Delineating the Construct Network of the Personnel Reaction Blank: Associations with Externalizing Tendencies and Normal Personality

Daniel M. Blonigen
Center for Health Care Evaluation, Veterans Affairs Palo Alto Health Care System and Stanford University School of Medicine

Christopher J. Patrick
Florida State University

Marianna Gasperi, **Benjamin Steffen**, and **Deniz S. Ones**
University of Minnesota–Twin Cities Campus

Richard D. Arvey
National University of Singapore

Viviane de Oliveira Baumgartl
Pontifical Catholic University of Minas Gerais

Elizabeth do Nascimento
Federal University of Minas Gerais

Abstract

Integrity testing has long been utilized in personnel selection to screen for tendencies toward counterproductive workplace behaviors. The construct of *externalizing* from the psychopathology literature represents a coherent spectrum marked by disinhibitory traits and behaviors. The present study used a sample of male and female undergraduates to examine the construct network of the Personnel Reaction Blank (PRB; Gough, Arvey, & Bradley, 2004), a measure of integrity, in relation to externalizing as well as normal-range personality constructs assessed by the Multidimensional Personality Questionnaire (MPQ; Tellegen & Waller, 2008). Results revealed moderate to strong associations between several PRB scales and externalizing, which were largely accounted for by MPQ traits subsumed by Negative Emotionality and Constraint. After accounting for MPQ traits in the prediction of externalizing, a modest predictive increment was achieved when adding the PRB scales, particularly biographical indicators from the Prosocial Background subscale. The findings highlight externalizing as a focal criterion for scale development in the integrity testing literature, and help delineate the construct network of the PRB within the domains of personality and psychopathology.

Keywords

Personnel Reaction Blank; Multidimensional Personality Questionnaire; Integrity Testing; Externalizing; Personality

Employee dishonesty exacts a considerable toll in the American workplace. For example, recent estimates suggest that employee theft alone may account for as much as $40 billion annually in business losses (U.S. Chamber of Commerce, 2004) and contribute significantly to 20% of failed businesses (Coffin, 2003). The problem may be even greater considering such figures do not include the adverse impact from more subtle forms of counterproductivity and employee deviance (e.g., tardiness, work absenteeism). Pre-employment integrity tests are a popular front-line strategy to address these issues and are intended to screen out applicants likely to engage in counterproductive workplace behaviors.

The construct of *externalizing* (EXT), developed in the child and adult psychopathology literatures (Achenbach & Edelbrock, 1978, 1984; Krueger et al., 2002; Krueger, Markon, Patrick, Benning, & Kramer, 2007), represents a coherent spectrum marked by tendencies toward by disinhibitory traits (e.g., impulsivity) and behaviors (e.g., substance abuse, antisociality; Gorenstein & Newman, 1980; Sher & Trull, 1994). Although derived from the domains of personality and psychopathology, EXT appears to be a criterion of substantial interest to the field of personnel selection. Despite clear conceptual overlap, few studies have explicitly investigated the relationship between the EXT spectrum and integrity testing. The present study addressed this gap in the literature by exploring the construct network of a well-validated measure of integrity – the Personnel Reaction Blank (PRB; Gough et al., 2004) – in relation to EXT and the structure of normal-range personality as operationalized by the Multidimensional Personality Questionnaire (MPQ; Tellegen & Waller, 2008).

Integrity Testing: Historical Background and Development of the Personnel Reaction Blank

Since their inception into the field of psychological assessment, pre-employment integrity tests have been a popular means of addressing issues of employee theft and dishonesty. In the wake of the Employee Polygraph Protection Act of 1988, paper-and-pencil integrity tests have become the most frequently used assessment tools in personnel selection and pre-employment screening (for a review, see Iacono & Patrick, 2008). Such measures are intended to assess the likelihood that a given individual will behave in a responsible and reliable manner in the workplace, and not engage in counterproductivity, defined as intentional behaviors that may threaten the well-being of an organization (e.g., theft, destruction of property, misuse of information or company resources, poor attendance, on-the-job substance use, inappropriate verbal and physical actions towards co-workers; Sackett & DeVore, 2001).

Integrity tests may be divided into two classes based on their item content (Sackett, Burris, & Callahan, 1989; Woolley & Hakstian, 1992). *Overt* ("clear purpose") integrity tests consist of fairly transparent items that directly ask about attitudes toward dishonesty, as well as the severity and frequency of theft and other illegal activities in the applicant's past. The Reid Report (Reid, 1967) is an example of an overt integrity test. In contrast, *personality-based* ("veiled purpose") integrity tests assess a broader set of issues regarding an individual's upbringing, self-management skills, and reactions to others, and employ more subtle questions related to attitudes, self-perceptions, and dispositional tendencies associated with counterproductivity in general, rather than dishonesty or theft per se.

The PRB is regarded as one of the first paper-and-pencil integrity tests (Viswesvaran & Ones, 1997) and remains one of the most commonly used personality-based measures of integrity (Gough et al., 2004). The PRB was designed to assess an individual's ability to resist "wayward impulses" (Gough, 1971) with high scores suggesting tendencies toward conformity, dependability, and rule-compliance, and low scores indicative of rule-breaking, rebelliousness, and irresponsibility. Large-scale meta-analyses of the PRB and related personality-based integrity tests have established the criterion validity of these measures in predicting job performance ratings and a host of counterproductive workplace behaviors (e.g., theft, violence, property damage, substance abuse, work absenteeism; Ones, Viswesvaran, & Schmidt, 1993; Ones, Viswesveran, Schmidt, & Schultz, 1992; Schmidt, Viswesvaran, & Ones, 1997).

Although regarded as a "personality-based" inventory, the PRB is not limited to the assessment of an individual's current personality dispositions. The original item set was assembled using a criterion-referenced approach in which items were selected if they discriminated between individuals with and without a history of delinquency (Gough & Peterson, 1952; Gough et al., 2004; Kobb & Arvey, 1993). Interestingly, many of these items, which have been retained in subsequent versions of the PRB, are biographical in nature and reflect patterns of deviant behavior in childhood (e.g., gave teachers trouble, disobeyed parents). Thus, the PRB appears to capture both self-reported current personality dispositions as well as biographical information, consistent with idea that broad domains of personality can be tapped by distinct types of data (Block, 1993; Cattell, 1965; Funder, 2001; Tellegen & Waller, 2008).

Integrity Testing: Associations within the Domain of Personality

Past efforts to delineate the construct network of integrity measures within the domain of personality have focused on self-report assessments of current dispositional tendencies as described via structural models of normal personality. The vast majority of this research has focused on the Five Factor Model (FFM; Costa & McCrae, 1992), which consists of broad dimensions of Extraversion (e.g., sociability, agency), Emotional Stability/Neuroticism (e.g., imperturbability vs. anxiousness), Conscientiousness (e.g., dependability, adherence to social norms), Agreeableness (e.g., trustworthiness, concern for others), and Openness to Experience (e.g., creativity, intellectual curiosity). Although not focused specifically on integrity testing, several meta-analyses of relations between the FFM dimensions and work-related criteria found Conscientiousness (Barrick & Mount, 1991) and Agreeableness (Tett, Jackson, & Rothstein, 1991) to be the best trait-based predictors of job performance ratings – a criterion predicted well by integrity tests (Ones et al., 1993).

With respect to integrity tests per se, Conscientiousness ($r = .42$), Agreeableness ($r = .40$), and to a lesser extent Emotional Stability ($r = .33$), are the strongest trait correlates of integrity tests including the PRB, with the combination of these factors predicting scores on these measures better than either factor alone. Hence, the PRB and measures of integrity appear to largely assess Conscientiousness and Agreeableness – dimensions which form a higher-order factor of "disinhibition" in the structural framework of personality (Markon, Krueger, & Watson, 2005). An additional finding of Ones, Schmidt, and Viswesvaran (1994) as well as others (e.g., Barrick, Mount, & Judge, 2001; Marcus, Höft, & Riediger, 2006) is that the above-noted personality factors mediate the relationship between integrity tests and a range of external criteria including indices of counterproductivity. However, Ones and colleagues (1994) also noted that these factors did not entirely account for the association between integrity test scores and external criteria, suggesting that other types of data beyond an individual's self-reported current dispositional make-up are measured by personality-based integrity tests and can predict counterproductivity.

The Externalizing Spectrum: Background, Measurement, & Conceptual Links to Integrity Testing

When considering the outcomes relevant to the objectives of integrity testing, EXT is undoubtedly a criterion of substantial interest to the field of integrity testing. The notion of EXT as a coherent spectrum and organizing framework for disinhibitory psychopathology was introduced in the work of Achenbach and Edelbrock (1978, 1984). In their model, conduct and behavioral problems in childhood (e.g., aggression, delinquent rule-breaking) were conceptualized as indicators of a higher-order "externalizing" vulnerability, and differentiated from indicators of emotional distress such as anxiety and depression – i.e., "internalizing" (INT).

Recently, Krueger et al. (2007) mapped the content domain and structure of the EXT spectrum using an exploratory approach that began with an over-inclusive item pool and proceeded in an iterative fashion in which constructs were allowed to evolve through multiple rounds of data collection. This process, which has been described as an essential component of test construction (Tellegen & Waller, 2008), resulted in a comprehensive inventory composed of 23 facet scales that encompass a range of deviant traits and behaviors (e.g., aggression, dishonesty, unreliability, irresponsibility, impulsivity, theft, substance abuse). Despite the multidimensional composition of this inventory, these lower-order facet scales were successfully integrated into a hierarchical model, with differing facets representing alternative instantiations of a general EXT factor.

Although derived from the psychopathology literature, EXT represents a spectrum of psychopathology *and* personality such that individual differences within this spectrum are underpinned by disinhibitory traits described in structural models of personality (Krueger et al., 2002; Sher, Bartholow, & Wood, 2000; Slutske et al., 2002; Trull & Sher, 1994). For example, from a FFM perspective, EXT is marked by low Agreeableness and low Conscientiousness (Lynam, Leukefeld, & Clayton, 2003; Miller, Lynam, & Leukefeld, 2003) – which as noted above are the most robust personality correlates of integrity tests (Ones et al., 1994). Similar findings have emerged using the three-factor model of personality operationalized by the MPQ, with EXT being linked to high Negative Emotionality (NEM) and low Constraint (CON; Krueger, McGue, & Iacono, 2001). In relation to the FFM, scores on NEM – i.e., Aggression and Alienation – are moderately correlated with scores on Agreeableness, and scores on CON (the Control vs. Impulsivity scale, in particular) are robustly correlated with scores on Conscientiousness (Church, 1994; Tellegen & Waller, 2008). Given the overlap in the personality dimensions underlying both the EXT spectrum and measures of integrity, we hypothesized that (a) integrity tests would be highly associated with EXT, and (b) this association would be mediated by personality traits related to negative affect and disinhibition.

Present Study

Despite clear conceptual links, the association between integrity tests and EXT – as conceptualized in the psychopathology literature (Krueger et al., 2002; 2007) – has not been formally investigated. In the present study, we used a large sample of male and female undergraduates to examine the construct network of the PRB in relation to the EXT spectrum of psychopathology and normal-range dimensions of personality. Our primary aims were to assess the magnitude of the relationship between the PRB and EXT, and delineate the construct network of the PRB in relation to the MPQ – a well-validated structural model of normal personality (Patrick, Curtin, & Tellegen, 2002). Besides being the first study to directly relate scores on an established integrity test to the construct of EXT, the current study was also the first (to our knowledge) to examine links between a *personality-based* measure of integrity and the MPQ, thereby allowing for a comparison of

correlates of integrity tests for the three-factor model of personality to previously reported results for the five-factor model of personality (see Lilienfeld, Andrews, Stone-Romero, & Stone, 1994, for a study using the MPQ and an overt integrity test). A further aim of the current study was to assess the extent to which the PRB scales can account for variance in EXT over and above information related to one's current personality dispositions that may be shared across the MPQ and PRB. Based on their conceptual overlap, as well as past research demonstrating links between integrity test scores and counterproductive workplace behaviors (e.g., theft, violence, drug abuse; Ones et al., 1993), we hypothesized that a strong association would be found between the PRB and EXT, which would be substantially (but not entirely) mediated by MPQ scales of negative affect (i.e., NEM) and disinhibition (i.e., CON).

Method

Participants

Participants were 770 undergraduate students (512 women) from an introductory psychology course at a large Midwestern university who completed study questionnaires electronically (i.e., online) for course credit. As part of an initial informed consent section, students were advised that the testing process was completely anonymous and would not adversely impact or benefit their course performance beyond the receipt of extra credit for participation. Students were instructed to complete the questionnaires on their own (i.e., without involvement of or assistance from others) and were explicitly informed that submitted results would be carefully reviewed for completion. In addition, students were given the option of attending an individualized feedback session to review their results; this provided further encouragement for participants to complete the questions in a valid manner. Mean age for the sample was 19.5 years (SD = 2.31). The racial composition was as follows: 82.7% Caucasian American, 11.7% Asian American, 2.6% Other/Mixed Ethnicity, 1.7% African American, 0.9% Hispanic American, 0.4% Native American.

Assessment

Integrity Measure—The Personnel Reaction Blank (PRB; Gough, 1971, Gough et al., 2004) consists of 84 items related to attitudes and self-perceptions, and is designed to assess the likelihood that a given individual will demonstrate reliability and dependability, as opposed to counterproductivity, in the workplace. Of the 84 items, 62 (41 personality-based items and 21 others dealing with occupational preferences,) are used for scoring the Personal Reliability Index (PRI), a global index on which lower scores indicate tendencies toward counterproductive workplace behaviors. Scores on the PRI are obtained by summing the raw scores from four subscales: Sense of Well-being (SWB; 16 items), on which high scores reflect a positive outlook on one's life circumstances; Prosocial Background (PSB; 13 items), on which high scores reflect a view of one's childhood and upbringing as happy and satisfying; Compliance with Social Norms (CSN; 12 items), reflecting, at the high end, a tendency to conform and comply with social norms and conventions; and Conventional Occupational Preferences (COP; 21), an index of occupational preferences on which higher scores reflect a preference toward conventional, low-risk jobs and lower scores indicate a preference for jobs that are unconventional or involve some element of risk or physical danger. Past research has demonstrated satisfactory psychometric properties for all PRB scales (Gough et al., 2004). Complete PRB scores were available for 768 participants (511 women).

Externalizing Spectrum Inventory, 100-item version (ESI-100)—This self-report inventory assesses a range of traits and behavioral tendencies that have been identified as indicators of the broad externalizing (EXT) factor of psychopathology in previous work

(Krueger et al., 2007). The 100-item version of the ESI used in the current study (ESI-100) consists of a subset of items from the full, 415-item ESI. This subset incorporates items from most of the ESI facet scales and provides for effective estimation of overall scores on the full ESI; within the ESI development sample (Krueger et al., 2007), total scores for the two versions correlate at $r = .98$ (Hall, Bernat, & Patrick, 2007). Notably, while the ESI-100 provides strong representation of items from scales that load very highly on the general factor (i.e., Irresponsibility, Problematic Impulsivity, Theft, Fraud, Physical Aggression, Alcohol Problems), it provides only weak representation (1 to 2 items) of particular scales that serve as indicators of the Callous-Aggression (e.g., Empathy [−], Excitement Seeking, Rebelliousness, Honesty [−]) and Substance Use subfactors (i.e., Alcohol Use, Drug Use, Drug Problems, Marijuana Use, Marijuana Problems).[1] For this reason, the current study focused on overall scores on the ESI-100 (reflecting general proneness to EXT), which were computed by summing across all items of the inventory. Scores on the ESI-100 demonstrate criterion-related validity in relation to diagnostic and personality indicators of EXT (Hall et al., 2007), and in relation to relevant physiological indices such as P300 (Nelson, Patrick, & Bernat, in press) and error-related negativity (Hall et al., 2007).

Personality—Participants completed the 155-item brief form (Patrick et al., 2002) of Tellegen's MPQ. This omnibus measure of normal personality assesses both higher- and lower-order levels of the trait hierarchy and was constructed using an iterative-exploratory approach (Tellegen & Waller, 2008) that served as a model for the development of the ESI. The MPQ comprises 11 primary trait scales, each consisting of 12 binary-response items; 10 of these 11 scales cohere around three higher-order factors of Positive Emotionality (PEM), Negative Emotionality (NEM), and Constraint (CON). PEM encompasses primary traits of Well-Being, Social Potency, Achievement, and Social Closeness. Individuals scoring high on PEM tend to have a cheerful disposition, value interpersonal relationships, be dominant and persuasive, and enjoy demanding projects. NEM encompasses primary traits of Stress Reaction, Alienation, and Aggression, with high scorers tending to be antagonistic, sensitive to criticism, and inclined towards a range of negative emotions (e.g., stress, hostility, anger). CON encompasses primary traits of Control, Harm Avoidance, and Traditionalism. High scorers on this dimension are planful and cautious, averse to risk, and inclined toward conservative social values. The 11th primary trait scale, Absorption, which assesses capacities for vivid and compelling imagery and intense engagement in ongoing sensory-perceptual events, does not load selectively on PEM, NEM, or CON.

The brief version of the MPQ demonstrates close correspondence with the full MPQ both in terms of primary trait scale correlations across the two versions, and consistency of higher-order factor structures (Patrick et al., 2002). In addition, the brief form includes two validity scales – the Variable Response Inconsistency (VRIN) and True Response Inconsistency (TRIN) scales – for detecting inconsistent or random response patterns. Thirteen MPQ protocols (1.7% of the total sample) were deemed invalid according to the distributional cutoffs for these scales recommended by Patrick et al. (2002). Data for these 13 cases were excluded from all analyses, resulting in a final sample of 757 individuals (505 women) with valid MPQ data.

---

[1]The item content of the ESI-100 was not adequate for estimating scores on either of the ESI subfactors (Substance Use, Callous-Aggression) identified by Krueger et al. (2007). In the ESI-100, only two of the six scale indicators of the Substance Use subfactor (Alcohol Problems, Drug Use) are represented by more than 2 items (i.e., 8 & 3 items, respectively), and one of these two scale indicators – Alcohol Problems – is the weakest among the six in terms of its loading (.24) on the Substance Use subfactor. Regarding the Callous-Aggression subfactor, two of the four scales that load most strongly on this subfactor (Empathy [-], Excitement Seeking) are represented by less than 3 items (i.e., 2 and 1, respectively).

Data Analytic Approach

Using the statistical package *Mplus* 4.1 (Muthén & Muthén, 1998 – 2006), analyses began with an examination, by gender, of zero-order correlations among the PRB scales and the ESI-100, as well as first-order relations based on a regression model with ESI-100 scores as the criterion and scores on the PRB scales as predictors. The MPQ personality correlates of the PRB scales were also examined at both the zero- and first-order levels to ascertain the distinct personality constructs underlying each dimension of the PRB. Next, we undertook hierarchical regressions to assess the extent to which the PRB scales could predict scores on the ESI-100 after controlling for scores on the 11 primary scales of the MPQ. As a follow-up to these analyses, individual items from the PRB were included as predictors of scores on the ESI-100, after accounting for MPQ scores, to evaluate which PRB items contributed incrementally to prediction of EXT tendencies, beyond information pertaining to participants' current dispositions. To assess for gender differences, Likelihood Ratio Tests were computed to compare the chi-square fit of models that constrained parameter estimates for men and women to be equal against models in which these parameters were freely estimated. Coefficients significant at $p < .05$ are noted in all Tables; however, in consideration of the large number of correlations that were computed, interpretation of results is limited to coefficients significant at a more conservative level of $p < .01$.

Results

Internal Consistencies & Descriptive Statistics

Internal consistency reliabilities (Cronbach's alpha) and descriptive statistics (means, standard deviations) for all sample measures are presented in Table 1.[2] To facilitate interpretation of gender differences, means and standard deviations are presented in T-score units (relative to the sample as a whole) along with standardized (absolute) mean differences (i.e., *d*-scores). Internal consistency estimates were satisfactory (i.e., > .7) for scores across all measures with the exception of the COP subscale of the PRB. Although scores on this scale demonstrated satisfactory internal consistency in the normative sample ($\alpha = .73$; Gough et al., 2004), it is not an inherently homogenous personality-based index, and instead captures a range of constructs that influence conventional occupational interests.

Regarding gender differences in integrity as indexed by the PRB, men scored significantly higher on the SWB subscale than women, whereas women scored significantly higher on the CSN and COP subscales, as well as the global PRI index. Regarding gender differences in personality as indexed by the MPQ, women scored significantly higher than men on primary scales of Social Closeness, Stress Reaction, Control, Harm Avoidance, and on the higher-order factor of CON. Men scored significantly higher than women on the Aggression scale of the MPQ and on the ESI-100.

Intercorrelations among PRB Scales and Zero- and First-Order Relations with Externalizing

Table 2 lists intercorrelations, computed separately by gender, among the PRB scales. In both gender subgroups, each of the PRB subscales was highly related to the global PRI index, with Pearson product-moment correlations ranging from .52 (COP) to .73 (SWB), and the subscales of SWB, PSB, and CSN showed moderate correlations with one another (range of *r*s = .31 – .49). The COP subscale was relatively uncorrelated with the other PRB

---

[2]Consistent with the approach of Patrick et al. (2002), scores on the MPQ higher-order factors of PEM, NEM, and CON were computed using beta coefficients derived from regression analyses in which each of the MPQ primary scales (with the exception of Absorption) was used to predict scores on the higher-order factors. Consequently, internal consistency estimates could not be computed for scores on the MPQ factors.

subscales, with the exception of a small, positive correlation with CSN in women. Among these intercorrelations, only the relationship between PSB and CSN differed significantly across gender, $\Delta\chi^2$ (1) = 5.68, p = .02, with the magnitude of association larger for men.

Table 2 also shows zero- and first-order correlations between the PRB scales and the ESI-100. At the zero-order level, ESI-100 scores exhibited a large, negative correlation with global PRI scores that was equivalent across gender. With respect to the PRB subscales, scores on the ESI-100 evinced high negative correlations with PSB and CSN and a moderate negative association with SWB. The correlation with ESI-100 scores for the COP subscale was weakly negative, and significant for women only. For PSB and CSN, the associations with the ESI-100 were significantly larger for men than women, $\Delta\chi^2$s (1) = 7.33 and 5.84, respectively, ps < .01. To assess the unique relations between the PRB and ESI-100, the PRB subscales were included concurrently in a regression model as predictors of the ESI-100 criterion variable. Across men and women, PSB and CSN remained negatively associated with scores on the ESI-100, with the association for PSB significantly larger for men than women, $\Delta\chi^2$ (1) = 5.14, p < .05. For SWB, the association with the ESI-100 was significant and slightly more negative in women. Although this association was not significant in our smaller sample of men, constraining these estimates to be equal across gender did not result in a significant decrease in fit. The first-order associations between COP and ESI-100 were quite low for both women and men, although significant in the large female subsample.

MPQ Personality Correlates of the PRB Scales

In accordance with its reputation as a personality-based integrity measure, we examined zero-order correlations of individual scales from the PRB with the MPQ (see Table 3). For the sake of brevity, these correlations are presented for the overall sample, with significant gender differences noted in the text below. In addition, given the significant intercorrelations among MPQ primary scales per their higher-order structure (Patrick et al., 2002;Tellegen & Waller, 2008), we also computed first-order coefficients from regression analyses in which the 11 MPQ primary scales were included together as predictors of scores on each of the PRB scales. This approach provided for an evaluation of the distinctive trait correlates of the PRB scales. The resulting first-order (beta) coefficients are shown in parentheses to the right of the zero-order correlations in Table 3. The MPQ higher-order factors were not included in the regression analyses, given the redundancy of these factors with the primary scales they subsume. Thus, only zero-order correlations between the PRB scales and MPQ factors are presented in Table 3.

In personality space, the global PRI index is represented most strongly by low scores on Alienation. At the higher-order level of the MPQ, the PRI index showed a large negative correlation with NEM and moderate positive correlations with PEM and CON. SWB was uniquely related to low Stress Reaction and Alienation, and high Well-Being and Social Potency. The first-order relations between SWB and the MPQ Well-being scale were significantly larger in men (β = .38, p < .001) than women (β = .22, p < .001). With respect to the MPQ factors, SWB showed a large negative correlation with NEM, a moderate positive correlation with PEM, and a negligible correlation with CON. PSB was characterized by a negative association with Alienation, positive associations with Well-being, Control, and Traditionalism, and a small negative association with Absorption. At the higher-order level, PSB showed a large negative correlation with NEM and moderate positive correlations with PEM and CON. CSN was uniquely associated with high scores on all primary scales of CON, particularly Control, as well as low scores on Aggression and Stress Reaction. This was also evident at the higher-order level as indicated by a large positive correlation with CON, a moderate negative correlation with NEM, and a negligible correlation with PEM. Across the MPQ primary scales, the COP subscale was uniquely

related only to Harm Avoidance, which was significant in women ($\beta = .21$, $p < .001$) but not men ($\beta = -.01$, *ns*). At the higher-order level of the MPQ, COP exhibited a significant association (positive and of modest magnitude) with CON alone.

Hierarchical Regressions of Externalizing on the MPQ and PRB Scales

Given that scores on the PRB are underpinned by a range of personality constructs, we performed a series of hierarchical regressions to assess whether scores on the PRB scales predicted scores on the ESI-100 after controlling for variance shared with the MPQ. For the sake of brevity, results are presented in Table 4 for the overall sample, with significant gender differences noted in the text below. In Step 1, ESI-100 scores were regressed onto the MPQ primary scales (entered together) to evaluate the unique personality correlates of this EXT criterion measure.[3] In Step 2, scores on the PRB scales were entered (individually) into the model to assess their unique predictive associations with ESI-100 scores above and beyond the personality constructs assessed by the MPQ.

At Step 1, scores on the ESI-100 were significantly predicted by scores on several of the MPQ primary scales, particularly high scores on the NEM-related scales of Aggression and Alienation, and low scores on the Control scale of CON. After inclusion of the MPQ primary scales, the global PRI index, as well as each of the PRB subscales, provided a modest (albeit significant) increment in the prediction of scores on the ESI-100, with the PSB subscale exhibiting the strongest incremental prediction of the criterion variable. PSB scores were more highly predictive of scores on the ESI-100 criterion variable in men ($\beta = -.34$, $p < .001$) than women ($\beta = -.21$, $p < .001$), as indicated by a significant decrement in fit for a model that constrained parameter estimates to be equal across gender compared with a model that allowed these parameters to be estimated freely across men and women, $\Delta\chi^2$ (1) = 8.41, $p < .01$. Both SWB and CSN exhibited small, negative associations with the ESI-100 that were comparable in magnitude after controlling for the MPQ primary trait scales. The COP subscale exhibited a weak, negative association with the ESI-100 at Step 2 that was significant only at $p < .05$. With the exception of PSB, the parameter estimates for the PRB scales could be constrained to be equal across men and women without a significant decrease in fit.

Results of the hierarchical regressions indicate that each of the PRB scales is predictive of EXT tendencies above and beyond information related to current-dispositional tendencies as assessed by the MPQ. To further explore this relationship, we conducted follow-up analyses to identify which PRB items were uniquely associated with scores on the ESI-100 after accounting for scores on the MPQ primary scales (see Table 5). Of the 62 items used in the scoring of the PRB scales, 44 were significantly correlated with scores on the ESI-100 at the zero-order level ($p < .01$). Each of these items was then entered separately, along with scores on the MPQ primary scales, into a regression model as predictors of the ESI-100 criterion variable. Using a conservative p-value of .01, 14 items remained significant. The item numbers, general item content, and zero- and first-order associations with the ESI-100 are listed by PRB subscale in Table 5. Notably, half of the items, most of which were the highest loading items among the 14, were from the PSB subscale. These items were largely biographical in nature and reflected problematic behaviors at home or school during one's childhood rather than the attitudes and self-perceptions reflected in one's current

dispositional tendencies. In addition, these items were negligibly correlated with scores on the MPQ Unlikely Virtues scale, an index of social desirability (*r*s ranged from −.10 to .11). Thus, these items do not appear overly susceptible to impression management (i.e., "faking good") or other overt response styles related to dissimulation.

Discussion

Despite clear conceptual links, the relationship between integrity testing and the externalizing spectrum – as conceptualized and measured within the psychopathology literature – has not been formally investigated. The present study sought to address this gap in the literature by delineating the construct network of the PRB in relation to EXT as measured by the ESI-100, and normal personality as measured by the MPQ. Results revealed a large, negative association between global scores on the PRB and ESI-100, which were equivalent in magnitude across men and women. Moreover, this relationship was largely (though not entirely) accounted for by information reflected in one's self-report of their current personality make-up. That is, other elements of the PRB, particularly biographical indicators, were uniquely predictive of EXT tendencies above and beyond information assessed by the MPQ. While this finding cannot be taken as evidence for the utility of one approach relative to the other across differing contexts/purposes, as discussed further below, it does provide insight into the construct network of the PRB with respect to the broad domains of personality and psychopathology.

The Role of Externalizing in the Construct Network of the Personnel Reaction Blank

EXT, conceptualized as a general propensity towards a broad range of deviant behaviors, is undoubtedly a criterion of paramount importance to the field of integrity testing. The key implication of the current study is that the integrity construct indexed by the PRB and other measures of its type largely reflects this same individual differences factor—i.e., general EXT propensity. The magnitude of the PRB-EXT relationship notwithstanding, the findings also indicate that the PRB is a variegated instrument, tapping an array of distinctive components that vary in their degree of association with EXT and affiliated traits. The PSB and CSN subscales (in reverse) appear most strongly indicative of EXT, and were preferentially related to the most salient personality correlates of this spectrum (Krueger, 1999; Krueger et al., 2001). By contrast, SWB (in reverse) exhibited modest associations with EXT and was more strongly indicative of neuroticism (i.e., high Stress Reaction) and low positive affect (i.e., PEM) – traits that tend to be more robust indicators of INT than EXT. The COP subscale was negligibly associated with EXT and most MPQ correlates; hence, a preference for conventional occupations appears to be a weak predictor of EXT, and does not fall neatly into the nomological network of the PRB.

Consistent with prior research (Krueger et al., 2001), scores on the primary trait scales of the MPQ—in particular, Aggression and Alienation facets of NEM, and the Control (vs. Impulsivity) facet of CON—accounted for a substantial portion of variance in the ESI-100 criterion variable. Nonetheless, scores on each of the PRB scales, most notably the PSB subscale, contributed incrementally to prediction of ESI-100 scores after accounting for variance predicted by the MPQ. This result is consistent with the assertion of Ones et al. (1994) that integrity tests can contribute to the prediction of important criterion variables beyond that provided by omnibus measures of normal personality. Although incremental predictions were modest, they are nonetheless notable, given the types of items from the PRB that contributed incrementally to the prediction of EXT – i.e., biographical details pertaining to early behavior problems at home and at school. As with most omnibus personality inventories, including those based on the FFM (Costa & McCrae, 1992; John, Naumann, & Soto, 2008), the item content of the MPQ does not include biographical data, but rather assesses an individual's self-reported *current dispositional tendencies*. As

articulated in the seminal work of Cattell (1965) and Block (1993), and reiterated by subsequent scholars (Funder, 2001; Tellegen & Waller, 2008), current-dispositional personality data reported by a test-taker is merely one component of the broader domain of "personological" data—which encompasses life history data, reports of an individual's current dispositions as provided by others, and objective data (e.g., behavioral, psychophysiological).

The present findings highlight the value of assessing life history data in the prediction of EXT criteria and echo a fundamental observation in psychological assessment – namely, that past behavior serves as one of the best predictors of future behavior. Furthermore, it may be important to gather life history data separately from other sources of personological data to more accurately disentangle the relative contribution of these data types in the prediction of criteria in the domain of EXT. Such an approach was taken with the MMPI-2 Restructured Form (MMPI-2 RF; Tellegen & Ben-Porath, 2008) in which a higher-order dimension of "Behavioral-Externalizing Dysfunction" encompasses separate scales that assess current-dispositional tendencies (e.g., aggression) as well as biographical indicators of deviance (e.g., juvenile conduct problems). Despite the limitations of assessing life history data (e.g., retrospective recall biases over many years; inability to measure changes in an individual's dispositions over time), assessment of information of this type, in conjunction with self-report indicators of an individual's current dispositional tendencies, may contribute distinctively to the prediction of counterproductive workplace behaviors and other tendencies within the domain of EXT.

With respect to gender differences, significant mean-level differences between men and women were evident for several scales, mirroring findings from past research on EXT (Hicks et al., 2007), the PRB (Hogan, 1990; Ones & Viswesvaran, 1998), and the MPQ (Blonigen, Carlson, Hicks, Krueger, & Iacono, 2008; Feingold, 1994). However, gender differences in the magnitude of association among these constructs were selective rather than pervasive. For example, few gender differences were evident in relations between the PRB subscales and EXT with the exception of a larger first-order association between the PSB and ESI-100 for men than women. Similarly, after controlling for the MPQ primary scales in the hierarchical regressions, only the association between the PSB and ESI-100 differed significantly across gender subgroups (i.e., the association was larger for men). Other differences were observed in the form of significant findings for women but not men (e.g., the first-order relationship between the SWB and ESI-100); however, such differences could easily have reflected greater statistical power in our larger sample of women. Thus, some caution is warranted in interpreting gender differences from the present study until they are replicated in subsamples of men and women that are more comparable in size. That said, it should also be noted that regardless of observed gender differences, it is illegal to use either different regression lines or gender-based norms in the practice of personnel selection.

Study Limitations

Before discussing conceptual and practical implications of the current findings, some limitations of this study should be acknowledged. For example, we utilized a sample of male and female undergraduates who were 19.5 years old, on average; thus, it is unclear to what extent the findings are generalizable to older samples of individuals who are fully employed and engaged in the workforce. This issue is obviated at least somewhat, however, by evidence indicating that age does not correlate substantially with scores on the PRB (Ones & Viswesvaran, 1998). A further limitation is that criterion measures that specifically address counterproductive workplace behaviors (e.g., days absent from work, incidents of employee theft) were not available in the present study. In future work, measurement of specific behaviors of this kind in conjunction with EXT proneness as measured by the ESI or other

diagnostic indicators would allow for an evaluation of the extent to which EXT mediates the relationship between the PRB and counterproductivity in the workplace.

Several assessment-related limitations warrant discussion. First, although the findings highlight the unique contributions of different types of data in the prediction of EXT, our method of assessment was limited to self-report. Second, remote administration of study measures diverges from what would likely happen in an actual assessment, given that subjects were tested anonymously and therefore had nothing at stake, and were unsupervised when completing the measures. Regarding the issue of anonymity, the reliability of the test scores and validity of the interpretations based on these scores may not be equivalent to applied settings that utilize integrity tests. Thus, replication of the present findings in such applied settings in future work is imperative. Regarding the issue of unsupervised testing, while it is important to acknowledge that we cannot verify whether participants adhered to instructions to complete the study measures on their own, these concerns are mitigated by evidence that (a) internal consistencies were satisfactory for scores on nearly all scales and comparable to past research, and (b) only a small proportion of study protocols (1.7%) were deemed to be invalid due to inconsistent reporting.

Finally, with respect to the ESI-100, it is important to also acknowledge issues of (a) discriminant validity, and (b) multidimensionality, and their implications for the present findings. Regarding the issue of discriminant validity, Krueger et al. (2007) acknowledged that the EXT spectrum as measured by the ESI has not been examined from the standpoint of specificity, particularly in relation to the INT dimension of psychopathology. Thus, it is unclear whether comorbid INT tendencies might have contributed in some measure to observed relations between the PRB and EXT in this study. Investigation of this issue is critical, given the well-documented finding of a high degree of interrelationship (~ .7) between EXT and INT domains of psychopathology (Achenbach & Edelbrock, 1978, 1984). Future work could address this issue using criterion measures of EXT that have been explicitly demarcated from indicators of INT – e.g., the higher-order factors of the MMPI-2 RF (Tellegen & Ben-Porath, 2008).

Regarding the issue of multidimensionality, it is important to note that the hierarchical model of the ESI revealed a multidimensional structure, in which an array of distinctive components were evident beyond the general EXT factor (Krueger et al., 2007). That is, subfactors of callous-aggression and substance use were identified, and in addition, several facet scales exhibited large residual variances after accounting for their associations with the general EXT factor. Although a multidimensional approach to the assessment of EXT would be more optimal, the version of the ESI employed in the current study was a screening measure developed to assess only general externalizing proneness (i.e., variations in the broad EXT factor). Consequently, the present findings are limited in their ability to more precisely delineate relations between the distinctive components of both the PRB and ESI – inventories that capture broad spectra defined by multiple dimensions that may vary in their prediction of counterproductivity. These issues notwithstanding, the present findings are nonetheless valuable, given that (a) spectra do imply significant and non-trivial intercorrelations between constituent subscales of an inventory, and (b) prior work has suggested that the general EXT factor functions effectively as a predictor of external criterion variables in differing domains (Bernat, Nelson, Steele, Gehring, & Patrick, 2010; Hall et al., 2007; Patrick et al., 2005, 2006).

Implications for the Conceptualization of the Integrity Construct

The current findings call for refinement of the construct of integrity to delineate the specific dispositional sub-domains most relevant to prediction of job-related criteria. In particular, indicators of the EXT spectrum are recommended as focal criteria for scale development.

From a practical standpoint, assessment of disinhibitory tendencies that serve as indicators of the EXT spectrum is critical as such tendencies underlie a host of counterproductive behaviors that exact an enormous toll on businesses (i.e., work absenteeism, employee theft, property damage, substance use on the job, conflicts with co-workers and supervisors). Thus, EXT represents a key benchmark and conceptual anchor against which tests of integrity should be constructed and validated.

To the degree that the constructs of integrity and EXT overlap, this association appears to be reflected largely by normal-range personality constructs of NEM (particularly high Alienation) and CON (particularly low Control). Given these correlates, if an FFM personality inventory had been used, we would have expected that Agreeableness and Conscientiousness would have substantially mediated the PRB/EXT association. Importantly, however, the current findings also indicate that broadband measures of personality may not fully capture the array of constructs that are theoretically and empirically linked to the EXT and captured within the nomological network of the PRB. Specifically, the significance of the biographical indicators in the present work highlights the importance of examining the extent to which constructs from the child psychopathology literature – e.g., early-onset conduct disorder (Moffitt, Caspi, Dickson, Silva, & Stanton, 1996), callous-unemotionality (Frick & White, 2008) – are captured by the nomological net of the PRB.

Beyond the EXT spectrum, the higher-order construct of INT, which represents a vulnerability to emotional distress as reflected in traits of low well-being and high stress reactivity, and pathological states of major depression and anxiety disorders (Clark & Watson, 1991), also appears to be represented in the PRB. For example, the MPQ Stress Reaction scale, a key indicator of INT (Krueger et al., 2001), was a consistent and robust predictor of several PRB scales, particularly SWB. Notably, in previous work, INT-related constructs (e.g., FFM Emotional Stability) have exhibited moderate relations with job performance ratings (Ones et al., 1993) and been found to mediate associations between integrity test scores and indices of counterproductivity (Barrick et al., 2001; Mount, Ilies, & Johnson, 2006). These points underscore the importance of examining both the EXT and INT dimensions in relation to the PRB in future work, and testing their independent contributions to the prediction of counterproductive workplace behaviors. In particular, if these dimensions are conceptualized as reflecting temperament-related differences in core motivational systems of avoidance and approach (e.g. Derryberry & Reed, 1994), it is conceivable that the specific job-related outcomes that are most strongly predicted by INT tendencies (e.g., impaired relations with supervisors and co-workers due to introversion) may differ qualitatively from those predicted by EXT tendencies (e.g., on-the-job misconduct).

Implications for Development and Application of Integrity Tests in Personnel Selection

The current findings encourage a construct-based approach to the assessment of multiple dispositions relevant to performance and behavior in clinical and employment contexts. In particular, the effectiveness of integrity tests for predicting problem behaviors of high consequence in the work environment could be optimized by assembling items that are valid predictors of EXT – *current dispositional tendencies* (e.g., aggression, alienation, impulsivity), *childhood behavioral problems* (e.g., "When I was going to school I played hooky quite often"). In the case of the latter, such biographical items are advantageous because they are not overly transparent and are less susceptible to social desirability as demonstrated by low correlations with the MPQ Unlikely Virtues scale. A measure of this sort would have considerable utility for personnel selection as well as clinical settings in which overt ("clear purpose") items are likely to be met with non-veridical responses (e.g., correctional services).

From an applied perspective, the current findings have several practical implications for human resource managers. First, based on the MPQ correlates of the PRB and EXT, an obvious implication is that hiring employees with low scores on indices of NEM (particularly Alienation and Aggression) and high scores on indices CON (particularly Control) is likely to reduce the occurrence of counterproductive workplace behaviors. However, exclusive reliance on assessment of an individual's current dispositional tendencies may overlook the value of assessing aspects of an individual's life history. In addition to providing unique variance in the prediction of EXT, this type of data may not be as susceptible to impression management as more overt integrity tests that rely on self-reports of severity and frequency of theft and other illegal activities. Accordingly, concurrent assessment of an individual's current disposition along with their early history of rule-compliance with parents and teachers may improve the ability to screen out applicants who are most likely to engage in counterproductive workplace behavior. Second, for personnel selection processes that are constrained by time, it may behoove human resource managers to administer only the PRB subscales that exhibit the strongest associations with EXT – i.e., PSB and CSN. Third, a recent meta-analysis of FFM correlates of counterproductivity by Berry, Ones, and Sackett (2007) found low Agreeableness to be the best trait-based predictor of "interpersonal deviance" in the workplace (e.g., threatening one's coworkers), whereas low Conscientiousness was the strongest trait-based predictor of "organizational deviance" (e.g., theft, abusing break times). Depending on the primary type of counterproductive workplace behavior an employer may want to screen for, more weight may be given to scores on either the Aggression and Alienation scales, given their links to low Agreeableness, or the Control scale, given its link to Conscientiousness (Church, 1994). For example, for organizations that rely especially on teamwork, cooperation, and compromise between their employees, it may be prudent to give weight to scores on both the PSB and CSN subscales of the PRB, given their respective associations with Alienation and Aggression. Conversely, organizations that are more concerned about the impact of organizational deviance may give more weight to scores on the CSN subscale, given its specificity to MPQ Control.

Finally, in terms of future directions, systematic effort should be devoted to delineating other job-relevant dispositional tendencies that are not indexed by the PRB or other personality-based measures of integrity. In particular, the PRB does not effectively tap traits related to interpersonal efficacy and achievement, which tend to be predictive of leadership and other forms of job efficacy. Traditionally, constructs of integrity and leadership have been investigated separately using different inventories with distinctive aims. Specifically, integrity tests are used to "select out" individuals likely to underperform or exhibit counterproductive workplace behaviors, whereas leadership inventories are used to "select in" individuals with desired interpersonal aptitudes. Assessment of these distinctive constructs in tandem would provide a comprehensive evaluation of content domains relevant to personnel selection and job performance, and may help to optimize the selection of employees for particular occupations. Nevertheless, for the assessment of counterproductive workplace behavior per se, the PRB represents one of the best-validated personality-based measures of these criteria, and captures a construct network that intersects substantially with the EXT spectrum of psychopathology.

Acknowledgments

References

Achenbach TM, Edelbrock CS. The classification of child psychopathology: A review and analysis of empirical efforts. Psychological Bulletin. 1978; 85:1275–1301. [PubMed: 366649]

Achenbach TM, Edelbrock CS. Psychopathology of childhood. Annual Review of Psychology. 1984; 35:227–256.

Barrick MR, Mount MK. The big five personality dimensions and job performance: A meta-analysis. Personnel Psychology. 1991; 44:1–26.

Barrick MR, Mount MK, Judge TA. Personality and performance at the beginning of the new millennium: What do we know and where do we go next? International Journal of Selection and Assessment. 2001; 9:9–30.

Bernat EM, Nelson LD, Steele VR, Gehring WJ, Patrick CJ. Externalizing psychopathology and gain/loss feedback in a simulated gambling task: Dissociable components of brain response revealed by time-frequency analysis. 2010 Manuscript submitted for publication.

Berry CM, Ones DS, Sackett PR. Interpersonal deviance, organizational deviance, and their common correlates: A review and meta-analysis. Journal of Applied Psychology. 2007; 92:410–424. [PubMed: 17371088]

Block, J. Studying personality the long way. In: Funder, DC.; Parke, RD.; Tomlinson-Keasey, C.; Widaman, K., editors. Studying lives through time: Personality and development. American Psychological Association; Washington, DC: 1993. p. 33-41.

Blonigen DM, Carlson MD, Hicks BM, Krueger RF, Iacono WG. Stability and change in personality traits from late adolescence to early adulthood: A longitudinal twin study. Journal of Personality. 2008; 76:229–266. [PubMed: 18331280]

Cattell, RB. The scientific analysis of personality. Penguin; Baltimore, MD: 1965.

Church AT. Relating the Tellegen and Five-Factor models of personality structure. Journal of Personality and Social Psychology. 1994; 67:898–909. [PubMed: 7983581]

Clark LA, Watson D. Tripartite model of anxiety and depression: Psychometric evidence and taxonomic implications. Journal of Abnormal Psychology. 1991; 100:316–336. [PubMed: 1918611]

Coffin B. Breaking the silence on white collar crime. Risk Management. 2003; 50:8.

Costa, PT.; McCrae, RR. Revised NEO Personality Inventory (NEO-PI-R) and NEO Five-Factor Inventory (NEO-FFI) Professional Manual. Psychological Assessment Resources; Odessa, FL: 1992.

Derryberry D, Reed MA. Temperament and the self-organization of personality. Development and Psychopathology. 1994; 6:653–676.

Feingold A. Gender differences in personality: A meta-analysis. Psychological Bulletin. 1994; 116:429–456. [PubMed: 7809307]

Frick PJ, White SF. The importance of callous-unemotional traits for developmental models of aggressive and antisocial behavior. Journal of Child Psychology and Psychiatry. 2008; 49:359–375. [PubMed: 18221345]

Funder, D. The personality puzzle. W. W. Norton; New York, NY: 2001.

Gorenstein EE, Newman JP. Disinhibitory psychopathology: A new perspective and a model for research. Psychological Review. 1980; 87:303–315.

Gough HG. The assessment of wayward impulse by means of the Personnel Reaction Blank. Personnel Psychology. 1971; 24:669–677.

Gough HG, Peterson DR. The identification and measurement of predispositional factors in crime and delinquency. Journal of Consulting Psychology. 1952; 16:207–212. [PubMed: 14946287]

Gough, HG.; Arvey, RD.; Bradley, P. Manual for the Personnel Reaction Blank. Institute for Personality and Ability Testing; Champaign, IL: 2004.

Grucza RA, Goldberg LR. The comparative validity of 11 modern personality inventories: Predictions of behavioral acts, informant reports, and clinical indicators. Journal of Personality Assessment. 2007; 89:167–187. [PubMed: 17764394]

Hall JR, Bernat EM, Patrick CJ. Externalizing psychopathology and the error-related negativity. Psychological Science. 2007; 18:326–333. [PubMed: 17470258]

Hicks BM, Blonigen DM, Kramer M, Krueger RF, Patrick CJ, Iacono WG, McGue M. Gender differences and developmental change in externalizing disorders from late adolescence to early adulthood: A longitudinal-twin study. Journal of Abnormal Psychology. 2007; 116:433–447. [PubMed: 17696699]

Hogan, R. What kinds of tests are useful in organizations?. In: Hogan, J.; Hogan, R., editors. Business and industry testing. PRO-ED; Austin, TX: 1990. p. 22-35.

Iacono, WG.; Patrick, CJ. Assessing deception: Polygraph techniques and integrity testing. In: Rogers, R., editor. Clinical assessment of malingering and deception. 3rd ed.. Guilford; New York: 2008. p. 255-273.

John, OP.; Naumann, LP.; Soto, CJ. Paradigm shift to the integrative Big-Five trait taxonomy: History, measurement, and conceptual issues. In: John, OP.; Robins, RW.; Pervin, LA., editors. Handbook of personality: Theory and research. Guilford Press; New York, NY: 2008. p. 114-158.

Kobb SW, Arvey RD. Distinguishing deviant and non-deviant nurses using the Personnel Reaction Blank. Journal of Business and Psychology. 1993; 8:255–264.

Krueger RF. The structure of common mental disorders. Archives of General Psychiatry. 1999; 56:921–926. [PubMed: 10530634]

Krueger RF, Hicks B, Patrick CJ, Carlson SR, Iacono WG, McGue M. Etiologic connections among substance dependence, antisocial behavior, and personality: Modeling the externalizing spectrum. Journal of Abnormal Psychology. 2002; 111:411–424. [PubMed: 12150417]

Krueger RF, McGue M, Iacono WG. The higher-order structure of common DSM mental disorders: Internalization, externalization, and their connections to personality. Personality and Individual Differences. 2001; 30:1245–1259.

Krueger RF, Markon KE, Patrick CJ, Benning SD, Kramer MD. Linking antisocial behavior, substance use, and personality: An integrative quantitative model of the adult externalizing spectrum. Journal of Abnormal Psychology. 2007; 116:645–666. [PubMed: 18020714]

Lilienfeld SO, Andrews BP, Stone-Romero EF, Stone D. The relations between a self-report honesty test and personality measures in prison and college samples. Journal of Research in Personality. 1994; 28:154–169.

Lynam DR, Leukefeld C, Clayton RR. The contribution of personality to the overlap between antisocial behavior and substance use/misuse. Aggressive Behavior. 2003; 29:316–331.

Marcus B, Höft S, Riediger M. Integrity tests and the five-factor model of personality: A review and empirical test of two alternative positions. International Journal of Selection and Assessment. 2006; 14:113–130.

Markon KE, Krueger RF, Watson D. Delineating the structure of normal and abnormal personality: An integrative hierarchical approach. Journal of Personality and Social Psychology. 2005; 88:139–157. [PubMed: 15631580]

Miller JD, Lynam D, Leukefeld C. Examining antisocial behavior through the lens of the five-factor model of personality. Aggressive Behavior. 2003; 29:497–514.

Moffitt TE, Caspi A, Dickson N, Silva P, Stanton W. Childhood-onset versus adolescent-onset antisocial conduct problems in males: Natural history from ages 3 to 18 years. Development and Psychopathology. 1996; 8:399–424.

Mount M, Ilies R, Johnson E. Relationship of personality traits and counterproductive work behaviors: The mediating effects of job satisfaction. Personnel Psychology. 2006; 59:591–622.

Muthén, LK.; Muthén, BO. Mplus [Computer software]. Muthén & Muthén; Los Angeles: 1998–2006.

Nelson LD, Patrick CJ, Bernat EM. Operationalizing proneness to externalizing psychopathology as a multivariate psychophysiological phenotype. Psychophysiology. in press.

Ones, DS.; Schmidt, FL.; Viswesvaran, C. Do broader personality variables predict job performance with higher validity?. 1994 Conference of the Society for Industrial and Organizational Psychology; Nashville, TN, USA. 1994.

Ones DS, Viswesvaran C. Gender, age, and race differences on overt integrity tests: Results across four large-scale job applicant data sets. Journal of Applied Psychology. 1998; 83:35–42.

Ones DS, Viswesvaran C, Schmidt FL. Comprehensive meta-analysis of integrity test validities: Findings and implications for personnel selection and theories of job performance. Journal of Applied Psychology Monograph. 1993; 78:679–703.

Ones, DS.; Viswesvaran, C.; Schmidt, FL.; Schultz, SD. Meta-analysis results for criterion-related validity of the Personnel Reaction Blank. University of Iowa Department of Management and Organizations; Iowa City, IA: 1992.

Patrick CJ, Bernat EM, Malone SM, Iacono WG, Krueger RF, McGue M. P300 amplitude as an indicator of externalizing in adolescent males. Psychophysiology. 2006; 43:84–92. [PubMed: 16629688]

Patrick CJ, Curtin JJ, Tellegen A. Development and validation of a brief form of the Multidimensional Personality Questionnaire. Psychological Assessment. 2002; 14:150–163. [PubMed: 12056077]

Patrick CJ, Hicks, B. M, Krueger RF, Lang AR. Relations between psychopathy facets and externalizing in a criminal offender sample. Journal of Personality Disorders. 2005; 19:339–356. [PubMed: 16178678]

Paunonen SV, Ashton MS. Big Five factors and facets and the prediction of behavior. Journal of Personality and Social Psychology. 2001; 81:524–539. [PubMed: 11554651]

Reid, JE. The Reid Report. John E. Reid and Associates; Chicago, IL: 1967.

Sackett PR, Burris LR, Callahan C. Integrity testing for personnel selection: An update. Personnel Psychology. 1989; 42:491–529.

Sackett, PR.; DeVore, CJ. Counterproductive behaviors at work. In: Anderson, N.; Ones, DS.; Sinangli, HK.; Viswesvaran, C., editors. Handbook of industrial, work, and organizational psychology. Vol. Vol. 1. Sage; Thousand Oaks, CA: 2001. p. 145-164.

Schmidt, FL.; Viswesvaran, C.; Ones, DS. NIDA Research Monograph. Vol. 170. National Institute on Drug Abuse; Rockville, MD: 1997. Validity of integrity tests for predicting drug and alcohol abuse: A meta-analysis; p. 69-95.

Sher KJ, Bartholow BD, Wood MD. Personality and substance use disorders: A prospective study. Journal of Consulting and Clinical Psychology. 2000; 68:818–829. [PubMed: 11068968]

Sher KJ, Trull TJ. Personality and disinhibitory psychopathology: Alcoholism and antisocial personality disorder. Journal of Abnormal Psychology. 1994; 103:92–102. [PubMed: 8040486]

Slutske WS, Heath AC, Madden PAF, Bucholz KK, Statham DJ, Martin NG. Personality and the genetic risk for alcohol dependence. Journal of Abnormal Psychology. 2002; 111:124–133. [PubMed: 11871377]

Tellegen, A.; Ben-Porath, YS. The Minnesota Multiphasic Personality Inventory-2 Restructured Form: Technical manual. University of Minnesota Press; Minneapolis, MN: 2008.

Tellegen, A.; Waller, NG. Exploring personality through test construction: Development of the Multidimensional Personality Questionnaire. In: Boyle, GJ.; Matthews, G.; Saklofske, DH., editors. Handbook of personality theory and testing: Personality measurement and assessment. Vol. Vol. II. Sage; London: 2008. p. 261-292.

Tett RP, Jackson DN, Rothstein M. Personality as predictors of job performance: A meta-analytic review. Personnel Psychology. 1991; 44:703–742.

Trull TJ, Sher KJ. Relationships between the five-factor model of personality and Axis I disorders in a nonclinical sample. Journal of Abnormal Psychology. 1994; 103:350–360. [PubMed: 8040504]

U. S. Chamber of Commerce. Small Business Matters: Addressing Employee Theft. U.S. Chamber of Commerce Magazine. July.2004

Viswesvaran C, Ones DS. A review of the Personnel Reaction Blank (PRB). Security Journal. 1997; 8:129–132.

Woolley RM, Hakstian AR. An examination of the construct validity of personality-based and overt measures of integrity. Educational and Psychological Measurement. 1992; 52:475–489.

Table 1

Internal Consistencies and Descriptive Statistics for Sample Measures in Men and Women.

Measure	α	Men		Women		d	F
		M	SD	M	SD		
PRB:							
Personal Reliability Index	.95	48.6	10.3	50.7	9.8	.21	7.10*
Sense of Well-being	.97	51.5	9.8	49.2	10.0	.23	8.59*
Prosocial Background	.93	49.0	10.4	50.5	9.8	.14	3.45
Compliance with Social Norms	.87	47.9	10.6	51.0	9.5	.31	16.50**
Conventional Occupational Preferences	.69	47.6	10.5	51.2	9.5	.36	21.71**
MPQ Primary Scales:							
Well-being	.83	50.2	9.7	49.9	10.2	.02	0.11
Social Potency	.76	50.9	9.0	49.5	10.4	.14	3.44
Achievement	.75	49.8	10.2	50.1	9.9	.03	0.13
Social Closeness	.80	48.6	10.2	50.7	9.8	.21	7.32*
Stress Reaction	.81	47.6	9.7	51.2	9.9	.37	22.11**
Alienation	.78	50.1	10.2	49.9	9.9	.02	0.05
Aggression	.77	53.4	10.5	48.3	9.3	.52	45.35**
Control	.72	48.5	10.4	50.8	9.7	.23	9.03*
Harm Avoidance	.71	45.9	10.3	52.1	9.2	.65	70.50**
Traditionalism	.71	49.6	10.2	50.2	9.9	.05	0.48
Absorption	.74	50.7	9.5	49.6	10.2	.11	2.02
MPQ Factors:							
PEM	--	49.8	9.9	50.1	10.1	.03	0.16
NEM	--	50.3	10.2	49.9	9.9	.04	0.27
CON	--	47.0	10.6	51.5	9.4	.46	35.66**
ESI-100	.95	53.5	10.8	48.2	9.1	.54	49.89**

Note. NTotal = 756–757, NMen = 252, NWomen = 504–505; PRB = Personnel Reaction Blank, MPQ = Multidimensional Personality Questionnaire, PEM = Positive Emotionality, NEM = Negative Emotionality, CON = Constraint, ESI-100 = Externalizing Spectrum Inventory, 100-item screening version. All means and SDs presented in a T-score metric computed over the total sample. d = standardized (absolute) mean differences between men and women.

**
$p < .001$

*
$p < .01$.

Table 2

Intercorrelations among Personnel Reaction Blank Scales and Zero- and First-Order Relations with Externalizing.

	PRI	SWB	PSB	CSN	COP	ESI-100
PRI	--	.73**	.69**	.61**	.52**	-.56**
SWB	.71**	--	.49**	.33**	-.01	-.42** (-.18**)
PSB	.67**	.47**	--	.33**	.03	-.48** (-.29**)
CSN	.65**	.31**	.46**	--	.15**	-.48** (-.31**)
COP	.54**	.04	-.04	.12	--	-.13* (-.08†)
ESI-100	-.56**	-.36** (-.07)	-.60** (-.41**)	-.55** (-.33**)	-.06 (-.03)	--

Note. NMen = 252. NWomen = 504–505; PRI = Personal Reliability Index, SWB = Sense of Well-being, PSB = Prosocial Background, CSN = Compliance with Social Norms, COP = Conventional Occupational Preferences, ESI-100 = Externalizing Spectrum Inventory, 100-item screening version. Correlations for men are below the diagonal; Correlations for women are above the diagonal. Coefficients in parentheses are first-order betas reflecting the association between each PRB scale and the ESI-100 after controlling for shared variance with the other PRB scales.

**
$p < .001$

*
$p < .01$

†
$p < .05$.

Table 3

Zero- and First-Order Relations between Personnel Reaction Blank Scales and MPQ Primary Scales and Higher-Order Factors.

	PRI	SWB	PSB	CSN	COP
MPQ Primary Scales:					
Well-being	.34**(.17**)	.52**(.27**)	.32**(.19**)	.07(.00)	−.06(−.04)
Social Potency	.07(.04)	.23**(.14**)	.04(−.02)	−.10*(−.05)	−.05(−.02)
Achievement	.21**(.08*)	.19**(.04)	.19**(.07†)	.17**(.07†)	.02(.04)
Social Closeness	.28**(.05)	.37**(.03)	.26**(.07†)	.09†(.02)	−.01(.00)
Stress Reaction	−.42**(−.18**)	−.61**(−.34**)	−.31**(−.06)	−.19**(−.11*)	.05(.06)
Alienation	−.49**(−.25**)	−.58**(−.29**)	−.41**(−.23**)	−.26**(−.08†)	−.01(−.02)
Aggression	−.36**(−.11*)	−.23*(−.01)	−.30**(−.09†)	−.38**(−.17**)	−.10*(−.06)
Control	.29**(.18**)	.07(.08*)	.25**(.17**)	.45**(.31**)	.08†(.00)
Harm Avoidance	.24**(.14**)	.00(.00)	.18**(.06)	.33**(.15**)	.19**(.15**)
Traditionalism	.21**(.11**)	.10*(.02)	.24**(.15**)	.26**(.17**)	.03(.01)
Absorption	−.24**(−.11**)	−.16**(−.05)	−.19**(−.10*)	−.18**(−.07†)	−.10*(−.07)
MPQ Factors:					
PEM	.31**	.46**	.27**	.06	−.04
NEM	−.51**	−.58**	−.41**	−.34**	−.01
CON	.37**	.08†	.32**	.51**	.15**

Note. $N = 756$–757. SWB = Sense of Well-being, PSB = Prosocial Background, CSN = Compliance with Social Norms, COP = Conventional Occupational Preferences, PRI = Personal Reliability Index, MPQ = Multidimensional Personality Questionnaire. PEM = Positive Emotionality, NEM = Negative Emotionality, CON = Constraint. Beta coefficients are given in parentheses to the right of the zero-order correlations and were derived from regression models in which the MPQ primary scales were entered together as predictors of each PRB subscale (tested individually). The MPQ factors were not entered into these regression models and were only analyzed at the zero-order level.

**
$p < .001$

*
$p < .01$

†
$p < .05$.

Table 4

Hierarchical Regressions Predicting Externalizing Scores from MPQ Primary Scales and Personnel Reaction Blank Scales.

Predictors	ESI-100 (β)	R^2	ΔR^2
Step 1 (entered together)		.61**	--
Well-being	−.01		
Social Potency	.09**		
Achievement	−.07*		
Social Closeness	.03		
Stress Reaction	.08*		
Alienation	.22**		
Aggression	.42**		
Control	−.29**		
Harm Avoidance	−.06†		
Traditionalism	−.09**		
Absorption	.07*		
Step 2 (entered individually)			
PRI	−.25**	--	.03**
SWB	−.15**	--	.01**
PSB	−.25**	--	.04**
CSN	−.13**	--	.01**
COP	−.05†	--	<.01†

Note. N = 756–757; ESI-100 = Externalizing Spectrum Inventory, 100-item screening version. PRI = Personal Reliability Index; SWB = Sense of Well-being, PSB = Prosocial Background, CSN = Compliance with Social Norms, COP = Conventional Occupational Preferences. Step 1 = MPQ primary scale scores entered together as predictors of ESI-100 scores. Step 2 = PRB scale scores entered individually as predictors of ESI-100 scores after controlling for MPQ scores in Step 1.

**
$p < .001$

*
$p < .01$

†
$p < .05$.

Table 5

Items from the Personnel Reaction Blank Uniquely Predictive of Externalizing Controlling for MPQ Personality Correlates.

Scale/Item #	Item Content[*]	r	β
Sense of Well-being:			
Item 34	Regret about career choice	.23	.07
Item 68	Perceived sense of wrongdoing	.33	.11
Item 76	Frequent feelings of regret over one's actions	.38	.16
Prosocial Background:			
Item 41	Frequent truancy from school	.32	.17
Item 46	Frequently disobeyed parents/guardians	.42	.15
Item 47	Lacked interest in school	.24	.10
Item 56	Strived to do well in school	−.33	−.15
Item 58	Was a nuisance to teachers	.36	.16
Item 61	Frequent classroom misbehavior/sent to principal	.42	.21
Item 63	Parents/guardians disapproved of friends	.32	.14
Compliance with Social Norms:			
Item 64	Willing to take risks if prompted	.35	.11
Item 71	Is honest if given back too much change at store	−.14	−.06
Item 73	Strictly observes right and wrong	−.17	−.07
Conventional Occupational Preferences:			
Item 21	Interested in working as night club entertainer	.24	.09

Note. All coefficients listed above are significant at $p < .01$. Beta coefficients remained significant in their prediction of ESI-100 scores after inclusion of the MPQ primary scale scores in the regression model.

[*] A list of the specific items from the PRB is available from the test publisher (Institute for Personality and Ability Testing).