7-10-2015

Investigating the Uniqueness and Usefulness of Proactive Personality in Organizational Research: A Meta-Analytic Review

Matthias Spitzmuller
Queens University

Hock-Peng Sin
Florida International University

Michael D. Howe
Iowa State University, howe@iastate.edu

Shereen Fatimah
Pennsylvania State University - Main Campus

Investigating the Uniqueness and Usefulness of Proactive Personality in Organizational Research: A Meta-Analytic Review

Abstract
Using meta-analysis (283 effect sizes from 122 studies), we extend prior qualitative and quantitative reviews of research on proactive personality in a number of meaningful ways. First, we examine the discriminant and incremental validity of proactive personality using meta-analytic regression analyses. Our results reveal that more than 50% of variance in proactive personality is unrelated to the Big Five personality traits collectively. Also, proactive personality accounts for unique variance in overall job performance, task performance, and organizational citizenship behaviors, even after controlling for the Big Five personality traits and general mental ability (for overall job performance and task performance). Moreover, we find no subgroup differences in proactive personality, highlighting its potential use in selection contexts. In conclusion, we discuss implications of our findings for research and practice.

Disciplines
Business Administration, Management, and Operations | Organizational Behavior and Theory | Other Business | Performance Management

Comments
This is a manuscript of an article from *Human Performance,* July 2015, 28(4); 351-379. Doi: http://dx.doi.org/10.1080/08959285.2015.1021041. Posted with permission.

Running Head: The Uniqueness and Usefulness of Proactive Personality

Investigating the Uniqueness and Usefulness of Proactive Personality in Organizational Research: A Meta-Analytic Review

This is a manuscript of an article from *Human Performance*, July 2015, 28(4); 351-379. Doi: 10.1080/08959285.2015.1021041. Posted with permission.

Investigating the Uniqueness and Usefulness of Proactive Personality in Organizational Research: A Meta-Analytic Review

Using meta-analysis (283 effect sizes from 122 studies), we extend prior qualitative and quantitative reviews of research on proactive personality in a number of meaningful ways. First, we examine the discriminant and incremental validity of proactive personality using meta-analytic regression analyses. Our results reveal that more than 50% of variance in proactive personality is unrelated to the Big Five personality traits collectively. Also, proactive personality accounts for unique variance in overall job performance, task performance, and OCBs, even after controlling for the Big Five personality traits and general mental ability (for overall job performance and task performance). Moreover, we find no sub-group differences in proactive personality, highlighting its potential use in selection contexts. In conclusion, we discuss implications of our findings for research and practice.

Investigating the Uniqueness and Usefulness of Proactive Personality in Organizational Research: A Meta-Analytic Review

Proactive work behaviors are associated with a number of meaningful individual and organizational outcomes. For example, Hall and Moss (1998) and Thompson (2005) argued that initiative taking and a self-starting approach to work have become increasingly important for individual job performance and career success. Parker (1998) and Parker, Williams, and Turner (2006) further suggested that a self-starting approach to work will ultimately result in innovation on the organizational level. Given the widespread use of decentralized organizational structures, performance of proactive work behaviors has become the source of competitive advantage for organizations (Crant, 1995; Frese & Fay, 2001; Organ, 1988). These developments led Bandura (2002) to conclude that transnational interdependencies and market forces have created a global demand for a self-starting approach to work.

The increasing importance of a self-starting approach to work has been reflected in scholarly work on proactive work behaviors. Over the past twenty years, research has examined the nature, antecedents, and consequences of proactive personality and of proactive work behaviors (Bateman & Crant, 1993; Crant, 1995; Crant, 2000; Crant & Bateman, 2000; Parker, 1998; Thompson, 2005). Drawing upon years of research, Crant (2000) provided a conceptual review of proactive personality and developed an integrative model of the antecedents and consequences of proactive work behaviors. More recently, two meta-analytic studies provided a quantitative summary of existing research on the relationships of proactive personality with the Big Five personality traits, career success, proactive work behaviors, job performance, motivation, mobility/adaptability, job satisfaction, organizational commitment, and individual difference constructs such as age and job experience (Fuller & Marler, 2009; Thomas, Whitman, &

Viswesvaran, 2010). Even though these qualitative and quantitative reviews have advanced our understanding of proactive personality, important questions remain unanswered.

First, the extant literature has yet to address the question to which extent proactive personality overlaps with the Big Five personality traits *collectively*. This is an important question because the degree of independence of proactive personality from the Big Five personality traits also determines the extent to which the proactive personality construct can theoretically be understood by locating it within the Big Five framework. This is a common practice for personality constructs which have been introduced more recently to the research domain, such as self-monitoring (Funder, 2001) yet the previous reviews of proactive personality have not performed this analysis, despite the fact that Ozer and Reise (1994) posited in an Annual Review of Psychology chapter that the Big Five are the "latitude and longitude" (p. 361) along which any new personality construct should be routinely mapped. Therefore, what is needed is an investigation of the cumulative overlap of the Big Five personality traits with proactive personality to determine the extent to which the proactive personality does not only have a different label than the Big Five, but also measures different dispositional terrain than the Big Five.

Second, given the evolution of work and the growing importance of proactive work behaviors, it becomes pertinent to address the utility of proactive personality as a selection tool. Indeed, while proactive personality scholars have long called for the use of proactive personality as a selection tool (e.g. Crant, 1995) and numerous studies have examined the relationship between proactive personality and work outcomes, the questions pertaining to the use of proactive personality in selection settings remain unanswered. Specifically, very little is known about the extent to which proactive personality can explain incremental variance in important organizational outcomes above and beyond the Big Five personality traits *and* other relevant individual difference

constructs such as general mental ability. While the Fuller and Marler (2009) meta-analysis does not investigate the incremental validity of the construct, the Thomas et al. (2010) meta-analysis only considers the incremental validity of proactive personality over the Big Five personality traits in predicting overall job performance. This approach has two drawbacks. First, it ignores the status of general mental ability as the single most important predictor of job performance (Ree, Earles, Teachout, 1994). Additionally, this analysis also ignores the relationship with other important job outcomes, such as citizenship behaviors or job satisfaction – criteria which have different dispositional antecedents than overall job performance (Barrick & Mount, 1991; Ilies et al., 2009; Judge, Heller, & Mount, 2002). By first controlling for the Big Five collectively, as well as general mental ability when applicable, we set up a stringent test to examine the usefulness of proactive personality in organizational research.

Third, selection measures employed by organizations operating in the United States, apart from demonstrating incremental validity (Morgeson et al., 2007), must also provide equal employment opportunity to all job seekers, regardless of gender or race (Outtz, 2011). However this is a potentially important limitation that has heretofore been largely ignored by those investigating proactive personality in the context of organizational outcomes. Hence, in addressing this gap in the transition of proactive personality from research to practice, this study also examines the adverse impact potential by quantifying the race and gender-based sub-group differences that would impact U.S. based employers' ability to use proactive personality in selection settings. An absence of these differences would provide additional support for the inclusion of this measure as a selection tool.

Before addressing these three issues in greater detail, we would like to make our conceptualization of proactive personality explicit. Specifically, our understanding of proactive

personality as a dispositional construct capturing a self-starting approach to work includes the two dispositional operationalizations of proactive work behaviors: proactive personality (Bateman & Crant, 1993) and the survey-based operationalization of personal initiative (Frese et al., 1997). In contrasting the four constructs proactive personality, personal initiative, role breadth self-efficacy, and taking charge, Crant (2000) aptly noted that the main differences between the constructs lie in the method in which data is collected and whether they measure dispositional or situational antecedents of proactive work behaviors. Contrary to role breadth self-efficacy and taking charge, personal initiative and proactive personality qualify as dispositional constructs. Substantively, both constructs measure dispositional tendencies to adopt a self-starting approach to work, and the available conceptual and empirical evidence provides strong support for the aggregation of the two constructs.

Proactive Personality and the Big Five Personality Traits – More of the Same?

Recent meta-analytic evidence indicates that proactive personality is conceptually related to four of the Big Five personality traits, namely Openness to Experience, Extraversion, Conscientiousness and Neuroticism (Fuller & Marler, 2009; Thomas et al., 2010). Given this conceptual overlap, we sought to investigate the uniqueness and usefulness of proactive personality in relation to the Big Five personality traits. The rationale for selecting the Big Five as a standard of comparison is founded on the central status of the Big Five personality traits. Indeed, the Big Five personality traits represent a comprehensive taxonomy which allows almost all personality constructs to be mapped on (Funder, 2001).

We accomplish this in two ways. First, we investigate the partial correlations of proactive personality with each of the Big Five personality traits, controlling for the other four traits (Cohen, Cohen, West & Aiken, 2003). This allows one to measure the unique relationship of each Big Five

construct with proactive personality. Following the suggestion of Ozer and Reise (1994), such an investigation would be theoretically meaningful by showing the extent to which proactive personality can be described by locating it within the Big Five taxonomy.

Second, we investigate the cumulative overlap of the Big Five personality traits with proactive personality to assess the degree to which proactive personality is different from the Big Five. In his review of the personality literature, Funder (2001) contended that although almost all personality constructs can be mapped on the Big Five, it is not possible to reverse engineer this process and to express the meaning of these constructs with the help of the Big Five personality traits. He suggested that although an individual high on self-monitoring would also score high on extraversion and agreeableness and low on conscientiousness, a reliance on just these three facets would not encapsulate the domain of self-monitoring. This indicates that there may be more to a personality construct than what the Big Five can explain. According to Ozer and Reise (1994), this could be attributed to the fact that the Big Five is not a theory and thus cannot "offer insight into the psychological principles and processes that create a personality" (Ozer & Reise, 1994, p.361). On the other hand, proactive personality has a strong theoretical underpinning which outlines its nature, antecedents and consequences (Bateman & Crant, 1993; Crant 1995; Crant, 2000; Crant & Bateman, 2000; Parker, 1998; Thompson, 2005). Furthermore, unlike proactive personality, which is contextualized as a self-starting approach to work, the Big Five is grounded in a non-contextual and non-contingent framework (Ozer & Reise, 1994). For these reasons, proactive personality is a higher level personality construct that does not lend itself to be entirely juxtaposed with the Big Five.

Consequences of Proactive Personality – The Case for Incremental Validity

In order to qualify as a useful predictor of job performance and job attitudes, proactive personality has to explain incremental variance above and beyond what can be explained with commonly used predictors in organizational settings. Previous research has established general mental ability and conscientiousness as valid predictors of task performance, whereas conscientiousness and agreeableness have been found to be valid predictors of contextual performance/OCBs (Motowidlo, 2003). Barrick and colleagues (2001) also go on to show that extraversion is useful in predicting performance in managerial and police occupations and that it may be also be a valid predictor of sales jobs. Of course the utility of the Big 5 is not limited to predicting job performance. Indeed, these personality dimensions also offer predictive validity in specific work outcomes and job settings. Specifically, while emotional stability, conscientiousness and agreeableness predict teamwork (Barrick, Mount & Judge, 2001), openness to experience and extraversion are valid predictors of training proficiency (Barrick et al. 2001, Barrick & Mount, 1991).

The unique contribution of this study lies in the holistic investigation of the incremental validity of proactive personality over and above these existing predictors. In particular, we tested the incremental validity of proactive personality as a predictor of job performance, controlling for the effect of general mental ability and the Big Five personality traits. Further when testing the incremental validity of proactive personality, we differentiated between overall job performance, as well as important sub-components, namely: task performance, OCB-O, and OCB-I. In a similar vein, we tested the incremental validity of proactive personality as a predictor of job satisfaction after controlling for the Big Five personality traits.

Subgroup Differences in Proactive Personality

Collectively, it seems that there has been a longstanding, reiterated recommendation in the literature to consider proactivity in personnel selection (Campbell, 2000; Crant, 1995; Erdogan & Bauer, 2005). Further, as organizations are facing an ever more complex and dynamic business environment (Taylor & Collins, 2000), organizations are apt to listen. And indeed, based on an examination of desired qualifications listed in online job postings, Erdogan and Bauer (2005) indicate that organizations are heeding this call. Demonstrating the incremental validity of proactive personality over the Big Five personality traits and general mental ability is certainly a first step in this direction (Morgeson et al., 2007), but it is not sufficient, at least in light of the legal requirements and social norms of equal opportunity that organizations operating in the United States are subject to (Outtz, 2011).

Further, in addition to external forces advocating equal opportunity, many organizations are also internally driven to provide equal opportunity because they recognize that a diverse workforce can be advantageous in terms of business performance (Ployhart & Holtz, 2008). In light of these internal and external forces for equality, potential selection measures should not result in mean score differences that are detrimental to minorities (in terms of race and gender) because these differences can lead to adverse impact (Pyburn Jr, Ployhart, & Kravitz, 2008). In fact, it is precisely the adverse impact of current personnel selection methods which have led to a renewed call for selection measures which do not create significant subgroup differences (Ployhart & Holtz, 2008). To propel the research in this domain, this meta-analysis examines whether organizations can take advantage of the incremental validity in predicting job performance offered by proactive personality without undue risk of violating ethical and legal issues pertaining to equal employment opportunity.

Therefore, this study examines gender and racial subgroup differences for proactive personality. While it is possible for subgroup differences to be either beneficial or detrimental to the minority group, it is important to remember that unfavorable group differences do not need to be large to have an adverse impact on the selection of minority subgroup members. Even standardized mean difference (d-statistic) values of 0.20, corresponding to a small effect (Cohen, 1992), can result in adverse impact at the selection ratios typically found in organizational settings (Sackett & Ellingson, 1997).

Subgroup Differences for Gender and Ethnicity

Hindered by lack of a theoretical base focusing specifically on racial differences in personality characteristics, existing research in this domain lacks integration (Foldes et al., 2008). However, there are some findings from other domains relevant to the present discussion that warrant reviewing. First, race differences in the performance of OCBs have been found. Specifically, white employees were more apt to perform OCBs than were non-white employees (Jones & Schaubroeck, 2004). The authors contend that this is likely due to increased experience of negative affectivity and disenfranchisement for minority employees, leading them to withdraw or refrain from behaviors that seem unattainable (Jones & Schaubroeck, 2004).

Second, there is a body of literature that suggests that being female or a racial minority is associated with a general perception of lower power when compared to males and majority race members (Keltner, Gruenfeld & Anderson, 2003). High power has also been shown to be positively related to reward-focus, behavioral inhibition, and approach tendencies while low power is associated with a focus on punishment and threats, behavioral constraint, and avoidance tendencies (Keltner, et al., 2003). Because the behavioral manifestations of proactive personality generally require challenging the status-quo and overcoming obstacles to enact changes perceived

as being beneficial to the individual (Bateman & Crant, 1993), those in a position of power may be more inclined to undertake these behaviors. Thus, while the direct evidence pertaining to proactive personality and race and gender differences is sparse, when taken together, the indirect evidence seems to indicate the potential for minority group members to exhibit lower levels of proactive personality, which may lead to adverse impact in situations where proactive personality is used for selection.

Further, it is important to note that conceptual issues related to the definition of race generally confront researchers investigating subgroup differences (Foldes et al., 2008) and this study is no different. Due to the fact that race is a broad categorization scheme that does not directly provide substantive understanding for the existence of individual differences, researchers have cautioned against using race as an explanatory variable in psychological research (Helms, Jernigan, & Mascher, 2005). While this seems like sage advice, the reader is reminded that this study only attempts to determine whether differences exist. The authors do not contend that race itself is responsible for any observed differences; rather, race is merely used to group individuals according to legally defined groups.

Methods

In order to estimate the degree to which proactive personality overlaps with the Big Five personality traits collectively, we regressed proactive personality on all Big Five personality traits. Next, to test the incremental validity of proactive personality as a predictor of our criteria, we used meta-analytic regression analysis. Finally, we also used meta-analysis to investigate the existence of sub-group differences in the levels of proactive personality exhibited by individuals.

In this manuscript the meta-analytic estimates for the true-score correlations are calibrated from scratch, as opposed to using those in the Fuller and Marler (2009) and the Thomas et al.

(2010) meta-analysis, for the following reasons. First, both the articles do not provide information on inclusion criteria and coding choices pertaining to the meta-analysis. In addition, the Thomas et al. article does not discuss the different operationalizations of proactive personality which have been included in the analysis. Thus, in this manuscript, by including only proactive personality and personal initiative, we draw clear boundaries in adopting a dispositional perspective of proactive personality. Second, the two meta-analyses also provide diverging estimates of some important relationships, which suggests the possibility of a second-degree sampling error, an important and likely threat when population estimates were based on small number of effect sizes (Hunter & Schmidt, 2004). For example, the Fuller and Marler meta-analysis reports an estimated true score correlation of -.12 for the relationship between neuroticism and proactive personality, whereas Thomas et al. report an estimated true score correlation of -.31 such that the 95% confidence intervals for these estimates do not even overlap. Taking these together, we chose to develop this current meta-analysis from scratch.

Meta-Analysis

Literature Search. A literature search was conducted to identify published and unpublished reports that examined the relationship between proactive personality and the Big Five and performance criteria, respectively. First, we performed electronic searches of the *PsychInfo (1887-2009)* database, using the keywords "proactive work," "proactive behavior", "proactive personality," "personal initiative," "taking charge," and "role breadth self-efficacy". The electronic searches resulted in the identification of 378 published and unpublished reports, including dissertations. Second, we manually searched through the online versions of the conference programs for the Academy of Management (from 1996-2009) and the Society for Industrial and Organizational Psychology (from 1998-2009) for potentially relevant but unpublished manuscripts

and we contacted the authors asking for a copy of the manuscript, as well as other unpublished studies. Altogether, this resulted in an additional 71 studies. Finally, we performed a manual search of reference sections of conceptual or empirical review articles of the research domain (Crant, 2000; Fuller & Marler, 2009; Parker & Collins, 2010) for studies which we had not identified in any of the other prior steps. This resulted in an additional 19 potentially relevant studies.

Given the research question in the present article, we examined all the papers and included only empirical studies that provided codable information. In particular, we focused on studies that operationalized proactive personality as a trait and excluded studies which focused on proactive work behavior constructs which are not dispositional in nature, but rather prompted by situational factors, such as role breadth self-efficacy and taking charge (see below). Overall, 93 studies met the inclusion criteria and provided data on bivariate relationships of interest, providing 197 effect sizes which we could include in the meta-analysis. 26 studies which were part of the 93 studies also provided data which we could use for our analysis of subgroup differences, and there were an additional 29 studies (that were not part of the 93 studies) which we could use for our analysis of subgroup differences. The 55 studies which we used for the subgroup analysis provided 86 effect sizes. Thus, the total number of studies which we included in our analysis was 122 and the total number of effect sizes was 283. Since there were seven manuscripts which contained data for two independent samples each, the total number of manuscripts included in the meta-analysis is 115. Of the 115 manuscripts, 83 were journal articles, 15 were dissertations, 14 were conference papers which had subsequently not yet been published or accepted for publication, and three were manuscripts which had recently been submitted for publication.

Coding. For each of the relationships that we estimated, we included a unique effect size from each independent sample. In our meta-analysis, we included the two dispositional operationalizations of proactive work behaviors: proactive personality (Bateman & Crant, 1993) and personal initiative (Frese et al., 1997). We view these two constructs as both conceptually and empirically related. First, Crant (2000) conceptualized the two constructs as almost identical; asking the rhetorical question what separates them, other than the respective method of data collection. The more recent studies on personal initiative, however, have largely relied on conventional survey measures, making this distinction by data collection method obsolete. In fact, the definitions of the two constructs are strikingly similar: Crant (2000) defined proactive people as individuals who "identify opportunities and act on them, show initiative, take action, and persevere until meaningful change occurs" (p. 439), and Frese and Fay (2001) emphasized that personal initiative has three aspects, namely a self-starting approach to work, proactivity, and persistence in the face of obstacles.

Second, the available though scant empirical evidence strongly supports the notion that the two constructs overlap to a large extent. Most notably, Frese and Fay (2001) reported a corrected correlation of .96 between the proactive personality scale and their personal initiative personality scale, leading them to the conclusion that "both personality measures are essentially identical" (pp. 157-158). Moreover, we conducted separate meta-analysis for proactive personality and personal initiative in order to assess whether the resulting estimates of the correlation coefficients would differ significantly; thereby also testing the assumption that proactive personality and personal initiative are largely interchangeable constructs (Crant, 2000). We were able to perform this analysis for task performance. We obtained estimates of $\rho = .38$ ($k = 6$, $N = 1{,}071$, CI = .18 - .58)

for personal initiative, and ρ = .30 (*k* = 11, *N* = 2416, CI = .14 - .45) for proactive personality. The differences were not statistically significant as indicated by the overlap in confidence intervals.

Unfortunately, we were not able to further substantiate our finding that proactive personality and personal initiative are largely overlapping constructs with a meta-analytic estimate of their relationship. Despite our comprehensive literature search, we were not able to obtain enough studies that reported intercorrelations for the relationship of proactive personality with personal initiative. Perhaps not surprisingly given the high level of conceptual overlap, researchers studying proactive personality typically assess it using one of the two operationalizations. Similarly, Thomas et al. (2010) estimated the relationship between proactive personality and personal initiative with only one study (based on this one study, they estimated the strength of the relationship of these two constructs with *r* = .76).

We excluded constructs that were actually operationalized using other established variables even when they were discussed under the umbrella term of proactive work behaviors (or even proactivity, suggesting a dispositional orientation of the measure). For example, Methot, LePine, and Rich (2009) discussed "the role of proactivity in relationships with voluntary turnover", but operationalize proactive work behaviors with measures of affiliative discretionary work behaviors (i.e., OCB-O) and challenging discretionary work behaviors, such as voice.

We also excluded measures where it was unclear or doubtful whether the respective measure captures the essence of the proactive personality construct as described by Bateman and Crant (1993). In such cases, we chose to exclude the study in order to ensure that we maintain the integrity of our meta-analyses.

Of the 93 studies which we used to estimate the bivariate relationships, 77 measured proactive personality, whereas only 16 studies measured personal initiative. Similarly, of the 55

studies with data for the analysis of subgroup differences, 42 measured proactive personality, and 13 measured personal initiative.

There are a couple of notable points in regard to the coding of job performance. First, we identified 41 independent samples that assessed proactive personality and some form of job performance. Following that, we performed subgroup moderator analyses and investigated whether the strength of relationship between proactive personality and job performance varies as a function of the way job performance was operationalized. Specifically, we differentiated between task performance (k = 17), OCBs (k = 16), and overall job performance (k = 17). The ks do not add up to 41 because nine studies reported separate correlations for the relationships of proactive personality with task performance and of proactive personality with OCBs. For the 17 studies that assessed overall job performance, the descriptions of their operationalizations suggest that the ratings have been influenced by, but not limited to, task and OCBs/contextual performance. Second, we further differentiated between citizenship behavior targeted at individuals and citizenship behaviors targeted at the organization for studies that provided data for the relationship between proactive personality and target-specific OCBs. Our coding choices for target-specific citizenship behaviors were informed by the coding choices of other recent meta-analysis which found different dispositional antecedents for OCB-Is and OCB-Os (e.g., Ilies, Fulmer, Spitzmuller, & Johnson, 2009).

All measures for the Big Five personality traits which were included in the meta-analysis are validated and frequently-used, such as the NEO-PI (Costa & McCrae, 1989, 1992), Goldberg's measure for the Big Five (Goldberg 1999; Goldberg et al., 2006), the short version of the IPIP validated by Donnellan, Oswald, Baird, and Lucas (2006), the Hogan Personality Inventory (HPI; Hogan & Hogan, 1995), or Gosling, Rentfrow, and Swann's measure for the Big Five (2003).

Procedures. We used the Schmidt-Hunter psychometric meta-analysis method (Hunter & Schmidt, 2004) to cumulate the estimates reported in the literature. With the exception of data used in the sub-group differences analyses, the correlations reported in the primary studies were corrected for measurement error in both the predictor and the criterion scores using the internal consistency reliability. The large majority of studies provided the reliabilities of the measured scores used to compute the reported correlations; in the rare few cases where reliability estimates were not provided, we used the average value of the estimates that were provided for the specific construct. In addition, to obtain a single correlation for each study, we used the composites formula when possible or averaged the estimates when correlations among dimensions were not provided (Hunter & Schmidt, 2004). Besides providing point estimates for the true score correlations, we also examined variability in these estimates by computing 80% credibility intervals and 95% confidence intervals around the point values.

Meta-Analytic Regression Analysis

In meta-analytic regression analysis, the model parameters are estimated using true-score correlations as input (Viswesvaran & Ones, 1995). Therefore, we used the meta-analytic true-score correlations of relationships with proactive personality that were obtained in this study, the true-score correlations among the Big Five personality traits reported by Ones, Viswesvaran, and Reiss (1996), the true-score correlations between the Big Five personality traits and general mental ability reported by Ackerman and Heggstad (1997), the true-score correlations between the Big Five personality traits and job performance reported by Hurtz and Donovan (2000), the true-score correlations between the Big Five personality traits and job satisfaction reported by Judge, Heller, and Mount (2002), the true-score correlation between general mental ability and overall job performance reported by Hunter and Hunter (1984), and the true-score correlation between general

mental ability and task performance reported by Schmitt, Gooding, Noe, and Kirsch (1984). Next, as the sample sizes of the cells in the correlation matrix can vary, another important decision in meta-analytic regression analysis is the choice of sample size. We followed Viswesvaran and Ones' (1995) recommendation and used the harmonic mean of the matrix sample sizes to compute the standard errors of the estimated parameters (see also Colquitt, LePine, & Noe, 2000; Ilies & Judge, 2003). A summary of the meta-analytic estimated true score correlation matrix which served as the input into our meta-analytic regression analysis can be found in Table 1.

Sub-group differences – Meta-analysis

As this analysis is focused on the use of proactive personality as a potential selection measure, our focus is on the use of these scales by organizations. Therefore, correcting the variables for measurement error did not seem appropriate, and a "bare bones" meta-analysis (Hunter & Schmidt, 2004) was conducted. This method corrects reported relationships only for sampling error, in an effort to estimate the magnitude of observed relationships, rather than the true relationship between underlying constructs. This approach is consistent with previous meta-analytic work focused on examining sub-group differences in similar contexts (e.g. Foldes et al., 2008; Ones & Viswesvaran, 1998; Roth, Bevier, Bobko, Switzer Iii, & Tyler, 2001). Also, like Foldes and colleagues (2008), we note that the studies analyzed did not provide the necessary information to correct for any range restriction present, and we too take some measure of comfort that personality data from job applicants has been shown to be only slightly less variable than normative population values (Ones & Viswesvaran, 2003). All data were analyzed using the Hunter & Schmidt Meta-Analysis Programs software, V1.1 (Oct 2005).

The results of this meta-analysis are reported in terms of effect sizes (d-values). The effect size is defined as the difference in means across groups, divided by the pooled standard deviation,

resulting in a measure of group difference reported in standard deviation units (Cohen, 1988). This measure has been used in other recent meta-analyses examining group differences (e.g. Foldes et al., 2008; Roth et al., 2001) in part because the value of the *d* statistic plays a large role in determining sub-group hiring rate, for a given selection ratio (Roth et al., 2001).

In the results section, the historically underrepresented group is arbitrarily chosen as the base case. As such, positive *d* values indicate that membership in the majority group is associated with an increase in proactive personality while negative values indicate that on average the minority group members are higher on proactive personality.

Results

Bivariate Relationships

Table 1 provides the correlations as input for conducting the meta-analytic regression analyses (Viswesvaran & Ones, 1995). The values below the diagonal are true-score correlations used to estimate the true score validities. That is, these are values corrected for sampling error as well as both predictor and criterion scale unreliability (Hunter & Schmidt, 2004). In addition, in order to provide a realistic estimate of the utility of proactive personality as it is used in applied settings (e.g., selection), we also estimated the operational validities using the values above the diagonal (Morgeson et al., 2007; Ones, Dilchert, Viswesvaran, & Judge, 2007). Specifically, we estimated the operational validities for overall job performance, task performance, OCB-I, OCB-O, and job satisfaction. When estimating the operational validities, we followed the procedures described in Ones and colleagues (Ones et al., 2007) and only corrected for the unreliability in the criterion but not for the unreliability in the predictor measures. While Hurtz and Donovan (2000) provided estimates of operational validities between the Big Five traits and various performance measures, the other prior meta-analytic studies only reported the true-score correlations. Since

none of those original meta-analyses reported the means of predictor reliability artifact distributions, we attenuated their true-score correlations by employing the meta-analytically derived estimates of Big Five scale reliabilities by Viswesvaran and Ones (2000) and GMA scale reliability by Schmidt, Shaffer, and Oh (2008). Please see notes to Table 1 for more specific details.

A summary of the estimates of the true score correlations of proactive personality with the other variables included in our analysis is provided in Table 2. As expected, proactive personality was positively related to conscientiousness ($\rho = .37$), extraversion ($\rho = .42$), and openness to experience ($\rho = .40$), but negatively related to neuroticism ($\rho = -.26$). The confidence intervals for these four relationships did not include zero, indicating that the estimated true score correlations are significantly different from zero. Table 2 also shows that both agreeableness and general mental ability were not associated with proactive personality since their respective confidence intervals included zero.

Table 2 also shows that proactive personality was significantly related to job performance. We conducted subgroup moderator analyses for job performance and found that proactive personality has moderate relationships with overall job performance ($\rho = .35$), task performance ($\rho = .33$) and OCBs ($\rho = .30$). The overlapping confidence intervals suggest that the differences were not statistically significant. In addition, we differentiated between target-specific citizenship behaviors, that is, OCB-Is (directed at coworkers) or OCB-Os (directed at the organization) (cf. Ilies et al., 2009). Interestingly, the size of the relationships between proactive personality and OCB-Is ($\rho = .36$) and OCB-Os ($\rho = .31$) was similar. The difference was not statistically significant as indicated by the overlap in confidence intervals. Finally, proactive personality was also significantly associated with job satisfaction ($\rho = .30$).

Our results display patterns of convergence and divergence when compared to the results of the two existing meta-analysis on proactive personality. For example, for the Big Five personality traits, our results converge with the results reported for openness to experience, extraversion, conscientiousness, and agreeableness, but they diverge for neuroticism. Specifically, the strength of the relationship between proactive personality and neuroticism (ρ = -.26) is stronger than that reported by Fuller and Marler (ρ = -.12), but weaker than that reported by Thomas et al. (ρ = -.31). Our estimate of the relationship of proactive personality with overall job performance (ρ = .35) also lies between the results reported by Fuller and Marler (ρ = .38) and Thomas et al. (ρ = .26), and our estimate for the relationship of proactive personality with task performance (ρ = .33) is higher than the one reported by Fuller and Marler (ρ = .23), whereas our estimate for the relationship of proactive personality with OCBs (ρ = .30) suggests a weaker relationship of proactive personality with OCBs than the one reported by Fuller and Marler (Thomas and colleagues did not estimate these relationships).

Meta-Analytic Regression Analysis Results

Table 3 presents the results for the meta-analytic regression analysis of proactive personality on the Big Five personality traits. These results indicate the degree to which proactive personality overlaps with the Big Five and the extent to which it is independent. First, the results show that the Big Five personality traits (collectively) accounted for 49.3% of variance in proactive personality. Thus, more than 50% of variance in proactive personality cannot be explained by the Big Five personality traits. Second, the results speak to the overlap of proactive personality with each of the Big Five personality traits after removing the shared variance attributed to the other four traits. Specifically, the values of the partial correlations indicate the magnitude and direction of the unique relationship of proactive personality with each of the Big

Five traits. Owing to partial redundancy, removing the shared variance between covariates can result in weaker relationships between variables, compared to their respective correlation coefficients (Cohen et al, 2003). Specifically, there is a slight decrease in the partial correlation coefficient for the relationship between proactive personality and openness to experience (ρ=.40, β=.38) and between proactive personality and extraversion (ρ=.42, β=.38), when compared to the correlation coefficients for these relationships. Moreover, the partial correlation for neuroticism (ρ=-.26, β=-.07) drops to a point at which there is no practical significance in its relationship with proactive personality any longer.

Conversely, the presence of suppression in the relationship between proactive personality and agreeableness and conscientiousness results in a partial correlation that is higher than the estimated correlation coefficient. This leads to a negative partial correlation for agreeableness (ρ=.00, β=-.24), while the magnitude of the partial correlation for conscientiousness increases compared to the correlation coefficient (ρ=.37, β=.44). According to Cohen et al (2003), suppression is present when there is a negative relationship between variables. Here, agreeableness is negatively related to neuroticism (see Table 1, r=-.25) and conscientiousness is negatively related to both neuroticism (r=-.26) and agreeableness (r=-.06). Thus, controlling for the other four traits, conscientiousness has a stronger positive effect than might be expected based on the estimated correlation coefficient. Conversely, agreeableness has a negative partial correlation with proactive personality, compared to a non-significant correlation coefficient.

Table 4 presents the results for the meta-analytic regression analysis of overall job performance on general mental ability, the Big Five personality traits, and proactive personality. In the first step, we regressed overall job performance on general mental ability and the Big Five personality traits, which accounted for 35.3% of variance in overall job performance (or 28.6% of

variance when using operational validities). In the second step, we entered proactive personality as additional predictor, which significantly accounted for an additional 5.0% of variance in overall job performance (or 2.6% of variance when using operational validities).

Table 5 presents the results for the meta-analytic regression analysis of task performance on general mental ability, the Big Five personality traits, and proactive personality. In the first step, we regressed task performance on general mental ability and the Big Five personality traits, which accounted for 23.8% of variance in task performance (or 19% of variance when using operational validities). In the second step, we entered proactive personality as additional predictor, which significantly accounted for an additional 5.8% of variance in task performance (or 3.5% of variance when using operational validities).

Tables 6 and 7 present the results for the meta-analytic regression analysis of OCB-I and OCB-O on the Big Five personality traits, and proactive personality. We did not include general mental ability in these analyses because general mental ability has not been found to be a valid predictor of OCBs in past research (Motowidlo, Borman, & Schmit, 1997; Organ et al., 2006). In the first step, we regressed OCBs on the Big Five personality traits, which accounted for 7.2% of variance in OCB-Is and 5.0% of variance in OCB-Os (or 6.2% of variance in OCB-Is and 4.3% of variance in OCB-Os when using operational validities). In the second step, we added proactive personality, which explained an additional 4.8% of variance in OCB-Is and 2.5% of variance in OCB-Os (or 2.6% of variance for OCB-Is and 1.6% of variance for OCB-Os when using operational validities).

Finally, Table 8 presents the results for the meta-analytic regression analysis of job satisfaction on the Big Five personality traits and proactive personality. In the first step, we regressed job satisfaction on the Big Five personality traits, which accounted for 16.7% of variance

in job satisfaction (or 14.3% when using operational validities). In the second step, we added proactive personality, which did not significantly explain any additional variance in job satisfaction (for both true score and operational validities).

Sub-group differences – Meta-analysis

Table 9 summarizes the results relating to gender differences in proactive personality. For all studies considered, the d statistic was non-significant, indicating no difference in proactive personality across genders. Additionally, this finding seemed fairly robust across several potential moderators, as demonstrated by the sub-group analyses presented in Table 9.

Dividing the studies by sample nationality also resulted in a non-significant gender difference in proactive personality. The point estimate using U.S. based samples is nearly zero (-0.01), with an 80% credibility interval that is nearly symmetric and less than 0.20 in absolute value, the level at which adverse impact is likely to occur at the selection ratios typically found in organizational settings (Sackett & Ellingson, 1997). These results also seemed to hold for samples of working adults (which comprised the majority of studies analyzed). This finding helps alleviate external validity concerns that may arise when student based research findings are used in a selection context. Further and consistent with the previous discussion about the empirical (and conceptual) similarity between proactive personality and personal initiative, when considered separately, both proactive personality and personal initiative measures resulted in non-significant gender differences.

We also examined the data to look for gender differences in proactive personality related to the measure employed. Our results seem to indicate that overall there don't appear to be large gender differences, regardless of the measure used, but based on the credibility interval, there is some indication that the original 17-item measure might be the most robust to contextual factors,

as evidenced by the smaller range of observed *d*-statistics. Finally, the data was analyzed to look for evidence of publication bias. The data do not seem to provide evidence of publication bias in this context, which is comforting.

The results of the analysis pertaining to racial differences in proactive personality are presented in Table 10. Due to the paucity of research examining proactive personality and race, the number of studies available to analyze was somewhat more limited than gender-based differences.

The negative *d*-statistic point estimates seem to indicate that Blacks, Hispanics, and Asians may exhibit more proactive personality than Whites. This difference is statistically significant ($p=0.05$) for the overall Hispanic-White comparison, indicating that on average, Hispanics seem to be higher than Whites on proactive personality. Further, this difference exists across the different proactive personality subscales considered. While the overall Black-White difference is not significant, there is some indication that the 10-item proactive personality measure (Seibert et al., 1999) tends to produce a larger subgroup difference. The overall Asian-White difference is also non-significant. The limited number of studies with Asian participants prevented a more fine-grained, measure-specific analysis.

Discussion

The present paper makes several important contributions to the literature on proactive personality. First, in keeping with Ozer and Reise (1994)'s recommendation, the meta-analytic regression results demonstrate the extent to which proactive personality can be located with the Big Five. Moreover, following Funder (2001)'s suggestion, the meta-analytic regression results reveal the degree to which proactive personality is different from the Big Five. Specifically, proactive personality taps into additional dispositional domain that is not captured by the Big Five

personality traits, as more than 50% of variance in proactive personality could not be explained by the Big Five personality traits.

Second, the present paper also examined the incremental validity of proactive personality as a predictor of performance outcomes and job attitudes above and beyond the Big Five personality traits and general mental ability. Our results indicate that proactive personality is a valid predictor for overall job performance and task performance, even after controlling for the effects of the Big Five personality traits and general mental ability. Moreover, we found that proactive personality also accounted for incremental variance in OCBs after controlling for the Big Five personality traits. We would also like to highlight that the results held up even when we considered the operational validities. These are particularly stringent tests and the results speak volumes to the usefulness of proactive personality in organizational research.

Implications for Research

Our research has a number of important implications for future research on proactive work behaviors. First, the finding that proactive personality has incremental validity in predicting a number of important job outcomes, including task performance, overall job performance, and OCBs, reaffirms the value of the construct as a key construct in a changing world of work. The incremental effect of proactive personality on task performance, overall job performance, and OCBs beyond the effects of the Big Five and general mental ability also raises the important question of which mechanisms transmit the effect of proactive personality on these job outcomes. Parker, Bindl, and Strauss (2010) theorized that three categories of proactive motivational states (e.g., 'can do' states, 'reason to' states, and 'energized to' states) explain how the effect of proactive personality is transmitted on proactive goal processes and job outcomes.

For the effect of proactive personality on task performance and overall job performance, it is likely that 'can do' states play an important role. 'Can do' factors such as self-efficacy have been identified as one of the motivational mechanisms through which proactive personality exerts its effect on job performance (Parker et al., 2006), just as self-efficacy beliefs have long been identified as an important predictor of task performance and overall job performance in a variety of settings (Judge & Bono, 2001; Stajkovic & Luthans, 1998). For the effect of proactive personality on OCBs, we expect that both 'can do' and 'reason to' states are important. The efficacy with which an individual believes that she can succeed in carrying out a broader set of work tasks is going to impact the likelihood with which employees are going to engage in discretionary behaviors, suggesting that 'can do' motivational states are necessary to translate proactive personality into motivational resources to perform OCBs. Similarly, proactive personality can elicit an inner desire to make a positive difference in an organization. Such an intrinsic motivation will in turn increase the frequency with which OCBs are performed. In summary, the results of our meta-analytic regression analysis and previous research on the nature of proactive work behaviors and proactive motivational states suggest that proactive motivational states are likely to transmit the effect of proactive personality on job outcomes, with 'can do' and 'reason to' factors playing an important role in this process.

Second, the results of this study generally support the assertion that there are only few sub-group differences in the levels of proactive personality demonstrated by individuals. Further, when only studies drawn from U.S. samples were considered, there was essentially no difference in proactive personality between men and women. In terms of racial differences, no significant overall Black-White or Asian-White differences emerged, but there was a significant Black-White difference for those studies which used the 10-item measure of proactive personality (Seibert et al.,

1999), indicating that Blacks may score higher on proactive personality than Whites when this measure is used. A similar finding emerged in terms of the Hispanic-White difference. Across the collective group of studies as well as each subscale-specific group, Hispanics exhibited higher levels of proactive personality than did Whites. In general, the results provide some initial evidence that the use of proactive personality and personal initiative measures for selection may not only be fruitful but also legally and ethically acceptable.

Implications for Practice

Based on these findings, we believe that the current paper has at least four important implications for practice. First, the finding that proactive personality has incremental validity above and beyond the Big Five personality traits and general mental ability for overall job performance and task performance suggests that organizations should consider candidates' proactive personality when making personnel selection decisions. This applies especially to jobs in which innovation, creativity and openness to environmental change are important, which are arguably increasingly more common given the changing nature of work.

Second, the important role of proactivity in organizations also calls for a continuous development of the proactive potential of an organization. Not only should organizations make an active effort to recruit employees into an organization, they should actively develop their workforce so that employees have the self-efficacy ('can do' states), intrinsic motivation ('reason to'), and energy ('energized to') to perform proactive work behaviors. Indeed, given that proactive personality is only a distal predictor of relevant job outcomes, it is important that organizations also target specific proactive motivational states with personnel training and development initiatives.

Third, trait activation theory and research on the relationship of personality and job performance suggest that situational cues facilitate or hinder the expression of personality traits at work. Specifically, trait activation theory suggests that the strength of the relationship between personality constructs and job outcomes is contingent upon situational factors that determine to what extent individuals are going to act upon their dispositional orientations, thereby strengthening or weakening the association between personality constructs and job outcomes (Tett & Burnett, 2003). Applied to the context of proactivity, this suggests that organizations should provide cues which can facilitate the expression of proactivity. For example, it is likely that empowered employees who enjoy high autonomy in their work are more likely to express their proactive potential in an organization. Similarly, employees who experience that they are trusted and who enjoy positive relationships with peers and supervisors are more likely to develop higher confidence in their capability of carrying out a broader set of work tasks that go beyond technical requirements of a job. In summary, organizations should create conditions which are amenable to the performance of proactive work behaviors – only then can individuals with a proactive personality realize their full proactive potential.

Finally, by showing that proactive personality has both incremental validity and is not differentially manifested across individuals in terms of gender as well as White-Black, and White-Asian race comparisons, the usefulness of proactive personality is reiterated and points to its practical value in the selection process. This opens up the possibility of measuring the impact of selection based on this trait to subsequent organizational performance related outcomes.

Limitations and Future Research

Despite these positive features, the current research also has several limitations. First, we do not have any information regarding the degree of range restriction for proactive personality or

personal initiative and were not able to correct for that in our meta-analyses. Among the meta-analytic values from prior studies that we reproduced in Table 1, only the estimates from Hunter and Hunter (1984) and Hurtz and Donavan (2000) had been corrected for range restriction in the original studies. For the sake of consistency, it would ideally be preferable to attenuate those values such that all the input correlations are based on estimates that did not correct for range restriction. However, there was no information in the original studies that permit us to do that. That said, we would like to point out that past research has shown range restriction to be an inconsequential statistical artifact for personality variables used in personnel selection (Barrick & Mount, 1991; Ones et al., 1996). More important, by comparing proactive personality against other predictor variables that had been corrected for range restriction, one could argue that the results obtained in the present study were actually more conservative. Nevertheless, future research may want to consider the impact of range restriction on the predictive and incremental validity of proactive personality.

Second, our meta-analysis does not address the mechanisms through which proactive personality leads to higher proactive work behaviors, job attitudes, and performance outcomes. We view this as a promising venue for future research. Specifically, future research should test the mediating role of general and context-specific proactive work behaviors in the relationship of proactive personality with performance outcomes and job attitudes, as proposed by Crant (2000). Similarly, we encourage future research to test the theoretical model of Parker et al. (2010) which argues that proactive motivational states translate the effect of proactive personality on proactive goal generation, goal striving, and ultimately on job outcomes. Clearly, our understanding of the processes through which proactive personality influences job outcomes is still in its nascent stages.

Third, both the number of studies with racial subgroup information available and the number of minority participants within these studies are somewhat modest, and the available data did not allow for a more fine-grained analysis of Asian-White differences.

Lastly, future research should address the cultural generalizability of the construct. A closer look at the studies included in our meta-analysis reveals that the overwhelming majority of them draw on Western samples, predominantly from the Anglo-Saxon and Germanic cultural cluster – Germany having a very similar orientation towards power distance as countries of the Anglo-Saxon cluster and a moderately strong individualistic orientation that is closer to the strong individualistic orientation of the Anglo-Saxon cluster than to the collectivistic orientation of Confucian cultures. Thus, the fact that research on proactive personality and personal initiative has largely been carried out in Westernized contexts seems to present potential cultural generalizability threats to the construct.

Conclusion

Over the past fifteen years, a considerable amount of research has investigated the role of proactive personality in today's work. In the present paper, we added to the growing body of research on proactive personality by using meta-analytic regression analysis, demonstrating the discriminant validity of proactive personality from the Big Five personality traits as well as its incremental validity as predictor of job performance over general mental ability and the Big Five personality traits. In addition, we also showed an overall absence of sub-group differences in proactive personality for several racial groups as well as gender, thus reducing the potential for adverse impact in its use as a selection tool. Although the current research provides an important step at establishing a cumulative body of knowledge on the uniqueness and usefulness of proactive personality, clearly much more needs to be done.

References

Note: References marked with an asterisk indicate studies included in the meta-analyses.

Ackerman, P. L., & Heggestad, E. D. (1997). Intelligence, personality, and interests: Evidence for overlapping traits. *Psychological Bulletin, 121,* 219-245.

*Allen, D.G., & O'Brien, K.E. (2006). Formal mentoring programs and organizational attraction. *Human Resource Development Quarterly, 17*, 43-58.

*Allen, D. G., Weeks, K. P., & Moffit, K. R. (2005). Turnover intentions and voluntary turnover: The moderating roles of self-monitoring, locus of control, proactive personality, and risk aversion. *Journal of Applied Psychology, 90,* 980-990.

*Aryee, S., Srinivas, E. S., & Tan, H. H. (2005). Rhythms of life: Antecedents and outcomes of work-family balance in employed parents. *Journal of Applied Psychology, 90,* 132-146.

*Ashforth, B. E., Sluss, D. M., & Saks, A. M. (2007). Socialization tactics, proactive behavior, and newcomer learning: Integrating socialization models. *Journal of Vocational Behavior, 70,* 447-462.

*Baba, V. V., Tourigny, L., Wang, X., & Liu, W. (2009). Proactive personality and work performance in China: The moderating effects of emotional exhaustion and perceived safety climate. *Canadian Journal of Administrative Sciences, 26,* 23-37.

Bandura, A. (2002). Social cognitive theory in cultural context. *Applied Psychology: An International Review, 51,* 269-290.

*Bañuelos, L.A., Descals, P. F. J., & Tomás A.E. (2008). Scale of expectations of control and responsibility: Adaptation to the Spanish language and its relation to personal initiative. *Psicothema, 20*, 249-253.

*Barnett, B. R., & Bradley, L. (2007). The impact of organizational support for career development on career satisfaction. *Career Development International, 12,* 617-636.

Barrick, M. R., & Mount, M. K. (1991). The Big Five personality dimensions and job performance: A meta-analysis. *Personnel Psychology, 44*, 1-26.

*Bateman, T. S., & Crant, J. M. (1993). The proactive component of organizational behavior. *Journal of Organizational Behavior, 14,* 103-118.

*Bauer, T. N., Erdogan, B., Liden, R. C., & Wayne, S. J.. (2006). A longitudinal study of the moderating role of extraversion: Leader-member exchange, performance, and turnover during new executive development. *Journal of Applied Psychology, 91*, 298-310.

*Belschak, F. D., & Den Hartog, D. N. (in press). Pro-self, pro-social, and pro-organizational foci of proactive behavior: Differential antecedents and consequences. *Journal of Occupational and Organizational Psychology.*

*Binnewies, C., Ohly, S., & Sonnentag, S. (2007). Taking personal initiative and communicating about ideas: What is important for the creative process and for idea creativity? *European Journal of Work and Organizational Psychology, 16,* 432-455.

*Binnewies, C., Sonnentag, S., & Mojza, E. J. (2009). Daily performance at work: Feeling recovered in the morning as a predictor of day-level job performance. *Journal of Organizational Behavior, 30,* 67-93.

*Binnewies, C., Sonnentag, S., & Mojza, E. J. (in press). Recovery during the weekend and fluctuations in weekly job performance: A weekly-level study examining intra-individual relationships. *Journal of Occupational and Organizational Psychology*.

*Binnewies, C., Sonnentag, S., & Mojza, E. J. (2009). Feeling recovered and thinking about the good sides of one's work. *Journal of Occupational Health Psychology, 14,* 243-256.

*Brown, D. J., Cober, R. T., Kane, K., Levy, P. E., & Shalhoop, J. (2006). Proactive personality and the successful job search: A field investigation with college graduates. *Journal of Applied Psychology, 91,* 717-726.

*Byrne, Z. S., Dik, B. J., & Chiaburu, D. S. (2008). Alternatives to traditional mentoring in fostering career success. *Journal of Vocational Behavior, 72,* 429-442.

*Chan, D. (2004). Individual differences in tolerance for contradiction. *Human Performance, 17,* 297-324.

*Chan, D. (2006). Interactive effects of situational judgment effectiveness and proactive personality on work perceptions and work outcomes. *Journal of Applied Psychology, 91,* 475-481.

*Chiaburu, D. S., Baker, V. L., & Pitariu, A. H. (2006). What (else) matters for career self-management behaviors? *Career Development International, 11,* 619-632.

*Chiaburu. D.S., Marinova, S. V., & Lim, A. S. (2007). Helping and proactive extra-role behaviors: The influence of motives, goal orientation, and social context. *Personality and Individual Differences, 43,* 2282-2293.

*Claes, R., & De Witte, H. (2002). Determinants of graduates' preparatory job search behavior: A competitive test of proactive personality and expectancy-value theory. *Psychologica Belgica, 42,* 252-266.

Cohen, J. (1988). *Statistical power analysis for the behavioral sciences* (2nd ed.). Hillsdale, NJ: Erlbaum.

Cohen, J. (1992). A power primer. *Psychological Bulletin, 112*(1), 155-159.

Cohen, J., Cohen, P., West, S. G., & Aiken, L. S. (2003). *Applied multiple regression/correlation analysis for the behavioral sciences* (3rd ed.). Mahwah, NJ: Lawrence Erlbaum.

Colquitt, J. A., LePine, J. A., & Noe, R. A. (2000). Toward an integrative theory of training motivation: A meta-analytic path analysis of 20 years of research. *Journal of Applied Psychology, 85,* 678-707.

*Cools, E., & Van den Broeck, H., (2007). The hunt for the Heffalump continues: Can trait and cognitive characteristics predict entrepreneurial orientation? *Journal Of Small Business Strategy, 18*, 23-41.

Costa, P. T., & McCrae, R. R. (1989). *The NEO-PI/NEO-FFI manual supplement.* Odessa, FL: Psychological Assessment Resources.

Costa, P. T., & McCrae, R. R. (1992). *Revised NEO personality inventory (NEO-PI-R) and NEO five-factor (NEO-FFI) inventory professional manual.* Odessa, FL: PAR.

*Crant, J. M. (1995). The proactive personality scale and objective job performance among real estate agents. *Journal of Applied Psychology, 80,* 532-537.

*Crant, J.M. (1996). The proactive personality scale as a predictor of entrepreneurial intentions. *Journal Of Small Business Management, 34*, 42-49.

Crant, J. M. (2000). Proactive behavior in organizations. *Journal of Management, 26,* 435-462.

*Crant, J. M., & Bateman, T. S. (2000). Charismatic leadership viewed from above: The impact of proactive personality. *Journal of Organizational Behavior, 21,* 63-75.

*Crant, J. M. (2003). *Dispositional antecedents of voice behavior in a naturally-occurring setting.* Paper presented at the 63rd Annual Meeting of the Academy of Management, Seattle, WA.

*Crant, J. M., & Bateman, T. S. (2004). *The central role of proactive behavior in organizations.* Paper presented at the 64th Annual Meeting of the Academy of Management, New Orleans, LA.

*Cunningham, C. J. L., & De La Rosa, G. M. (2008). The interactive effects of proactive personality and work-family interference on well-being. *Journal of Occupational Health Psychology, 13,* 271-282.

Deluga, R. J. (1998). American presidential proactivity, charismatic leadership, and rated performance. *Leadership Quarterly, 9,* 265-291.

*Den Hartog, D. N., & Belschak, F.D. (2007). Personal initiative, commitment and affect at work. *Journal Of Occupational And Organizational Psychology, 80*, 601-622.

*Detert, J. R., & Burris, E. R. (2007). Leadership behavior and employee voice: Is the door really open? *Academy of Management Journal, 50,* 869-884.

Donnellan, M. B., Oswald, F. L., Baird, B. M., & Lucas, R. E. (2006). The mini-IPIP scales: Tiny-yet-effective measures of the Big Five factors of personality. *Psychological Assessment, 18,* 192-203.

*Eby, L. T. Butts, M., & Lockwood, A. (2003). Predictors of success in the era of the boundaryless career. *Journal of Organizational Behavior, 24,* 689-708.

*Ejiogu, K. C. (1998). Development and test of a behavioral model of commitment. *Dissertation Abstracts International, 59,* 2466.

*Engel, K. L. (2008). *The influence of one's social network on psychological contract formulation.* Unpublished doctoral dissertation, George Mason University, Virginia.

*Erdogan, B., & Bauer, T. N. (2005). Enhancing career benefits of employee proactive personality: The role of fit with jobs and organizations. *Personnel Psychology, 58,* 859-891.

*Erdogan, B., & Enders, J. (2007). Support from the top: Supervisors' perceived organizational support as a moderator of leader-member exchange to satisfaction and performance relationships. *Journal Of Applied Psychology, 92*, 321-330.

*Fay, D., & Frese, M. (2000). Conservatives' approach to work: Less prepared for future work demands? *Journal of Applied Social Psychology, 30,* 171-195.

*Fay, D., & Frese, M. (2001). The concept of personal initiative: An overview of validity studies. *Human Performance, 14,* 97-124.

* Fay, D., Lürhmann, H., & Kohl, C. (2004). Proactive climate in a post-reorganization setting: When staff compensate managers' weakness. *European Journal Of Work And Organizational Psychology,13*, 241-267.

*Fay, D., & Sonnentag, S. (2002). Rethinking the effects of stressors: A longitudinal study on personal initiative. *Journal Of Occupational Health Psychology, 7*, 221-234.

*Finkelstein, L. M., Kulas, J. T., & Dages. K. D. (2003). Age differences in proactive newcomer socialization strategies in two populations. *Journal of Business and Psychology, 17,* 473-502.

Foldes, H. J., Duehr, E. E., & Ones, D. S. (2008). Group Differences in Personality: Meta Analyses Comparing Five US Racial Groups. *Personnel Psychology, 61*(3), 579-616.

*Frese, M., & Fay, D. (2001). Personal initiative. An active performance concept for work in the 21st century. In L. L. Cummings & B. M. Staw (Eds.), *Research in organizational behavior, 23,* 133-187.

*Frese, M., Fay, D., Hilburger, T., Leng, K., & Tag, A. (1997). The concept of personal initiative: Operationalization, reliability, and validity in two German samples. *Journal of Occupational and Organizational Psychology, 70,* 139-161.

*Frese, M., Garst, H., & Fay, D. (2007). Making things happen: Reciprocal relationships between work characteristics and personal initiative in a four-wave longitudinal structural equation modeling. *Journal of Applied Psychology, 92,* 1084-1102.

*Fritz, C., & Sonnentag, S. (2005). Recovery, health, and job performance: Effects of weekend experiences. *Journal of Occupational Health Psychology,* 10, 187-199.

Fuller, J. B., & Marler, L. E. (2009). Change-driven by nature: A meta-analytic review of the proactive personality literature. *Journal of Vocational Behavior, 75,* 329-345.

*Fuller, J. B., Marler, L. E., & Hester, A. K. (2006). Promoting felt responsibility for constructive change and proactive work behavior: Exploring aspects of an elaborated model of work design. *Journal of Organizational Behavior, 27,* 1089-1120.

Funder, D. C. (2001). Personality. *Annual Review of Psychology, 52,* 197-221.

Gardner, D. G., & Cummings, L. L. (1988). Activation theory and task design: Review and reconceptualizations. In B. M. Staw & L. L. Cummings (Eds.). *Research in Organizational Behavior (Vol. 10).* Greenwich, CT: JAI Press Inc.

*Gerhardt, M., Ashenbaum, B., & Newman, W.R. (2009). Understanding the impact of proactive personality on job performance: The roles of tenure and self-management. *Journal Of Leadership & Organizational Studies,16*, 61-72.

Goldberg, L. R. (1999). The development of markers for the Big Five Factor Structure. *Psychological Assessment, 4,* 26-42.

Goldberg, L. R., Johnson, J. A., Eber. H. W., Hogan, R., Ashton, M. C., Cloninger, C. R., & Gough, H. C. (2006). The international personality item pool and the future of public-domain personality measures. *Journal of Research in Personality, 40,* 84-96.

Gosling, S. D., Rentfrow, P. J., & Swann, W. B. (2003). A very brief measure of the Big Five personality domains. *Journal of Research in Personality, 37,* 504-528.

*Grant, A., Nurmohamed, S., Ashford, S., & Dekas, K. (2009). *Proactive for pleasure or pressure. Intrinsic and extrinsic motivations, personal initiative, and performance.* Manuscript submitted for publication.

*Greguras, G. J., & Diefendorff, J. M. (2010). Why does proactive personality predict employee life satisfaction and work behaviors? A field investigation of the mediating role of the self-concordance model. *Personnel Psychology,63,* 539–560.

*Griffin, B., & Hesketh, B. (2005). Are conscientious workers adaptable? *Australian Journal of Management, 30,* 245-259.

*Hakanen, J.J., Perhoniemi, R., & Toppinen-Tanner, S. (2008). Positive gain spirals at work: From job resources to work engagement, personal initiative and work-unit innovativeness. *Journal Of Vocational Behavior,73*, 78-91.

Hall, D. T., & Moss, J. E. (1998). The new protean career contract: Helping organizations and employees adapt. *Organizational Dynamics, 26,* 22-37.

*Harvey, S., Blouin, C., & Stout, C. (2006). Proactive personality as a moderator of outcomes for young workers experiencing conflict at work. *Personality and Individual Differences, 40,* 1063-1074.

Helms, J. E., Jernigan, M., & Mascher, J. (2005). The meaning of race in psychology and how to change it: A methodological perspective. *American Psychologist, 60*(1), 27-36.

*Hendron, M. G. (2009). Structural & social integration. Help or hindrance to bottom-up innovation? *Dissertation Abstracts International, 69,* 3621.

Hogan, R., & Hogan, J. (1995). *Hogan personality inventory manual.* Tulsa, OK: Hogan Assessment Systems.

*Hon, D. J. (2007). *Proactive personality, employee creativity, and newcomer outcomes: A longitudinal study.* Paper presented at the 67th Annual Meeting of the Academy of Management, Philadelphia, PA.

*Hornung, S., Rousseau, D. M., & Glaser, J. (2008). Creating flexible work arrangements through idiosyncratic deals. *Journal of Applied Psychology, 93,* 655-664.

Hunter, J. E., & Hunter, R. F. (1984). Validity and utility of alternative predictors of job performance. *Psychological Bulletin, 96,* 72-98.

Hunter, J. E., & Schmidt, F. L. (2004). *Methods of meta-analysis: Correcting error and bias in research findings* (2nd ed.). Newbury Park, CA: Sage.

Hurtz, G. M., & Donovan, J. J. (2000). Personality and job performance: The Big Five revisited. *Journal of Applied Psychology, 85,* 869-879.

Ilies, R., Fulmer, I., Spitzmuller, M., & Johnson, M. (2009). Personality and citizenship behavior: The mediating role of job satisfaction. *Journal of Applied Psychology, 94,* 945-59.

Ilies, R., & Judge, T. A., (2003). On the heritability of job satisfaction: The mediating role of personality. *Journal of Applied Psychology, 88,* 750-759.

*Joo, B. (2007). The impact of contextual and personal characteristics on employee creativity in Korean firms. *Dissertation Abstracts International, 68,* 1546.

*Joo, B., & Lim, T. (2009). The effects of organizational learning culture, perceived job complexity, and proactive personality on organizational commitment and intrinsic motivation. *Journal Of Leadership & Organizational Studies,16*, 48-60.

*Joshi A., Liao, H., Jeong, D., & Kapinos, K. (2005). *Newcomers in academia: Does social capital matter?* Paper presented at the 20th Society of Industrial and Organizational Psychology Conference, Los Angeles, CA.

*Jones, J. R., & Schaubroeck, J. (2004). Mediators of the Relationship between Race and Organizational Citizenship Behavior. *Journal of Managerial Issues, 16*(4), 505-529.

Judge, T. A., & Bono, J. E. (2001). Relationship of core self-evaluations traits – self-esteem, generalized self-efficacy, locus of control, and emotional stability – with job satisfaction and job performance: A meta-analysis. *Journal of Applied Psychology, 86,* 80-92.

Judge, T. A., Heller, D., & Mount, M. K. (2002). Five-factor model of personality and job satisfaction: A meta-analysis. *Journal of Applied Psychology, 87,* 530-541.

*Kammeyer-Mueller, J. D. (2002). The well-adjusted organizational newcomer: The roles of pre-entry knowledge, proactive personality, and socialization. *Dissertation Abstracts International, 63,* 2382.

*Kammeyer-Mueller, J. D., & Wanberg, C. R. (2003). Unwrapping the organizational entry process: Disentangling multiple antecedents and their pathways to adjustment. *Journal of Applied Psychology, 88,* 779-794.

Keltner, D., Gruenfeld, D. H., & Anderson, C. (2003). Power, approach, and inhibition. *Psychological Review, 110*, 265-284.

*Kickul, J., & Gundry, L. K. (2002). Prospecting for Strategic Advantage: The proactive entrepreneurial personality and small firm innovation. *Journal of Small Business Management, 4*, 85-97.

*Kim, T. Y. (2009). *Proactive personality, employee creativity, and newcomer outcomes: A longitudinal study.* Manuscript submitted for publication.

*Kim, T., Hon, A.H.Y., & Crant, J.M. (2009). Proactive personality, employee creativity, and newcomer outcomes: A longitudinal study. *Journal Of Business And Psychology, 24*, 93-103.

*Kim, T. Y., & Wang, J. (2009). Proactive personality and feedback seeking behaviors: the effects of supervisor feedback and overall fairness. *In Current Topics In Management: Global Perspectives On Strategy, Behavior, And Performance,13,* 91-108.

*Kirby, E. G., & Kirby, S. L. (2006). Improving task performance: Improving the relationship between morningness and proactive thinking. *Journal of Applied Social Psychology, 36,* 2715-2729.

*Kirby, E. G., Kirby, S. L., & Lewis, M. A. (2002). A study of the effectiveness of training proactive thinking. *Journal of Applied Social Psychology, 32,* 1538-1549.

*Lambert, T. A., Eby, L. T., & Reeves, M. R. (2006). Predictors of networking intensity and networking quality among white-collar job seekers. *Journal of Career Development, 32,* 351-365.

*Li, N., Liang, J., & Crant, J.M. (2010). The role of proactive personality in job satisfaction and organizational citizenship behavior: A relational perspective. *Journal Of Applied Psychology, 95*, 395–404.

*Liden, R. C., Sparrowe, R. T., Erdogan, B., Gavino, M., & Maslyn, J. (2006). *The role of proactive personality and behaviors on social exchange relationships.* Paper Presented at the 66th Academy of Management Conference, Atlanta, Georgia.

*Liden, R. C., Sparrowe, R. T., Erdogan, B., Gavino, M., & Maslyn, J. (2002). *The role of proactive personality and behaviors on social exchange relationships and outcomes.* Paper presented at the 62nd Academy of Management Conference, Denver, Colorado.

*Liu, Y., Ferris, G. R., Zinko, R., Perrewe, P. L., Weitz, B., & Xu. J. (2007). Dispositional antecedents and outcomes of political skill in organizations: A four-study investigation with convergence. *Journal of Vocational Behavior ,71,* 146-165.

*Major, D. A., Turner, J. E., & Fletcher, T. D. (2006). Linking proactive personality and the Big Five to motivation to learn and developmental activity. *Journal of Applied Psychology, 91,* 927-935.

*Marrone, J. A. (2004). *Cutting across team boundaries: Antecedents and implications of individual boundary-spanning behavior within consulting teams.* Unpublished doctoral dissertation, University of Maryland, Maryland.

Methot, J. R., LePine, J. A., & Rich, B. L. (2009). *The role of proactivity in relationships with voluntary turnover: Disentangling challenging and affiliative extra-role behaviors.* Manuscript submitted for publication.

*Meurs, J. A. (2008). The dispositional and learned behavior prediction of political skill dimensions and how political skill affects the stress process. *Dissertation Abstracts International, 69,* 2787.

Moon, H., Hollenbeck, J. R., Marinova, S., & Humphrey, S. (2008). Beneath the surface: Uncovering the relationship between extraversion and organizational citizenship behavior through a facet approach. *International Journal of Selection and Assessment, 16,* 143-154.

Morgeson, F. P., Campion, M. A., Dipboye, R. L., Hollenbeck, J. R., Murphy, K., & Schmitt, N. (2007). Are we getting fooled again? Coming to terms with limitations in the use of personality tests for personnel selection. *Personnel Psychology, 60,* 1029-1049.

Motowidlo, S. J. (2003). Job performance. In W. C. Borman, D. R. Ilgen, & R. J. Klimoski (Eds.), *Handbook of Psychology: Industrial and Organizational Psychology, 12,* 39-53. New York: Wiley.

Motowidlo, S. J., Borman, W. C., & Schmit, M. J. (1997). A theory of individual differences in task and contextual performance. *Human Performance*, *10,* 71-83.

*Myers, K. K., & McPhee, R. D. (2006). Influences on member assimilation in workgroups in high-reliability organizations: A multi-level analysis. *Human Communication Research, 32,* 440-468.

*Nowakowski, J. M. (2007). Effect of organizational control systems on organizationally-directed deviance. *Dissertation Abstracts International, 67,* 6104.

*Ohly, S., & Fritz, C. (2007). Challenging the status quo: What motivates proactive behaviour?. *Journal Of Occupational And Organizational Psychology, 80*, 623-629.

*Ohly, S., & Fritz, C. (2010). Work characteristics, challenge appraisal, creativity and proactive behavior: A multi-level study. *Journal Of Organizational Behavior, 31*, 543-565.

*Ohly, S., Sonnentag, S., & Pluntke, F. (2006). Routinization, work characteristics and their relationships with creative and proactive work behaviors. *Journal of Organizational Behavior, 27,* 257-279.

Ones, D. S., & Viswesvaran, C. (1998). Gender, Age, and Race Differences on Overt Integrity Tests: Results Across Four Large-Scale Job Applicant Data Sets. *Journal of Applied Psychology, 83*(1), 35-42.

Ones, D. S., & Viswesvaran, C. (2003). Job-Specific Applicant Pools and National Norms for Personality Scales: Implications for Range-Restriction Corrections in Validation Research. *Journal of Applied Psychology, 88*(3), 570-577.

Ones, D. S., Viswesvaran, C., & Reiss, A. D. (1996). Role of social desirability in personality testing for personnel selection: The red herring. *Journal of Applied Psychology, 81,* 660-679.

Organ, D. W. (1988). *Organizational citizenship behavior: The good soldier syndrome.* Lexington, MA: Lexington Books.

Organ, D. W., Podsakoff, Ph. M., & MacKenzie, S. B. (2006). *Organizational citizenship behavior: Its nature, antecedents and consequences*. Thousand Oaks, CA: Sage Publications.

Organ, D. W., & Ryan, K. (1995). A meta-analytic review of attitudinal and dispositional predictors of organizational citizenship behaviors. *Personnel Psychology, 48,* 775-802.

Outtz, J.L. (2011). The unique origins of advancements in selection and personnel psychology. In S. Zedeck (Ed.) *APA handbook of industrial and organizational psychology, Vol 2: Selecting and developing members for the organization* (pp. 445-465). Washington, D.C.: American Psychological Association.

Ozer, D. J., & Reise, S. P. (1994). Personality Assessment. *Annual Review of Psychology, 45,* 357-388.

*Parker, S. K. (1998). Enhancing role breadth self efficacy: The roles of job enrichment and other organizational interventions. *Journal of Applied Psychology, 83,* 835-852.

*Parker, S. K., & Collins, C. G. (2010). Taking stock: Integrating and differentiating multiple proactive work behaviors. *Journal of Management, 36,* 633-662.

*Parker, S. K., & Sprigg, C. A. (1999). Minimizing strain and maximizing learning: The role of job demands, job control, and proactive personality. *Journal of Applied Psychology, 84,* 925-939.

*Parker, A.L., Mohr, P.B., & Wilson, C. (2004). Attitudinal and personality predictors of diversionary behavior by police. *Policing-An International Journal Of Police Strategies & Management, 27*, p. 9-21.

*Parker, S. K., Williams, H. M., & Turner, N. (2006). Modeling the antecedents of proactive behaviors at work. *Journal of Applied Psychology, 91,* 636-652.

*Pitt, L. F., Ewing, M. T., & Berthon, P. R. (2002). Proactive behavior and industrial salesforce performance. *Industrial Marketing Management, 31,* 639-644.

Ployhart, R. E., & Holtz, B. C. (2008). The diversity–validity dilemma: Strategies for reducing racioethnic and sex subgroup differences and adverse impact in selection. *Personnel Psychology, 61*(1), 153-172.

*Porath, C. L., & Bateman, T. S. (2006). Self-regulation: From goal orientation to job performance. *Journal of Applied Psychology, 91,* 185-192.

*Porath, C. L. (2001). Individual self-management: A model and longitudinal test. *Dissertation Abstracts International.*

*Prabhu, V. P. (2008). Understanding the effect of proactive personality on job-related outcomes in an organizational change setting. *Dissertation Abstracts International, 68,* 3032.

Pyburn Jr, K. M., Ployhart, R. E., & Kravitz, D. A. (2008). The diversity–validity dilemma: Overview and legal context. *Personnel Psychology, 61*(1), 143-151.

*Rank, J. (2007). Leadership predictors of proactive organizational behavior: Facilitating personal initiative, voice behavior, and exceptional service performance. *Dissertation Abstracts International, 67,* 6105.

*Rank, J., Carsten, J. M., Unger, J. M., & Spector, P. E. (2007). Proactive customer service performance: Relationships with individual, task, and leadership variables. *Human Performance, 20,* 363-390.

*Raemdonck, I. (2006). *Self-directedness in learning and career progress. A study in lower-qualified employees in Flanders.* Unpublished doctoral dissertation, Universiteit Gent, Holland.

*Rao Kowtha, N., & Tan, T. W. S. (2008). *Mediating role of knowledge in the socialization of new professionals: An exploratory study.* Paper Presented at the 68th Academy of Management Conference, Anaheim, CA.

Ree, M.J., Earles, J.A. & Teachout, M.S. (1994). Predicting Job-Performance - Not much more than *g*, Journal of Applied Psychology, 79, 4, pp. 518-524

*Roberts, M. L. (2004). Personality and work situational predictors of exit, voice, loyalty, and neglect: An interactionist perspective. *Dissertation Abstracts International, 65,* 2133.

*Rode, J. C., Arthaud-Day, M. L., Mooney, C. H., Near, J. P., & Baldwin, T. T. (2008). Ability and personality predictors of salary, perceived job success, and perceived career success in the initial career stage. *International Journal of Selection and Assessment, 16,* 292-299.

Roth, P. L., Bevier, C. A., Bobko, P., Switzer Iii, F. S., & Tyler, P. (2001). Ethnic group differences in cognitive ability in employment and educational settings: A meta analysis. *Personnel Psychology, 54*(2), 297-330.

Sackett, P. R., & Ellingson, J. E. (1997). The Effects of Forming Multi Predictor Composites On Group Differences and Adverse Impact. *Personnel Psychology, 50*(3), 707-721.

*Salanova, M., & Schaufeli, W. B. (2008). A cross-national study of work engagement as a mediator between job resources and proactive behavior. *The International Journal of Human Resource Management, 19,* 116-131.

Schmidt, F. L., Shaffer, J. A., & Oh, I. S. (2008). Increased accuracy for range restriction corrections. Implications for the role of personality and general mental ability in job and training performance. *Personnel Psychology, 61,* 827-868.

Schmitt , N., Gooding, R. Z., Noe, R. A., & Kirsch, M. (1984). Meta-analysis of validity studies published between 1964 and 1982 and the investigation of study characteristics. *Personnel Psychology, 37,* 407-422.

*Searle, B.J. (2008). Does personal initiative training work as a stress management intervention? *Journal Of Occupational Health Psychology,13*, 259-270.

*Searle, B.J. (2010a). *Counterproductive forms of proactivity.* Manuscript under preparation.

*Searle, B.J. (2010b). *Limitations of trait proactivity.* Manuscript under preparation.

*Searle, B.J. (2010c). *Proactivity and innovation.* Manuscript under preparation.

*Searle, B.J., & Aucamp, K. (2010). *Proactive personality, error orientation and performance.* Manuscript under preparation.

*Searle, B.J., & Parker, S.K. (2010). *When does proactivity matter for individual well-being? The situational relevance of job autonomy and uncertainty.* Manuscript under preparation.

*Seibert, S. E., Crant, J. M., & Kraimer, M. L. (1999). Proactive personality and career success. *Journal of Applied Psychology, 84,* 416-427.

*Seibert, S. E., Kraimer, M. L., & Crant, J. M. (2001). What do proactive people do? A longitudinal model linking proactive personality and career success. *Personnel Psychology, 54,* 845-874.

*Sekiguchi, T. (2009). *Career development of college students through part-time work: The role of LMX and taking charge.* Paper presented at the 69th Academy of Management Conference, Chicago, IL.

*Shaw, J. D., Duffy, M. K., & Stark, E. M. (2001). Team reward attitude: construct development and initial validation. *Journal of Organizational Behavior, 22,* 903-917.

*Sigler, E. A. (1997). A validation study of an instrument designed to measure metacognition of problem solving. *Dissertation Abstracts International, 58,* 0742.

*Sonnentag, S. (2003). Recovery, work engagement, and proactive behavior: A new look at the interface between nonwork and work. *Journal of Applied Psychology, 88,* 518-528.

*Speier, C., & Frese, M. (1997). Generalized self-efficacy as a mediator between control and complexity at work and personal initiative: A longitudinal field study in Eastern Germany. *Human Performance, 10,* 171-192.

Stajkovic, A. D., & Luthans, F. (1998). Self-efficacy and work-related performance: A meta-analysis. *Psychological Bulletin, 124,* 240-261.

*Swee, H., Hong, Y., & Chan, D. (2001). *Affectivity, personality, and competency correlates of proactive personality.* Paper presented at the 16th Society of Industrial and Organizational Psychology Conference, San Diego, CA.

Taylor, M. S., & Collins, C. J. (2000). Organizational recruitment: Enhancing the intersection of research and practice. In C. Cooper & E. Locke (Eds.), *Industrial and organizational psychology: Linking theory with practice* (pp. 304–330). Oxford, England: Blackwell Publishers.

Tett, R. P., & Burnett, D. D. 2003. A personality trait-based interactionist model of job performance. *Journal of Applied Psychology, 88,* 500-517.

Thomas, J. P., Whitman, D. S., & Viswesvaran, C. (2010). Employee proactivity in organizations: A comparative meta-analysis of emergent proactive constructs. *Journal of Occupational and Organizational Psychology, 83,* 275-300.

*Thompson, J. A. (2005). Proactive personality and job performance: A social capital perspective. *Journal of Applied Psychology, 90,* 1011-1017.

*Van Dam, K. (2006). *Comparing two-, three- and four-dimensional measures of goal orientation.* Poster presented at the 21st Annual Conference of the Society for Industrial and Organizational Psychology, Dallas, TX.

Viswesvaran, C., & Ones, D. S. (1995). Theory testing: Combining psychometric meta-analysis and structural equations modeling. *Personnel Psychology, 48,* 865-885.

Viswesvaran, C., & Ones, D. S. (2000). Measurement error in "Big Five factors" personality assessment. Reliability generalization across studies and measures. *Educational and Psychological Measurement, 60,* 224-235.

*Volmer, J., & Linz, A. (2009). *Leader-member exchange and creative and proactive behaviors.* Paper presented at the 24th Annual Conference of the Society for Industrial and Organizational Psychology, New Orleans, LA.

*Warr, P., & Fay, D. (2001). Short report: Age and personal initiative at work. *European Journal of Work and Organizational Psychology, 10,* 343-353.

*Wu, S. Y., Turban, D. B., & Cheung, Y. H. (2007). *Examining the antecedents and consequences of mentoring relationships.* Paper presented at the 67th Annual Meeting of the Academy of Management, Philadelphia, PA.

*Zhang, Z. (2008). In the eyes of the follower: Cognitive and affective antecedents of transformational leadership perception and individual outcomes. *Dissertation Abstracts International, 69,* 2362.

Table 1
Meta-Analytic Correlations among the Study Variables

Variable	1	2	3	4	5	6	7	8	9	10	11	12
1. Proactive Personality [a]	--	-.21	.30	.35	.31	.00	.06	.32	.30	.32	.28	.27
2. Neuroticism [b]	-.26	(.82)	-.21	-.15	-.13	-.19	-.12	-.14	-.13	-.16	-.13	-.26
3. Conscientiousness [b]	.37	-.26	(.83)	.00	-.05	.21	.02	.22	.15	.16	.18	.24
4. Extraversion [b]	.42	-.19	.00	(.81)	.14	.13	.06	.09	.06	.10	.05	.23
5. Openness to Experience [b]	.40	-.16	-.06	.17	(.80)	.08	.27	.05	-.01	.05	.01	.02
6. Agreeableness [b]	.00	-.25	.27	.17	.11	(.74)	.01	.10	.07	.17	.08	.15
7. General Mental Ability [c]	.08	-.15	.02	.08	.33	.01	(.81)	.48	.39	--	--	--
8. Overall Job Performance [d e]	.35	-.15	.24	.09	.06	.12	.53	--	--	--	--	--
9. Task Performance [d f]	.33	-.14	.16	.07	-.01	.08	.43	--	--	--	--	--
10. OCB-I [d]	.36	-.17	.18	.11	.05	.20	--	--	--	--	--	--
11. OCB-O [d]	.31	-.14	.20	.05	.01	.10	--	--	--	--	--	--
12. Job Satisfaction [g]	.30	-.29	.26	.25	.02	.17	--	--	--	--	--	--

Note. N = 3,461 (the harmonic mean of the meta-analytic sample sizes; Viswesvaran & Ones, 1995). Correlations below the diagonal are true-score correlations. Correlations above the diagonal are operational correlations used for computing operational validities, based on mean observed intercorrelations among the predictor variables and operational validity estimates (i.e., predictor-criterion correlations corrected for unreliability in the criterion). If the needed estimates were not available from the original source, mean observed values or operational validity estimates were corrected appropriately using the reliability estimates listed in the parentheses. Numbers in parentheses are mean predictor reliability based on prior meta-analytic studies reported by Viswesvaran and Ones (2000) for the Big Five personality traits and by Schmidt, Shaffer, and Oh (2008) for GMA.

[a] All meta-analytic correlations with proactive personality are based on the current study.

[b] Meta-analytic intercorrelations for the Big Five were obtained from Ones, Viswesvaran, and Reiss (1996) and subsequently attenuated to derive the estimates above the diagonal.

[c] Meta-analytic correlations between the Big Five and GMA were obtained from Ackerman and Heggstad (1997) and subsequently attenuated to derive the estimates above the diagonal.

[d] Meta-analytic (both true-score below the diagonal and operational validities above the diagonal) correlations between the Big Five and performance (overall job performance, task performance, and OCBs) were obtained from Hurtz and Donovan (2000).

[e] Meta-analytic correlations between GMA and overall performance were obtained from Hunter and Hunter (1984) and subsequently attenuated to derive the estimates above the diagonal.

[f] Meta-analytic correlations between GMA and task performance were obtained from Schmitt, Gooding, Noe, and Kirsch (1984) and subsequently attenuated to derive the estimates above the diagonal.

[g] Meta-analytic correlations between the Big Five and Job Satisfaction were obtained from Judge, Heller, and Mount (2002) and subsequently attenuated to derive the estimates above the diagonal.

Table 2

Meta-Analysis Results for Relationships of Proactive Personality with Study Variables

Predictor	k	N	r	ρ	SD_ρ	10% CV	90% CV	5% CL	95%CL
Agreeableness	10	1,626	.00	.00	.10	-.13	.14	-.08	.08
Conscientiousness	19	4,234	.30	.37	.07	.27	.46	.34	.42
Extraversion	14	2,416	.35	.42	.07	.33	.51	.37	.47
Openness to Experience	12	2,837	.31	.40	.05	.33	.46	.35	.44
Neuroticism	11	1,893	-.21	-.26	.01	-.28	-.24	-.30	-.22
General Mental Ability (GMA)	9	1,641	.06	.08	.14	-.11	.26	-.03	.18
Job Performance	41	11,627	.26	.32	.14	.13	.50	.27	.36
Overall Job Perf.	17	3,350	.30	.35	.19	.11	.59	.25	.44
Task Performance	17	3,487	.27	.33	.11	.11	.55	.24	.42
OCBs	16	7,543	.25	.30	.10	.17	.43	.25	.35
OCB – Is	5	1,184		.36				.23	.50
OCB – Os	8	5,887		.31				.21	.40
Job Satisfaction	18	7,075	.24	.30	.12	.15	.46	.24	.36

Notes: k = number of correlations. N = combined sample size. r = sample size-weighted average correlation. ρ = estimated true score correlation. SD_ρ = standard deviation of true score correlation. CV = Credibility value. CL = Confidence limit.

Table 3

Summary of Meta-Analytic Hierarchical Regression Analysis:

Regressing Proactive Personality on the Big Five Personality Traits

Variable	β	SE B	R^2
Step 1			.493*
Neuroticism	-.07*	.01	
Extraversion	.38*	.01	
Openness to Experience	.38*	.01	
Agreeableness	-.24*	.01	
Conscientiousness	.44*	.01	

Note. * $p < .05$.

Table 4

Summary of Meta-Analytic Hierarchical Regression Analysis:

Regressing Overall Job Performance on Proactive, Big Five Personality Traits, and GMA

Variable	True Score Validity				Operational Validity			
	β	SE B	R^2	ΔR^2	β	SE B	R^2	ΔR^2
Step 1			.353*				.286*	
Neuroticism	-.01	.01			-.03	.02		
Extraversion	.06*	.01			.06*	.01		
Openness to Experience	-.13*	.01			-.09*	.02		
Agreeableness	.06*	.01			.05*	.02		
Conscientiousness	.20*	.01			.19*	.02		
GMA	.56*	.01			.49*	.02		
Step 2			.403*	.050*			.312*	.026*
Neuroticism	.02	.01			-.02	.02		
Extraversion	-.07*	.02			-.00	.02		
Openness to Experience	-.26*	.02			-.15*	.02		
Agreeableness	.14*	.01			.08*	.02		
Conscientiousness	.06*	.02			.13*	.02		
GMA	.60*	.01			.50*	.01		
Proactive Personality	.32*	.02			.20*	.02		

Note. * $p < .05$.

Table 5

Summary of Meta-Analytic Hierarchical Regression Analysis:

Regressing Task Performance on Proactive, Big Five Personality Traits, and GMA

Variable	True Score Validity				Operational Validity			
	β	SE B	R^2	ΔR^2	β	SE B	R^2	ΔR^2
Step 1			.238*				.190*	
Neuroticism	-.05*	.02			-.06*	.02		
Extraversion	.05*	.02			.04*	.02		
Openness to Experience	-.18*	.02			-.13*	.02		
Agreeableness	.04*	.02			.04*	.02		
Conscientiousness	.12*	.02			.12*	.02		
GMA	.48*	.02			.41*	.02		
Step 2			.296*	.058*			.225*	.035*
Neuroticism	-.02	.02			-.04*	.02		
Extraversion	-.09*	.02			-.04*	.02		
Openness to Experience	-.32*	.02			-.20*	.02		
Agreeableness	.13*	.02			.07*	.02		
Conscientiousness	-.04	.02			.04*	.02		
GMA	.51*	.02			.42*	.02		
Proactive Personality	.34*	.02			.23*	.02		

Note. * $p < .05$.

Table 6

Summary of Meta-Analytic Hierarchical Regression Analysis:

Regressing OCB-I on Proactive and Big Five Personality Traits

Variable	True Score Validity				Operational Validity			
	β	SE B	R^2	ΔR^2	β	SE B	R^2	ΔR^2
Step 1			.072*				.062*	
Neuroticism	-.09*	.02			-.10*	.02		
Extraversion	.07*	.02			.07*	.02		
Openness to Experience	.02	.02			.02	.02		
Agreeableness	.13*	.02			.12*	.02		
Conscientiousness	.12*	.02			.11*	.02		
Step 2			.120*	.048*			.088*	.026*
Neuroticism	-.07*	.02			-.08*	.02		
Extraversion	-.05*	.02			.00	.02		
Openness to Experience	-.10*	.02			-.03	.02		
Agreeableness	.21*	.02			.15*	.02		
Conscientiousness	-.01	.02			.05*	.02		
Proactive Personality	.31*	.02			.20*	.02		

Note. * $p < .05$.

Table 7

Summary of Meta-Analytic Hierarchical Regression Analysis:

Regressing OCB-O on Proactive and Big Five Personality Traits

Variable	True Score Validity				Operational Validity			
	β	SE B	R^2	ΔR^2	β	SE B	R^2	ΔR^2
Step 1			.050*				.043*	
Neuroticism	-.08*	.02			-.09*	.02		
Extraversion	.03	.02			.03	.02		
Openness to Experience	-.00	.02			-.00	.02		
Agreeableness	.03	.02			.03	.02		
Conscientiousness	.17*	.02			.16*	.02		
Step 2			.075*	.025*			.059*	.016*
Neuroticism	-.07*	.02			-.08*	.02		
Extraversion	-.06*	.02			-.02	.02		
Openness to Experience	-.09*	.02			-.04*	.02		
Agreeableness	.08*	.02			.05*	.02		
Conscientiousness	.07*	.02			.11*	.02		
Proactive Personality	.22*	.02			.15*	.02		

Note. * $p < .05$.

Table 8

Summary of Meta-Analytic Hierarchical Regression Analysis:

Regressing Job Satisfaction on Proactive and Big Five Personality Traits

Variable	True Score Validity				Operational Validity			
	β	SE B	R^2	ΔR^2	β	SE B	R^2	ΔR^2
Step 1			.167*				.143*	
Neuroticism	-.20*	.02			-.19*	.02		
Extraversion	.21*	.02			.19*	.02		
Openness to Experience	-.04*	.02			-.03	.02		
Agreeableness	.04*	.02			.05*	.02		
Conscientiousness	.20*	.02			.19*	.02		
Step 2			.167*	.000			.144*	.001
Neuroticism	-.20*	.02			-.19*	.02		
Extraversion	.21*	.02			.19*	.02		
Openness to Experience	-.04*	.02			-.03*	.02		
Agreeableness	.04*	.02			.05*	.02		
Conscientiousness	.20*	.02			.18*	.02		
Proactive Personality	.00	.02			.02	.02		

Note. * $p < .05$.

Table 9

Gender differences in proactive personality (Females=0, Males=1).

	k	N Total	N Female	N Male	*d* - statistic	% Variance Explained	95% CI Lower Bound	95% CI Upper Bound	80% CV Lower Bound	80% CV Upper Bound
All Studies	53	21,461	10,493	10,968	0.10	24.12	-0.09	0.30	-0.12	0.33
Sample Nationality										
U.S. Samples	21	7,712	3,904	3,808	-0.01	39.46	-0.21	0.20	-0.17	0.16
Non-U.S. Samples	32	13,749	6,589	7,160	0.16	24.20	-0.03	0.35	-0.06	0.38
Sample Population										
Working Adults	47	19,652	9,473	10,179	0.09	22.55	-0.10	0.28	-0.14	0.32
Students	6	1,809	1,020	789	0.22	105.95	-0.01	0.45	0.22	0.22
Construct										
Proactive Personality	40	15,793	7,413	8,380	0.08	21.04	-0.12	0.28	-0.17	0.33
Personal Initiative	13	5,668	3,080	2,588	0.17	57.19	-0.02	0.36	0.06	0.27
Scale										
Bateman & Crant (17-item)	8	1,863	913	950	0.10	95.57	-0.16	0.35	0.06	0.13
Seibert, et.al. (10-item)	20	7,275	3,316	3,959	0.13	17.78	-0.08	0.33	-0.16	0.42
Ad-Hoc	12	6,655	3,184	3,471	0.02	20.23	-0.15	0.19	-0.20	0.24
Publication Status										
Published	42	16,029	8,049	7,980	0.10	29.63	-0.10	0.30	-0.10	0.30
Unpublished	11	5,432	2,444	2,988	0.11	13.92	-0.06	0.29	-0.17	0.40

Construct determined based on operationalization employed. Scale source: Bateman & Crant, 1993; Seibert, Crant & Kraimer, 1999; Ad-Hoc scales are shortened versions of the original Bateman and Crant (1993) scale other than the Seibert, Crant & Kraimer (1999) scale.

Table 10

Race differences in proactive personality (non-White=0, White=1).

	k	N	N minority	N white	*d* - statistic	% Variance Explained	95% CI Lower Bound	95% CI Upper Bound	80% CV Lower Bound	80% CV Upper Bound
Black-White										
All Studies	12	5,257	929	4,328	-0.07	10.91	-0.26	0.12	-0.42	0.28
Bateman & Crant (17-item)	2	361	152	209	0.02	26.42	-0.28	0.31	-0.30	0.34
Seibert, et.al. (10-item)	4	1,206	78	1,128	-0.24	26.71	-0.47	-0.02	-0.49	0.00
Ad-Hoc	4	3,381	690	2,691	0.05	42.87	-0.08	0.19	-0.05	0.16
Hispanic-White										
All Studies	13	5,181	493	4,688	-0.33	15.82	-0.52	-0.13	-0.63	-0.03
Bateman & Crant (17-item)	2	219	10	209	-0.46	100.00	-0.84	-0.08	-0.46	-0.46
Seibert, et.al. (10-item)	4	1,189	61	1,128	-0.53	100.00	-0.76	-0.30	-0.53	-0.53
Ad-Hoc	4	3,062	371	2,691	-0.25	7.56	-0.39	-0.11	-0.57	0.08
Asian-White										
All Studies	8	1,891	86	1,805	-0.09	3.48	-0.34	0.17	-0.97	0.79

Construct determined based on operationalization employed. Scale source: Bateman & Crant, 1993; Seibert, Crant & Kraimer, 1999; Ad-Hoc scales are shortened versions of the original Bateman and Crant (1993) scale other than the Seibert, Crant & Kraimer (1999) scale.