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# I Can Do That: The Impact of Implicit Theories on Leadership Role Model Effectiveness

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I can do that: The impact of implicit theories on leadership role model effectiveness

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## IMPLICIT THEORIES AND ROLE MODEL EFFECTIVENESS

## Abstract

This research investigates the role of implicit theories in influencing the effectiveness of successful role models in the leadership domain. Across two studies, we test the prediction that incremental theorists ('leaders are made') compared to entity theorists ('leaders are born') will respond more positively to being presented with a role model before undertaking a leadership task. In Study 1, measuring people's naturally occurring implicit theories of leadership, we showed that after being primed with a role model, incremental theorists reported greater leadership confidence and less anxious-depressed affect than entity theorists following the leadership task. In Study 2, we demonstrated the causal role of implicit theories by manipulating participants' theory of leadership ability. We replicated the findings from Study 1 and demonstrated that identification with the role model mediated the relationship between implicit theories and both confidence and affect. Additionally, incremental theorists outperformed entity theorists on the leadership task.

Word Count = 8922

*Keywords:* Implicit theories, role models, leadership, assimilation, identification, social comparison, self-regulation

## IMPLICIT THEORIES AND ROLE MODEL EFFECTIVENESS

I can do that: The impact of implicit theories on leadership role model effectiveness

The success of top leaders in any domain, from the non-profit, to business, to the military, is not a solitary achievement. Rather, leaders often look to other successful individuals, role models, for inspiration and motivation to achieve success. For example, President Barack Obama has shown appreciation for both his personal and presidential role models: his grandmother Toot and President Lincoln (Obama, 2008a, 2008b). These role models not only demonstrate that success is possible, but they can also serve to demonstrate how to accomplish one's goals (Lockwood, 2006). The importance of role models for motivation and achievement has an intuitive appeal as is demonstrated by the numerous role model and mentoring programs found across domains and organizations. This intuition is supported with ample lines of research highlighting the critical role of others in people's pursuit and attainment of goals (Finkel & Fitzsimons, in press). Indeed, people are, in large part, socially constructed beings—crafted through interactions with others (Cooley, 1902).

However, these interactions are not ubiquitously positive for one's sense of self. Additionally, the process through which role models have an impact is not uniform for every person. Two factors that strongly influence role model effectiveness are the extent to which the role model is relevant and people can identify with the model and the extent to which the role model's level of success is perceived as attainable (Collins, 1996, 2000; Lockwood & Kunda, 1997; Major, Testa & Bylsma, 1991). In the current paper, we suggest that individual differences in beliefs about whether abilities are fixed or malleable (implicit theories) are a significant component of understanding the value of role models. In the following sections, we first review the literature on role model effectiveness before merging this work with an implicit

## IMPLICIT THEORIES AND ROLE MODEL EFFECTIVENESS

theory perspective.

### **Role Models**

Empirical research has demonstrated that the effects of role models are largely driven through social comparison processes (Lockwood & Kunda, 1997; Suls, Martin, & Wheeler, 2002). However, this research has revealed inconsistent findings regarding whether these comparisons have positive or negative consequences as comparisons to successful others have the potential for both inspiring and deflating outcomes (Mussweiler, 2001, 2003; Wheeler & Suls, 2005; 2007). On the positive side, social comparisons made with successful role models, or upward social comparisons, can enhance people's subjective well-being particularly when people focus on similarities with the role model (Collins, 1996, 2000). These upward social comparisons can serve to fulfill a self-improvement motive as the role models offer both inspiration and hope (Wood, 1989). Positive role models seem to be especially relevant for individuals who are underrepresented in certain domains such as women or minorities in elite leadership positions, who may be underrepresented in part due to negative stereotypes (Buck, Clark, Leslie-Pelecky, Lu, & Cerda-Lizarraga, 2007; Hoyt, 2010; Hoyt & Blascovich, 2007; Steele & Aronson, 1995). Role models in positions of success can help buffer individuals from the threatening effects of these stereotypes by disconfirming the negative stereotype and suggesting that success for such individuals is indeed attainable (Marx, Ko, & Friedman, 2009; Marx & Roman, 2002; McGlone, Aronson, & Kobrynowicz, 2006). For example, female career role models are more inspiring to women than are male role models, because women can identify with them and they demonstrate that women can overcome gender barriers to achieve career success (Lockwood, 2006).

Role models serve to enhance people's self-conceptions when they assimilate themselves

## IMPLICIT THEORIES AND ROLE MODEL EFFECTIVENESS

relative to the successful model. Although there is some confusion in the literature on the definition of assimilation, according to Suls and Wheeler (2007) it refers to “an increase in the comparer’s self-evaluation on a dimension as a result of comparing with someone better on that dimension” (p. 32). Assimilation with successful role models is not a given, however, one key determinant of whether role models will serve this self-enhancement function is the extent to which individuals perceive “an identification or connection to the other person” (p. 162, Suls et al., 2002). The positive effects that role models can have, however, are not limited to augmented self-evaluations. Inspiring role models can also facilitate behavioral assimilation whereby people’s domain-relevant behavior changes in the direction of the comparison target; that is, role models can inspire enhanced performance (Blanton, Buunk, Gibbons, & Kuyper, 1999; Huguet, Dumas, Monteil, & Genestoux, 2001; Suls & Wheeler, 2007).

Although role models can be inspiring, there are times when such upward social comparisons can be daunting. Rather than increasing efficacy, inspiring hope and jump starting motivation, role models may unintentionally threaten the self (Finkel & Fitzsimons, 2011). If the role model’s success seems unattainable, individuals may be left feeling helpless and may lose confidence in their own abilities. As people evaluate role models, they obtain information not only about their own relative performance, but also about the potential for future success. And, these evaluations regarding future success can be negative especially within self-relevant domains. Role model studies have found that superior role models whose outcomes do not seem attainable and whom people do not identify with can fail to have any impact or, at worst, have self-deflating, rather than self-enhancing, effects (Hoyt, 2011; Hoyt & Simon, 2011; Lockwood & Kunda, 1997; Wood, 1989). However, as noted above, upward social comparisons with successful high attaining role models can also be confidence boosters and drive self-

## IMPLICIT THEORIES AND ROLE MODEL EFFECTIVENESS

enhancement motives. Under what conditions might role models motivate rather than intimidate? In the current work, we argue that the self-enhancement, and ultimately the inspirational, function of leader role models are closely linked to people's implicit theories about the nature of leadership ability.

### **Implicit Theory Perspective**

Implicit theories refer to the lay theories individuals hold regarding the extent to which various abilities are seen as fixed and stable (entity theorists) or malleable and changeable (incremental theorists; for a review see Molden & Dweck, 2006). The role of implicit theories in predicting expectations, affect, and behaviors has been demonstrated across a variety of domains from academics (Hong, Chiu, Dweck, Lin, & Wan, 1999), to negotiations (Kray & Haselhuhn, 2007), to weight maintenance (Burnette, 2010). Across domains, incremental theorists, relative to entity theorists, tend to remain confident when challenges arise, seek upward social comparisons after failures, and ultimately focus on learning outcomes. For example, recent findings from a neuroscience model find that in the wake of setbacks, incremental theorists focus on processing feedback relevant to correcting potential mistakes. In contrast, entity theorists focus more on regulating their negative emotions (Mangels, Butterfield, Lamb, Good, & Dweck, 2006). Similarly, if given an opportunity to review successful strategies (i.e., engage in upward social comparison), incremental theorists are much more interested in relatively high performers compared to entity theorists who focus on less successful individuals for social comparison (Nussbaum & Dweck, 2008). Essentially, incremental theorists look at challenges as ways to learn and improve and evaluate successful others as a wealth of information for developing their own ability. In contrast, entity theorists view challenges and successful others as threats to the self and thus focus on managing their negative affect and protecting their self-esteem.

## IMPLICIT THEORIES AND ROLE MODEL EFFECTIVENESS

Building on these findings, in the current paper we suggest that individuals who hold incremental, rather than entity theories, should respond more positively and be more likely to demonstrate assimilation responses to adept role models. Incremental theorists should remain hopeful and confident in their abilities even if the role model is high achieving. As incremental theorists with their growth-oriented mindset compare themselves to the role model, they should focus on the opportunity for progress, perceive an identification or connection with the role model, and reap the beneficial self-enhancement functions of successful models. In contrast, individuals who hold entity theories should feel anxious and threatened and experience a loss in confidence when presented with successful role models. As entity theorists compare their “static” ability to that of the high achieving role model, improvement and ultimately future success seem out of reach. Research within a dieting context indirectly supports such a proposition. Specifically, positive expectations regarding the potential for future dieting success drove the link between incremental theories, self-regulation and achievement (Burnette, 2010). That is, incremental theorists persisted because they believed they could attain success in the future. Additionally, more directly related to our current role model research, results within a marketing context revealed that moderately and highly challenging role models equally influenced incremental theorists’ evaluations but only moderately, not highly challenging role models had an impact on entity theorists (Wentzel, Henkel, & Tomczak, 2010). Within an academic context, a superstar student role model led to self-enhancement among those who held incremental theories of intelligence but not among those who viewed intelligence as fixed (Lockwood & Kunda, 1997).

By merging the implicit theory, role model, and social comparison literatures, the current research offers a novel and more nuanced understanding of the impact of role models and

## IMPLICIT THEORIES AND ROLE MODEL EFFECTIVENESS

expands upon the literatures in a number of important ways. In this research, we test the role of implicit theories on reactions to role models in the leadership domain by both measuring and experimentally manipulating participants' theories of leadership. This research proposes and tests the prediction that role models are more likely to have positive effects on individuals' self-evaluations, affect, and performance to the extent that individuals hold incremental, as opposed to entity, theories. Another unique and important contribution of this research is that we directly test the hypothesized mediational process through which role models have a more positive impact on the self-evaluative and affective responses of incremental, relative to entity theorists. Namely, we focus on identification with the role model as the mediating link between implicit theories and subsequent affect and confidence in the presence of high-achieving role models. Importantly, by assessing the impact of implicit theories and role models on leadership self-confidence, affect, and leadership performance, we are also answering a call from Wheeler and Suls (2007) to make clear distinctions between attribute assimilation, changes in mood, and behavioral assimilation (respectively) in response to successful others. Finally, there are a number of other smaller ways our research uniquely contributes to the current literature. We extend the investigation of implicit theories and role model effectiveness to the domain of leadership, we examine the effectiveness of role models by presenting them to participants before they undertake a domain-relevant task, and we examine important self-regulatory self-perception variables (leadership confidence and affect) after engaging in the task as well as leadership performance.

### **The Current Research**

Across two experiments, we employed a multi-method approach to examine the role of implicit theories of leadership in moderating the impact of role models on individuals'

## IMPLICIT THEORIES AND ROLE MODEL EFFECTIVENESS

leadership-relevant self-perceptions and performance. In Study 1, after assessing women's naturally occurring implicit theories of leadership, participants were assigned to a role model or control condition before undertaking a leadership task. In this first study, we test the basic hypothesis that role models will have a more positive impact on participants' leadership self-confidence, thus demonstrating assimilation, as well as affect for those who hold more incremental, compared to entity, theories of leadership. Study 2 extends our investigation by examining the impact of leadership role models on both women and men and investigates the causal role of theories by manipulating participants' implicit theories of leadership. In addition to self-confidence and affect, in Study 2 we examine identification with the role model and test behavioral assimilation processes by assessing performance on a leadership task. Furthermore, we test the hypothesized process that leadership role models have a more positive impact on the self-confidence and affect of incremental, compared to entity, theorists because they can identify more with the role models.

### Study 1

#### Method

**Participants and design.** Forty-six undergraduate women at a small liberal arts university in the US Southeast were recruited to participate in the study via an online campus-wide announcement system in exchange for \$10 cash. We chose to only examine women in this first study because of the practical importance of leadership role models for women (Hoyt & Simon, 2011). Participants were 72% White, 9% African American, 4% Latina, 4% Asian, 9% another race/ethnicity, and 2% missing with a median age of 20 (range: 18-22; SD = .98). The experiment employed a 2-group (writing task: role model or control) between-subjects design.

## IMPLICIT THEORIES AND ROLE MODEL EFFECTIVENESS

**Procedural overview.** Upon being greeted by the experimenter, participants were escorted into an individual experiment room and seated at a table in front of the computer. The experimenter led the participant to believe that she would be one of three individuals in a group and that she was randomly assigned to be the leader of the group. The experimenter informed the participant that her followers were in another building across campus and that the meeting would convene via live video-camera feed. Participants completed the implicit theories of leadership questionnaire along with filler items before beginning the role model manipulation writing task followed by the leadership task and then completion of the final questionnaires.

**Role model manipulation: Writing task.** Participants were randomly assigned to respond to one of two writing prompts: role model or vacation. The role model prompt asked participants to identify a female leader that she would consider to be a personal role model. Role model sex was kept constant with participants identifying a female role model because we wanted to avoid effects of role model sex and because previous research points to the importance of same sex and stereotype disconfirming role models (Hoyt & Simon, 2011; Lockwood, 2006). We asked the participants to (a) identify the role model, (b) discuss what makes her such an effective leader, (c) discuss why she is an important role model and (d) elaborate on how she has made an impact on the participants' life in terms of leadership. We asked participants in the control prompt to identify a place that she enjoyed visiting on a vacation trip, discuss what made this place enjoyable, the events she took part in at this location as well as the impact that the trip location had on her planning of future vacations. Participants were asked to write on their assigned topic for six minutes.

**Leadership task.** After completing the writing task, participants were informed that they would have five minutes to prepare for the leadership task. Using a task (Towler, 2003) used in

## IMPLICIT THEORIES AND ROLE MODEL EFFECTIVENESS

past leadership research, (Hoyt, Johnson, Murphy, & Skinnell, 2010; Johnson, 2009), we informed participants that they would play the role of the hypothetical Recruitment Manager, Pat Jackson, of the Amidex Corporation. They were to brief their ostensible “followers” on how to complete a resume selection/screening of potential employees according to a 7-point scale. In addition to their instructions, the packet included a detailed description of Amidex’s background, values and goals, and a comprehensive background of their leadership role. Additionally they were told they would have a maximum of 5 minutes to deliver their instructions to the followers in real-time via a webcam. After the preparation period, participants faced a camera mounted on the wall and delivered their speech. After completing the task, participants were asked to complete the final questionnaires assessing leadership confidence and affect while their followers supposedly completed the task. Because we predicted that entity theorists would feel anxious and threatened when presented with successful role models, anxious-depressed affect was assessed.

**Measures.** Participants responded to the following measures, in both studies, on a 7-point Likert-type scale ranging from 1 (strongly disagree) to 7 (strongly agree).

**Implicit theory of leadership.** Participants responded to a 4-item implicit theory of leadership scale that was modified from Dweck’s implicit theory of intelligence assessment by replacing the word ‘intelligence’ with ‘leadership,’ or ‘lead.’ We recoded such that higher numbers represent agreement with an incremental theory ( $M= 5.51$ ,  $SD= .82$ ). Items include: “You have a certain amount of leadership ability and you can’t really do much to change it (R),” “Becoming a good leader takes time, effort, and energy,” “Leadership ability can’t really be developed because people are to a large extent born with great leadership ability or little (R),” “If you want to be a good leader, you have to work hard to develop the necessary abilities and

## IMPLICIT THEORIES AND ROLE MODEL EFFECTIVENESS

skills.” This measure is used as a manipulation check in Study 2 (Study 1:  $\alpha = .61$ , average inter-item correlation = .30; Study 2:  $\alpha = .72$ , average inter-item correlation = .37).

**Leadership confidence.** Participants assessed their leadership confidence by rating themselves on the following five items: “I am content with how well I did on the leadership task,” “I had the resources to complete the task successfully,” “I have the ability to persuade others,” “I have the ability to perform as a leader,” and “I am a good leader.” (Study 1:  $\alpha = .79$ , average inter-item correlation = .48; Study 2:  $\alpha = .72$ , average inter-item correlation = .35).

**Anxious-depressed affect.** The anxious-depressed affect scale consisted of five items adapted from the MAACL. Participants indicated the extent to which they felt the following emotions: “distressed,” “disappointed in myself,” “inferior to others,” “worried,” and “depressed.” (Study 1:  $\alpha = .74$ , average inter-item correlation = .37; Study 2:  $\alpha = .80$ , average inter-item correlation = .46).

## Results

To test our hypotheses, we used regression analyses. Participants’ implicit theories of leadership (mean centered), role model condition (0 = control, 1 = role model) and their interaction were entered into the equation. Significant interactions were further explored using simple slopes analyses (Aiken & West, 1991).

**Leadership confidence.** Neither main effects were significant (implicit theory,  $p = .46$ ; role model,  $p = .37$ ). However, as predicted there was a significant implicit theory x role model interaction [ $\beta = .45$ ,  $t(42) = 2.07$ ,  $p = .04$ ]. As shown in Figure 1, tests of simple slopes in the role model and control conditions revealed a significant association of implicit theory with leadership confidence among individuals in the role model condition [ $\beta = .52$ ,  $t(42) = 2.24$ ,  $p =$

## IMPLICIT THEORIES AND ROLE MODEL EFFECTIVENESS

.02, 1-tailed] but a non-significant association for those in the control condition [ $\beta = -.18$ ,  $t(42) = -.74$ ,  $p = .23$ , 1-tailed]

**Anxious-depressed affect.** The results for anxious-depressed affect mirrored those for leadership confidence. Regression analyses revealed that the main effects for implicit theory ( $p = .18$ ) and role model condition ( $p = .45$ ) were not significant. The predicted interaction between implicit theory and role model condition was significant [ $\beta = -.50$ ,  $t(44) = -2.32$ ,  $p = .03$ ]. As illustrated in Figure 2, tests of simple slopes in the role model and control conditions revealed a significant association of implicit theory with anxious-depressed affect among those in the role model condition [ $\beta = -.48$ ,  $t(42) = -1.92$ ,  $p = .03$ , 1-tailed] but a non-significant association for those in the control condition [ $\beta = .36$ ,  $t(42) = 1.38$ ,  $p = .09$ , 1-tailed]

**Discussion**

Results confirm the prediction that implicit theories of leadership moderate assimilation and affective responses to leadership role models. Specifically, people with more incremental, compared to entity, theories of leadership reported greater leadership confidence and less anxious-depressed affect after being presented with role models and undertaking a challenging leadership task. This relationship was not found in the control condition. Because implicit theories were measured in this study we cannot be certain that it is the theories that are predicting the differential responses to the role models. Thus, in Study 2 we manipulate implicit theories of leadership to determine causation. Furthermore, we measure role model identification to test the prediction that leadership role models have a more positive impact on incremental theorists, in part, because they are able to identify with them more. Finally, in the next study we examine behavioral assimilation by assessing actual leadership performance.

**Study 2**

## IMPLICIT THEORIES AND ROLE MODEL EFFECTIVENESS

In this study, we examined both male and female participants to demonstrate that this effect is not gender specific or limited to stereotype relevant situations. In addition, we increased experimental control by presenting participants with specific high achieving role models rather than having them identify their own. Finally, we manipulated implicit theories and assessed role model identification and leadership performance in addition to leadership confidence and affect.

### **Method**

**Participants and design.** Fifty-five undergraduates (56% female; 44% male) at the same liberal arts university were recruited in a similar fashion to Study 1. Participants were 83% White, 4% African American, 7% Asian, 6% another race/ethnicity, with a median age of 20 (range: 18-22; SD = .86). The experiment employed a 2-group between-subjects design (implicit theory manipulation: entity, incremental).

**Procedure.** Similar to Study 1, participants in this study were made to believe that they were in a group study, assigned to the role of leader, and they followed a similar procedure. However, in this study, participants were primed with an implicit theory manipulation before being presented with the role model and then undertaking the leadership task. We focused only on the role model condition without including a control group based on the non-significant simple slopes findings in the control condition from Study 1 in addition to past implicit theory and role model study results indicating that the key condition is successful role models (Lockwood & Kunda, 1997; Wentzel, Henkel, & Tomczak, 2010).

**Implicit Theories Manipulation.** Participants underwent procedures similar to those used successfully in past implicit theory research (e.g., Burnette, 2010; Hong et al., 1999). We adapted these procedures simply by changing the context from weight management and academics to leadership. Specifically, participants read a *Psychology Today*-type article that

## IMPLICIT THEORIES AND ROLE MODEL EFFECTIVENESS

presented compelling evidence for either the entity or incremental view of leadership ability. Following common protocol, we told participants they would be working on a reading comprehension task in order to help a management professor assess the comprehensibility of an article for high school students. We then presented each participant with one of two fictitious articles from the “APA Science Observer” titled: “Leadership Ability is Changeable and can be Managed,” the incremental condition, or “Leadership Ability, like Plaster, is Stable Over Time,” the entity condition. The articles do not differ in terms of length or valence, and relevant outcomes (e.g., confidence) are not addressed within the articles. Indeed articles are identical except for the primary message. Namely, the key message in the entity article was that numerous empirical endeavors have demonstrated quite clearly the fact that leadership ability is determined at an early age, remaining stable thereafter. In contrast, in the incremental article the key message key message in the incremental article was that numerous empirical endeavors have demonstrated quite clearly the fact that people’s leadership ability can be developed and changed. The theoretical rationale behind the manipulation is that implicit theories, like other types of schemas and beliefs, can be seen as both stable over time and temporarily accessible situation-level constructs (Franiuk, Pomerantz, & Cohen, 2004).<sup>1</sup>

**Role models.** One goal of Study 2 was to control for the variance in the types of role models participants were exposed to by presenting participants with a successful role model rather than having them think of their own. In developing this role model stimulus, we aggregated common traits and qualities associated with successful role models from the written responses in Study 1 in order to form a short vignette of a successful role model. The successful role model was described as the President of a non-for profit company who demonstrates many

## IMPLICIT THEORIES AND ROLE MODEL EFFECTIVENESS

positive leadership traits and qualities identified from the participants in the first study (see Appendix). As in Study 1, participants were matched with same-sex role models.

**Leadership task.** Participants in Study 2 followed the same procedure as participants in Study 1 for the leadership task. The performances of these participants were audio-recorded enabling us to attain performance data. Upon completing the task, participants responded to post-task questionnaires.

### Measures.

Participants responded to the same leadership confidence, anxious-depressed affect, and implicit theories of leadership (manipulation check) scales as in Study 1. In addition, they completed a measure of role model identification using a 7-point Likert-type scale ranging from 1 (strongly disagree) to 7 (strongly agree).

**Role model identification.** Participants indicated how much they identify with the role model by responding to the following 4-items: “I identify with the life and accomplishments of the individual described in the reading,” “I identify with the life of the role model I just read about,” “I identify with the accomplishments of the role model I just read about,” and “I admire the role model described in the reading,” ( $\alpha = .70$ , average inter-item correlation = .37).

**Rated leadership performance.** Similar to the rating process used to assess leadership performance in related research (Hoyt, 2011; Hoyt & Blascovich, 2010; Hoyt et al., 2010), all audiotapes were independently coded by two trained raters blind to experimental condition. The rated performance scale consisted of two components. First, participants’ speeches were assessed on a 14-point completeness scale. To compute this score, the raters gave participants a point for each of the fourteen key elements of the task that the leaders discussed with the ostensible followers. Next, using a 9-point Likert-type scale ranging from poor to excellent, the

## IMPLICIT THEORIES AND ROLE MODEL EFFECTIVENESS

raters assessed their general impression of the leaders' performance on 7 items that are important to successful performance on the leadership task. This approach to assessing leadership performance has been used successfully in previous research (Hoyt & Blascovich, 2010; Hoyt et al., 2010) and was expanded in the current research to include the following seven items: organization of the presentation, succinctness, motivational qualities, friendliness, authority, taking the task seriously, and overall leadership ability. These items demonstrated good reliability for both raters ( $\alpha = .84$ ;  $\alpha = .92$ ). Because these two components (i.e., completeness of task, general impressions) of leadership effectiveness were rated on different scales, z-scores were computed and averaged to create the performance effectiveness scale. Interrater reliability was determined with both Pearson  $r$  and intraclass correlations using a two-way mixed effects model testing for consistency. There was a high level of agreement among raters for the completeness component ( $r = .998$ ,  $p < .001$ ; ICC = .999), the general impressions component ( $r = .941$ ,  $p < .001$ ; ICC = .959), and the combined performance scale ( $r = .983$ ,  $p < .001$ ; ICC = .991). Finally, the length of each speech was recorded to use as a covariate in analyses.

### Results

**Manipulation check: Implicit theory.** A one-way (implicit theory condition) univariate analysis of variance on implicit theories revealed that participants in the incremental condition reported significantly more incremental theories of leadership ( $M = 6.04$ ,  $SD = .69$ ) compared to those in the entity condition ( $M = 4.71$ ,  $SD = 1.09$ ;  $F(1, 53) = 28.33$ ,  $p < .001$ ,  $\eta^2 = .35$ ).

**Outcome variables.** The dependent variables leadership confidence, anxious-depressed affect, and role model identification were analyzed with a one-way (implicit theory condition) multivariate analysis of variance<sup>2</sup>. As predicted, the overall MANOVA revealed a multivariate main effect for theory (Wilks'  $\lambda = .85$ ,  $F(3, 51) = 3.06$ ,  $p = .036$ ,  $\eta^2 = .15$ ). Univariate ANOVA

## IMPLICIT THEORIES AND ROLE MODEL EFFECTIVENESS

tests were then conducted. The ANOVA with leadership confidence as the outcome revealed a main effect for theory,  $F(1, 52) = 4.74, p = .034, \eta^2 = .08$ , such that participants in the incremental condition reported greater levels of leadership confidence ( $M = 4.81, SD = .89$ ) than those in the entity condition ( $M = 4.28, SD = .89$ ) after being presented with a successful role model. Similarly, the univariate ANOVA with anxious-depressed affect as the outcome revealed that participants in the incremental condition reported lower levels of anxious-depressed affect ( $M = 2.20, SD = 1.00$ ) than those in the entity condition ( $M = 2.81, SD = 1.25; F(1, 52) = 3.88, p = .054, \eta^2 = .07$ ) after reading about the successful role model. Finally, participants in the incremental condition also reported identifying more with the role model ( $M = 5.36, SD = .76$ ) than those in the entity condition ( $M = 4.71, SD = 1.07; F(1, 52) = 6.54, p = .013, \eta^2 = .11$ ).

**Mediational analyses.** We tested the predictions that identification with the role model mediates the impact of implicit theories on both leadership confidence and anxious-depressed affect. The traditional Sobel test is known to have low power and to be especially problematic when used with small samples, thus to test our mediational hypotheses we used the bootstrapping approach as advocated by Shrout and Bolger (2002) for such cases. We used Preacher and Hayes' (2008) macro to implement the bootstrapping approach in SPSS. In this procedure, we took 1,000 samples from the original data set (using sampling with replacement) thus yielding 1,000 estimates of each path coefficient (see Figure 2). These estimates were used to calculate estimates of the indirect effect of implicit theories (dummy coded as 0 = Entity, 1 = Incremental) on leadership confidence and anxious-depressed affect through the mediation of role model inspiration.

We conducted two analyses, one for each dependent variable. In our bootstrapping analyses we used a one-sided (directional) test, which requires that the 5% cutoff value in the

## IMPLICIT THEORIES AND ROLE MODEL EFFECTIVENESS

tails of the bootstrap distribution of indirect effects not include zero to obtain significance. For leadership confidence the 5% cutoff value in the lower-tail of the bootstrap distribution of indirect effects was above zero and for anxious-depressed affect the 5% cutoff value in the upper-tail of the distribution of indirect effects was below zero; thus, the indirect effect was statistically significant in both conditions (see Table 2). The direction of the paths indicate that participants in the incremental condition identified more with the role model resulting in greater levels of leadership confidence and lower levels of anxious-depressed affect. In sum, identification with the role model mediated the relationship between implicit theories of leadership and both leadership confidence and anxious-depressed affect outcomes.

**Leadership performance.** Rated performance was analyzed with a one-way (implicit theory condition) univariate analysis of variance with speech length as a covariate. Performance data from 5 participants were missing due to technical problems with the audiotapes leaving a final sample size of 50. As predicted, there was a main effect for theory,  $F(1, 47) = 4.11, p = .048, \eta^2 = .08$ , such that participants in the incremental condition performed better ( $M = .26, SD = .81$ ) than those in the entity condition ( $M = -.20, SD = .94$ ) after being presented with a successful role model.

### General Discussion

The primary goal of the present research was to demonstrate that the effectiveness of role models in increasing self-perceptions and performance is linked to the extent to which people believe that their abilities in that particular domain are malleable. Across two studies, we demonstrated that people who hold incremental theories of leadership ability are more positively impacted by leadership role models than those with entity theories of leadership ability. Specifically, when presented with role models, incremental theorists report greater confidence in

## IMPLICIT THEORIES AND ROLE MODEL EFFECTIVENESS

their leadership abilities, more positive affect after completing the leadership task, and they perform better on the task compared to entity theorists. By both measuring and manipulating people's implicit theories across two studies, we have reduced the tradeoff between external and internal validity. That is, the differential impact of role models on those with incremental compared to entity theories has been demonstrated both with people's naturally occurring implicit theories (Study 1) and the causal impact of these different thought patterns was demonstrated by manipulating implicit theories (Study 2).

The results of these studies substantiate the important role of incremental theories in facilitating adaptive responses to successful others. In addition to producing classic assimilation effects (increases in self-evaluations) and beneficial effects on affect, this research shows that exposure to a successful role model can also result in enhanced leadership performance, or behavioral assimilation, for those who hold incremental theories of leadership. Thus, in addition to contributing to the work on assimilation effects, this research also contributes to the relatively small literature on behavioral assimilation (Blanton et al., 1999; Huguet et al., 2001; Wheeler & Suls, 2007) by experimentally demonstrating the importance of implicit theories in determining self-evaluative and behavioral responses to successful role models. Furthermore, performance was positively associated with leadership confidence suggesting that the self-regulatory function of leadership confidence was effective in facilitating positive outcomes.

Another important goal for this research was to examine the process through which role models positively impact the confidence and affect of individuals who deem the success of the role models as attainable. Psychological closeness, or identification with the role model, has been identified as an important factor in eliciting inspiring assimilation rather than deflating contrast responses (Suls et al., 2002). In Study 2, we demonstrated that identifying with the role model

## IMPLICIT THEORIES AND ROLE MODEL EFFECTIVENESS

was a significant mediating factor in the link between people's implicit theories of leadership and their self-evaluations of leadership competence as well as their affect following a leadership task. People in the incremental theories of leadership condition identified more with the leader role model resulting in higher levels of leadership confidence and less anxious-depressed affect compared to those in the entity condition. Although not directly tested in their research, Lockwood and Kunda (1997) argued that relevant role models whose success seemed within reach had self-enhancing effects because people could identify with them and they were inspiring, not simply because people were basking in their reflected glory (Brewer & Weber, 1994). Thus, our findings empirically substantiate the claim that the self-enhancement effects of these role models, for incremental theorists, stems from their greater ability to identify with the successful role models.

This research has a number of implications for psychological theory. In line with the popular assumptions that great successes are achieved by great individuals, the traditional empirical approach to understanding how individuals achieve success has been intrapersonal-focusing solely on the individual (Carver & Scheier, 1998; Rusbult, Finkel, & Kumashiro, 2009). Researchers are now starting to acknowledge and investigate the important role others play in helping people achieve success and reach their goals (Finkel & Fitzsimons, 2011; Fitzsimons & Finkel, 2010; Rusbult et al, 2009). Research taking this interpersonal perspective by focusing on role model effects has largely ignored the impact of individual differences in meaning systems. Our research points to the importance of taking a social cognitive approach to understanding the process through which role models impact self-conceptions and behaviors. Individual differences concerning people's beliefs about the mutability of their abilities in a given domain influence whether and to what extent a domain-relevant successful role model will have self-enhancing

## IMPLICIT THEORIES AND ROLE MODEL EFFECTIVENESS

effects. By taking an interpersonal perspective, this research substantiates the importance of perceiving a connection with the successful other in order to reap the positive self-regulatory benefits of the model. Furthermore, we have demonstrated the vital role of individuals' cognitions regarding the mutability of abilities within a domain in facilitating this identification process. Along these lines, one avenue for future research into the effectiveness of role models is to extend the social cognitive perspective by also examining identity threat (Steele, 2010). Perceived attainability of success in a domain is not only affected by people's general beliefs about the malleability of abilities, but it is also impacted by stereotyped-based expectations regarding one's social group.

Furthermore, our research contributes to the growing evidence showing that core beliefs regarding the extent to which leaders are born or made can have important implications for one's own leadership-relevant outcomes. Burnette, Pollack, and Hoyt (2010) showed that incremental beliefs about leadership ability predicted greater self-esteem after a stereotype threat in a leadership context relative to more entity-oriented beliefs. The nature or nurture question surrounding leadership abilities has a long history of empirical investigation. As with any such debate, there is support for both conceptions of leadership ability. Research supports the notion that leadership ability is determined from genetics and traits (e.g., Arvey, Rotundo, Johnson, Zhang, & McGue, 2006; Zaccaro, Gulick, & Khare, 2008) as well as social, cognitive, and situational factors (e.g., Hoyt, Goethals, & Forsyth, 2008). Importantly, our results suggest that regardless of which component (nature vs. nurture) contributes the most variance to leadership ability, individual beliefs are important for self-relevant outcomes. There could be value in designing interventions to encourage individuals to focus on the extent to which leaders are indeed made, not just born. Previous research has demonstrated promising findings with such

## IMPLICIT THEORIES AND ROLE MODEL EFFECTIVENESS

interventions designed to increase incremental theories within an academic context (e.g., Good, Aronson, & Inzlicht, 2003). For example, a recent intervention with 7<sup>th</sup> grade students demonstrated that encouraging incremental beliefs of intelligence not only led to improved academic engagement and motivation but also to increased success in the classroom (Blackwell, Trzesniewski, & Dweck, 2007).

### **Limitations and Future Directions**

However, before interventions are implemented, a few limitations could be addressed in future research. First, like much research in personality and social psychology, the sample consisted of college aged students. It is plausible that there could be cultural or socioeconomic differences in adherence to implicit theories of leadership. Additionally, the current studies did not address how differences in leadership experiences influence the development of beliefs, the degree to which one can change beliefs and subsequent effects on self-regulatory processes and outcomes. Another limitation is the low Cronbach's alpha measure of reliability of the implicit theory of leadership scale in Study 1. This could be due to items that focus on both change and effort. Thus, future research could develop a scale that goes from entirely innate to entirely learned in terms of explaining leadership ability. However, a long line of research suggests that an entity theorist views effort as an indication that one lacks the necessary ability (see Dweck, 2000 for a review). Furthermore, the average inter-item correlation (.30), which is recommended over the Cronbach's alpha for scales with few items, indicates that the scale is internally consistent. Indeed, "the .2 to .4 range of intercorrelations would seem to offer an acceptable balance between bandwidth on the one hand and fidelity on the other" (Briggs & Cheek, 1986, p. 114). Moreover, the same measure in Study 2 that included components of both ability and effort, demonstrated adequate reliability on both measures and the manipulation in Study 2

## IMPLICIT THEORIES AND ROLE MODEL EFFECTIVENESS

influenced the measure in the expected direction. Although low reliability can attenuate results, we attained expected findings across two studies using both naturally occurring and experimentally manipulated beliefs.

Another important consideration is that lay theories only represent one aspect of a very complex array of factors that contribute to role model evaluations, self-perceptions and ultimately leadership success. Thus, it is critical that future research explore whether an implicit theory perspective if combined with additional theoretical and environmental approaches can contribute not only to increased self-perceptions in the context of leadership but also sustained increases in performance (see Blackwell et al., 2007, for long-term achievement outcomes in academics). However, one question that needs to be addressed before implementing interventions that encourage an incremental theory of leadership is whether holding an incremental theory is ubiquitously positive.

In Study 2, we chose to focus on the role model condition, as findings consistently show that only in times of a potential ego-threat do implicit theories influence self-regulatory processes and outcomes (e.g., Dweck & Leggett, 1988; also see Dweck, 2000). An *ego threat* is “any event or communication having unfavorable implications about the self” (Baumeister, Heatherton, & Tice, 1993, p. 143). Failures, setbacks, and stereotype threats are examples of ego threats that strengthen the association of implicit theories and self-regulation (e.g., Aronson, Fried, & Good, 2002; Burnette et al., 2010; Hong et al., 1999). The current work adds successful role models to this list of potential ego threats. Namely, successful role models seem to inspire incremental theorists but threaten entity theorists. However, future work should incorporate other conditions that might elicit varying responses based on implicit theory. Recent research on contingencies of self-worth and goal congruency calls into question the relation between implicit

## IMPLICIT THEORIES AND ROLE MODEL EFFECTIVENESS

theories and self-regulatory processes and performance outcomes (e.g., Niiya, Brook & Crocker, 2009; Plaks & Stecher, 2007). For example, incremental theorists with contingent self-esteem did not show resiliency in the face of adversity relative to entity theorists. Rather, they used self-handicapping strategies to help protect their sense of self in the face of complex academic tasks (Niiya et al., 2009). Additional work suggests that theory violations and incongruent goal contexts (e.g., incremental theorists in performance setting) can be detrimental to incremental theorists' emotions, motivations, and performance (e.g., Plaks & Stecher, 2007). In light of these perspectives, applications of the current findings should be considered within a broader context. Although incremental theories predicted adaptive self-regulatory processes (i.e., positive affect and self-evaluations), and outcomes (i.e., performance) in the current research, they may not always foster positive outcomes. Future research should address when and why incremental and entity theories are beneficial to leadership processes and performance.

### **Summary**

Although it is appealing to locate the root of top leaders' success inside them as individuals, success is never achieved in isolation. Many factors impact goal attainment, chief among them are other people in our social environment such as role models. In our first study, we demonstrated that people who hold more incremental views of leadership, those who are more apt to think leaders are made, had more positive responses to leader role models than those with entity theories who are prone to believe leaders are born. After being primed with a leadership role model and then engaging in a leadership task themselves, incremental theorists reported greater leadership confidence and less anxious-depressed affect. In Study 2, we tested the causal role of implicit theories by manipulating theories and our results replicated and extended findings from Study 1. We tested and supported the predictions that incremental

## IMPLICIT THEORIES AND ROLE MODEL EFFECTIVENESS

theorists had more positive self-evaluations and affect in response to the role models because they identified with them more than entity theorists. Study 2 also demonstrated the enhanced performance outcomes attained by incremental, compared to entity, theorists in the face of successful role models. In addition to the theoretical significance, this research has great practical significance for increasing the effectiveness of role models. However, before theory is put into practice, more empirical investigations are needed. We hope this initial investigation merging an implicit theory perspective with the role model literature within a leadership context fosters such explorations.

## IMPLICIT THEORIES AND ROLE MODEL EFFECTIVENESS

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## Notes

<sup>1</sup> Articles for the entity and incremental condition can be obtained by contacting the second author, Jeni Burnette at [jburnet2@richmond.edu](mailto:jburnet2@richmond.edu).

<sup>2</sup> Because women and men were presented with same sex role models, we ran analyses with and without participant sex as a covariate and results were indistinguishable.

## IMPLICIT THEORIES AND ROLE MODEL EFFECTIVENESS

Table 1

*Means, Standard Deviations, and Correlations*

Variable	<i>M</i>	<i>SD</i>	1	2	3	4
<u>Study 1</u>						
1. Implicit theory	5.51	.82	-			
2. Leadership confidence	5.13	.89	.12	-		
3. Anx-dep affect	2.23	.96	-.11	-.49***	-	
<u>Study 2</u>						
1. Implicit theory	5.34	1.13	-			
2. Leadership confidence	4.53	.92	.21	-		
3. Anx-dep affect	2.52	1.17	-.40**	-.15	-	
4. Role model identification	5.01	.99	.23*	.57***	-.33**	-
5. Performance	.00	.91	.29*	.42**	.06	.29*

*Note.*  $N_{study1} = 46$ ,  $N_{study2} = 55$ , performance data = 50;

\*  $p < .05$ . \*\*  $p < .01$ . \*\*\*  $p < .001$ , directional tests.

## IMPLICIT THEORIES AND ROLE MODEL EFFECTIVENESS

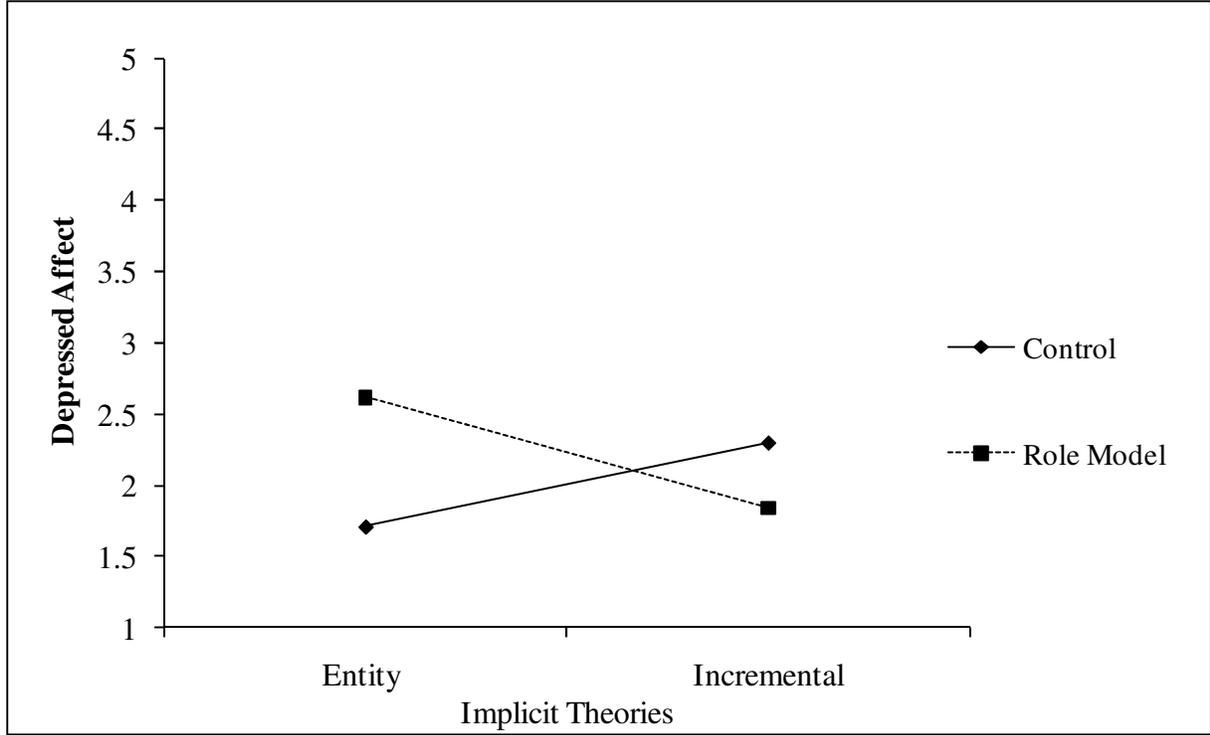
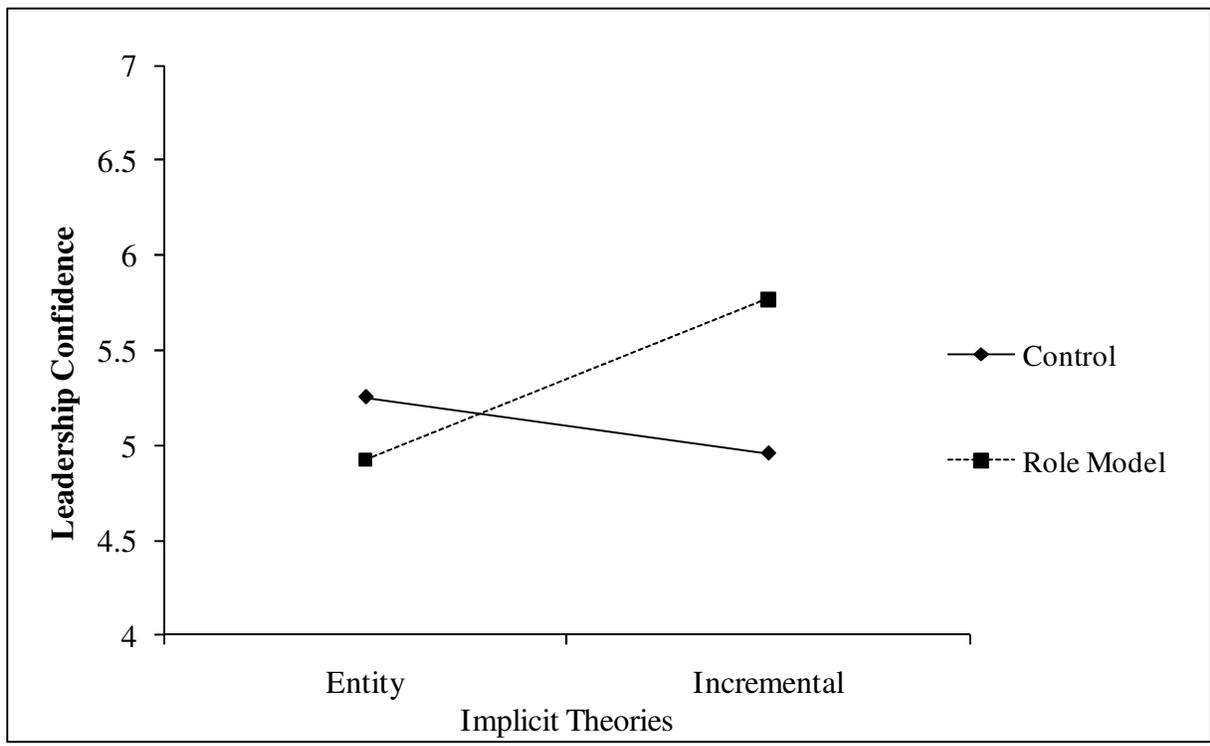
Table 2.

*Bootstrap Analysis of Direction, Magnitude, and Statistical Significance of the Indirect Effects of Implicit Theories of Leadership on Leadership Confidence and Anxious-Depressed Affect through Role Model Identification*

Dependent Variable	Total/direct effects	Indirect effect: Product of path coefficients	5% cutoff value in the lower <sup>a</sup> or upper <sup>b</sup> tail of the distribution of indirect effects
<u>Mediator: Identification with role model</u>			
Leadership confidence	.52/.24	.49*.58= .28	.0981 <sup>a</sup>
Anxious-depressed affect	-.61/-.36	.49*-.51 = -.25	-.0624 <sup>b</sup>

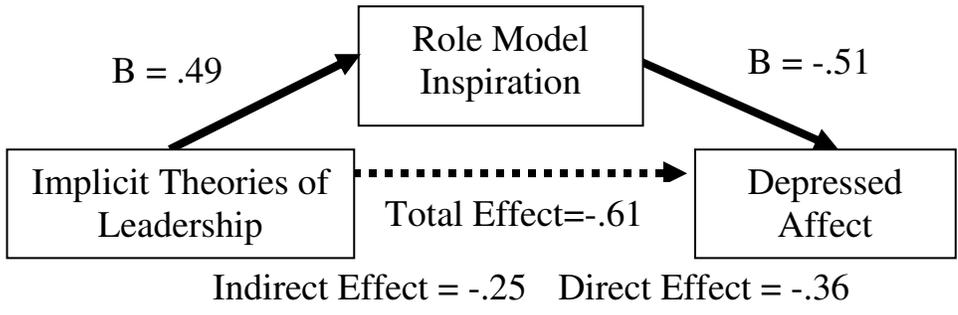
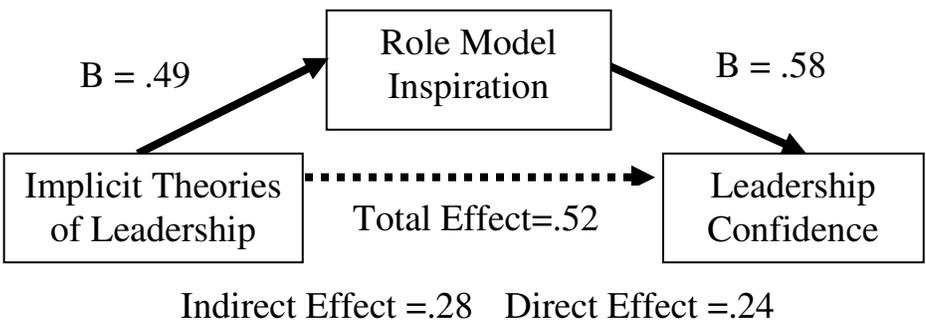
Note: Direct, indirect, and total effects are quantified with unstandardized regression weights.

IMPLICIT THEORIES AND ROLE MODEL EFFECTIVENESS



Figures 1 and 2. Study1: Predicting leadership confidence and anxious-depressed affect from implicit theories of leadership and role model condition

IMPLICIT THEORIES AND ROLE MODEL EFFECTIVENESS



Note: Direct, indirect, and total effects are quantified with unstandardized regression weights.

Figures 3 & 4. Role model inspiration as a mediator of the impact of implicit theories of leadership on participants' leadership confidence and anxious-depressed affect.

## IMPLICIT THEORIES AND ROLE MODEL EFFECTIVENESS

## Appendix

Cynthia/Kevin Brown is the President of Read to Lead, a non-profit company that encourages children to start reading at a young age. The program fosters exploration of books, improvement of vocabulary, creative thinking, and interaction between children. Cynthia's subordinates note her excellent organizational skills within the workplace. Those especially close to her note this characteristic as it aids her systematically coordinate all aspects of her life including her time at home with her family. She has a talent of conducting herself with kindness, while also being assertive and direct. When interacting with her employees she is respected for her willingness to confidently assert her ideas and her ability to skillfully persuade others. Even in strenuous situations she commands respect and evokes a strong sense of self by taking control of the situation and upholding high moral standards. She is able to motivate her colleagues and subordinates through her articulate directions and encouraging communication. Her outstanding energy and optimism further help her to lead by example.