PREDICTING LEADER PERFORMANCE: FIELD TEST OF AN INTEGRATED MODEL

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ABSTRACT

In today's complex business environment, organizational success is more closely tied to leader performance than ever before because organizational leaders must deal with high levels of complexity in the process of communicating organizational goals and directives while simultaneously overseeing operations and communicating performance information. Given the complexity and importance of leaders to organizational success, it was surprising that very little research has focused on developing integrated predictive models of general leader performance. Such models could provide guidance for both future research and practical guidance in selecting and developing leaders. As such, this study identified a number of constructs believed to be influential to leader performance, including cognitive ability, personality, motivation, and leader skills, then tested the applicability of those constructs to leader outcomes using a model of general leader performance. Support was found for the relationship between cognitive ability and performance, as well as the mediating effects of leader skills to the cognitive ability to performance relationship. Theoretical and practical implications are discussed for these findings, as well as rationale for why other relationships were not detected.

Keywords: Leader, Leadership, Performance, Fluid Intelligence, Psychological Capital, Core self-evaluations

INTRODUCTION

In today's complex business environment, effective leaders are crucial for maximizing organizational effectiveness (Hansen & Wernerfelt, 1989; Reay, Golden-Biddle, & Germann, 2006; Rubin & Dierdorff, 2011; Sadler--Smith, Hampson, Chaston, & Badger, 2003). Indeed, virtually all organizations can benefit from effective leaders because they bring unique qualities, skills, and characteristics to organizations that create and maintain competitive advantage (Fulmer, Gerhant, & Scott, 2003; Luthans & Youssef, 2004; Ren & Guo, 2011). In the end, the success of any organization is usually tied to the effectiveness of its leaders and thus the identification, selection, and development of high performing leaders should be of paramount concern to organizational leaders (Longenecker & Fink, 2001).

Given the plethora of leadership research, one might expect that scholars and practitioners alike have reached a consensus on what leadership is and what makes a good leader. Unfortunately, rather than consensus we have a plethora of theories, models, and messages, sometimes in conflict

with each other, about leadership (Eberly, Johnson, Hernandez, & Avolio, 2013). More recently, the literature on leadership has focused on different approaches to leadership, such as leader behaviors (Yukl, 2012), transformational leadership (Bass & Avolio, 1994), servant leadership (Liden, Panaccio, Meuser, Hu, and Wayne, 2014), and leader-member exchange (Graen & Uhl-Bien, 1995; Dulebohn, Bommer, Liden, Brouer, & Ferris, 2012). All of these approaches focus either on certain individual characteristics or certain behavior patterns and the implications of those behavior patterns on leader outcomes (Mumford, Zaccaro, Harding, Jacobs, & Fleishman, 2000).

From a theoretical standpoint, the research on different approaches, or styles, of leadership encourage development of the field and is beneficial to the academic community. From a practical standpoint, we may be missing the forest for the trees, so to speak. Many organizations may lack the individuals with the capacity or interest to adopt or implement these various styles of leadership, but that does not mean that the organizations do not need leaders, and consequently useful models for leadership identification and development. What may be of greater value to organizations in these circumstances is a model of leadership that can serve as a general framework for leader selection and development.

Mumford et al. (2000) developed a general leadership model designed around capabilities, but it has not seen widespread application. Therefore, the fundamental purpose of this study was to apply Mumford et al.'s model of leader capability in a field study. This study contributes to theory and practice in a number of ways. Theoretically, while a number of studies have examined predictors of leader performance independent from one another, this study integrates several of these components into a single framework under an established theoretical model. Investigating components together provides the opportunity to examine the effects of the combined elements, yielding better understanding of the possible interactive effects of the various components. Additionally, by integrating several predictors of performance into a more complete model, this study contributes to practice by providing a better understanding of useful predictors for selecting leaders with the highest likelihood of success. The identification of leaders that possess the qualities most likely to maximize performance is of particular importance to practitioners for both selection and development purposes.

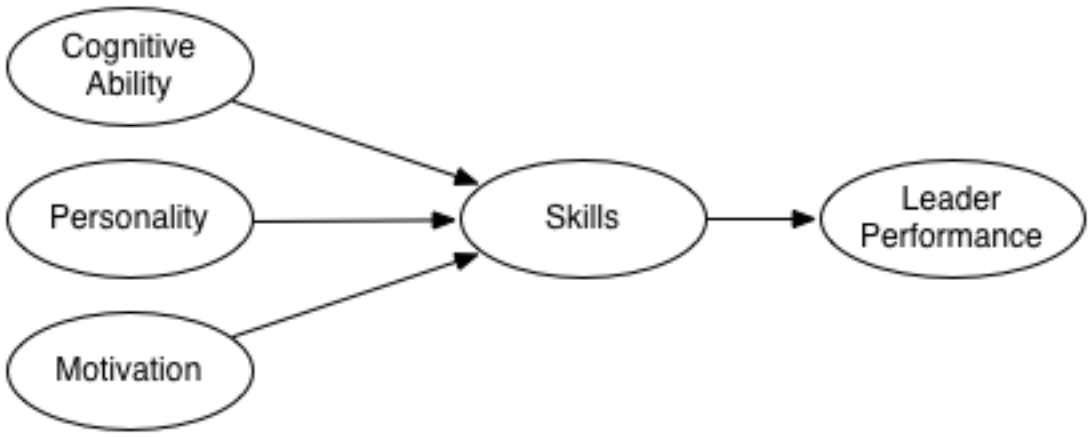
THEORY AND HYPOTHESIS

An ever-changing work environment, coupled with changing skill sets and flattening organizations (Semadar, Robins, & Ferris, 2006), particularly in the service sector, has made the work of leaders more diverse and complex than ever. Leaders are now expected to perform duties that are more cognitively demanding, such as coaching, motivating and inspiring employees, and coordinating teamwork (Hogan, Curphy, & Hogan, 1994) in increasingly complex and dynamic environments. Furthermore, leaders are expected to do these duties in a fragmented and hectic environment requiring the ability to shift from one person to another and from one subject to another on a continuous basis (Mintzberg, 1973; Sayles, 1979). In essence, a framework is needed that identifies the traits and skills needed for effective leadership. A framework of this nature would (a) combine the various components of leader performance into an integrated whole, (b) provide guidance for future research, and (c) identify useable tools for practitioners.

Mumford, Zaccaro, Harding, Jacobs, and Fleishman (2000) proposed a model based on leader capability that seeks to recognize the increased complexity of leadership roles and identify the characteristics leaders need and can develop to be effective leaders. The model begins by identifying the traits that influence leader performance. These include general and crystallized cognitive abilities, personality, and motivation. These traits are antecedents to skill development, including problem solving and social judgment skills, and knowledge required to be an effective leader. Mumford et al. argue that with these skills, leaders solve problems, which in turn leads to leader performance. Two moderators influence various aspects of this model. The first is career experiences, which moderates the development of individual characteristics, particularly crystallized abilities, and skill development. As leaders acquire more experience they develop greater knowledge and social skills that enable them to solve problems more effectively. The second moderator is environmental influences. What occurs in the environment moderates all facets of the model; the environment can enhance or inhibit cognitive and skill development, as well as problem solving, which in turn leads to enhanced or inhibited leader performance.

After proposing the model, Mumford and colleagues conducted a number of studies to support the inclusion of the components in the model (e.g., Zaccaro, Mumford, Connelly, Marks, & Gilbert, 2000; Connelly, Gilbert, Zaccaro, Threlfall, Marks, & Mumford, 2000; Mumford, Marks, Connelly, Zaccaro, & Reiter-Palmon, 2000; Mumford, Zaccaro, Johnson, Diana, Gilbert, & Threlfall, 2000; Mumford, Zaccaro, Connelly, & Marks, 2000), but no field test of the model was performed. In an effort to provide some validation to the model, this study was conducted using a modified version of the Mumford et al. (2000) model. The tested model (see Figure 1) has at its foundation the constructs of cognitive ability, personality, and motivation. That is, as proposed, these serve as the primary predictors of skill development. Skills, in turn, are critical in predicting leader performance.

Figure 1. General Model



Cognitive Ability

Cognitive ability is an ability to process complex information of any type, or in other words, to deal effectively with complexity (Gottfredson, 2002), which as noted earlier, is a critical aspect of leader work. A large body of evidence supports the influential role of cognitive ability as a

predictor of both current and future job performance (Hunter & Hunter, 1984; Ree & Carretta, 2002; Schmidt & Hunter, 1998). The predictive validity of cognitive ability also increases as the complexity of the job increases, as Hunter (1983) demonstrated in a test of cognitive ability against 515 occupations classified as either low (r = .40), medium (r = .51), or high (r = .58) complexity jobs. In essence, no single non-cognitive trait or interest predicts core performance better (Furnham, 2008). Individuals high in cognitive ability learn more and learn faster, and unlike other characteristics, such as job experience, the influence of cognitive ability does not decrease over time (Gottfredson, 2002).

Hypothesis 1: Cognitive ability will positively relate to leader performance.

Personality

Research on personality and performance seem to both contradict and support the assertion that personality is related to performance. A number of studies (Dudley, Orvis, Lebiecki, & Cortina, 2006; Hogan & Holland, 2003; Mount, Barrick, & Stewart, 1998; Oh & Berry, 2009) have found significant relationships between various dimensions of personality and job performance, suggesting that personality matters. Other scholars, however, suggest that the effect sizes are often small (Hurtz & Donovan, 2000; Mount, Barrick, & Stewart, 1998), suggesting that personality may have little bearing on performance.

Direct effects of personality on job performance may be misleading, however, for two reasons. First, isolated traits may not adequately capture enough variance of the entire conceptual space in personality to be valid predictors of job performance. Second, many traits have significant overlap with other traits. For these reasons, the use of a latent model higher order construct may capture more of the personality-related conceptual space resulting in unifying constructs that better explain and predict job performance (Johnson, Rosen, & Levy, 2008).

A good example of a higher order personality trait, and the one used in this study, is the trait of core self-evaluations (CSE; Judge, Locke, & Durham, 1997). CSE is comprised of four facets: self-efficacy, self-esteem, locus of control, and neuroticism. As a construct, CSE is designed to reflect an appraisal of one's self-worth and beliefs in their abilities to succeed (Judge, 2009). Each of these facets has significant bearing on the work of a leader. A leader high in self-efficacy (i.e., feelings of ability to be successful) combined with high self-esteem (i.e., feelings of self-worth) may be more likely to feel confident in their abilities to handle the complexities inherent in a leader's work. A leader low in neuroticism (i.e., free from anxiety, depression, anger, emotional instability, insecurity, nervousness, fearfulness, or apprehension), might develop better relationships faster and be more effective at garnering the trust, cooperation, and support of others. A leader high in internal locus of control might be more likely to take personal responsibility for the outcomes over which they are responsible. In general, we would expect that leaders high in CSE would have greater levels of effectiveness than leaders would with lower levels of CSE. Evidence does seem to support these expectations. CSE has been shown to have a direct effect on higher task performance in a laboratory setting, and higher job performance among sales representatives (Bono & Judge, 2003), though this linkage is modest (r = .23).

Hypothesis 2: Core self-evaluations (CSE) will positively relate to leader performance.

Motivation

A third predictor of leader performance involves the commitment of the leader to perform his or her required duties. In other words, how motivated is an individual to fulfill the responsibilities of a leader? Leaders are consistently confronted with a number of discretionary activities in the course of their duties suggesting that intrinsic motivation to fulfill their responsibilities will result in higher levels of effort and persistence (Meyer, Becker, & Vandenberghe, 2004). Traits, in particular, can be a significant source of intrinsic motivation, but traits are by definition generally stable and difficult to change. If organizations must rely on individuals possessing adequate levels of a motivational trait to fill leadership positions, they may be severely limited in the selection options. Other psychological characteristics, however, are more "state-like." That is, they are relatively malleable and open to development (Luthans, Avolio, Avey, & Norman, 2007). These state-based motivational constructs may be more useful to organizations because these constructs can be cultivated in most leaders, including those that do not possess especially high levels of motivational traits.

Psychological Capital (PsyCap; Luthans, Luthans, & Luthans, 2004) is such a state-based construct of motivational propensity originating in the positive organizational behavior (POB) movement. According to Luthans, Youssef, and Avolio (2007), this construct is composed of four facets: (a) self-efficacy, having the confidence to take on challenging tasks and put in the effort to succeed; (b) optimism, believing one can succeed now and in the future; (c) hope, having the will to succeed and the ability to identify, clarify, and pursue the way to success; and (d) resiliency, the ability to bounce back from adversity to attain success. PsyCap thus "represents one's positive appraisal of circumstances and probability for success based on motivated effort and perseverance" (Luthans et al., 2007, p. 551).

Previous research has linked each of the four facets to positive job attitudes and performance (Gist & Mitchell, 1992; Luthans, Avolio, Walumbwa, & Li, 2005; Murphy, 1992). Additionally, as a latent model higher order construct, PsyCap has demonstrated both theoretically and empirically that it predicts job performance better than each of the four independent facets of which it is comprised (Avey, Luthans, Smith, & Palmer, 2010). Initial evidence also suggests that the construct of PsyCap is distinct from trait-based constructs such as core self-evaluations and the Big Five personality traits (Luthans et al., 2007), and because PsyCap is conceptualized to be state-like and malleable, it is presumed to be developable (Stajkovic, 2006; Walumbwa, Peterson, Avolio, & Hartnell, 2010).

The potential practicality and intuitive appeal of PsyCap is apparent given that leaders are often assigned a variety of tasks that may have a high risk of failure. Even leaders high in CSE may be daunted in the face of some assignments. It's proposed that leaders with high levels of PsyCap will be rated as better performers due to stronger beliefs about their abilities to complete the task (self-efficacy), having a vision of completion (hope), approaching their responsibilities from a positive perspective (optimism), and when things go awry, bouncing back more quickly (resiliency).

Hypotheses 3: Psychological Capital will positively relate to leader performance.

Leader Skills

According to Mumford et al. (2000), leader skills will mediate the relationship between leader traits and motivation and leader performance. Leader skills are defined by Mumford, Peterson, and Childs (1999) as procedures for acquiring and working with information. These skills are different from traits such as personality or core self-evaluations in that they are not necessarily stable but depend on experience and practice. Of particular value for leaders are skills necessary for accomplishing work *through* others, which is the essence of a leader's work.

In a qualitative study, Whetten and Cameron (2010) identified 402 leaders considered highly effective performers and interviewed them to find out what skills contributed to their success. Their analysis revealed 10 critical skills cited most frequently. These 10 skills include verbal communication, managing time and personal stress, managing individual decisions, recognizing, defining, and solving problems, motivating others, delegating, setting goals and articulating a vision, self-awareness, building effective teams, and managing conflict.

These findings have significant overlap with the skills identified by Mumford, Campion, and Morgeson (2007). Their findings supported a four-factor skill structure consisting of cognitive skills (i.e., speaking, writing, critical thinking, etc.), interpersonal skills (i.e., social perceptiveness, coordination, etc.), business skills (i.e., managing personnel, financial, and material resources), and strategic skills (i.e., visioning, problem identification, solution appraisal, etc.). These are the skills that are most useful to leaders in dealing with the complexities of leader work and which are necessary for accomplishing work through others.

> *Hypothesis 4:* Leader skills will mediate the relationship between leader characteristics and leader performance.

METHODOLOGY

Research Setting and Procedures

The data were collected from a facilities maintenance organization for a large university in the southeastern United States. Online surveys were administered to two constituencies within each organization: (a) leaders (ratee), and (b) the leaders' supervisors (boss). The manager's name was requested of all survey respondents and used to provide a link between the responses of the manager and the manager's boss. At the conclusion of the data collection, all names were replaced with a unique numerical identifier, yielding the data completely anonymous. The resulting sample consisted of a range of leaders including assistant supervisors, supervisors, assistant managers, managers, assistant directors, and directors.

Leaders completed measures of cognitive ability, core self-evaluations, and psychological capital. Given the nature of these constructs, self-report data were deemed the logical source. The leader's supervisors provided ratings of the leader's skills. Since research suggests that self-reports tend to be inflated in comparison to supervisory ratings (Heidemeier & Moser, 2009), acquiring a skill rating from the ratee's manager reduced concerns of inflated self-ratings. Based on similar logic, subordinates were asked to provide a measure of the manager's performance. Certain behaviors

are more readily observed by the subordinates, and thus subordinates constitute an important source for rating relevant managerial performance behaviors (Mount 1984; Tsui 1988).

Sample

Survey invitations were extended to all leaders who fit the leader criteria (n = 70), the leaders' bosses, and the leaders' subordinates. After compiling the boss and subordinate ratings for each manager, and eliminating responses with incomplete data, the sample consisted of 65 leader responses. Approximately 56% of the responses came from assistant supervisors or supervisors. Most leader respondents were male (87.7%), and most were 41 years old or older (86.2%). Many of the leaders responding had a 4-year (Bachelor's) degree or higher (49.2%), had been with their organization for 11 or more years (60.0%) and had been in their position 6 or more years (89.2%).

Measures

Cognitive Ability. Cognitive ability was measured using a short version of the Raven's Advanced Progressive Matrices (APM; Raven, Court, & Raven, 1978) outlined by Bors and Stokes' (1998). The Raven's APM is designed to measure the ability of respondents to solve problems and handle complexity through progressively more complex puzzles (Carpenter, Just, & Shell, 1990; Raven, 2000). The full version consists of 12 practice puzzles and 36 scored puzzles and takes approximately 40 minutes, but due to time constraints, a short version was used (Bors & Stokes, 1998) consisting of 12-items with two practice puzzles. In developing the short form of the test, Bors and Stokes obtained a correlation of .92 with the full-length APM and an internal consistency (as measured by Cronbach's alpha) of .73. The test for this study was administered by providing each manager with a test booklet consisting of two practice puzzles and 12 scored puzzles. Scores were obtained by calculating the total number of correct responses on each of the 12 scored puzzles, with a higher score indicative of greater cognitive ability. Coefficient alpha for the measure as used in this study was .80 (M = 5.78; SD = 3.1).

Core self-evaluations. CSE was measured using the 12-item Core Self-evaluations Scale (CSES; Judge, Erez, Bono, & Thoresen, 2003). This scale has shown internal consistencies across a number of studies in the range of .80-.84 (Judge, Van Vianen, & De Pater, 2004; Kacmar, Collins, Harris, & Judge, 2009; Stumpp, Hulsheger, Muck, & Maier, 2009). Each item was rated using a 6-point Likert type scale (1 = Strongly Disagree, 6 = Strongly Agree). Coefficient alpha for this study was .73 (M = 4.67; SD = .54).

Psychological capital. The 24-item Psychological Capital Questionnaire (PCQ-24; Luthans et al., 2007) was utilized for this study. Luthans et al. (2007) found internal consistencies across multiple studies to be greater than .85, and reliabilities for other studies have ranged from .93 (Avey et al., 2010) to .98 (Peterson, Luthans, Avolio, Walumbwa, & Zhang, 2011). Each item was rated using a 6-point Likert type scale (1=Strongly Disagree, 6=Strongly Agree). Coefficient alpha for this study was .89. (M = 4.94; SD = .50).

Leader skills. The ratings for leader skills were reported by the manager's supervisor using 20 items selected from the generalized work skills questionnaire provided by the U.S. Department of Labor for the Occupational Information Network (O*NET; https://onet.rti.org/pdf/OE_Skills_Questionnaire.pdf). The original version of this scale was a 46-

item measure developed by Mumford, Peterson, and Childs (1999) that measures both the level of the particular skill needed for the job, and the importance of that skill to the job. To determine which of the skills were related to leadership, Mumford et al. (2007) factor-analyzed the 46 items and determined that leadership skills were best represented by a four-factor structure consisting of 21 of the 46 items. These items were grouped into four factors: cognitive skills (α = .90), interpersonal skills (α = .84), business skills (α = .75), and strategic skills (α = .91).

In 2000, the scale was updated and revised resulting in a 35-item measure currently in use (Hubbard, McCloy, Campbell, Nottingham, Lewis, Rivkin, & Levine, 2000). The revised version of the questionnaire merged six of the original 46 skills identified by Mumford et al. into a single skill (complex problem solving), eliminated several outdated skills previously identified, and added a number of other leader related skills not previously included. A factor analysis of the revised edition of the scale identifying leadership skills was not available. Therefore, 15 skills were selected identified by Mumford et al. that remained in the revised version of the questionnaire, the one skill that was created by merging six skills used in the Mumford et al. study (complex problem solving), and four others from the new questionnaire that seem particularly relevant to leader work based on previous research (i.e., time management, quality control analysis, judgment and decision-making, systems analysis; Boyatzis, 1982; Campbell, 1970; Mintzberg, 1994). The scale is designed to assess the overall level of leader skills as perceived by the leader's boss. The leaders' bosses' were given the statement, "[Name of manager] does very well at . . ." followed by the 20 statements reflecting the skills selected, such as "Talking to others to convey information effectively" or "Using logic and reasoning to identify the strengths and weaknesses of alternative solutions, conclusions, or approaches to problems." Each item was rated on a 7-point Likert type scale (0=Not Sure/Does Not Apply; 1=Strongly Disagree; 2=Disagree; 3=Somewhat Disagree; 4=Somewhat Agree; 5=Agree; 6=Strongly Agree). Scores were calculated by taking the average of the scores for all 20 items. Coefficient alpha for this study was .94 (M = 4.92; SD = .72).

Leader performance. Leader performance was measured using a 12-item measure that focuses on leader behaviors observable by subordinates. Eight items of this scale were composed by Mount (1984) based on items taken from the Management Position Description Questionnaire (MPDQ) by Tornow and Pinto (1976) and are related to behaviors specific to leadership positions. An additional four were added to capture overall impressions of leader capability. Subordinates were given the leader's name followed by the 12 items, and each item was rated on a 6-point Likert type scale (0=Not Sure/Does Not Apply; 1=Consistently performs way below expectations; 2=Consistently performs below expectations; 3=Consistently performs at expectations; 4=Consistently performs above expectations; 5=Consistently performs way above expectations). Coefficient alpha for this measure was .90 (M = 3.60; SD = .44).

Method of Analysis

To test the hypotheses, the model was analyzed using linear regression in SPSS 23 (*IBM SPSS Statistics for Windows, Version 23.0,* 2015). A common approach of mediation analysis was used (Baron & Kenny, 1986), consisting of several steps. In step one, a relationship between the independent variables (Cognitive ability, CSE, and PsyCap) and outcome variable (leader performance) is assessed; step two consists of assessing the relationship between the independent variables and the mediator; step three consists of assessing the relationship between the mediator and outcome variable. If the statistical significance of the relationships between the independent

variables and dependent variable are reduced to insignificance when the mediator variable is included in the model, then full mediation is assumed to have occurred. Initial testing indicated that none of the respondent demographic characteristics (i.e., gender, job tenure, etc.) were related to leader performance and were thus excluded.

RESULTS

Table 1 shows the means, standard deviations, and intercorrelations among the study variables at each level. Several of the bivariate correlation coefficients are statistically significant, but the actual correlation coefficients are low to moderate. Significant correlation coefficients among the independent variables are often assumed to suggest the possibility of multicollinearity, but according to Kline (2005) multicollinearity is not an issue unless the coefficients exceed .85. Core self-evaluations and Psychological Capital share more variance than the other correlated variables, (r^2 = .38), but previous research suggests that the construct of Psychological Capital is distinct from Core self-evaluations (Luthans et al., 2007), so this was deemed sufficient to proceed with the analysis.

Table 1
Means, standard deviations, correlations, and reliabilities for study variables

Variable	*Mean*	*s.d.*	1	2	3	4	5
1. Cognitive Ability	5.78	3.12	*(.80)*				
2. Core self-evaluations	4.67	0.54	.25*	*(.73)*			
3. Psychological Capital	4.94	0.5	.35**	.62**	*(.890*		
4. Leader Skills	4.92	0.72	.38***	-0.17	-0.07	*(.94)*	
5. Leader Performance	3.60	0.44	.21	-0.24	-0.04	.47**	*(.92)*

Note. N = 65; Cronbach's alphas appear on the diagonal in parentheses.
**p < .01, *p < .05. Two tailed test.

Hypothesis Testing

Table 2 presents the results of the hypotheses tests. Hypothesis 1 states that cognitive ability is positively related to leader performance. The beta coefficient for cognitive ability in the regression was statistically significant (β = 0.04, p < .05), so hypothesis 1 was supported.

Hypothesis 2 stated that CSE would be positively related to leader performance. The beta coefficient for CSE in the regression was statistically significant (β = -.28, p < .05), but in the opposite direction hypothesized. Thus, hypothesis 2 was not supported and CSE was removed from the model.

Hypothesis 3 stated that PsyCap would be positively related to leader performance. The beta coefficient for PsyCap in the regression was not statistically significant (β = 0.07, p > .05), so hypothesis 3 was not supported and PsyCap was removed from the model.

Hypothesis 4 stated that leader skills would mediate the relationship between the independent variables (cognitive ability, CSE, and PsyCap) and leader performance. In order to test the

mediation effects, the relationship between cognitive ability and leader skills was assessed. The beta coefficient for cognitive ability in the regression was statistically significant ($\beta = 0.10$, $p < .01$), so leader skills was inserted into the model as a mediator. When the leader skills variable was inserted, the statistically significant relationship between cognitive ability and leader performance dissipates, and leader skills was a significant predictor of leader performance ($\beta = 0.24$, $p < .01$). These results suggest that leader skills fully mediate the relationship between cognitive ability and leader performance. Thus, Hypothesis 4 was supported, though not in full because CSE and PsyCap were omitted from the model.

Table 2
Linear regression results for the proposed model

	Leader Performance	
	Coeff.	*SE*
Direct Effects		
Intercept, β_0	4.36**	0.55
Cognitive Ability, β_1	0.04*	0.02
Core self-evlauations (CSE), β_2	-0.28*	0.12
Psychological Capital (PsyCap), β_3	0.07	0.14
Mediation Model		
Intercept, β_0	2.21**	0.34
Cognitive Ability, β_1	0.01	0.02
Leader skills (ManSkills), β_4	0.24**	0.08

Note. $N = 65$.
**p < .01, *p < .05. Two tailed test.

DISCUSSION

Application and future research

The purpose of this study was to test a general model of leadership based on capability by identifying predictors that may be useful in predicting leader performance utilizing a theoretical framework proposed by Mumford et al. (2000). This framework suggests that a leader's cognitive ability, personality, and motivation predict skill development, which in turn predicts problem solving ability, which leads to higher leader performance. Previous empirical research supported the logic of this model, and this study is a response to calls for more research on models of this nature (Yukl, 2012).

In general, the findings lend some support to the proposed model, but with some exceptions. For hypothesis one, statistical support was found for the prediction that cognitive ability will predict performance, and this relationship is fully mediated by ratings of leader skills. These findings are not necessarily surprising because they are in line with previous research (Connelly et al., 2000).

These results support the idea that a leader's cognitive ability and subsequent skill development are important to deal with complex environments, and thus should be one criteria for leader selection and development.

What may be of greater interest is what was not found. The model predicts that personality and motivation will predict the development of leader skills which will then predict performance, but neither hypothesis was supported. In regards to personality, this prediction was statistically supported but in the opposite direction of that proposed. In essence, within this sample, as self-ratings of CSE went up, ratings of leader skills and performance went down. This finding ran contrary to what was predicted in the model. In trying to understand this finding a number of possibilities were explored, but no empirical explanation was found. It was concluded, therefore, that these findings may be reflective of the role played by the person-situation interaction on the performance of organizational members.

A recent study by Judge and Zapata (2015) lends credibility to this line of thinking. They found that in strong situations (i.e., work contexts with high levels of structure, less variety in day to day activities, less autonomy in decision making, and strong penalties for negative outcomes), personality is attenuated. In these contexts, the organizational structure demands certain behaviors and therefore personality does not have a chance to manifest itself. In fact, Judge and Zapata suggested that when the situation strength is strong and performance is based on outcomes, personality will negatively predict job performance validities. In the case of this study, the organization in which the data were collected was highly mechanistic (i.e., high degree of centralization, work specialization, and highly formalized), meaning leaders operated in a context of strong situational strength, and leader performance was measured as a function of outcomes, so if Judge and Zapata are correct, this would suggest personality would be a negative predictor of performance, and indeed that is what occurred in this study. This suggests that personality may only be relevant when situations are weak, such as in dynamic work contexts where less structure and formalization are present. Personality may be less important in organizations where the structure dictates specific behaviors.

The model also predicted that leader motivation would lead to better ratings of leader performance, but this was not supported by the data from this sample, nor was motivation predictive of ratings of leader skills. The lack of significance for motivation as a predictor of leader performance may also be related to the situational strength of the work context. One can imagine that when the situation is strong, high levels of motivation may not be as critical to leader success. It may also be that leader motivation, while possibly important, may not be readily observable or may be subsumed in other aspects of the individual. For example, psychological capital was significantly correlated with cognitive ability, which may suggest that those higher in cognitive ability may be more motivated to develop leader skills and perform better.

In sum, the proposed model may be a starting point for the development of a general model of leadership, but this study suggests that several refinements will need to be made in order to make it a viable model for application. For example, the model specifically suggests work experience would be an overall influence. While this may be true, job tenure, the measure used in this study to represent work experience, had no relationship to job performance and so it was not included in the analysis. It may be that work experience matters, but is captured in cognitive ability and leader

skills, thus there is no need to separate it for theoretical and modelling purposes. This study also suggests that situational strength may be an important determinant of leader effectiveness, and should be incorporated into the model. In strong situations, the importance of the leader diminishes, and thus situation strength probably needs greater emphasis.

Limitations

As is the norm in this type of research, a limitation of this study is the possibility of common method and rater bias. Common rater bias was curtailed to some degree by collecting the independent variables from the manager and the manager's boss, and collecting the dependent variable from leader subordinates. This methodology distributed the chance for rater bias across multiple parties and reduced it at any one respondent group. The data was, however, self-report data and is thus subject to common method bias. It was felt, however, that common method bias was unavoidable due to the study variables being self-report constructs that could not be adequately assessed by any other source. Further, given the voluntary nature and anonymity of study participants, there was no reason to believe that respondents were untruthful (Conway & Lance, 2010).

A second limitation is the possibility that the sample size is inadequate to achieve sufficient power. Given the nature of the variables, and the methods in which they were collected (specifically the cognitive ability variable), it was necessary to limit data collection to one organization. Replication in a much larger organization would prove beneficial for future research.

A third limitation may be related to the choice of variables, specifically the measure of core self-evaluations. It may be that the model did not measure the appropriate individual difference variable impacting performance. The Big Five dimension of neuroticism is known to have a curvilinear relationship with performance on a cognitive performance task by middle managers (Beckmann, Beckmann, Minbashian, & Birney, 2013). It may be that this study needed to use other individual difference variables to better assess the relationship between general mental ability, personality, and performance.

CONCLUSION

In sum, leader performance is a critical factor contributing to organizational performance and success and should be of concern to both academic researchers and human resource professionals engaged in the selection and development of leaders (Carroll & Gillen, 1987). In particular, changes from a manufacturing to service economy are requiring leaders to have increasing levels of capability in order to be effective (Hogan et al., 1994). Leaders that lack the cognitive ability to work in the leader environment of today's organizations are less likely to be successful. Further, even with adequate cognitive ability, lack of motivation and skills may handicap overall effectiveness. Thus, having a more integrated view of overall leader performance may be helpful both at the individual level (by allowing them to be successful through good fit, or avoiding unnecessary failure due to poor fit) and the organization level (by obtaining a competent and effective leader).

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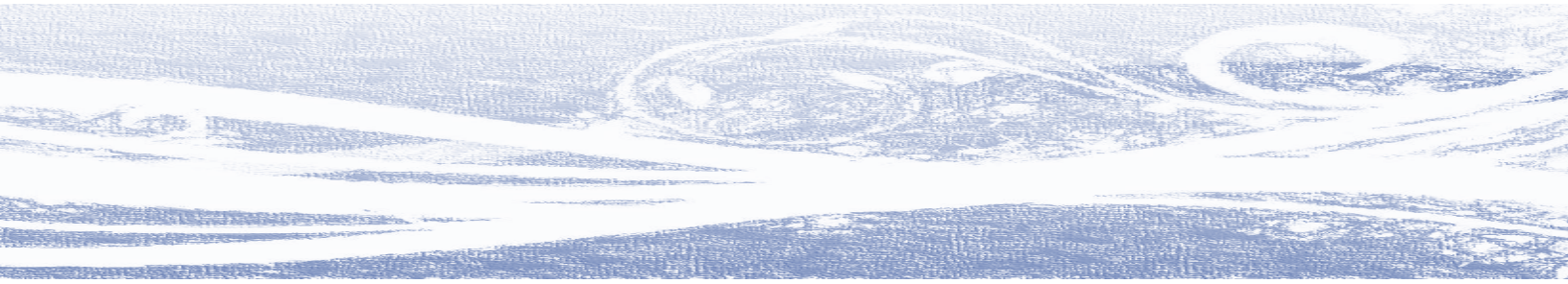

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