ABSTRACT

KAIL, ERIC GUY. Does Personality Predict Perceived Performance Change Following a Leader Development Intervention? (Under the direction of S. Bartholomew Craig.)

The purpose of the research has been to investigate personality as a predictor of perceived performance change following a leader training program. A sample of 363 leaders attended a five day leader development training program at a centralized location. Approximately 90-120 days after returning to work in their organizations, participating leaders received a 360-degree assessment in order to assess perceived performance change. Personality was measured using the CPI260 (ref), and results were mapped onto the Five Factor model of personality. Personality was operationalized both as continuous dimensions of the Five Factor model and as categorical types. Personality types were identified via cluster analysis. Personality was further investigated as moderating the relationship between self-other rating discrepancy and perceived performance change. Results suggested that personality dimensions and types predicted perceived performance change following a leader development intervention, with some relations displaying curvilinear trends. Personality was not found to moderate the relationship between self-other rating discrepancy and perceived performance change. Implications for theory and practice as well as recommendations for further research are presented.

Does Personality Predict Perceived Performance Change Following a Leader Development Intervention?

by

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DEDICATION

To my wife, Gigi, who loves me for who I am regardless of what I know or do not know. She is the first and only woman I have ever loved and she inspires me to places I could not achieve on my own. Rather than pursuing her own ambitions, she continually elevates mine for the benefit of others. I love her with all my heart, mind, and soul; she is the best of each part of me.

I also dedicate this to the American Soldier and every family that has provided one.

BIOGRAPHY

Eric G. Kail was born in 1965 to Richard and Brenda Kail. As the son of a soldier, he lived in numerous locations around the World. He was commissioned as a Second Lieutenant in the Field Artillery upon graduating from Radford University in 1987. His assignments include duty in 3rd Armored Division, 101st Airborne Division (air Assault), the U.S. Military Academy, West Point, the 75th Ranger Regiment, and 3d Infantry Division (Mechanized). He has multiple combat tours. He is a graduate of the U.S. Army Command and General Staff School and the U.S. Naval War College (College of Naval Command and Staff). He holds a Batchelor of Arts in Criminal Justice, a Masters of Science in Counseling Psychology and Leader Development, and a Masters of Science in National Security and Strategic Studies. His awards and decorations include the Bronze Star Medal with V device and oak leaf cluster, Meritorious Service Medal with three oak leaf clusters, the Army Commendation Medal with two oak leaf clusters, the Army Achievement Medal with oak leaf cluster, the Ranger Tab, the Parachutist Badge, and the Air Assault Badge. He is married to the former Gigi Graves and they are the proud parents of Jake and Emma Kail.

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Introduction

The scientific study of leadership is relatively new when compared to the general history of psychology. Several facets of leadership effectiveness remain unexplored while some extant leadership theories have yet to receive generalized empirical support. Initial impressions that leaders were great men and women who were born leaders gave way to more sophisticated and complex theories focused on the traits leaders possessed and what instruments, such as power, they used while leading (French & Raven, 1960; Terman, 1904). Later, industrial and organizational psychologists began to look at the behaviors leaders exhibit as they lead and how leader behaviors affect the relationships between leaders and followers (Stogdill & Coons, 1957). As the scope of leadership research and field study has changed over the past several decades, the argument over whether leaders are born or made continues to a lesser extent. This debate is at the center of one stream of leadership research, the study of leader emergence, which addresses the processes by which people come to be in leadership roles within groups (Judge, Bono, Ilies, & Gerhardt, 2002). A second stream of leadership research, on leader effectiveness, is the focus of the current paper.

Leader effectiveness is important to the career paths of leaders and followers, and even to organizational outcomes (Avolio & Gibbons, 1988; Bass, 1990). The current study investigates leader effectiveness in terms of perceived leader behaviors. Previous research suggests that leader behaviors can be changed and improved upon (Atwater, Roush, & Fischthal, 1995; Brett & Atwater, 2001; Reilly, Smither, & Vasilopoulos 1996). Antecedents to changes in leader behaviors include performance feedback and formal leader development programs. Change is typically thought to take time, deliberate

effort by the leader, and an environment supportive of change (Goldstein & Ford, 2002; Smither, London, & Reilly, 2005). Regardless of whether one believes leaders are born or made, or even what one believes leadership should be or how it should be studied, one could argue that leaders can be developed.

Leader Development vs Leadership Development

Leader development and leadership development are similar; however, a separate conceptualization of each is important for the current study. Leader development is intrapersonal, focusing on leaders and developing them as part of the organization's human capital. Leadership development is interpersonal, focusing on the relational dynamics of leadership as part of the organization's social capital (Day, 2001; Palus & Horth, 2003). Whereas leader development seeks to develop leaders' self-awareness by increasing the accuracy of their self-image as perceived by others, leadership development seeks to develop leaders' social awareness by encouraging service orientation and empathy towards followers. The current study is primarily concerned with the investigation of leader development.

Perhaps the most striking contrast between the two developmental approaches is leaders' regulation of self versus the leadership environment (Day, 2001). The goal of leader development is to enhance leaders' capacity for self-regulation resulting in trustworthiness and respectability as perceived by followers. Another facet of self-regulation is the ability to adapt to meet changing leadership requirements proactively rather than reactively (Van Velsor, 1998). Conversely, leadership development focuses on regulation of the environment by enhancing leaders' ability to build bonds, orient followers to a team orientation, and manage conflicts. A goal of leader development not

shared with leadership development is increasing the self-motivation of leaders. In this regard, successful leader development results in leaders taking the personal initiative required to commit to the organization with a spirit of optimism (Palus & Horth, 2003; Tinelli, 2000).

Organizations conduct leader development for several reasons. Providing leaders with increased self-awareness aimed at changing or developing critical job specific behaviors is a predominant reason (Day, 2001). Organizational outcomes such as improved profit and reduced turnover are also important goals for conducting leader development (Van Velsor, 1998). Preparation of leaders for promotion or increased responsibility within the organization is also a common reason for conducting leader development (Palus & Horth, 2003). Finally, some leaders might even be offered leader development opportunities as a last chance to demonstrate leadership potential as an alternative to termination. These reasons for conducting leader development all reflect an investment of organizational resources in order to improve leaders and the organization.

In order for the organization to receive some return on its investment in leader development, Goldstein and Ford (2002) suggest that individual goals for leader trainees and organizational goals related to leader behavior are identified through a needs assessment. Research suggests that a given group of leaders who undergo a leader development intervention may improve by different degrees and in different job-specific areas (Smither et al., 2005; Walker & Smither, 1999). The current study seeks to investigate whether leader personality predicts change in leader behaviors following a leader development intervention. The ability to predict such change in leader behaviors based on leader personality may lead to a better understanding of how to tailor the

strategies and goals of leader development interventions and requisite needs assessments in order to optimize leader development.

A critical component of effective leader development is goal setting (Goldstein & Ford, 2002; London & Smither, 1995). It is generally recommended that the leader undergoing the development intervention should be included as a participant in goal setting and goals should be realistic, attainable, and directed at specific behaviors targeted in the development intervention (Locke & Latham, 1990). The current study seeks to contribute to the extant body of knowledge on leadership by providing insight into how the predictive ability of leader personality might facilitate realistic goal setting prior to, and following leader development interventions.

How Leaders Learn

Leaders use work-oriented schemas in much of their professional learning processes (Tinelli, 2000). Leaders might learn and develop while doing their jobs; however, systematic leader development programs provide a framework for leaders to focus on proactive learning rather than reflecting on their leadership behaviors outside of a learning environment. Research has identified at least three factors that influence how leaders learn outside of formal leader development programs: the organizational context, intuition based on past experiences, and consultation with colleagues (Mumford, 1980).

First, organizational context provides structure for how leadership is applied to organizational goals and objectives, and defines the rules for doing so (Tinelli, 2000). Each organization has a unique culture with norms and systems that prescribe the manner in which leaders and followers interact. Some organizations place high value on financial assets, whereas other organizations value organizational members most. Second, leaders

learn from personal experience (Van Velsor, 1998). Though seemingly a natural phenomenon, learning from experience is not overtly or deliberately used by leaders as a method for learning (Mumford, 1980). Mumford suggests three impediments to using learning from experience as a deliberate method for leader development. First, it is difficult for leaders to know what needs to be learned while learning from experience. Second, leaders are motivated to accomplish the task at hand. The motivation to learn, if present at all, is not what drives leaders through an experience. Third, most leaders do not receive the support necessary to learn unless the organization uses formal training systems designed to allow leaders to learn from their mistakes without aversive consequences.

Informal information-sharing among leaders is another form of leader learning (Boyce, 2004; Mumford, 1980). This method of vicariously learning from the experiences, both positive and negative, of comparison others can be found in any organization with two or more leaders. One problem with this type of learning is that leaders passing on their experiences to other leaders rarely do so objectively (Tinelli, 2000). With the goal of enhancing the understanding of how leaders learn, the current study proposes to use data from a leader sample that has completed a deliberate and systematic leader development program aimed at changing leader behavior.

Three extant paradigms for assessing learning and training are relevant to the current study. The first presents a model for assessing training outcomes at four separate levels (Kirkpatrick, 1998): trainee reactions, learning, behavior, and organizational results. Trainee reactions refer to affective responses to training, whereas learning refers to the acquisition of specific skills or knowledge as a result of the training. Learning was

suggested by Kirkpatrick to be both a causal result of positive training-related affect and as causal to changes in behavior. Behavior, in turn, was suggested as causal to organizational outcomes such as increased productivity due to transfer of training from the training setting to the context of the organizational workplace.

The other two models of evaluating training outcomes are extensions of Kirkpatrick's (1963) model. The first extension divides and explicates types of trainee reactions and learning (Alliger, Tannenbaum, Bennett, Traver, & Shotland, 1997), whereas the second classifies learning outcomes (Kraiger, Ford, & Salas, 1993). Alliger et al.'s model classifies trainee reactions as either affective or utility reactions. Affective reactions capture whether or not trainees liked the training or found it enjoyable. Utility reactions are trainee judgments as to how useful or practical the training would be on the job. Alliger et al. explicate three facets of learning accomplished from training: immediate post-training knowledge, knowledge retention, and demonstration. Immediate post-training knowledge is that information acquired by the trainee that is assessed directly following training. This type of knowledge is typically assessed via multiple choice tests administered to trainees at the conclusion of training. Knowledge retention is assessed after some time interval subsequent to training and information retained at this point is available for comparison to immediate post-training knowledge. Demonstration is defined as training-relevant behavior exhibited in the training environment and not on the job. This distinction is important in that it allows trainees to demonstrate that they can perform the behavior they describe in verbal or declarative knowledge. The relevance of this distinction to the current study is that the leader development program investigated here incorporates all three types of learning assessments as outlined by Alliger (1997),

after which feedback is provided to trainees both in the training environment and on the job.

In the other extension of Kirkpatrick's (1963) model, Kraiger and colleagues (1993) provide a classification of three types of learning outcomes: cognitive, skill based, and affective outcomes. These authors also recommend measurement strategies for each. Kraiger et al. (1993) further distinguish among various cognitive learning outcomes, including verbal knowledge, knowledge orientation, and cognitive strategies. Verbal or declarative knowledge, consistent with other learning theories (Ackerman, 1986; Anderson, 1982) is a prerequisite for higher order training and development and is measured in the initial stages of training. Knowledge organization is the classification of learning in which trainees form mental models from the verbal knowledge acquired through training. Cognitive strategies involve metacognition, or the knowledge and regulation of one's own knowledge, and are used to facilitate application of knowledge acquired through training and subsequent transfer to a job-specific context.

Skill based learning outcomes concern the training related development of motor skills from cognitive learning outcomes (Kraiger et al., 1993). After initial motor skills are acquired, skill compilation is achieved by trainees proceduralizing discrete behaviors into domain-specific routines. After compilation, trainees are able to move from controlled to automated processing (Shiffrin & Schneider, 1977), wherein performance is fluid and indicative of the trainees' task mastery.

Affective learning outcomes are states internal to trainees, influence choice of personal action, and are either attitudinal or motivational in nature (Kraiger et al., 1993). Examples of attitudinal outcomes resulting from training are increased organizational

commitment, enhanced self-awareness, and tolerance for diversity. Motivational learning outcomes include motivational disposition, such as trainee progression from performance to mastery goal orientation, increased self-efficacy for behavioral change, and the development of goal-setting skills. The explication of affective learning outcomes is important in that it provides a rationale for training directed at changing trainee perceptions about issues important to organizational objectives and culture.

Methods of Leader Development

A variety of leader development programs and methods are available to organizations. Coaching is a leader development technique which usually includes multisource performance feedback and is aimed at assisting leaders to create strategies to improve areas in which they are weak and to sustain areas in which they are strong (Day, 2001; Palus & Horth, 2003).

Formal and informal mentoring are also methods of leader development. Through a mentoring relationship, mentors provide protégés with objective career benefits such as promotion opportunities and subjective psychosocial benefits such as job satisfaction and increased self-efficacy for goal attainment (Allen, Eby, & Lentz, 2006). The assignment of jobs that challenge or stretch a leader is also a method of leader development (Day, 2001; Palus & Horth, 2003). Additionally, organizations can conduct formal training designed to develop leaders using a combination of two or more of these techniques.

The focal method of the current study is a formal leader development program that incorporates multisource performance assessment, self-awareness training, and feedback delivery (Jiang & Hannum, 2002; Steed, Hannum, & Martineau, 2004; Szabo, Reber, Weibler, Brodbeck, & Wunderer, 2001). Multisource, or 360-degree feedback,

uses ratings from raters with varying perspectives on a leader's behavior on the job. Rating groups may be comprised of a leader's direct reports, peers, and superiors (Farr & Newman, 2001; Mount, Judge, & Scullen, 1998). The terms *multisource* and *multirater* are often used synonymously with 360-degree feedback; however, multisource and multirater feedback may omit one or more of the possible rater populations. 360-degree and multisource feedback, when compared to a leader's self-ratings, provide measures of leader self-awareness. This self-to-others comparison allows leaders to discover any differences between their self-perceptions and how different groups within the organization perceive their behavior while leading.

A central premise of 360-degree feedback is the assumption that leader effectiveness depends on the perceptions of leaders' direct reports, peers, and superiors and on the congruence of those perceptions with leaders' own perceptions of their behavior. Widespread acceptance of this premise has made 360-degree feedback one of the most widely used methods of leader development in organizations today (Day, 2001; Van Velsor, 1998).

Multisource feedback can be a very effective development tool because leaders value the opinions and ratings of others and feel accountable to respond to them (Hedge, Borman, & Birkeland, 2001; Seifert, Yukl, & McDonald, 2003). Ratees treat the ratings of coworkers seriously because these ratings are anonymous, yet relevant to job-specific behaviors affecting performance (Rogelberg & Waclawski, 2001). In many cases, the ratees select their own raters from rater groups, but enough raters are selected so that ratings are difficult to trace back to a specific rater. 360-degree feedback is intended to provide information from rating groups with different views of a leader's behavior.

Ratings provided by subordinates might not be favorably received by leaders; therefore, rater anonymity is important (L. Atwater, Waldman, D. Atwater, & Cartier, 2000). Rater anonymity provides psychological safety for raters and the ratee (London, 2001; Van Velsor, 1998). Previous research has demonstrated that anonymous ratings are more likely to be open and candid, and that ratees are less likely to be defensive of comments suggesting needs for improvement from anonymous ratings (Atwater et al., 1995). Finally, 360 feedback is effective because ratees can compare their self-ratings to the ratings of others in order to identify behaviors needing change and to determine in which direction the behavior should change (Smither et al., 2005; Smither & Walker, 2001).

In practical terms, 360-degree feedback can be useful for providing upward feedback, developing competitive competencies, and changing organizational culture by changing the behavior of individuals who influence organizational culture (Bracken, Timmreck, & Church, 2001; Van Velsor, 1998). All of these uses are predicated on the assertion that individual behavior change is a prerequisite for improved organizational performance. There are three purposes for conducting 360-degree feedback: administrative, developmental, and research. Research purposes are for the refinement of the 360-degree evaluation instrument (Day, 2001), and could also be used as criteria for tailoring 360-degree assessments, feedback techniques, and leader training design as the current study suggests.

Administrative uses of 360-degree feedback include promotion, selection for training, termination, and assignment and are aimed at enhancing the *organization's* awareness of ratees' performance from multiple perspectives (Bracken et al., 2001). Developmental use of 360-degree feedback is aimed at enhancing the *ratees'* self-

awareness in order to identify behaviors that need to be changed and to develop strategies for changing them. Organizations should decide whether or not to conduct 360 evaluations and feedback for administrative or developmental purposes only after they consider what they are trying to achieve by using 360-degree feedback (London, 2001). Key issues for organizations to address prior to conducting 360-degree feedback include the method of evaluation, rater selection, instrument design, and method of measurement.

Some previous researchers have argued that 360-degree feedback should be used for administrative purposes for a variety of reasons (Bracken et al., 2001; Dalton, 1998; London, 2001). Administrative decisions are extremely important and those making them should be informed of all information possible about ratees. In some instances, for example, supervisors may not have the same ability to observe ratees in their day-to-day activities as well as ratees' peers. Organizations commit significant resources to conduct 360 evaluations and therefore the organization would like to benefit in every way possible from its investment. Raters may be less cynical about their participation if they know someone is holding ratees accountable for what they do with the ratings they receive from others (Atwater et al., 2000), and anonymity need not be forfeited in order to use 360-degree feedback for administrative purposes. Further, if 360-degree feedback is not tied to the formal evaluation process, ratees may view the feedback as tangential to their "real" duties and as a static event not tied to the organizational context of their jobs. Administrative use of 360-degree feedback is recommended when the organizational culture supports widespread information sharing and employee involvement in decision making (London, 2001).

Other previous researchers have argued that 360-degree feedback should only be used for developmental purposes (Bracken et al., 2001; Dalton, 1998; Farr & Newman, 2001; Kaplan & Kaiser, 2003; London, 2001; Smither & Walker, 2001; Van Velsor, 1998). Developmental use of 360-degree feedback has been recommended for situations in which personal development through internal motivation and reflection is an intended outcome (London, 2001; Wohlers & London, 1989). Using 360-degree feedback for developmental purposes removes potentially unqualified rater groups such as subordinates and peers from influencing administrative decisions. It has also been demonstrated that raters provide different information pertaining to the same ratee for the same behaviors depending on whether raters know the ratings will be used for either administrative or developmental purposes. In one study, raters who provided negative information on a ratee's behavior during developmental ratings changed their ratings to become more positive during administrative ratings (London, 2001). In this regard, the validity of the ratings is suggested to increase when 360-degree feedback is used for developmental purposes. Developmental use of 360-degree feedback is further suggested to have increased utility in that ratees might change only behaviors which they are ready to change and that readiness is fostered through the assurance of ratees' psychological security (Dalton, 1998).

The decision to use 360-degree feedback for administrative or developmental purposes is not always an either/or decision; in fact, caution should be used in order to avoid distortion due to raters (Kozlowski & Morrison, 1998). According to Kozlowski and Morrison, the use of a single set of ratings for both administrative and developmental

purposes is not advised because the information gathered through these ratings may suffer distortion due to rater biases such as leniency, halo, or negative rater agenda.

Rater selection is another issue to be concerned with when measuring the effectiveness of a 360-degree feedback program (Bracken et al., 2001). Farr and Newman (2001) suggest that it is best to begin by selecting rating groups, then individuals from these groups. Typical rating groups include ratees' immediate supervisor, other superiors, peers, and subordinates. Since each rating group provides a unique perspective on ratees' performance and behavior, usually no one rating group is considered more important than another (Landy & Farr, 1980). Further, raters should be selected based on their ability to observe the relevant behavior of ratees. Farr (2001) suggests that ratees be involved in rater selection and that enough raters should be selected, preferably at least five, from each group so that rater anonymity is preserved. A final consideration regarding rater selection is rater training. Raters should be informed as to the purpose of the 360-degree feedback and they may also receive training and feedback on their ratings in relation to other raters.

The Leader's Role

The role of leaders in their own development comes to prominence in two areas specific to 360-degree feedback. First, how leaders rate themselves relative to the ratings of others (e.g., their difference or discrepancy score) is a quantifiable representation of leaders' self-awareness (Atwater & Brett, 2005; Atwater et al., 2000). Second, what leaders do with their feedback is suggested to influence others' subsequent ratings of their leader effectiveness (London & Smither, 1995; Reilly et al., 1996; Seifert et al., 2003; Walker & Smither, 1999).

Leaders' self-awareness is important in that it affects their behavior, not necessarily as a result of their reactions to feedback sign (positive or negative) but rather through a homeostatic response (Bono & Colbert, 2005). Feedback intervention theory (FIT) suggests that leader behavior is regulated by comparisons between feedback and goal or standard conditions (Kluger & DeNisi, 1996). Kluger and DeNisi further suggest that goals or standards are organized hierarchically in such a manner that goals at the top of the hierarchy relate to the self, such as career success or self-esteem, whereas goals near the bottom of the hierarchy are related to physical action, such as walking from one point to another. Attention is limited and therefore only discrepancies between feedback and standards receive attention required to regulate behavior. Further, outcomes from goals higher in one's hierarchy are capable of influencing goals lower in the hierarchy (Vallacher & Wegener, 1987). Goal setting theory (Locke & Latham, 1990) suggests that when faced with a discrepancy between feedback and goals or standards such that feedback is perceived as negative, people will be motivated to regulate their behavior to improve performance. However, if feedback is negative to the degree that a discrepancy will not be eliminated by actions, then that standard or goal may be abandoned.

Another feedback-standard gap reduction strategy is to change the goal or standard rather than abandoning it (Colquitt, LePine, & Noe, 2000). Individuals receiving negative feedback may lower the relevant goal or standard, whereas individuals who receive positive feedback may even raise the standard in question. Finally, individuals may choose to reject the feedback that has resulted in a feedback-goal gap. This strategy may occur for several reasons such as low organizational commitment, negative affect, and cultural implications regarding feedback (Kluger & DeNisi, 1996).

Feedback intervention theory is relevant to the current study because it suggests that feedback interventions change the locus of attention within one's hierarchy of goals and standards and thereby affects behavior. A critical proposition, supported by a meta-analysis, suggests that feedback interventions affect performance positively when the feedback is accompanied by cues directing attention away from the self and towards the behavior in question (Kluger & DeNisi, 1996). When this change in locus of attention is coupled with goal-setting and strategies for changing the relevant behavior and not the person (self) as a whole, feedback prior to beginning a leader development intervention becomes increasingly effective.

Change in leader behavior following a feedback or a developmental program may not always be positive. Research suggests that negative performance changes may occur as often as 38% of the time (Kluger & DeNisi, 1996). Negative performance change following feedback is suggested to occur due to characteristics of either the feedback or the person receiving the feedback. Feedback characteristics, such as overly negative feedback or feedback aimed at recipients rather than their behavior, might cause recipients to discount the feedback (Atwater & Waldman, 1998). Personality facets of recipients, such as neuroticism or negative affect, might also contribute to negative performance change. Previous research has suggested that individual differences should be investigated for their influence on performance outcomes following leader development interventions and 360-degree feedback (Atwater & Brett, 2005; Smither et al., 2005). The current study seeks to investigate the role of personality in determining performance change following feedback as part of a formal leader development program.

Measuring Change

Multisource feedback is only as useful as the instrument used to collect the ratings is sound (Rogelberg & Waclawski, 2001). Other factors that have been found to interact with characteristics of 360-degree feedback instruments include the performance domains to be evaluated, the structure of the feedback, and the demographics of ratees and raters (Farr & Newman, 2001). According to Farr and Newman, items should be based on observable behaviors, and the behaviors must be specific. Items should not be trait-based because different raters may operationalize traits differently, and ratees may find it difficult to discern which behaviors need changing from trait-based feedback (Smither & Walker, 2001). Location of items which measure similar constructs within the instrument is also important; items should be distally placed rather than proximally to prevent inflated correlations between similar items (Crocker & Algina, 1986). An appropriate instrument should have demonstrated criterion validity and be comprised of clear, relevant, and specific items aimed at observable job-specific leader behaviors.

Two measurement methods central to 360-degree feedback are self-other rating discrepancy and perceived performance change. Self-other rating discrepancy scores are reported as the difference between ratees' self-ratings and the ratings of others. Perceived performance change describes the amount of perceived behavioral change observed in ratees from time one (T1) to time two (T2) (Smither & Walker, 2001). Both self-other rating discrepancy and perceived performance change are subject to psychometric concerns and rater biases (Craig, Palus, & Rogolsky, 2000; C. Facteau, J. Facteau, Schoel, Russell, & Poteet, 1998; Golembiewski, Billingsley, & Yeager, 1976). Self-other rating discrepancy scores can have excellent face validity; however, they have been

suggested to both motivate the ratee to behave in order to meet their own perceptions and expectations as reflected by their self-ratings (Smither & Walker, 2004; Walker & Smither, 1999) and to meet expectations inferred from the ratings of others (Johnson & Ferstl, 1999).

Measuring change in the ratee's behavior over time can be useful in order to track the progress of personal development and in some cases to demonstrate overall program effects (Hill, 2005). Change is typically measured using a pretest (either traditional or retrospective) and a posttest, or by directly asking raters to estimate the degree of change retrospectively (Lam & Bengo, 2003). A traditional pretest is administered to raters prior to treatment or manipulation and ratings from it are compared to a post-test administered after treatment. A retrospective pretest is administered to raters after treatment or manipulation and raters are asked to provide ratings of ratee behaviors as they remember them (before) and as they currently perceive them (after). Research suggests that traditional pretests are more appropriate for measuring the effects of a program between subjects and that retrospective pretests are more appropriate for measuring subjective within-individual perceptions of change related to a particular program (Hill & Betz, 2005).

Traditional pretests are thought to be vulnerable to response-shift bias (Howard & Dailey, 1979), meaning that raters might rate from different frames of reference on different rating occasions. In general, change in ratings over time can reflect underlying alpha, beta, or gamma change (Golembiewski et al., 1976). Gamma change is a redefinition or re-conceptualization of some domain being rated. Beta change is defined as a recalibration of measurement intervals and occurs when raters subjectively

recalibrate the rating scale between time 1 and time 2. Beta change can result in either an over- or under-estimation of true change depending on how raters recalibrate their subjective metrics. Alpha change is what most researchers consider true change, defined as a variation in the level of some existential state, given constant instrumentation related to a constant conceptual domain.

Change in leader behavior for the current study is operationalized as perceived performance change scores calculated by subtracting "then" scores from "now" scores from a retrospective pretest and post-test. Change scores might have low reliability under certain circumstances and are frequently less reliable than either the pretest or posttest scores if the variance of true change across subjects is low (Kane, 1996; Miller & Kane, 2001; Rogosa & Willet, 1983). Likewise, the reliability of perceived performance change scores can be high if true change varies significantly from person to person. If a sample of leaders participated in the same development intervention, subsequent similar improvement might result in extremely low variance across their perceived performance change scores. The relevance to the current study is that individual personality differences might account for a significant portion of the variance in perceived performance change scores across a sample of leaders attending the same leader development intervention.

Regression to the mean is another effect on the measurement of change via perceived performance change scores from a traditional pretest (Lam & Bengo, 2003). Regression to the mean is partially a function of the instrument's reliability, and any instrument that is not completely reliable will experience it (Hill & Betz, 2005; Smither & Walker, 2001). Statistical probability predicts that, on the average, ratings that are

above the mean at T1 will be lower at T2 and that ratings below the mean at T1 will be higher at T2, irrespective of any effects of the intervention. Only change beyond that which is expected from regression to the mean is worthy of attention when evaluating leader development. The current study utilizes a retrospective pretest that is administered at the same time as the post-test; thereby reducing the effects of regression to the mean involving perceived performance change scores (Hill & Betz, 2005).

Finally, a traditional pretest is vulnerable to a ceiling effect (Hill & Betz, 2005; Smither & Walker, 2001). A ceiling effect may result from very high pretest ratings. Leaders with pretest ratings of eight on a ten-point scale are only capable of achieving a perceived performance change score of two due to their initially high pretest rating, whereas leaders with a pretest rating of six on the same ten-point scale are capable of achieving a perceived performance change score as high as four. A ceiling effect may result in leaders with lower pretest scores achieving higher perceived performance change scores even if they did not exhibit more behavioral change than other leaders.

Retrospective pretests are vulnerable to rater cognitive biases (Craig et al., 2000; Hill & Betz, 2005; Smither & Walker, 2001). Recall bias affects how accurately raters remember ratees' behavior at time one and thereby influences how they rate. Social desirability bias suggests that we are more critical of our past selves than we are of our present selves, which can result in overestimated change by raters. Effort justification bias may inflate change ratings, especially if raters believe that the organization is expending valuable resources for the 360-degree feedback program.

Rater training has been the most effective method of eliminating, or at least addressing, rater cognitive biases (London, 2001). Kozlowski (1998) recommends

providing raters with feedback on their ratings in order to bring their attention to the influence of cognitive biases. For example, identifying for raters how their ratings compared with those from other raters of the same ratee might help calibrate raters to provide more normative ratings less encumbered by cognitive biases. However, this could also cause raters to provide more similar ratings, thereby reducing the variance between ratings.

Personality

Previous empirical investigations of relationships among leader characteristics, leader emergence, and leader effectiveness suggest that very few traits are universally associated with leader effectiveness except for intelligence and certain facets of personality (Judge, Bono, Ilies, & Gerhardt, 2002). The most widely accepted taxonomy of personality traits is a five factor model known as the Big Five (Barrick & Mount, 1991). The dimensions of the Five-Factor Model are extraversion, openness, conscientiousness, agreeableness, and neuroticism (McCrae & Costa, 1987; McCrae & John, 1992).

Extraversion is the extent to which people are sociable, assertive, and active. Previous research suggests that extraversion is more strongly related to leader emergence than to leader effectiveness (R. Hogan, Curphy, & J. Hogan, 1994; Watson & Clark, 1997). The interpersonal requirements of leadership suggest that extraverted leaders might be more effective than introverted leaders, but perhaps not in every dimension of leadership (Judge et al., 2002). Leaders with extremely low levels of extraversion might fail to change their leadership behaviors because of low assertiveness or lack of interest in others' opinions, whereas leaders with extremely high levels of extraversion might be

perceived as overbearing because of their highly self-involved social tendencies (Judge & Bono, 2000). Regarding performance change after training, moderate levels of extraversion have been suggested to be the most effective (Barrick & Mount, 1991). Self-efficacious and assertive leaders are more likely to view behavioral change as something they are capable of accomplishing. Other facets of extraversion such as social ability or positive affect might, in high levels, inhibit behavioral change in leaders by elevating the personal needs of the leader for affirmation and self-worth.

Openness to experience is the disposition to be imaginative and unconventional. Leaders with high levels of openness to experience exhibit creativity and think divergently. Qualitative research has suggested that openness to experience is perhaps one of the most important personality factors for effective leaders (Bass, 1990; Yukl, 1998). Others have conducted quantitative research suggesting that divergent thinking is highly correlated with leader effectiveness (Sosik, Kahai, & Avolio, 1998). Herold (2002) suggests that at least moderate levels of the facets of adaptability and need for exploration are required for people to undertake behavioral change with success. However, the facets of autonomy and non-conformity might inhibit leaders from changing their behaviors. Kluger and DeNisi's (1996) suggestion of targeting feedback at the task level, rather than the meta-task (or person) level, is critical to understanding the role of openness concerning leader behavioral change.

Conscientiousness measures a preference for order, including the facets of achievement and dependability. Previous research suggests that conscientiousness is strongly related to overall job performance (Barrick & Mount, 1991) and slightly related to leadership effectiveness (Judge et al., 2002). Leaders with high levels of

conscientiousness exhibit tenacity, persistence, and attention to detail. Changing leadership behaviors, and potentially leaders' leadership style, is likely a difficult and gradual processes in which leaders with high levels of conscientiousness who are more driven to improve might demonstrate greater change relative to leaders with low levels of conscientiousness (Smither et al., 2005; Herold, 2002). Further, people with high levels of conscientiousness tend to have detailed plans and strategies relative to their goals and thereby stand a greater chance of achieving goal-directed behavioral change (Locke & Latham, 1990).

Agreeableness is the tendency to be trusting and compliant. Previous research suggests that certain facets of agreeableness such as interpersonal sensitivity and trust are positively related to effective leadership (Judge et al., 2002), whereas other facets such as need for affiliation and compliance are negatively related to leadership effectiveness (Yukl, 1998). This dichotomy helps to explain why agreeableness has the lowest relation to effective leadership of all the Big Five factors. These findings also suggest the value of separately studying the relationships between individual facets of agreeableness and leader effectiveness, rather than combining these facets into one broad construct. Regarding behavioral change in leaders, both trust and compliance are suggested to assist leaders (Barrick & Mount, 1991). Trust is important during the delivery of feedback wherein leaders capable of focusing on targeted behaviors, rather than interpreting feedback as directed at them as a person are more likely to pursue relevant behavioral change (Kluger & DeNisi, 1996). The facet of compliance has been suggested to predict successful behavioral change (McCrae & John, 1992). However, leaders often exhibit lower levels of agreeableness than nonleaders (Zaccaro, Foti, & Kenny, 1991).

Neuroticism represents the tendency to exhibit emotional volatility, poor adjustment, and negative affect (Judge et al., 2002). Previous research suggests that neuroticism is the only factor of the Big Five negatively related to leader emergence (Hogan et al., 1994) and leader effectiveness (Hill & Ritchie, 1977). People exhibiting low levels of self-confidence and adjustment are not as likely to be perceived by others as leader-like. Likewise, people exhibiting negative affect and high levels of neuroticism are less likely to be effective leaders (Judge & Bono, 2000). Leaders with high, or even moderate levels of neuroticism might be expected to resist behavioral change due to negative reactions to feedback and anxiety regarding change in general (Smither & Walker, 2004). In sum, it seems reasonable to suppose that if the Big Five factors are related to leadership performance, then they might also be related to performance change following a leader development intervention.

Personality has also been investigated using the pattern, or person-oriented, approach (Craig & Smith, 2000; Mumford et al., 2000, Buchanan, 1998; Russell & Craig, 2000). The pattern approach differs from the variable approach in that the pattern approach identifies individuals with certain patterns of characteristics allowing for the investigation of differential outcomes for these individuals. Practically speaking, the pattern approach is a more within-person and holistic method for investigating specific configurations of variables as they actually exist naturally within a sample. In contrast, the more traditional variable-oriented approach detects relations among variables that hold across an entire sample. Whereas a variable-oriented approach can yield useful predictions about which outcomes might be expected for which individuals, a pattern approach is required to explicitly test those predictions and provide information about the

frequency with which different configurations occur in nature. The current study employed both approaches.

Hypothesis and Research Questions

Leader development interventions may differ in scope and form, but they can all be described as forms of training. The completion of a leader development program involving 360-degree feedback does not ensure positive leader behavior change (Kluger & DeNisi, 1996). However, the leader development program completed by the participants of the current study incorporates many of the recommendations suggested by Kluger and DeNisi's (1996) Feedback Intervention Theory. Further, participants are provided with developmental coaching and instruction derived from negative aspects of their 360-degree feedback. Participants also receive training directed at achieving individual learning goals; therefore, participants are expected to improve their performance after returning to their respective organizations (Goldstein & Ford, 2002). The sole hypothesis of the current study is concerned with mean change across the sample.

Hypothesis: Leader performance will be perceived to have improved after a leader development intervention.

Although mean leader performance at the group level is hypothesized to improve following the intervention, individual leaders are expected to exhibit unique behavioral changes or no change at all (Palus & Horth, 2003). Previous studies have suggested that personality predicts leaders' reactions to developmental interventions and multisource feedback (Atwater & Brett, 2005; Maes, 2003) but has not directly addressed whether those reactions predict subsequent behavior change. The current investigates whether

leader personality predicts change in actual job-related behavior after a leader development intervention. See Figure 1 for a graphic depiction of the relations to be examined.

Research Question 1: Will leader personality type predict perceived performance change after a leader development intervention?

Research Question 2: Will specific leader personality dimensions predict perceived performance change after a leader development intervention?

Previous studies suggest that leaders' tendencies to over- or under-rate their performance relative to how others rate them affect leaders' likelihood of changing their behavior following multisource feedback. However, different suggestions have been offered as to the exact form of this effect and its underlying mechanism. Atwater (1995) suggests that under-raters improve because they gain self-awareness regarding their low performance as perceived by others. Johnson and Ferstl (1999) suggest that over-raters improve and under-raters decline consistent with self-consistency theory (Korman, 1976). Whether leaders over- or under-rate their performance relative to others (i.e., self-other rating discrepancy) can be operationalized as the signed difference between self ratings and observer ratings, thus taking into account both the direction and magnitude of the discrepancy. Extant research has not investigated the possibility that feedback recipient personality characteristics might moderate the effect of signed feedback discrepancy on subsequent performance change following feedback. The current study investigates whether leader personality affects the relationship between leader self-other rating discrepancy and performance change.

Research Question 3: Does leader personality type moderate the relationship between self-other rating discrepancy and perceived performance change after a leader development intervention?

Research Question 4: Do specific leader personality dimensions moderate the relationship between self-other rating discrepancy and perceived performance change after a leader development intervention?

Method

Procedure

Participants. An archival database of data from a leader development program was obtained for the study. The sample consisted of 363 leaders from a variety of occupations. See Table 1 for occupation types. The majority of the participants were male (*n*=257, 71%). Participants were classified as either junior leaders (*n*=12, 4%), middle level leaders (*n*=223, 61%), or senior leaders (*n*=128, 35%). All 360 degree feedback in the current study was intended for developmental purposes only, though participants also gave consent to its future use for research, and all participants voluntarily enrolled in the leader development program.

Participants for the current study were nominated by their organizations to attend a five day leader development intervention on the campus of a non-profit consulting and research organization specializing in leader development. Prior to attending the leader development program, participants and their coworkers completed a 360 degree performance assessment and participants completed a version of the California Personality Inventory (CPI260; Gough, 2002). The pre-program 360-degree assessment was not used in the current study.

Leader Development Program. Day one of the leader development program was focused on developing participants' self-awareness and facilitating participants' understanding of their behavioral strengths and areas requiring development. Program facilitators provided participants with the results of their CPI260 personality inventories and facilitated group discussions concerning the role and purposes of leadership and how leader personality and behavior patterns influence leadership style. Participants also learned a behavior-based model for developmental feedback on day one.

Day two was focused on learning the unintended consequences of leader behaviors. The importance of others' perceptions are emphasized as participants received the results from their preprogram 360-degree assessment. Program facilitators led group activities designed to teach participants how to manage stress and understand the influence of individual personality facets on behavioral change. As the final event for day two, participants established one behavioral goal related to their leadership feedback.

Day three was focused on learning methods and techniques for purposeful leadership behavior change. A framework for coaching was introduced, and participants engaged in videotaped coaching role play scenarios. These scenarios were reviewed by participants in order to further develop their understanding of the dynamics of deliberate behavior change. Participants conducted peer evaluations of other participants at the end of day three.

On day four, participants received their peer feedback from a trained feedback coach. Participants were provided discretionary time to reflect on the events of the leader development program and to synthesize all they had learned from the program training and from their coworkers' feedback. On day five, participants created a personal

development plan incorporating their 360-degree feedback and what they had learned while attending the leader development program. The personal development plan was structured to address goal directed and job specific behavior. Participants presented their personal development plans either to a facilitator or to their leader development program peers prior to graduating. After their presentations, participants discussed the challenges and opportunities for implementing their personal development plan goals after returning to their organizations.

Upon graduation from the leader development program, participants completed a training evaluation survey in order to assess reactions to training. Ninety days after participants returned to their organizations, plus or minus thirty days, a trainer from the leader development program conducted another 360-degree performance assessment, using the REFLECTIONS instrument (Steed et al., 2004). This post-intervention assessment instrument was designed to assess whether the program resulted in training transfer in the form of improved leader performance.

Measures

Personality. Participants completed the CPI260 (Gough, 2002) personality inventory prior to beginning the leader development program. This instrument is a shortened version of the original California Personality Inventory (Gough, 1957). The primary application for the CPI260 instrument is intended to be in the domain of work and organizational life. The CPI260 contains 29 scales organized into 20 folk scales, 3 structural scales, and 6 special purpose scales. The folk scales are further categorized into four groups: interpersonal aspects, internal values and normative expectations,

achievement needs and cognitive tendencies, and stylistic preferences. See Table 2 for a description of the CPI260 scales.

Fleenor and Eastman (1997) conducted a comparison of the CPI to the Five Factor Model (McCrae & Costa, 1987) using two separate samples and found empirical evidence linking the CPI folk scales to the Big Five using exploratory factor analyses. See Table 3. Their results showed that the CPI folk scales of dominance, capacity for status, sociability, social presence, self-acceptance, independence, and empathy all load on the Big Five factor of extraversion. This result aligns extraversion to the entire folk scale group of interpersonal aspects. The folk scales of self-control, good impression, achievement via conformance, socialization, responsibility, and well-being all load on the Big Five factor of conscientiousness. This partially aligns conscientiousness with the folk scale group of internal values and normative expectations. The folk scales of achievement via independence, tolerance, conceptual fluency, flexibility, and insightfulness all loaded on the Big Five factor of openness to experience. This partially aligns openness to experience with the folk scale groups of internal values and normative expectations and stylistic preferences. The folk scale of communality loaded on the Big Five factor of agreeableness and folk scale of sensitivity loaded on neuroticism (Fleenor & Eastman, 1997). Using Fleenor and Eastman's (1997) mapping of the CPI260 (Gough, 2002) folk scales to the Five Factor Model (McCrae & Costa, 1987), estimates of reliability were computed in the current sample for extraversion (.92), openness (.78), conscientiousness (.81), agreeableness (.93), and neuroticism (.93).

Perceived performance change. Participant leader change on specific job-related behaviors was assessed using REFLECTIONS (Steed et al., 2004), a multisource training

evaluation instrument containing a retrospective pretest and a post-test. REFLECTIONS was designed in 1994 as an instrument to measure behavior change after leader development interventions, specifically the leader development program completed by participants in the current study (Steed et al., 2004). REFLECTIONS uses a now-then retrospective methodology asking participants and their multisource observers to rate targeted behaviors as they were before the intervention ("then") and after ("now"). A nine-point rating scale was used, with anchors provided for 1 = not at all, 3= to a small extent, 5 = to a moderate extent, 7 = to a large extent, and 9 = completely. In the current study, the signed difference between those two ratings was used as the item response.

Previous research has suggested several methodological problems with difference scores, such as low reliability and regression to the mean (Edwards, 2001). The current study did not incorporate the use of difference scores in the measurement of perceived performance change. Rather, a perceived performance change score more similar to a traditional gain score was utilized. Whereas a difference score defines a construct as the difference between two other constructs, a gain score represents the amount of change within or upon a constant single construct (Rogosa & Willet, 1983). The current study measured perceived performance change as a gain score calculated from comparison of a post-test with a retrospective pretest; therefore the psychometric challenges often associated with difference scores were not expected to be an issue here.

REFLECTIONS was typically administered between three and four months after leaders' graduation from the leader development program. REFLECTIONS contains the following twelve scales with reliability estimates in parentheses; improve self-awareness (.85), demonstrate leadership (.72), set & achieve goals (.82), build effective teams (.84),

develop others (.78), make effective decisions (.78), enhance learning (.84), build & maintaining relationships (.84), work across organizational boundaries (.83), leverage diversity (.88), improve self-confidence (.79), and balance work and non-work activities (.90) (Jiang & Hannum, 2002). These reliability estimates were calculated from the current sample using scores attained by subtracting the before (then) score from the after (now) score for each item. Scale scores were calculated for each participant by averaging the scores from all raters, excluding self-ratings. REFLECTIONS scales are provided in Table 4 and REFLECTIONS items are provided in Table 5.

Improve self-awareness, using three items, measured how others perceived leaders' leadership style and leaders' behavior affected their coworkers. Demonstrate leadership, using three items, measured how well leaders saw the big picture and communicated their vision. It also captured leaders' capacity to understand aspects of workplace and organizational context that are not readily apparent. Set and achieve goals, using three items, measured the extent to which leaders set, achieved and adjusted their goals for improvement over time. Build effective teams, using four items, measured how well leaders used the input of others to solve problems and how well they negotiated roles and resources with others in the organization. Develop others, using three items, measured the extent to which leaders coached and mentored others, provided feedback to direct reports, and communicated openly about what they had learned from their mistakes. Make effective decisions, using four items, measured how timely and sound decisions are made, appropriateness of delegation, and the degree to which leaders solicited appropriate input from others. Enhance learning, using four items, measured leaders' openness to the perspectives of others and their capacity to learn from significant

events and the experiences of others. Build and maintain relationships, using four items, measured how approachable and receptive leaders were, and how well leaders exercised patience with and consideration for others. Work across organizational boundaries, using four items, measured the extent to which the leader considered the effects of their decisions on the entire organization and how well leaders dealt with organizational contradictions and inconsistencies. Leverage diversity, using five items, measured leaders' capacity to optimize individual differences for the good of the organization and their ability to discern cultural influences. Improve self-confidence, using three items, measured the extent to which leaders believed they could make a valuable contribution to the organization. Balance work and non-work activities, using three items, measured harmony between work and private life to include the incorporation of enriching hobbies and leisure activities (Steed et al., 2004).

Consistent with extant theory and research concerning leader performance (Bass, 1990; Craig & Kaiser, 2003), REFLECTIONS scales were expected to fit a two-factor model of relational and task performance. An exploratory factor analysis (Gorsuch, 1983) was conducted to investigate the number of factors represented by the REFLECTIONS gain scores (see Table 7). Four factors emerged resembling relational performance, task performance, self-confidence, and work-life balance. The factors of self-confidence and work-life balance were dropped from the current study. Self-confidence is suggested to be related to leader effectiveness (Judge et al., 2002). However, self-confidence is also an antecedent to goal setting and decisiveness (Locke & Latham, 1992). Self-confidence was highly correlated with goal setting (r=.59) and decision making (r=.60) and both of these scales were included in the task performance factor. Work-life balance was omitted

from further analysis because it was not considered to be an element of leadership performance *per se*. Items loading on the factors resembling relational and task performance were examined as a two factor structural model using confirmatory factor analysis (Wegener & Fabrigar, 2000) resulting in a good fitting model (CFI=.98, *TLI*=.99, *RMSEA*=.05, *SMRSR*=.01, *df*=854) and were thereby retained. Internal consistency estimates for the empirically derived scales were .98 for task performance change and .97 for relational performance change.

Performance Change Self-other Rating Discrepancy. Leader self-other rating discrepancy was operationalized as a signed continuous variable where positive scores indicated higher self ratings compared to the ratings of others and negative scores indicated lower self ratings compared to the ratings of others. This variable was calculated by subtracting the average rating of all coworkers from the average of a leader's self rating across performance factors. Performance factors were collapsed for the calculation of self-other rating discrepancy because rating discrepancy has not been suggested to be related to any particular performance factor. Rather, the inclination to rate one's self incongruently with the perceptions of others is more closely related to individual differences and likely to be consistent across performance dimensions (Atwater & Brett, 2003).

Analyses and Results

Table 8 presents the intercorrelations of all key study variables. The hypothesis suggested that leader performance would be perceived to have increased after a leader development program. Positive perceived performance change scores represented performance improvements and negative and zero scores represented performance

decrements or no change, respectively. As expected, performance improvement was reported in leaders with respect to both relational (M=1.14, SD=.54, p<.001) and task performance (M=.99, SD=.50, p<.001) factors. Further, the perceived improvement was significantly different between relational and task performance (p<.001), and confidence intervals of 95% for mean scores did not include zero for either performance factor. Therefore, the hypothesis that improved leader performance will be perceived after a leader development intervention was supported. Tables 9 and 10 provide further detail regarding perceived performance change by demographics. Given the relative emphasis on relational performance in the content and purpose of the current leader development program, the finding that leaders demonstrated greater improvement on relational performance compared to task performance was not unexpected.

Personality Types

Research question 1 asked whether leader personality type predicts performance change after a leader development intervention. This question was investigated by applying a taxonomic or "person" approach with regard to personality, and involved conducting a hierarchical agglomerative cluster analysis (Ward, 1963; Ward & Hook, 1963), followed by an iterative partitioning (k-means) cluster analysis, to derive a number of distinct personality "types" based on patterns across the five personality indicators. Ward's hierarchical agglomerative clustering method minimizes the variance within clusters (personality types), thereby maximizing the variance between clusters.

Clustering was accomplished using the Sleipner (v.2.1) computer program (Bergman & El-Khouri, 2002). Pattern similarity indices were calculated using average squared Euclidean distance as it encompasses all three components of pattern similarity;

shape, level, and scatter (Borgen & Barnett, 1987). Because not all cases are expected to fit neatly into a cluster, it is recommended to remove outlying cases as residuals prior to clustering (Aldenderfer & Blashfield, 1984). Using standard scores, eight cases were removed as outliers because they were not similar to any other case by less than an average squared Euclidean distance of .5 as recommended by Aldenderfer (1984). The remaining cases were submitted to hierarchical agglomerative cluster analysis using Ward's (1963) minimum variance method.

The initial cluster solution served as the basis for a second iterative partitioning analysis, which re-evaluates each case's cluster assignment and relocates it to a different cluster if the total error sum of squares (ESS) would be reduced via relocation. This process was iterative in that each cluster's mean was recalculated for each iteration until no further reduction of the total ESS was attainable, thus correcting for centroid drift (Borgen & Barnett, 1987). Centroid drift occurs during the hierarchical agglomeration of the first stage when cases are assigned to clusters and not relocated, even when the subsequent addition of cases shifts cluster means, or centroids, making some cases no longer appropriate for the cluster of their initial assignment (Bergman & El-Khouri, 2002). Once cases were assigned to clusters, each personality cluster (or type) was examined, then named. Once participants were classified into personality types, a multivariate analysis of variance (MANOVA) was conducted to assess whether participant personality types differed with regard to perceived performance change scores (J. Cohen, P. Cohen, West & Aiken, 2003).

Although not common in organizational research, previous studies have used the person-oriented approach when investigating personality as a variable, specifically by

conducting cluster analyses using the five-factor model as a set of profile indicators (Craig & Smith, 2000; Buchanan, 1998). Consistent with other studies, distinct personality types were identified within the current sample (Craig & Smith, 2000; Mumford et al., 2000; Russell & Craig, 2000; Buchanan; 1998). However, the clusters (or types) that emerged from the current sample overlapped only partially with those from these previous studies. Previous research (Judge et al., 2002) has suggested that leaders might be expected to exhibit different personality profiles than followers. The current sample contains only leaders whereas Craig and Smith (2000) used two separate samples (undergraduate students and financial service representatives), neither of which exclusively included leaders. Mumford and colleagues (2000) did use a sample of leaders; however, their study used the Myers-Briggs Personality Type Indicator (Briggs & Myers, 1987) as a personality measure and not the five factor model as used in the current study.

The Ward and Hook (1963) cluster analysis in the current study suggested the existence of four personality types within this sample. Descriptive statistics for the four personality types are presented in Table 11. The decision to retain four personality types was based on the interpretation of the scree plot (see Figure 2), wherein the error sum of squares (ESS) increment associated with each successive combination of entities was plotted and examined for the first disproportionate increase. The four personality types were then designated as copiers, controllers, charismatics, and dutifuls based on their patterns of scores on the five personality dimensions of extraversion, openness, conscientiousness, agreeableness, and neuroticism. Each cluster differed significantly

from the other three clusters on all five dimensions. See Figure 3 for a graphical comparison.

The *copiers* exhibited the lowest levels of extraversion and openness, and second highest levels of agreeableness and neuroticism. The low levels of extraversion and openness suggest a lack of self-confidence and originality. The relatively low levels of conscientiousness in copiers, when considered with their relatively high levels of agreeableness, suggests that leaders in this cluster may be more concerned with replicating the successful behaviors of other leaders due to a desire to be perceived as effective rather than being motivated to lead based on their own self-efficacy (Judge, et al., 2002). This group of leaders was labeled as copiers based on the expectation that they would likely copy effective leader behaviors and eschew ineffective leader behaviors without fully considering or exploring their own leadership styles.

The *controllers* exhibited relatively high levels of extraversion and conscientiousness, and were the highest in openness and neuroticism. This combination is consistent with Bass' (1984) conceptualization of personalized charismatic leaders. A personalized charismatic leader is authoritarian and has a high need for power. This type of leader may also exhibit low self-esteem, high narcissism, and is most likely to be perceived as Machiavellian by others (Judge et al., 2002). This group of leaders was labeled as controllers based on the expectation that they may exhibit narcissistic tendencies while seeking the approval of subordinates and peers through social interaction and of superiors through perceived competence.

The *charismatics* exhibited the highest levels of extraversion and the lowest levels of neuroticism. This is consistent with Bass' (1984) conceptualization of the socialized

charismatic leader. The socialized charismatic leader also has a high need for power; however, that need is counterbalanced with high activity inhibition, low authoritarianism, high self-esteem, and low narcissism. This group of leaders was labeled as charismatics based on the expectation that they would be liked by others and behave consistently with the best interest of the organization and its members.

The *dutifuls* exhibited the highest levels of conscientiousness and agreeableness and the second highest levels of neuroticism. Their high conscientiousness suggests that they are likely to be task focused. Their relatively low levels of extraversion coupled with relatively high levels agreeableness suggest a low self-efficacy and the need for affirmation (McCrae & Costa, 1987). This group was labeled as the dutifuls based on the expectation that they would most likely be motivated to lead from a fear of failure or letting the organization down.

Personality Type and Performance Change

Personality type had positive and significant main effects on perceived performance change for relational performance (η^2=.19, df=3, p<.05) and task performance (η^2=.18, df=3, p<.05). Further detail, including comparisons across personality dimensions, is presented in Tables 12 and 13, and in Figure 4. Charismatics were perceived as changing more than all other types on relational performance (M=1.60, SD=.58; see Table 14). No significant differences among the copiers, controllers, or dutifuls regarding perceived relational performance change were found. Regarding task performance, the dutifuls were perceived as exhibiting more performance change (M=1.30, SD=.39) than all other types. No significant differences among the copiers, controllers, or charismatics regarding perceived task performance change were found.

Personality Dimensions and Performance Change

Research question 2 asked whether specific personality dimensions predict performance change after a leader development intervention. Linear and polynomial regressions were conducted using relational and task performance as criteria and personality dimension as predictors (J. Cohen, P. Cohen, West & Aiken, 2003). Results suggest that the personality dimensions of extraversion, openness, conscientiousness, and agreeableness predicted perceived relational and task performance change. Neuroticism predicted only relational performance change (see Tables 12 and 13). The effect of extraversion was oppositely signed for perceived relational and task performance change. Whereas perceived relational performance change increased as leaders' extraversion increased, perceived task performance change decreased as extraversion increased (see Table 15 and Figures 5 and 6). Further, the relations between extraversion and relational and task performance were non-linear. Specifically, the quadratic term was a significant predictor for relational performance change (β=1.23 p<.05) and the quadratic term was a significant predictor of task performance change (β=-1.04, p<.05). These findings suggest that lower and higher levels of extraversion may be more predictive of positive relational performance behavioral change, whereas moderate levels of extraversion may be more predictive than lower or higher levels of extraversion for positive task performance change.

Openness predicted both relational and task performance change in non-linear fashion (see Table 16 and Figures 7 and 8). Findings from the quadratic terms suggest a curvilinear relationship between openness and perceived relational (β=-1.20, p<.001) and task (β=-1.42, p<.001) performance change in that moderate levels of openness may

predict more positive relational and task performance change in leaders compared to very low or very high levels. Openness was the only personality dimension with significant quadratic effects in the same direction on both relational and task performance.

Conscientiousness had oppositely signed relations with perceived relational (β=-.26, p<.001) and task (β=.16, p<.05) performance change. As conscientiousness increased, perceived relational performance change decreased, whereas perceived task performance change increased (see Table 17 and Figures 9 and 10). No curvilinear relations between conscientiousness and relational or task performance were observed.

Agreeableness negatively predicted relational (β=-1.90, p<.05) performance in that positive relational performance change decreased as leaders' agreeableness increased. Conversely, agreeableness positively predicted task (β=-1.31, p<.05) performance change linearly in that positive task performance change increased as leaders' agreeableness increased. However, agreeableness also positively predicted relational performance change in a non-linear manner, with the quadratic term having a significant regression coefficient (β=1.97, p<.05). This finding suggests that relational performance change decreased as agreeableness increased, but only to a certain point, at which relational performance change began to increase with leader agreeableness (see Table 18 and Figures 11 and 12).

Neuroticism only negatively predicted relational performance change in a linear manner (β=-.17, p<.05). This finding suggests that as leader neuroticism increased, relational performance change decreased (see Table 19). Neuroticism was not predictive of task performance change (β=.17, p=.52).

Self-Other Rating Discrepancy

The other variable investigated in the current study was self-other rating discrepancy, and it was found to have nearly zero correlation with both perceived relational (r=-.01, p=.98) and task performance change (r=-.10, p=.07). Of all the variables in the current study, only openness was significantly correlated with self-other rating discrepancy (r=-.14, p<.001). Research question 3 asked whether personality type moderated the relationship between self-other rating discrepancy and perceived performance change after a leader development intervention. This question was investigated by testing for moderation (Baron & Kenny, 1986) by personality type of the relationship between self-other rating discrepancy and perceived leader performance change. Leader self-other rating discrepancy was operationalized as a continuous variable where positive scores indicated higher self ratings compared to the ratings of others and negative scores indicated lower self ratings compared to the ratings of others. Prior to creating interaction terms, the predictor (self-other rating discrepancy) was centered (Cohen et al., 2003) in order to reduce the effects of multicollinearity between the main effects and the interaction term. Centering was accomplished by subtracting the variable's mean from each variable score. Personality type, a categorical variable, was dummy coded to permit use in multiple linear regression. A linear regression was then conducted with each performance factor as the criterion and the centered variable of self-other rating discrepancy, personality type, and the interaction term as predictors. No personality type was not found to moderate the relationship between self-other discrepancy and either relational (copiers, β=-.02, p=.81; controllers, β=.07, p=.28; charismatics, β=.01, p=.99; dutifuls, β=-.01, p=.96) or task (copiers, β=-.03, p=.64;

controllers, β=-.14, p=.26; charismatics, β=.10, p=.38; dutifuls, β=.04, p=.46) performance (see Tables 20-23).

Research question 4 asked whether personality dimension moderates the relationship between self-other rating discrepancy and perceived performance change after a leader development intervention. This question was investigated by testing for moderation (Baron & Kenny, 1986) by personality dimension of the relationship between self-other rating discrepancy and perceived leader performance change. Prior to creating interaction terms, the predictor (self-other rating discrepancy) was centered (Cohen et al., 2003) as described above. Linear and polynomial regressions were then conducted for each performance factor as the criterion and the centered variables of self-other rating discrepancy, personality dimension score, and the interaction term as the predictors. In terms of moderation, only openness was found to have any influence on the relationship between self-other discrepancy and task performance change (β=-.15, p<.05). Specifically, as leader openness increased, the relation between self-other discrepancy and task performance change became weaker (see Tables 24-28).

Discussion

The current study investigated three relationships. First, the suggestion that leader performance is perceived by observers to improve following a leader development intervention was investigated and supported. Second, whether or not personality, operationalized as both categorical types and as continuous dimensions, predicted perceived relational and/or task performance change following a leader development intervention was investigated. In order to do this, a Ward and Hook (1963) cluster analysis was conducted and four distinct personality types emerged among the sample of

leaders in the current study. The individual dimensions of the Five Factor model of personality, extraversion, openness, conscientiousness, agreeableness, and neuroticism, were also investigated as predictors of perceived performance change. Third, the current study sought to investigate whether or not personality might moderate the relationship between self-other rating discrepancy and perceived relational and task performance change. Analyses were conducted using data collected from multiple sources, thus addressing possible concerns about previous research related to monosource bias. Specifically, leader personality was measured via self-report data collected from the leaders themselves, whereas performance change was measured with ratings collected from multiple external observers.

The current study provides general support for recent research investigating the relationship between personality and leader effectiveness (e.g., Judge et al., 2001). However, the current study is not a replication of previous work because the criterion for the current study was perceived behavioral change rather than leader emergence or effectiveness, though the results from both studies are complimentary in terms of the role of personality in predicting perceptions of leader behavior. Further, the current study was not a meta-analysis, where as Judge and colleagues' (2001) study was a meta-analysis of previous research investigating the relationship between personality, leader emergence and leader effectiveness.

The current study demonstrated an application of a person centered approach to investigating the role of personality in performance and behavioral change. The use of types, rather than dimensions, to operationalize personality as a predictor allows for the exploration of leader personality dimensions as they exist intrapersonally and as how

groups of leaders exist in nature within any sample (Mumford, 2000). The current study also demonstrates the complementary natures of the person-oriented and traditional variable-oriented approaches to research. Whereas a variable-oriented approach can provide suggestions about what outcomes might be expected for individuals with specific configurations, a person-oriented approach can reveal whether those individuals actually exist in nature and test the hypotheses generated from variable-oriented investigations.

Investigating the relationships between personality and performance change using both personality types and dimensions as variables proved useful in the current study. The results from the analyses using personality types and dimensions were congruent. However, investigating the manner in which personality dimensions exist as a whole within leaders provides insight as to how a leader training program such as the one used in the current study might result in differential performance change as perceived by coworkers. Given that personality is somewhat stable over time (McCrae & Costa, 1987; McCrae & John, 1992), the findings from the current study suggest that subsequent leader development training might be designed to sustain strengths and improve weaknesses with the knowledge of leaders' performance *an*d personality.

The findings relevant to personality dimension prediction of performance suggest that certain dimensions might predict positive relational performance change, yet negative task performance change. For instance, increasing levels of extraversion and agreeableness were related to improved relational performance, but declining task performance. Just the opposite was found in regard to conscientiousness. Decreasing levels of conscientiousness were related to declining relational performance, yet positively related with increasing task performance. These findings, along with the low

correlation between relational and task performance (r=.01, p=.91) provide support for the distinction between relational and task performance as separate constructs. Further, the nonlinear relationships between certain individual personality dimensions and both relational and task performance provide support for the suggestion that more is not always better (Kaplan & Kaiser, 2003).

The current study involved a leader development program that incorporated many of the recommendations suggested by extant theory. Feedback Intervention Theory (Kluger & DeNisi, 1996) suggestions were present and do appear useful in a leader development intervention associated with positive relational and task performance. In particular, using knowledge of the recipient's personality profile to structure feedback delivery techniques and procedures could prove quite useful in terms of reducing negative affective reactions and for the purposes of incorporating goal setting.

Other researchers have suggested that the relationships between personality dimensions and leader performance are not necessarily linear (Judge et al., 2003; Kaplan & Kaiser, 2003). Though the current study investigated perceived performance change rather than leader effectiveness, the two concepts are closely related. The findings of the most positive levels of perceived performance change occurring at the medium rather than at the low or high levels of certain personality dimensions suggests that balance might be preferred for intrapersonal change just as others have recommended that it is possible for leaders to overdo certain traditional strengths. The current study provides empirical support for the suggestion that the key to understanding how leaders over or under-do certain behaviors might be found in their personality. By better understanding the role of personality in leader training and subsequent performance change, the

development of optimized training based on the personality of leader trainees might become possible. The central question concerning this issue is not which leaders to select into training programs, but rather, what type of training would be optimal for leaders based on their personality profile and developmental needs.

It should be noted that previous research has suggested that self-other rating discrepancy is related to leader reactions to feedback (Atwater & Brett, 2003; Brett & Atwater, 2001). However, the current study operationalized self-other rating discrepancy differently than previous research. Whereas Atwater and Brett (2003, 2001) operationalized over- and under-rating as the number of items on which a leader rated themselves higher or lower than others did, the current study operationalized self-other discrepancy as a continuous variable, calculated as the overall difference between self and other ratings, thus capturing both the direction and magnitude of the rating discrepancy in a single number. This difference in self-other rating discrepancy operationalization may have contributed to the differences in findings concerning this variable between the current study and the suggestions of previous research conducted by Atwater and Brett (2003, 2001).

Limitations

Several limitations to the current study should be noted. First, the sample includes only leaders and it is reasonable to suspect that leaders might have different personality profiles than the general population (Judge, et al., 2002); therefore the findings in the current study may not be generalizable to training and perceived performance change in other types of workers. Further, the current study only considers the participants of one leader development program conducted at a central location. This fact may limit the

generalizability of the current findings to other leader development interventions conducted in different settings in that the personality types that emerged here should be considered as naturally occurring in this sample and not necessarily indicative of a workforce in general. However, the sample of leaders in the current study is from a wide variety of organizational types and should be generalizable, to some extent, to leaders in general.

Second, the retrospective method used in the current study to measure perceived performance change in leaders is vulnerable to rater cognitive biases such as social desirability bias, implicit theories of change, and effort justification bias, therefore any findings or conclusions should be viewed in light of these vulnerabilities (Craig et al., 2000). However, the methods used in the current study for measuring change are recommended for examining subjective experiences of program-related change (Hill & Betz, 2005).

Future Research

The current study provides empirical support for the use of personality, both as dimension and type, as a predictor in leadership research. However, more remains to be investigated in terms of the relationship between self-other rating discrepancy and perceived performance change in leaders. Indeed, the current study has contributed additional mixed findings regarding self-other discrepancy to those already in the literature. Some variable or interaction not investigated by the current study might also contribute to our understanding of why some leaders improve and some decline in performance following 360-degree feedback. Perhaps situational variables, such as work

environment or organizational support for behavioral change, might be investigated for their influence on how leaders change following multisource feedback.

Smither and colleagues (2005) suggested that perhaps the amount of time between ratings or between training and ratings, if not very long, might lead to small effect sizes for behavioral change. From this perspective, even small amounts of perceived performance change should be further investigated using a longer time interval than the three month period used in the current study.

Findings from the current study also suggest that leaders were perceived to improve in areas they could reasonably be expected to, such as areas that might be considered individual strengths. For instance, leaders from the current sample classified as charismatics (people-oriented leaders) were perceived to improve the most on relational performance behaviors. Similarly, leaders in the dutifuls cluster (task-oriented leaders) were perceived to improve the most on task performance behaviors. Future research in this area should investigate the effectiveness of training programs designed to develop leaders in areas that might not be considered as their natural, personality driven strengths.

The methodology supporting the pattern, or person-oriented approach to the operationalization of personality should be further explored. The current study used cluster analysis to determine group membership. Future research should explore the use of latent class or latent profile analysis (McCutcheon, 1987) for determining subgroup membership within a sample, or perhaps compare the results of cluster analysis to latent profiling.

Finally, relative to Feedback Intervention Theory (Kluger & DeNisi, 1996) future research should explore the influence of personality on hierarchical locus of attention. Specifically, research should investigate what dimensions of personality might influence the intrapersonal adjustment of attention between the levels of task, task motivation, and the meta-task (or self) as multisource feedback is received and processed. Kluger and DeNisi (1996) investigated potential characteristics of feedback that may influence hierarchical locus of attention, but the influence of personality (e.g., something in the person and not the feedback itself) remains uninvestigated regarding this issue. The current study provides an empirical bridge between Feedback Intervention Theory and this suggestion for future research by providing two operationalizations of personality and an operationalization of leader performance change using relational and task performance.

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Table 1
Participant Occupational Fields

Occupational Field	Participants	Percentage
Marketing and Sales	52	13.9 %
Other	45	13.7 %
Finance	35	10.2 %
Project Management	25	6.4 %
Engineering, Architecture & Design	24	6.2 %
Human Resources	24	6.2 %
Information Technology	23	6.0 %
Research & Development	23	6.0 %
Production & Processing	20	5.7 %
Administrative Services	18	5.5 %
General Executive	15	5.2 %
Facilities Operations & Services	12	3.1 %
Legal & Regulatory Affairs	10	2.5 %
Communications	8	2.0 %
Materials Management	8	2.0 %
Education	6	1.5 %
Health Care	6	1.5 %
Maintenance & Skilled Trades	4	1.1 %
Public Affairs	3	0.7 %
E-Commerce/Web Services	1	0.3 %
Protective Services	1	0.3 %
Total	363	100 %

Table 2
California Personality Inventory - CPI260 Scales (Gough, 2002)

Folk Scales

Scale Group	CPI260 Scale	Description
Interpersonal	Dominance	Prosocial interpersonal power and influence
	Capacity for Status	Ambition for challenge and social status
	Sociability	Social participation
	Social presence	Poise and comfort with attention and recognition
	Self-acceptance	Sense of personal worth and self-confidence
	Independence	Self-sufficiency and self-directedness
	Empathy	Capacity to understand and respond to others needs
Values & Expectations	Responsibility	Conscientiousness and follow-through
	Socialization	Conformance with social norms and customs
	Self-control	Cautiousness and self-regulation
	Good impression	Tact and positive self-presentation
	Communality	Conventionality of behavior and attitudes
	Well-being	Overall sense of health and optimism
	Tolerance	Open mindedness and respect for others
Achievement & Cognition	Achievement via conformance	Motivation within organized settings
	Achievement via independence	Motivation within unstructured settings
	Conceptual fluency	Comfort with intellectual and conceptual matters
Style	Insightfulness	Analytical insight into the motivations of others
	Flexibility	Adaptability and comfort with change
	Sensitivity	Tough versus tender-mindedness

Structural Scales

CPI260 Scale	Description
Participating/Private	Extraversion vs. Introversion
Approving/Questioning	Rule-following vs. Rule-questioning
Fulfillment	Fulfillment of personal potential

Special Purpose Scales

CPI260 Scale	Description
Managerial Potential	Inclination for supervisory responsibilities
Work orientation	Sense of dedication to work
Creative temperament	Individualization and capacity for innovativeness
Leadership	Initiative and effectiveness in leading others
Amicability	Cooperation and friendliness
Law enforcement orientation	Conventional and practical values

Table 3
Rotated Factor Matrix for CPI Scales on the Five-Factor Model (from Fleenor & Eastman, 1997)

CPI Scale	Extraversion Sample		Openness Sample		Conscientiousness Sample		Neuroticism Sample		Agreeableness Sample	
	1	2	1	2	1	2	1	2	1	2
Sociability	**.85**	**.85**	.14	.10	.15	.16	-.03	.02	.07	.09
Self-acceptance	**.84**	**.82**	.14	-.11	.12	.11	-.01	-.08	.08	.09
Dominance	**.82**	**.80**	-.06	.22	-.06	-.05	-.14	-.17	.11	.13
Social Presence	**.74**	**.75**	.34	-.19	.35	.35	-.11	-.06	.10	.10
Capacity for Status	**.65**	**.71**	.43	.16	.40	.37	-.04	-.04	-.08	-.05
Empathy	**.64**	**.70**	.47	.00	.44	.39	-.02	-.02	.01	-.03
Independence	**.63**	**.65**	.26	.12	.24	.21	-.37	-.38	-.15	-.16
Ach. via Independence	.22	-.28	**.84**	**.82**	.15	.15	-.06	-.07	-.16	-.17
Tolerance	.06	.03	**.74**	**.82**	.07	.07	-.19	-.15	-.25	-.26
Conceptual Fluency	.24	.28	**.74**	**.74**	.06	.09	.02	.01	.23	.30
Flexibility	.22	.04	**.70**	**.71**	.02	.03	.18	.23	.21	.16
Insightfulness	.20	.11	**.64**	**.67**	.34	.36	.19	.14	.16	.15
Self-control	-.30	.21	.16	.35	**.84**	**.60**	-.36	-.28	.20	.12
Good impression	.00	.25	.13	.15	**.82**	**.82**	-.05	-.03	.00	.02
Ach. via Conformance	.32	.06	.33	.34	**.74**	**.77**	.09	.08	.13	.09
Socialization	.03	.29	.22	.22	**.68**	**.70**	-.14	-.15	.08	.06
Responsibility	.19	.24	-.33	-.33	**.64**	**.65**	.08	.14	-.18	-.23
Well-being	.12	.25	.28	.27	**.56**	**.63**	-.21	-.23	-.11	-.07
Sensitivity	-.21	-.18	.07	.07	-.05	-.05	**.85**	**.87**	-.08	-.08
Communality	.10	.10	.12	.08	-.01	.00	-.07	-.06	**.90**	**.91**
Eigenvalue	6.56	6.76	3.41	3.48	1.95	1.79	1.14	1.14	1.00	.98
Proportion of variance	.33	.34	.17	.17	.10	.09	.06	.06	.05	.05
Cumulative variance	.33	.34	.50	.51	.60	.60	.66	.66	.71	.71

Note: Sample 1 (*n*=750), Sample 2 (*n*=749)

Table 4

REFLECTIONS Scales (Steed et al., 2004)

Scale	Description
Increase Self-Awareness	How others perceive leaders and how their leadership style and behavior affects their coworkers
Increase Self-Confidence	The extent to which leaders believes they can make a valuable contribution to the organization
Balance Work & Non-Work Activities	How well does one balance between work and private life to include the incorporation of enriching hobbies and leisure activities
Enhance Learning	Leaders' openness to the perspectives of others and their capacity to learn from significant events and the experiences of others
Set & Achieve Goals	The extent to which leaders set, achieves and adjusts their goals for improvement over time
Build & Maintain Relationships	How approachable and receptive leaders are and how well the leader exercises patience with and consideration for others
Leverage Diversity	Leaders' capacity to optimize individual differences for the good of the organization and their ability to discern cultural influences
Demonstrate Leadership	How well leaders communicate their vision, and the leaders' capacity to understand aspects of workplace and organizational context that are not readily apparent
Work Across Organizational Boundaries	The extent to which leaders consider the effects of their decisions on the entire organization and how well leaders deal with organizational contradictions and inconsistencies
Make Effective Decisions	Leaders' capacity to make timely and sound decisions, delegate appropriately, and solicit appropriate input from others
Build Effective Teams	How well leaders use the input of others to solve problems and how well they negotiate roles and resources with others in the organization
Develop Others	The extent to which leaders coach and mentor others, provide feedback to direct reports, and communicate openly about what they have learned from their mistakes

Table 5
REFLECTIONS© Items

Identifier	Item	Scale
R01_I01	Learns how others perceive him/her.	Self-Awareness
R01_I02	Understands how their management style impacts others.	
R01_I03	Is aware of the impact of their behavior on others.	
R02_I01	Is self-assured.	Self-Confidence
R02_I02	Believes he/she can make valuable contributions.	
R02_I03	Recognizes and appreciates their talents and abilities.	
R03_I01	Makes time in their life for non-work activities.	Work/Life Balance
R03_I02	Spends time engaging in hobbies and leisure activities.	
R03_I03	Strikes a reasonable balance between their work/private life.	
R04_I01	Is open to others' perspectives.	Learning
R04_I02	Recognizes that others' perspectives have value.	
R04_I03	Learns from others' experiences.	
R04_I04	Learns from people and events.	
R05_I01	Sets leadership improvement goals.	Goal Setting
R05_I02	Carries out leadership improvement goals.	
R05_I03	Evolves their goals over time, as necessary.	
R06_I01	Is approachable and receptive to others.	Relationships
R06_I02	Supports and understands the needs of others.	
R06_I03	Displays patience with others in difficult situations.	
R06_I04	Avoids being abrasive with others.	
R07_I01	Builds the capacity to take the perspective of another person.	Diversity
R07_I02	Leverages individual differences for the good of the organization.	
R07_I03	Understands that people may need to be managed differently.	
R07_I04	Incorporates others' talents and points of view.	
R07_I05	Discerns and manages cultural influences on business practices.	
R08_I01	Understands the whole picture as well as the details within it.	Leadership
R08_I02	Observes and understands aspects of a situation that are not readily apparent.	
R08_I03	Creates a common vision by eliciting others' opinions.	
R09_I01	Considers the impact of their actions on the entire system.	Org Boundaries
R09_I02	Balances what is good for the unit or area with the needs of other parts of the organization.	
R09_I03	Deals effectively with contradictory requirements or inconsistencies in the organization.	
R09_I04	Evaluates the organization in a clear and objective manner.	
R010_I01	Seeks the input of others in making important decisions.	Decision Making
R010_I02	Takes calculated risks in making quick decisions.	
R010_I03	Delegates appropriate decisions to lower levels.	
R010_I04	Makes effective decisions in difficult situations.	
R011_I01	Utilizes groups in problem solving tasks.	Team Building
R011_I02	Negotiates adeptly with others regarding roles and/or resources.	
R011_I03	When working with team members, facilitates a climate of cooperation and collaboration.	
R011_I04	Builds an effective team.	
R012_I01	Provides ongoing feedback to direct reports.	Developing Others
R012_I02	Open with others about what he/she has learned from their mistakes.	
R12_I03	Becomes a coach or mentor to others.	

Note. Center for Creative Leadership© 2004

Table 6
REFLECTIONS® Subscale Intercorrelations and Reliabilities

Variable	1	2	3	4	5	6	7	8	9	10	11	12	13	14
1. Self-Awareness	(.85)													
2. Self-Confidence	.39	(.79)												
3. Work-Life Balance	.34	.38	(.90)											
4. Learning	.78	.50	.39	(.84)										
5. Goal Setting	.66	.59	.45	.68	(.82)									
6. Relationships	.75	.38	.43	.80	.62	(.84)								
7. Diversity	.76	.55	.46	.84	.76	.78	(.88)							
8. Leadership	.67	.55	.42	.77	.67	.71	.78	(.72)						
9. Org Boundaries	.69	.58	.39	.79	.71	.71	.82	.78	(.83)					
10. Decision Making	.62	.60	.47	.73	.72	.68	.80	.78	.78	(.78)				
11. Team Building	.74	.51	.38	.82	.70	.77	.84	.77	.80	.76	(.84)			
12. Developing Others	.69	.56	.42	.75	.75	.73	.82	.74	.75	.79	.77	(.78)		
13. Consideration	.89	.51	.42	.94	.73	.90	.89	.82	.85	.78	.91	.81	(.96)	
14. Initiating Structure	.74	.67	.52	.83	.87	.78	.92	.86	.88	.91	.85	.91	.87	(.96)

Note. Perceived performance change score scale reliabilities (coefficient alpha) are provided in parentheses. $p<.001$ for all correlations.

Table 7
Factor Loadings for REFLECTIONS® Items

Identifier	Scale	Factor 1	2	3	4
R06_I03	Displays patience with others in difficult situations.	.960			
R06_I04	Avoids being abrasive with others.	.955			
R04_I01	Is open to others' perspectives.	.949			
R04_I02	Recognizes that others' perspectives have value.	.934			
R08_I03	Creates a common vision by eliciting others' opinions.	.826			
R01_I02	Understands how their management style impacts others.	.790			
R011_I01	Utilizes groups in problem solving tasks.	.711			
R07_I01	Builds the capacity to take the perspective of another person.	.710			
R011_I03	When working with team members, facilitates a climate of cooperation and collaboration.	.708			
R01_I01	Learns how others perceive him/her.	.690			
R01_I03	Is aware of the impact of their behavior on others.	.688			
R09_I01	Considers the impact of their actions on the entire system.	.650			
R04_I03	Learns from others' experiences.	.598			
R09_I02	Balances what is good for the unit or area with the needs of other parts of the organization.	.526			
R06_I01	Is approachable and receptive to others.	.522			
R011_I02	Negotiates adeptly with others regarding roles and/or resources.	.509			
R010_I01	Seeks the input of others in making important decisions.	.487			
R04_I04	Learns from people and events.	.412			
R010_I04	Makes effective decisions in difficult situations.		.881		
R08_I02	Observes and understands aspects of a situation not readily apparent.		.834		
R09_I03	Deals effectively with contradictory requirements or inconsistencies in the organization.		.797		
R010_I02	Takes calculated risks in making quick decisions.		.777		
R08_I01	Understands the whole picture as well as the details within it.		.726		
R12_I03	Becomes a coach or mentor to others.		.717		
R010_I03	Delegates appropriate decisions to lower levels.		.635		
R012_I01	Provides ongoing feedback to direct reports.		.617		
R07_I05	Discerns and manages cultural influences on business practices.		.600		
R05_I02	Carries out leadership improvement goals.		.573		
R011_I04	Builds an effective team.		.556		
R07_I03	Understands that people may need to be managed differently.		.522		
R012_I02	Open with others about what he/she has learned from their mistakes.		.514		
R07_I04	Incorporates others' talents and points of view.		.512		
R07_I02	Leverages individual differences for the good of the organization.		.502		
R05_I01	Sets leadership improvement goals		.497		
R06_I02	Supports and understands the needs of others.		.493		
R05_I03	Evolves their goals over time, as necessary.		.470		
R09_I04	Evaluates the organization in a clear and objective manner.		.466		
R02_I02	Is self-assured.			.847	
R02_I01	Believes he/she can make valuable contributions.			.662	
R02_I03	Recognizes and appreciates their talents and abilities.			.608	
R03_I01	Makes time in their life for non-work activities.				.921
R03_I02	Spends time engaging in hobbies and leisure activities.				.908
R03_I03	Strikes a reasonable balance between their work/private life.				.822

Note. Confirmatory Factor analysis of this model produced fit indices of CFI = 0.97, RMSEA = 0.054, SMRSR = 0.015 .

Table 8
Variable Intercorrelations and Reliabilities

Variable	1	2	3	4	5	6	7	8
1. Relational Performance	(.97)							
2. Task Performance	.01	(.98)						
3. Self-Other Rating Discrepancy	-.01	-.10						
4. Level of Extraversion	.29**	-.13*	-.09	(.92)				
5. Level of Openness	-.05	-.14**	-.14**	.41**	(.78)			
6. Level of Conscientiousness	-.26**	.16**	-.04	-.14**	.28**	(.81)		
7. Level of Agreeableness	-.23**	.31**	.05	-.54**	-.21**	.28**	(.93)	
8. Level of Neuroticism	-.17**	.01	.02	-.12**	.14**	.18**	.13*	(.93)

Note: *p<.05, **p<.001. Scale reliabilities are provided in parentheses.

Table 9
Perceived Performance Change Scores by Demographics

	Gender				Organizational Level			
	Male		Female		Middle		Senior	
Performance Factor	*M*	*SD*	*M*	*SD*	*M*	*SD*	*M*	*SD*
Relational Performance	1.12	0.56	1.15	0.48	1.16	0.57	1.13	0.47
Task Performance	1.00	0.48	0.98	0.49	1.03	0.59	0.94	0.49

Note. All confidence intervals excluded zero.

Table 10
Perceived Performance Change Scores by Rater Group

	Rater Group							
	Direct Report		Peer		Superior		Total Other	
Performance Factor	*M*	*SD*	*M*	*SD*	*M*	*SD*	*M*	*SD*
Relational Performance	0.91	0.42	0.98	0.45	1.25	0.61	1.14	0.54
Task Performance	0.86	0.55	0.84	0.47	1.11	0.52	0.99	0.50

Note. All confidence intervals excluded zero.

Table 11
Descriptive Statistics for Personality Clusters

Cluster Number	Name	N	Extraversion M (SD)	Openness M (SD)	Conscientiousness M (SD)	Agreeableness M (SD)	Neuroticism M (SD)	Homogeneity Coefficient
1	Copiers	60	13.75 (2.19)	14.42 (2.29)	17.42 (2.18)	21.43 (1.33)	8.18 (2.30)	1.6184
2	Controllers	112	19.49 (1.79)	19.37 (1.57)	19.70 (1.61)	19.71 (1.13)	10.45 (3.10)	1.1164
3	Charismatics	77	21.93 (1.67)	16.62 (1.62)	16.86 (2.13)	18.32 (1.28)	7.21 (2.21)	1.2479
4	Dutifuls	114	17.17 (1.89)	16.53 (1.47)	21.13 (1.62)	21.78 (0.94)	9.11 (2.45)	0.9954
Total		363	18.33 (3.25)	17.07 (2.40)	19.17 (2.50)	20.35 (1.77)	8.96 (2.85)	
Between Groups Comparison			F=244.20**, 3	F=124.16**, 3	F=105.32**, 3	F=169.29**, 3	F=25.79**, 3	

Note: **p<.001.

Table 12
Perceived Main Effects of Performance Change by Personality Type

Performance Factor	*F*	*df*	η^2
Cluster			
Relational	27.42**	3, 352	.191
Task	26.42**	3, 352	.184
Wilk's Lambda	27.14**	3, 694	.190

Note: *p<.05, **p<.001

Table 13
Perceived Performance Change by Personality Type

	Relational M (SD)	Task M (SD)
Cluster		
(1) Copiers	0.98 (.46)	0.92 (.57)
(2) Controllers	1.03 (.47)	0.80 (.49)
(3) Charismatics	1.60 (.58)	0.87 (.37)
(4) Dutifuls	1.04 (.44)	1.30 (.39)

Table 14
Comparisons of Personality Type by Performance Factors (n=363)

Performance Factor	Personality Type	Personality Type	Mean Diff	SE
Relational Performance	Copiers	Controllers	-.05	.080
		Charismatics	-.62**	.086
		Dutifuls	-.06	.080
	Controllers	Copiers	.05	.080
		Charismatics	-.57**	.073
		Dutifuls	-.01	.066
	Charismatics	Copiers	.62**	.086
		Controllers	.57**	.073
		Dutifuls	.56**	.073
	Dutifuls	Copiers	.06	.080
		Controllers	.01	.066
		Charismatics	-.56**	.073
Task Performance	Copiers	Controllers	.12	.074
		Charismatics	.04	.080
		Dutifuls	-.39**	.074
	Controllers	Copiers	-.12	.074
		Charismatics	-.07	.068
		Dutifuls	-.50**	.061
	Charismatics	Copiers	-.04	.080
		Controllers	.07	.068
		Dutifuls	-.43**	.068
	Dutifuls	Copiers	.39**	.074
		Controllers	.50**	.061
		Charismatics	.43**	.068

Note: **p<.001

Table 15
Regression Test of the Relationship between Perceived Performance Change and Extraversion (n=363)

		Relational Performance		
Predictors	B	SE	β	R^2
Relational Performance	2.026	.641	----	.101
Extraversion (linear)	.048	.008	.285**	
Extraversion	-.157	.073	-.937*	
Extraversion^2	.006	.002	1.23*	
		Task Performance		
Predictors	B	SE	β	R^2
Task Performance	-.004	.612	----	.032
Extraversion (linear)	-.020	.008	-.132*	
Extraversion	.139	.070	.902*	
Extraversion^2	-.004	.002	-1.041*	

Note: *p<.05

Table 16
Regression Test of the Relationship between Perceived Performance Change and Openness (n=363)

		Relational Performance		
Predictors	B	SE	β	R^2
Relational Performance	-.861	.867	----	.022
Openness (linear)	-.012	.012	-.053	
Openness	.258	.104	1.142*	
Openness^2	-.008	.003	-1.203**	
		Task Performance		
Predictors	B	SE	β	R^2
Task Performance	-.922	.789	----	.045
Openness (linear)	-.028	.011	-.137*	
Openness	.264	.094	1.278*	
Openness^2	-.009	.003	-1.424**	

Note: *p<.05, **p<.001

Table 17
Regression Test of the Relationship between Perceived Performance Change and Conscientiousness (n=363)

		Relational Performance		
Predictors	B	SE	β	R^2
Relational Performance	2.237	.215	----	.071
Conscientiousness (linear)	-.057	.011	-.262**	
Conscientiousness	-.177	.133	-.815	
Conscientiousness^2	.003	.004	.555	

		Task Performance		
Predictors	B	SE	β	R^2
Task Performance	2.027	.204	----	.031
Conscientiousness (linear)	.032	.011	.158*	
Conscientiousness	-.152	.127	-.760	
Conscientiousness^2	.005	.003	.921	

Note: *p<.05, **p<.001

Table 18
Regression Test of the Relationship between Perceived Performance Change and Agreeableness (n=363)

		Relational Performance		
Predictors	B	SE	β	R^2
Relational Performance	2.036	.254	----	.072
Agreeableness (linear)	-.071	.016	-.231**	
Agreeableness	-.889	.305	-1.896*	
Agreeableness^2	.200	.080	1.969*	
		Task Performance		
Predictors	B	SE	β	R^2
Task Performance	2.039	.266	----	.103
Agreeableness (linear)	.087	.014	.310**	
Agreeableness	-.367	.277	-1.306*	
Agreeableness^2	.011	.007	1.118	

Note: *p<.05, **p<.001

Table 19
Regression Test of the Relationship between Perceived Performance Change and Neuroticism (n=363)

		Relational Performance		
Predictors	B	SE	β	R^2
Relational Performance	1.426	.093	----	.028
Neuroticism (linear)	-.032	.010	-.166*	
Neuroticism	-.041	.048	-.217	
Neuroticism^2	.001	.002	.052	
		Task Performance		
Predictors	B	SE	β	R^2
Task Performance	.864	.204	----	.001
Neuroticism (linear)	.029	.045	.166	
Neuroticism	.009	.001	.002	
Neuroticism^2	-.002	.002	-.168	

Note: *p<.05

Table 20
Regression Test of Moderation of the Relationship between Self-Other Rating Discrepancy and Perceived Performance Change by Copier Personality Type (n=363)

		Relational Performance		
Predictors	B	SE	β	R^2
Relational Performance	1.177	.031	----	.020
S-O Rating Discrepancy	0.016	.045	.022	
Copiers	-0.203	.079	-.138*	
Interaction	-0.022	.090	-.015	
		Task Performance		
Predictors	B	SE	β	R^2
Task Performance	1.000	.029	----	.013
S-O Rating Discrepancy	-0.053	.042	-.077	
Copiers	-0.073	.074	-.053	
Interaction	-0.040	.085	-.029	

Note: *$p<.05$

Table 21
Regression Test of Moderation of the Relationship between Self-Other Rating Discrepancy and Perceived Performance Change by Controller Personality Type (n=363)

		Relational Performance		
Predictors	B	SE	β	R^2
Relational Performance	1.191	.034	----	.020
S-O Rating Discrepancy	-0.032	.045	-.044	
Controllers	-0.146	.062	-.124*	
Interaction	0.097	.090	.066	
		Task Performance		
Predictors	B	SE	β	R^2
Task Performance	1.077	.031	----	.095
S-O Rating Discrepancy	-0.028	.041	-.042	
Controllers	-0.297	.055	-.276**	
Interaction	-0.185	.080	-.137	

Note: *p<.05, **p<.001

Table 22
Regression Test of Moderation of the Relationship between Self-Other Rating Discrepancy and Perceived Performance Change byCharismatic Personality Type (n=363)

		Relational Performance		
Predictors	B	SE	β	R^2
Relational Performance	1.021	.029	----	.187
S-O Rating Discrepancy	0.013	.040	.018	
Charismatics	0.576	.064	.433**	
Interaction	-0.001	.088	.001	
		Task Performance		
Predictors	B	SE	β	R^2
Task Performance	1.023	.030	----	.036
S-O Rating Discrepancy	-0.102	.040	-.149*	
Charismatics	-0.156	.065	-.127*	
Interaction	0.160	.091	.104	

Note: *p<.05, **p<.001

Table 23
Regression Test of Moderation of the Relationship between Self-Other Rating Discrepancy and Perceived Performance Change by Dutiful Personality Type (n=363)

		Relational Performance		
Predictors	B	SE	β	R^2
Relational Performance	1.196	.035	----	.020
S-O Rating Discrepancy	0.002	.046	.003	
Dutifuls	-0.167	.062	-.143*	
Interaction	-0.005	.086	-.003	
		Task Performance		
Predictors	B	SE	β	R^2
Task Performance	0.841	.029	----	.195
S-O Rating Discrepancy	-0.087	.039	-.126	
Dutifuls	0.462	.052	.429**	
Interaction	0.054	.072	.042	

Note: *p<.05, **p<.001

Table 24
Regression Test of Moderation of the Relationship between Self-Other Rating Discrepancy and Perceived Performance Change by Extraversion (n=363)

		Relational Performance		
Predictors	B	SE	β	R^2
Relational Performance	0.972	.045	----	.066
S-O Rating Discrepancy	0.013	.056	.018	
Extraversion	0.171	.034	.258**	
Interaction	0.004	.046	.007	
		Task Performance		
Predictors	B	SE	β	R^2
Task Performance	1.102	.042	----	.042
S-O Rating Discrepancy	-0.061	.054	-.089	
Extraversion	-0.112	.032	-.182**	
Interaction	-0.016	.044	-.028	

Note: **p<.001

Table 25
Regression Test of Moderation of the Relationship between Self-Other Rating Discrepancy and Perceived Performance Change by Openness (n=363)

		Relational Performance		
Predictors	B	SE	β	R^2
Relational Performance	1.191	.046	----	.007
S-O Rating Discrepancy	-0.049	.056	-.066	
Openness	-0.043	.035	-.066	
Interaction	0.049	.047	.080	
		Task Performance		
Predictors	B	SE	β	R^2
Task Performance	1.088	.041	----	.051
S-O Rating Discrepancy	-0.008	.051	-.011	
Openness	-0.106	.031	-.177**	
Interaction	-0.085	.043	-.147*	

Note: *p<.05, **p<.001

Table 26
Regression Test of Moderation of the Relationship between Self-Other Rating Discrepancy and Perceived Performance Change by Conscientiousness (n=363)

		Relational Performance		
Predictors	B	SE	β	R^2
Relational Performance	1.299	.045	----	.055
S-O Rating Discrepancy	-0.025	.056	-.033	
Conscientiousness	-0.157	.035	-.233**	
Interaction	0.030	.046	.050	
		Task Performance		
Predictors	B	SE	β	R^2
Task Performance	0.883	.042	----	.038
S-O Rating Discrepancy	-0.041	.053	-.059	
Conscientiousness	0.102	.033	.166**	
Interaction	-0.029	.043	-.052	

Note: **p<.001

Table 27
Regression Test of Moderation of the Relationship between Self-Other Rating Discrepancy and Perceived Performance Change by Agreeableness (n=363)

		Relational Performance		
Predictors	B	SE	β	R^2
Relational Performance	1.317	.048	----	.054
S-O Rating Discrepancy	-0.014	.067	-.020	
Agreeableness	-0.145	.032	-.232**	
Interaction	0.017	.043	.035	
		Task Performance		
Predictors	B	SE	β	R^2
Task Performance	0.765	.043	----	.116
S-O Rating Discrepancy	-0.061	.061	-.089	
Agreeableness	0.188	.029	.326**	
Interaction	-0.012	.040	-.026	

Note: **p<.001

Table 28
Regression Test of Moderation of the Relationship between Self-Other Rating Discrepancy and Perceived Performance Change by Neuroticism (n=363))

		Relational Performance		
Predictors	B	SE	β	R^2
Relational Performance	1.221	.041	----	.019
S-O Rating Discrepancy	0.017	.060	.023	
Neuroticism	-0.089	.035	-.137*	
Interaction	-0.016	.048	-.027	
		Task Performance		
Predictors	B	SE	β	R^2
Task Performance	0.970	.038	----	.012
S-O Rating Discrepancy	-0.097	.056	-.141	
Neuroticism	0.020	.032	.033	
Interaction	0.032	.045	.057	

Note: **p<.001

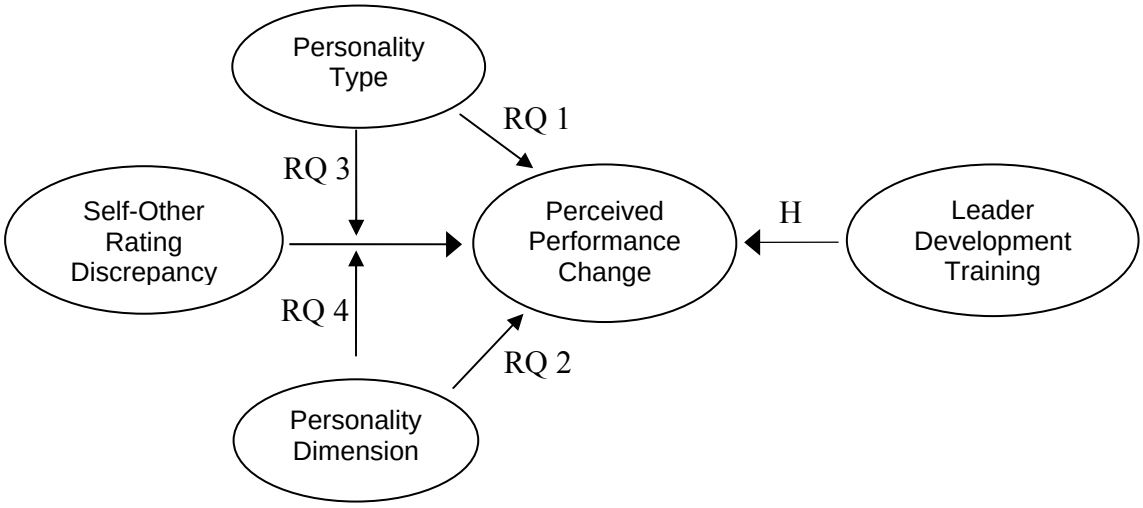


Figure 1 Graphic Summary of Hypothesis and Research Questions

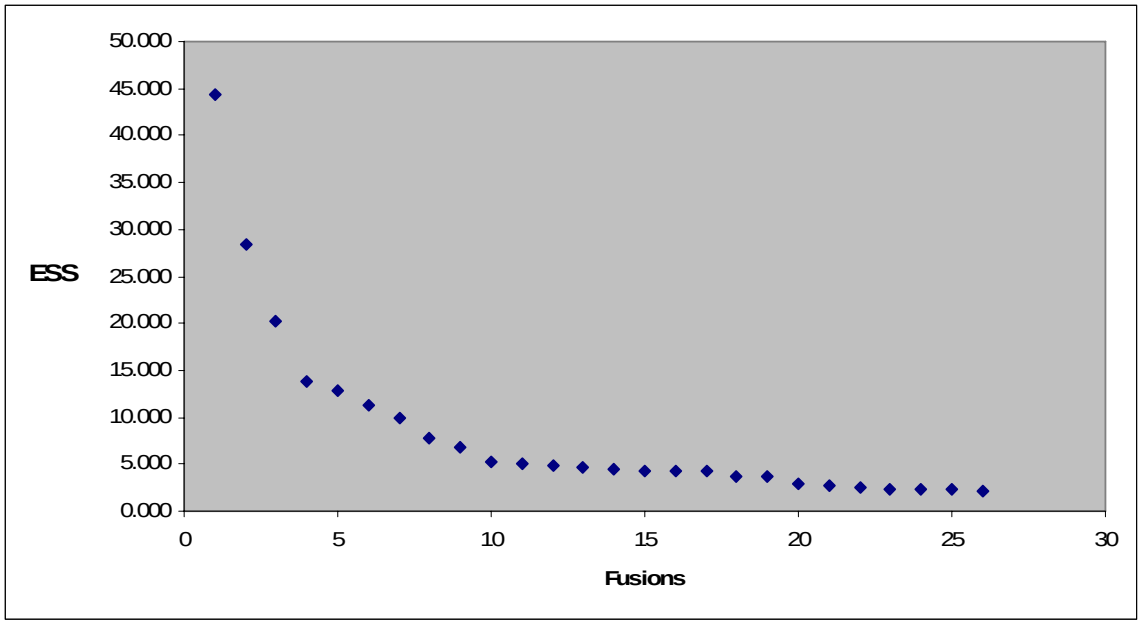


Figure 2 ESS Increase for Final 25 Fusions

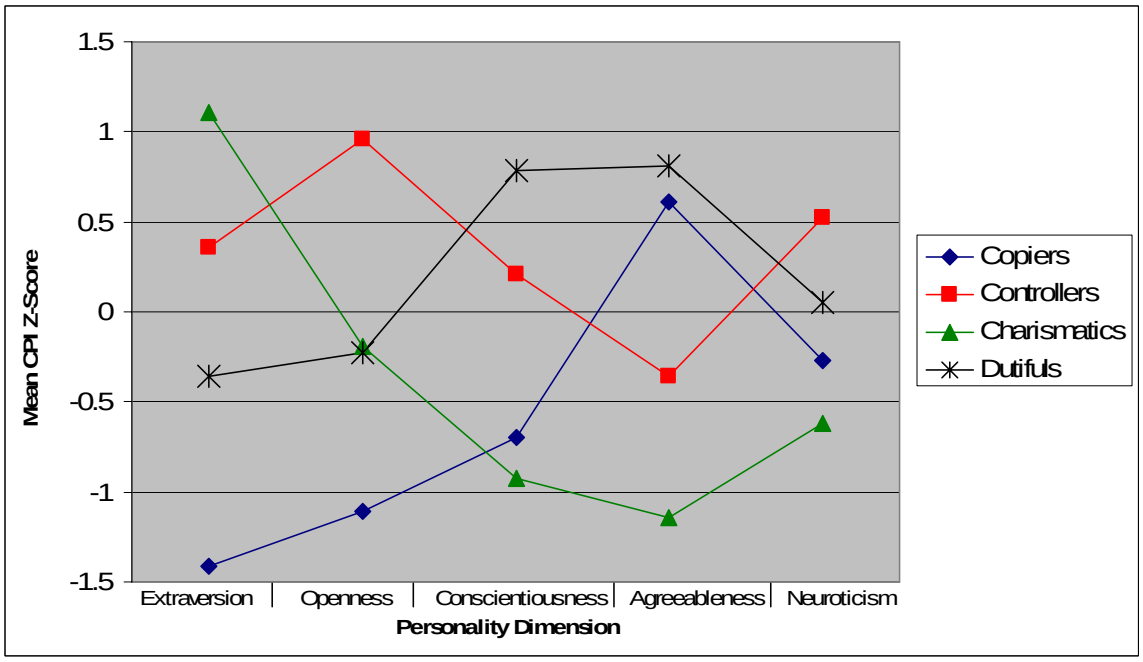


Figure 3 Cluster Centroids

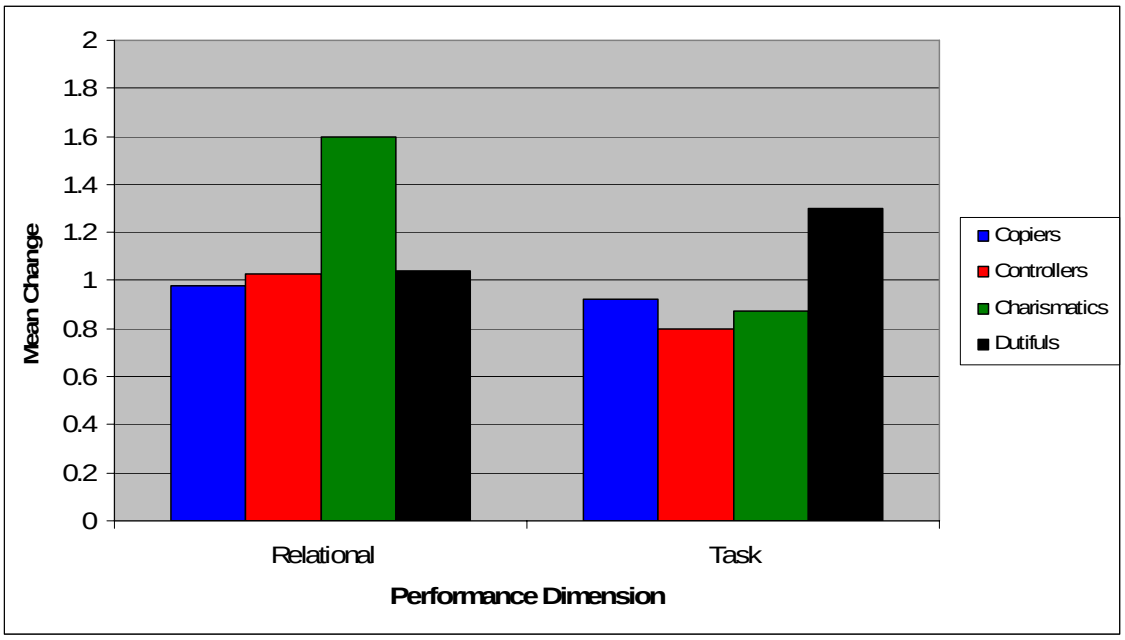


Figure 4 Perceived Performance Change by Personality Type

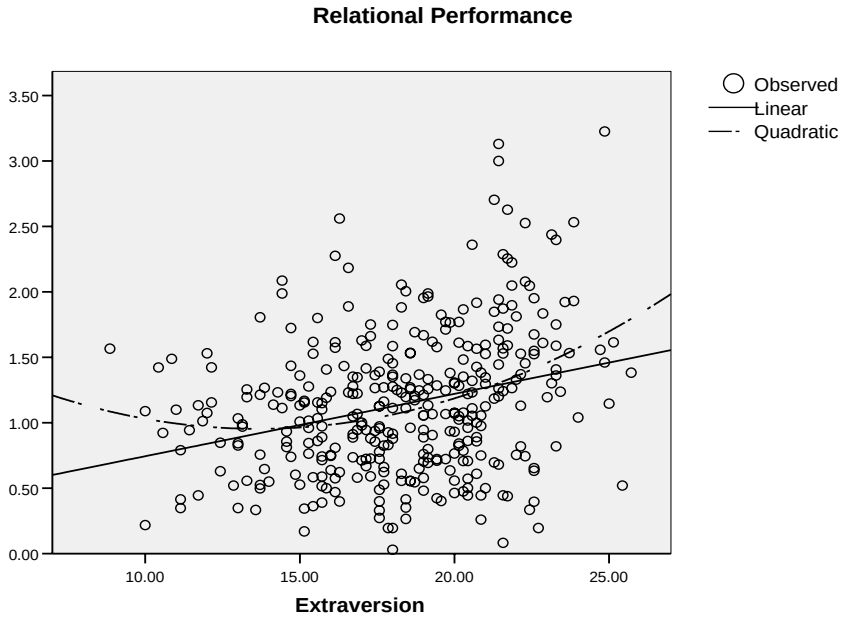


Figure 5 Regression Plot of the Effect of Extraversion on Relational Performance

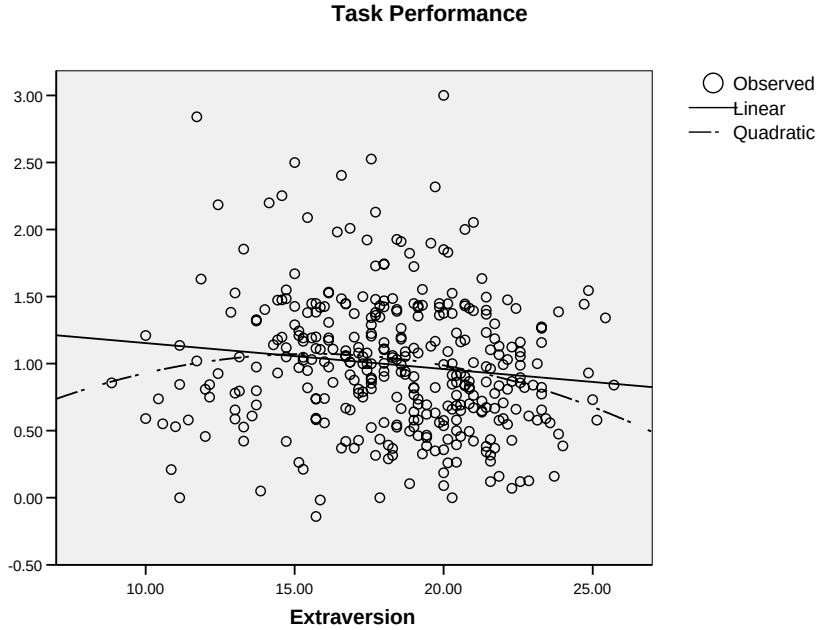


Figure 6 Regression Plot of the Effect of Extraversion on Task Performance

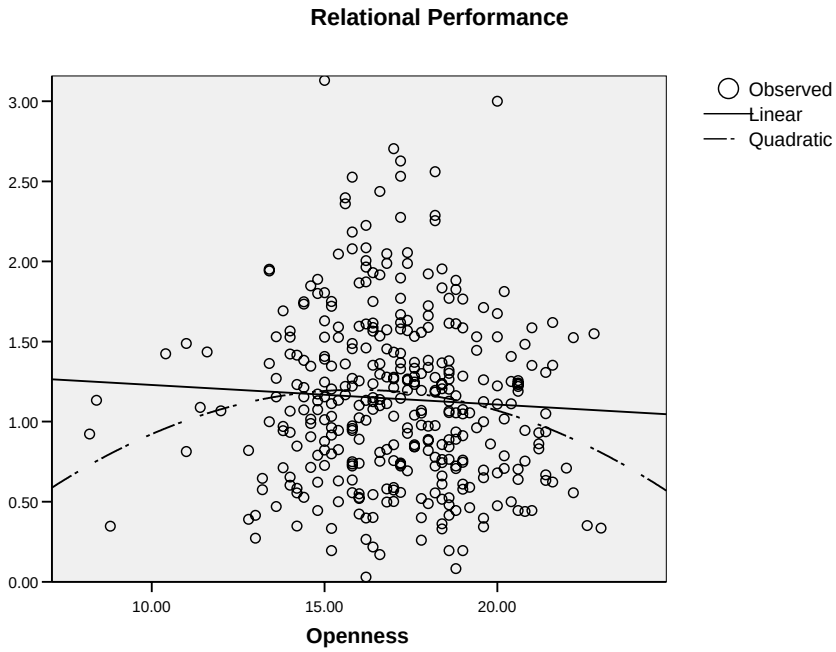


Figure 7 Regression Plot of the Effect of Openness on Relational Performance

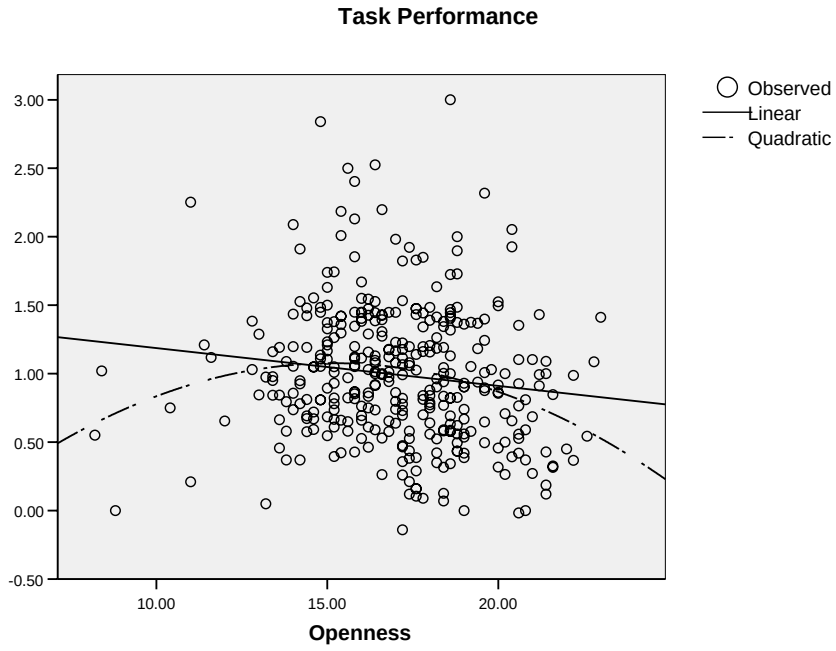


Figure 8 Regression Plot of the Effect of Openness on Task Performance

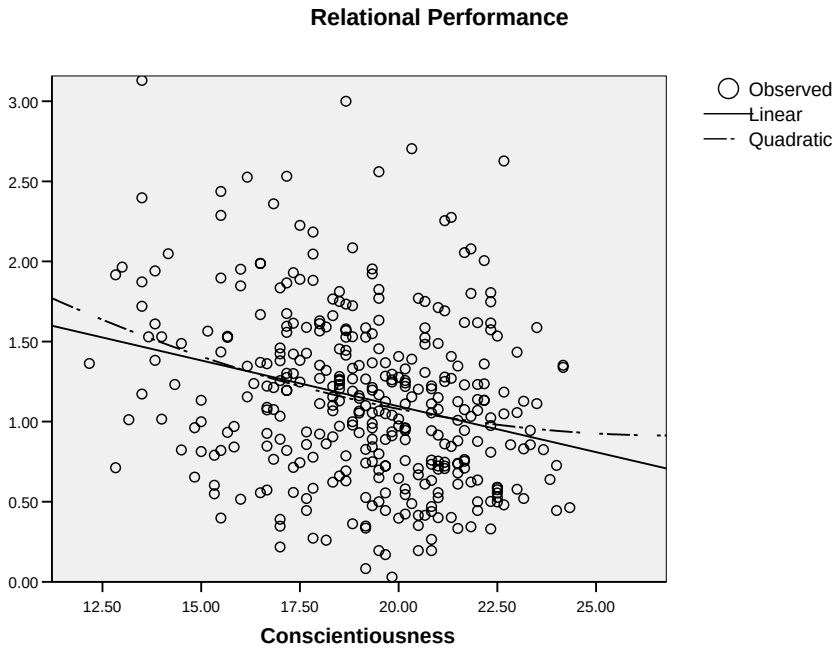


Figure 9 Regression Plot of the Effect of Conscientiousness on Relational Performance

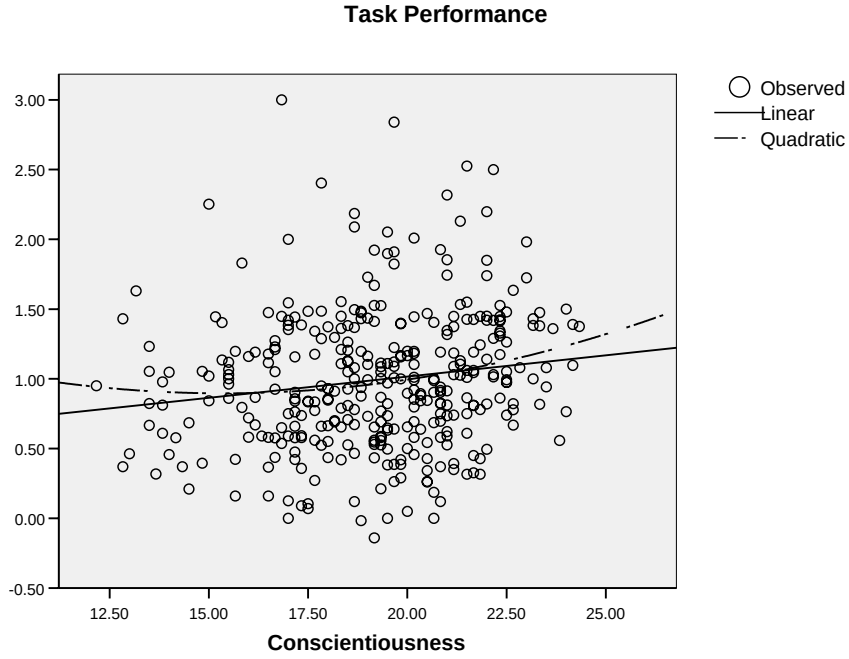


Figure 10 Regression Plot of the Effect of Conscientiousness on Task Performance

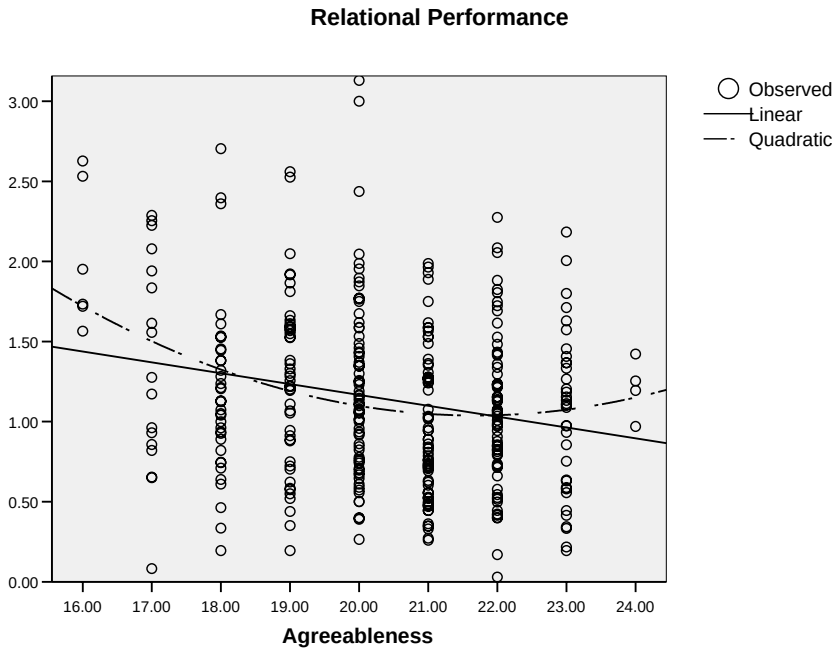


Figure 11 Regression Plot of the Effect of Agreeableness on Relational Performance

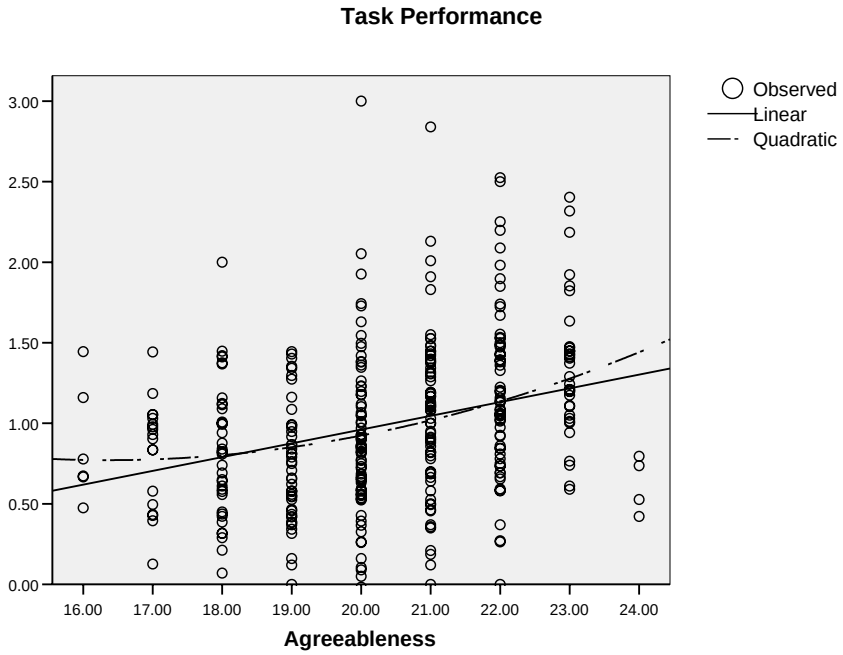


Figure 12 Regression Plot of the Effect of Agreeableness on Task Performance

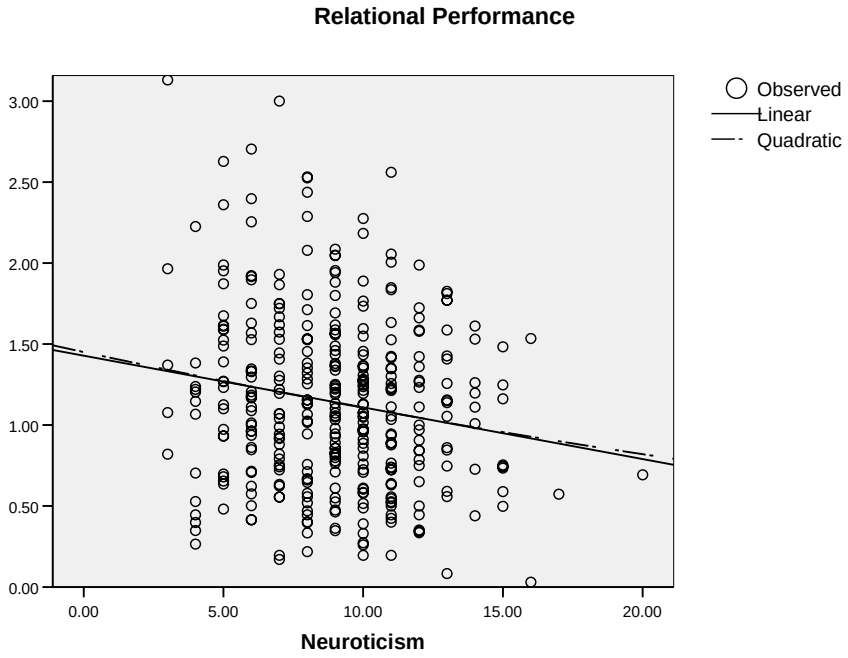


Figure 13 Regression Plot of the Effect of Neuroticism on Relational Performance

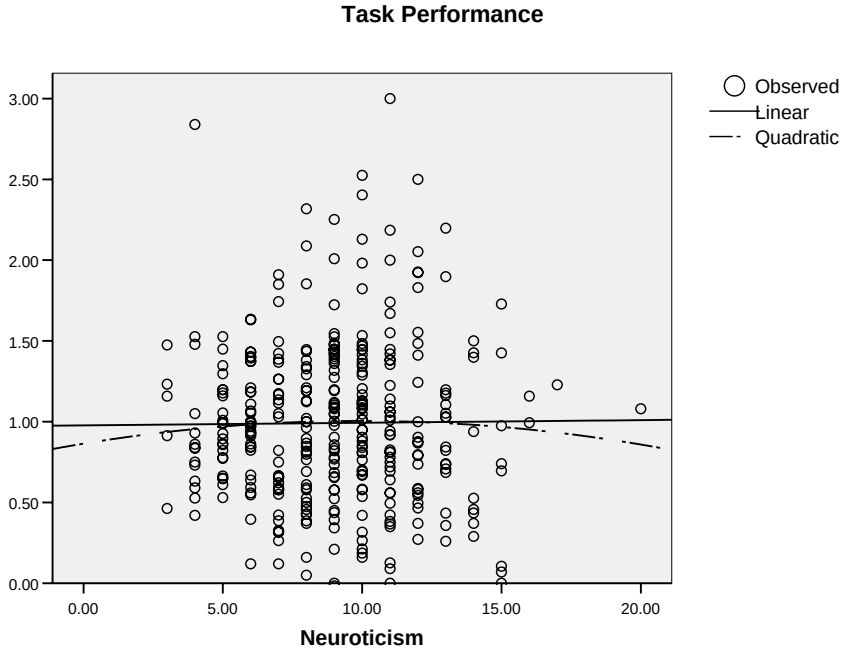


Figure 14 Regression Plot of the Effect of Neuroticism on Task Performance