e.g., negative, positive) had a significant effect on quality ($F(1, 239) = 4.49$, $p < .05$, $\eta_p^2 = .018$) as well as on elegance ($F(1, 239) = 4.11$, $p < .05$, $\eta_p^2 = .017$), such that those in the congruent group scored higher ($M_{congruent}$ = 2.93, $SE_{congruent}$ = .08) than those without congruence ($M_{incongruent}$ = 2.72, $SE_{incongruent}$ = .10) for quality. For elegance the direction was the same, such that those in the congruent group scored higher ($M_{congruent}$ = 2.89, $SE_{congruent}$ = .08) than those without congruence ($M_{incongruent}$ = 2.70, $SE_{incongruent}$ = .05). Congruence of emotions (e.g., using negative or position emotions in communication) significantly predicted originality ($F(1, 239) = 5.26$, $p < .05$, $\eta_p^2 = .022$), with those in the congruent group scored higher ($M_{congruent}$ = 2.96, $SE_{congruent}$ = .10) than those without congruence ($M_{incongruent}$ = 2.69, $SE_{incongruent}$ = .07) and was approaching significance for elegance ($F(1, 239) = 3.56$, $p = .06$, $\eta_p^2 = .015$) and affective reaction ($F(1, 239) = 3.14$, $p = .08$, $\eta_p^2 = .013$), with congruence being associated with higher performance on both variables. While these effects may not be especially salient, they do point to the fact that congruence of some aspects of mental models appears to be related to performance.

Our first hypothesis stated that there would be an interaction between leadership style and distance on performance. Our results appear to support this hypothesis. This interaction was significant for perceived utility and affective reaction, and approach significance for quality. For perceived utility this interaction was significant ($F(2, 228) = 3.11$, $p < .05$, $\eta_p^2 = .026$), such that the followers of charismatics perform better ($M_{low} = 2.55$ vs. $M_{high} = 2.72$) when distance was low while pragmatics performance better when distance is high ($M_{low} = 2.90$ vs. $M_{high} = 2.50$). For the followers of ideological leaders, it appears that a higher distance may be preferable ($M_{low} = 2.51$ vs. $M_{high} = 2.67$). A graphical depiction of this interaction can be found in Figure 3. For affective reaction this CIP by Leader Distance interaction was also significant ($F(2, 228) = 5.11$, $p < .01$, $\eta_p^2 = .042$). The same trend appears where the followers of charismatic leaders perform better with a low distance ($M_{low} = 3.39$ vs. $M_{high} = 2.87$), whereas for pragmatics the effect is reversed, such that performance is higher for a higher distance ($M_{low} = 2.89$ vs. $M_{high} = 3.12$). For ideological leaders the difference is not as notable ($M_{low} = 3.12$ vs. $M_{high} = 3.01$). For quality the interaction is approaching significance ($F(2, 228) = 2.36$, $p < .10$, $\eta_p^2 = .020$), with the same general trend where charismatic leaders benefit from a low leader distance ($M_{low} = 2.70$ vs. $M_{high} = 2.95$) while pragmatics benefit from a higher distance ($M_{low} = 2.94$ vs. $M_{high} = 2.70$), with a smaller difference for pragmatics ($M_{low} = 2.65$ vs. $M_{high} = 2.77$). While the interaction may not be significant for originality or elegance a consistent trend emerges where the means for charismatics are higher for a low distance and pragmatics for a higher distance can be observed, which is to say that the graphical interaction seen in Figure 3 appears similar across all performance variables.

Discussion

Before turning to the conclusions flowing from the present effort, a few limitations should be noted. This study was done using experimental methods in a laboratory using undergraduate students. This opens question into how well the results generalize to real-world contexts. And while the undergraduates were put into the role of followers (Uhl-Bien et al., 2014) rather than leaders, they were asked to take on roles that required expertise in the domain of education (Ericsson & Charness, 1994). Students have demonstrated in the past that they possess the skills to address education problems (Hester et al., 2012; Scott, Lonergan, & Mumford, 2005), though students would necessarily have less expertise than somebody actively working in this domain.

Also, it should be noted that the manipulations in this study may not have produced the same effects as those seen in the real world. Leader distance is an important variable in many leadership theories though its effects may be difficult for participants to feel in a low-fidelity simulation (Antonakis & Atwater, 2002). Second, regarding the manipulation of leadership style, certain aspects of each style may not have been fully felt by participants in our study given that the speeches were given as text. For instance, certain strengths of a charismatic leader may be better felt when viewed in-person. Lastly, the speeches used in the present study were not actual speeches given by real leaders. While there may be greater ecological validity by using speeches by actual leaders, writing the speeches instead of using outside material affords us complete control over the information presented to participants. While the leader was fictional, the speeches were written based on speeches by leaders who display aspects of one of the three leadership styles. Accordingly, the effects for the

leader distance and style variables should be considered as the effects of a short-term role taking intervention and may not paint a complete picture of these variables.

Lastly, this study focused on one form of creative problem solving, that is, creative problem solving in the education domain. Because of this context it is open to question whether the manipulations of distance and leadership style would produce the same effects in other domains (Baer, 2011). Due to the nature of the task, it was not possible in the present effort to assess performance across multiple domains, future studies may benefit of assessing how well these results generalize to other domains.

In spite of these limitations, we believe that the findings from this study have some important implications for understanding outstanding leaders and how they influence followers. We did not find significant differences in performance of followers of charismatic, ideological, and pragmatic leaders, answering our first research question. While past work has pointed to this conclusion, it has often been in the context of leader, rather than follower, performance (Mumford, 2006). In a study that examined the subordinates of outstanding leaders, the researchers found differences in performance across styles, such that pragmatics scored worse on quality relative to ideological and charismatic leaders (e.g., Lovelace & Hunter, 2013). This is the first study that does not find performance differences across the followers of outstanding leaders, an important finding. Theoretically, this builds upon a growing body of evidence supporting the notion that there is not necessarily one ideal form of outstanding leadership, but rather multiple approaches that lead to similar outcomes, in this case outcomes of followers. Practically, this finding suggests that rather than

training leaders on how to be the “best” type of leader we should focus on helping leaders better understand their leadership style and how to improve upon it.

Moving to our second research question, which asked what role does mental model congruence play in follower performance, our results are more equivocal. What the data suggests is that rather than leadership style congruence (e.g., a ideological leader would best lead ideological followers), it may be more accurate to say that congruence of specific aspects of mental models may be most important. More specially, congruence of experiences used and congruence of emotions stood out as two of the more important types of leader-follower mental-model congruence. It may be that these specific aspects of mental models are particularly salient or important for influencing followers. Practically speaking what this means is that if a leader wants to influence followers with different mental models than their own it may be useful to change their use of emotions or the types of experiences they use in their communications. While ideological leaders typically use negative past experience and emotions when communicating to their followers if they want to influence a more charismatic group they may want to alter their message to increase effectiveness.

Lastly, our hypothesis regarding the interaction of leader distance and leadership style was confirmed. While there was no effect of leadership style on performance it was clear that different leader behaviors are needed to bring about optimal performance for each leader type. More specifically, charismatic leaders should seek to maintain a smaller distance whereas pragmatics benefit from a larger distance. Distance of course can refer to many things, including physical distance, perceived social distance, and task interaction frequency (Antonakis & Atwater, 2002). In the present study the

manipulation of leader distance was designed to hit all three of these types of distance. This finding has important practical implications for leaders as it appears that distance is important, but only as it interacts with style. There were no main effects for distance, that is, those in the high and low distance conditions did not have differences in performance except when viewed in the context of leadership styles. Transformational leadership highlights the importance of individualized consideration (Bass & Steidlmeier, 1999), something that would benefit from a lower distance to the leader. Pragmatic leaders, on the other hand, appear to benefit from this distance. This may be because pragmatic leaders are more functionally focused and too many proximal followers may refocus their efforts away from the work itself.

In conclusion, the mental models of followers appear to be a viable mechanism for understanding the relationship between outstanding leaders and their followers. This study supports a growing body of research demonstrating that there are multiple pathways to outstanding leadership. Additionally, the present efforts may help us understanding how mental model congruence relates to follower creativity. Lastly, it identifies the distance for each leadership style likely to prove most beneficial for performance. We hope that this study serves as a springboard for future research could examining the role of mental models in outstanding leadership.

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Appendix A: Tables

Table 1

Prescriptive Mental Models of Outstanding Leaders Used in Speeches

	Charismatic	Ideological	Pragmatic
Time Frame	Future	Past	Present
Types of Experiences Used	Positive	Negative	Both
Audience	Masses	Base Cadre	Elites
Number of Outcomes Sought	Multiple	Few	Variable
Locus of Causation	People	Situations	Interactive
Controllability of Causation	High	Low	Selective

Table 2
Means, Standard Deviations, and Intercorrelations for Relevant Variables

	M	*SD*	1	2	3	4	5	6	7	8	9	10	11	12	13	14
1. CIP Condition	2.01	.83	1													
2. Leader Distance Condition	.49	.50	.00	1												
3. Stance Condition	.49	.50	.01	.02	1											
4. Intelligence	27.02	7.17	-.01	-.21**	-.09	1										
5. Extraversion	116.11	22.98	.04	.05	-.01	.03	1									
6. Self-Concept Clarity	37.02	10.40	-.02	.01	-.02	.03	.22**	1								
7. Gender	.63	.48	-.02	-.11	-.11	.02	.02	-.12	1							
8. GPA	2.79	1.39	.08	.07	.02	.05	.15*	.03	-.07	1						
9. Interest in Education	2.39	.86	-.03	-.01	.00	.04	.09	.00	-.12	.05	1					
10. Quality	2.79	.79	.01	-.04	.02	.32**	-.07	.08	.10	.15*	.07	1				
11. Originality	2.80	.92	.10	-.11	.15*	.26**	.00	.03	.00	.15*	.13*	.60**	1			
12. Elegance	2.76	.73	-.09	-.06	.02	.28**	-.07	.06	.06	.14*	.00	.72**	.49**	1		
13. Perceived Utility	2.63	.80	.04	.00	-.14*	.35**	-.07	.07	.13*	.10	.03	.75**	.40**	.63**	1	
14. Affective Reaction	3.07	.82	-.07	-.17**	.05	.33**	-.09	.01	.16*	.11	.06	.71**	.62**	.63**	.63**	1

Note: *$p < .05$; **$p < .01$

Table 3
Means, Standard Deviations, and Intercorrelations for Mental Model and Performance Variables

	M	*SD*	1	2	3	4	5	6	7	8	9	10	11	12	13
1. Time Frame Orientation	2.39	.70	1												
2. Types of Experiences	2.17	.88	.47**	1											
3. Nature of Outcomes	2.44	.90	.35**	.49**	1										
4. Number of Outcomes	2.20	1.05	.40**	.38**	.38**	1									
5. Locus of Causation	2.17	.80	.44**	.49**	.32**	.33**	1								
6. Controllability of Causation	2.32	.87	.41**	.48**	.38**	.35**	.57**	1							
7. Use of Emotions	2.14	.77	.56**	.67**	.49**	.50**	.46**	.54**	1						
8. General Assessment of Style	2.28	.85	.59**	.70**	.55**	.55**	.45**	.54**	.76**	1					
9. Quality	2.79	.79	-.10	-.17**	-.15*	.06	-.04	-.04	-.03	-.12	1				
10. Originality	2.80	.92	-.03	-.16*	-.05	.07	-.06	-.03	.00	-.06	.60**	1			
11. Elegance	2.76	.73	-.03	-.11	-.07	.02	-.03	-.06	-.06	-.05	.72**	.49**	1		
12. Perceived Utility	2.63	.80	-.03	-.12	-.05	.08	-.02	-.07	-.07	-.09	.75**	.40**	.63**	1	
13. Affective Reaction	3.07	.82	-.10	-.16*	-.07	.08	-.09	-.08	-.08	-.10	.71**	.62**	.63**	.63**	1

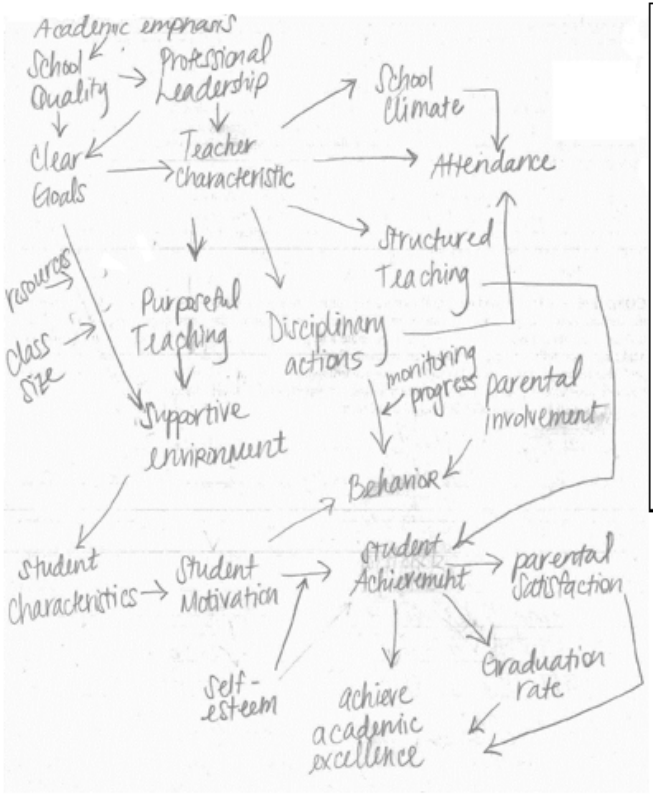
Note: *$p < .05$; **$p < .01$

Table 4
Analysis of Covariance for Performance Variables

	Quality				Originality				Elegance				Perceived Utility				Affective Reaction			
	F	*df*	*p*	η_p^2	*F*	*df*	*p*	η_p^2	*F*	*df*	*p*	η_p^2	*F*	*df*	*p*	η_p^2	*F*	*df*	*p*	η_p^2
Covariates																				
Intelligence	21.83	1,228	.000	.087	15.14	1,233	.000	.061	19.78	1,235	.000	.077	26.77	1,230	.000	.104	19.11	1,232	.000	.076
Extraversion	3.37	1,228	.068	.015													2.51	1,232	.115	.011
Self-Concept Clarity	2.80	1,228	.096	.012																
Gender	2.97	1,228	.086	.013									3.95	1,230	.048	.017	6.93	1,232	.009	.029
GPA	6.82	1,228	.010	.029	5.54	1,233	.019	.023	5.05	1,235	.026	.021	2.69	1,230	.103	.012				
Education Interest					4.12	1,233	.043	.017												
Main Effects																				
CIP	.64	2,228	.528	.006	1.06	2,233	.350	.009	3.34	2,235	.037	.028	.45	2,230	.639	.004	.58	2,232	.562	.005
Distance	.16	1,228	.693	.001	1.47	1,233	.226	.006	.02	1,235	.891	.000	1.70	1,230	.194	.007	1.83	1,232	.177	.008
Stance	.58	1,228	.449	.003	7.01	1,233	.009	.029	.06	1,235	.455	.002	3.25	1,230	.073	.014	2.60	1,232	.108	.011
Interactions																				
CIP by Distance	2.36	2,228	.097	.020	.63	2,233	.534	.005	1.92	2,235	.149	.016	3.11	2,230	.046	.026	5.11	2,232	.007	.042
CIP by Stance	1.20	2,228	.305	.010	1.89	2,233	.152	.016	.06	2,235	.940	.001	.34	2,230	.710	.003	.76	2,232	.469	.007
Distance by Stance	7.17	1,228	.008	.030	5.28	1,233	.022	.022	7.54	1,235	.003	.031	7.94	1,230	.005	.033	3.04	1,232	.082	.013
CIP by Distance by Stance	.17	2,228	.841	.002	.51	2,233	.603	.004	.00	2,235	.999	.000	.03	2,230	.941	.001	.66	2,232	.518	.006

Note: *F* indicates F-ratio, *df* indicates degrees of freedom, *p* indicates significance level, η_p^2 indicates partial eta-squared.

Appendix B: Figures



Students in my middle school system experience many challenges in their lives. They may not have the ideal background, or the motivation to achieve higher education. The teachers, I also believe, can lack motivation if they do not feel that what they do is in any way benefitting their or their students. Many schools would like to achieve academic excellence because, after all, the children are the future. However I believe an issue that my school, and many other schools face, are the support and foundation to build our education system to become better and rise above others. This issue arises when authorities emphasize on the evaluation of higher end schools and ignore when lower rank schools do not have the same progress. I understand that we cannot ignore the amazing progress that others schools are achieving. But I think that by emphasizing the need to better support lower ranked schools in the United States, we show the children that we do care about where they do in life and how they do. We provide support and motivation in doing so, and this in turn affects the faculty and staff of the schools. I believe how you evaluate our school is to see our weaknesses and try to help us to the top like other states. I don't believe competition is the key (although it can aid in some ways), but unity of the country to provide equal and high education purpose and systems to all our schools.

Mental Model Variable	Rating for Participant	Classification
1. Time Frame Orientation	Present	Pragmatic
2. Types of Experiences	Both Positive and Negative	Pragmatic
3. Nature of Outcomes	Positive	Charismatic
4. Number of Outcomes	Multiple	Charismatic
5. Locus of Causation	Interactive	Pragmatic
6. Controllability of Causation	Selective	Pragmatic
7. Use of Emotions	Rational	Pragmatic
8. General Assessment of Style	Pragmatic	Pragmatic

Figure 1. Sample mental model and response to current program evaluation method produced for one participant as well as corresponding rating and classification on relevant variables.

1) Poor rating: The standard is very predictable and fails to provide any new or unique ideas. The strategy completely lacks richness and descriptiveness.

Example: The standard of how to evaluate my school of course includes the test that schools around the U.S. get to see who the best is. This standard is acceptable for other schools and is therefore acceptable for our school.

3) Average rating: The academic plan has a few original and unique elements; however, it still contains many predictable concepts. The strategy is somewhat descriptive.

Example: Evaluating academic excellence is the challenging part. Standardized testing is the easiest way and most people think the best way. However I feel that testing a lot of times makes these young kids so nervous and concentrated so much to not fail these things that they end up doing exactly that. Instead I think they should go through a series of work and study to learn all the material they need to learn and then go sit down with an advisor and go over all the material that he or she retained and funnel it back through the system to show how much they understood. I think this situation puts them in a more safe feeling environment so that they do not feel so stressed. I don't like the standardized testing because not all students are good.

5) Excellent rating: The standard is clearly unique and has core elements that appear wholly original. The strategy is exceptionally rich and descriptive.

Example: Evaluation of academic excellence will be through the child's progress on their individual markers. Personalized goals for each student will be made on our computer program. The child gets various points for reaching every goal marker which determines when they get promoted to the next level. Evaluations every Friday are taken and the child can visibly see how much they improve every single week. These weekly observation evaluation programs are the only tests given to the students. There will be a national 10^{th} grade level that every student will be guided to reach to be able to continue on to high school, but they are allowed to surpass that level. Once again, there is no cap on the material these children can learn.

Figure 2. Anchors for poor, average, and excellent ratings of originality for the standard for how to evaluate academic excellence.

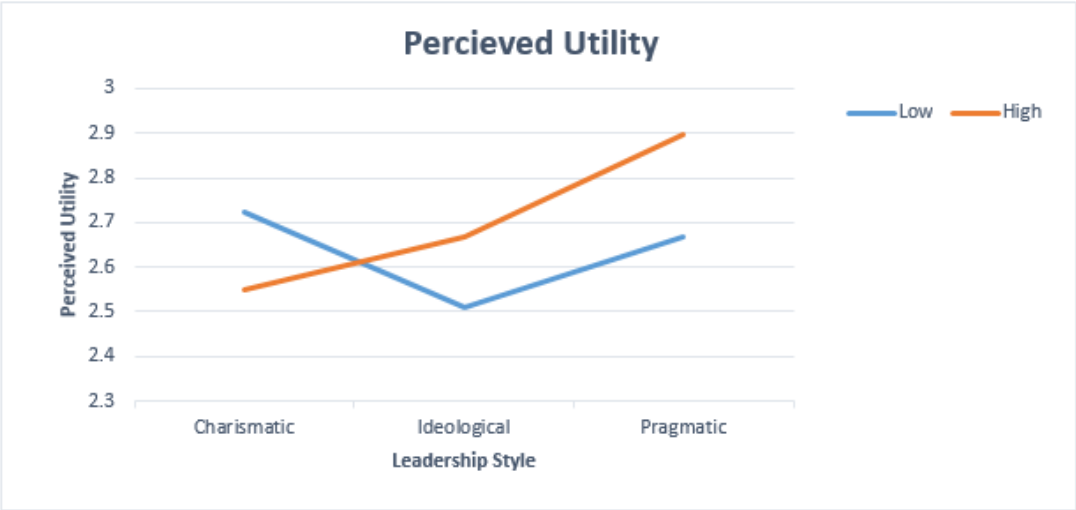


Figure 3. Estimated marginal means of perceived utility of creative product by leadership style condition by leadership distance.

Leader Speech

I want to talk to all of you here today about the future. Education has always been about investing in the future. America is a great nation and a great nation deserves to have the best education available to its citizens. The fact is that there are a lot of goals that I believe are within our reach including better school quality, greater student achievement, increased graduation rates, and higher quality teachers. I do not believe that we need to sacrifice one goal in pursuit of another. We should focus on many goals, because education is a complicated issue that cannot be solved by ignoring the bigger picture. And how do we bring about this change? People. People like you and me that are interested in bringing about an education system we can be proud of. We are in control of our future, together we can accomplish anything.

I think one of the biggest issues facing the education system today is how we evaluate our schools. Standardized tests have become the primary method of evaluation, a method I believe to have negative effects on how we teach our children. When we reduce learning and growing up to a set of numbers we lose sight of what we are trying to accomplish. By judging our schools based on a test we limit the creativity of our teachers and ensure that new approaches to education will never be tried. If we allow these schools the freedom to truly educate our children and not simply train them to perform on standardized tests we will find new ways to stimulate the minds of our children. In the same way that we should be trying new methods to educate students we must look for innovative ways to evaluate our schools**.**

Figure 4. Sample leader speech for charismatic, high distance, and against topic.