VOLUNTARY TURNOVER PREDICTION: COMPARING THE UTILITY OF IMPLICIT AND EXPLICIT PERSONALITY MEASURES

A Thesis
Presented to
The Academic Faculty

By

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In Partial Fulfillment
Of the Requirements for the Degree
Masters of Science in Psychology

Georgia Institute of Technology
December, 2009
VOLUNTARY TURNOVER PREDICTION: COMPARING THE UTILITY OF IMPLICIT AND EXPLICIT PERSONALITY MEASURES

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Date Approved: August 20, 2009
ACKNOWLEDGMENTS

I am greatly indebted to Dr. John Heil, without whom this project would have never existed. Thanks to my committee members for helpful insights along the way. I would further like to thank my friends and family (if you’re reading this, that’s you) for their constant support and encouragement.
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Because of the outcomes associated with employee turnover, few areas have been researched as extensively in the field of Industrial/Organizational Psychology (Cotton & Tuttle, 1986). Correlates and consequences of employee turnover have been widely examined, though less expansive research has been dedicated to identifying (and potentially screening) turnover prone candidates. To address this concern, the comparative utility of three personality measures for predicting voluntary turnover in law enforcement was assessed. Self-report predictor measures consisted of the Minnesota Multiphasic Personality Inventory-2, the most widely used instrument in this industry, and the Personality Research Form-E. The implicit personality measure for this investigation was the Conditional Reasoning Test for Aggression (James, 1998). In line with previous research (e.g., Hough, 1998), self-report job applicant scores indicated a defensive or self-presentation bias, whereas the CRT-A did not. Normative and comparative data for all predictor measures are presented to further knowledge for the researcher and practitioner. The importance of context, in this case the influence of the economy on attrition rates, is also discussed.
CHAPTER 1
INTRODUCTION

The subject of turnover has maintained a high level of interest to both scientists and practitioners since the early 1900s, primarily due to organizational costs associated with high turnover rates: expenses associated with recruitment, selection, training, and decreased organizational morale and productivity (Abbasi & Hollman, 2000; Cotton & Tuttle, 1986; Zimmerman, 2008). Macy and Mirvis (1983) identified turnover as "a permanent movement beyond the boundary of an organization" (p. 142). The focus of the current investigation is voluntary turnover (VT), thus any promotions, transfers, or layoffs are not included in this definition (McEvoy & Cascio, 1985). Noted consequences of high VT rates are lower levels of organizational effectiveness (Kacmar, Andrews, Van Rooy, Steilberg, Cerrone, 2005; Osterman, 1987; Price, 1977; Shaw, Duffy, Johnson, Lockhart, 2005), interruptions and distractions that interfere with day-to-day functioning (Abbasi & Hollman, 2000; Cascio, 1991) as well as decreases in organizational morale of remaining employees (Agrusa & Lema, 2007; Byrd, Cochran, Silverman, & Blount, 2000; Stohr, Self, & Lovrich, 1992).

The exit of functioning employees represents a loss of valuable human resources, and resulting job vacancies can result in an increased workload for the remaining staff (Abbasi & Hollman, 2000; Cascio, 1991). Costs of replacement have also been noted as consequences of high turnover rates. Between advertising the new position, recruiting, selecting, hiring, training and orientation, estimates have range upwards of $11 billion a year for American industries to replace former employees (Ivancevich, 1998). Because of these expenses and consequences associated with high attrition rates, correlates of VT have been of high interest to researchers.
CHAPTER 2
CORRELATES OF TURNOVER

Traditional research regarding the correlates of VT has been divided along external, personal, and work-related lines (Pettman, 1973). External variables may moderate turnover rates, and are best exemplified by current unemployment and accession rates. Work-related correlates are particular to the job environment and the employee’s reaction to job specific situations. Examples are perceptions of organizational justice and organizational commitment. The strongest relationships for external and work-related correlates are typically modest ($\rho = -.19$ for job satisfaction; $\rho = -.23$ for organizational commitment), but are not the focus of this study (see Griffeth, Hom, & Gaertner, 2000; Price, 1973, for reviews). It has been suggested that these environmentally related correlates have been over- emphasis, and that more research be dedicated to dispositional variables related to VT (Staw, Bell, & Clauson, 1986; Zimmerman, 2008).

This less researched third area is concerned with personal or individual difference correlates, such as race, gender, cognitive ability, and personality. Cognitive ability, for example, has been noted to have a curvilinear relationship with turnover, in that those with average intelligence are the least likely to leave (Brown & Ghiselli, 1953). In a more recent meta-analysis, however, Griffeth et al. (2000) found essentially no relationship between general mental ability and turnover ($\rho = .01$).

Investigations of the relationship between other personological variables such as race and gender have revealed mixed results (Cox & Blake, 1991; Hom & Griffeth, 1995). Griffeth et al. (2000) found no significant differences among races or between genders in a meta-analytic
review. Conversely, Hom, Roberson, and Ellis (2008) found a higher turnover propensity for women and minorities in corporate positions. A number of person-situation specific factors have been proposed to account for this variability, such as pro-diversity work climate perceptions, demographic diversity and fit, marital status, number of dependents and job type (McKay, Avery, Toniandel, Morris, Hernandez, & Hebl, 2007; Mohamed, Taylor, & Hassan, 2006; Pettman, 1973; Sacco & Schmitt, 2005).
CHAPTER 3
PERSONALITY AND VOLUNTARY TURNOVER

In attempts to advance knowledge regarding job applicants’ turnover proclivities, some researchers have examined the utility of personality assessment for turnover prediction, with mixed results (Barrick & Mount, 1996; Cotton & Tuttle, 1986; Hanna, 1935; Schuh, 1967). A less explored domain, these investigations have been limited in two key ways. First, there has been nearly exclusive use of use of self-report measures. Second, existing investigations are characterized by the overreliance on a broad, five factor model (Costa & McCrae, 1992; Digman, 1990) of traits at the expense of facet level characteristics. The relative utility of broad versus narrow traits has been termed the bandwidth-fidelity dilemma (e.g., Cronbach & Gleser, 1965), and will be discussed in detail below. For these reasons, further research is needed to assess the relationship between personality and turnover.

As previously noted, research relating personality to turnover has largely avoided the use of implicit measures, instead favoring self-report instruments (James & Mazerolle, 2002; Schwarz, 1999). Self-report measures are associated with self-ascribed traits (Greenwald & Banaji, 1995), and typically consist of introspective reports and other self-perceptions. These explicit measures assess conscious cognitions and motives (James & Rentsch, 2004). Complementing explicit measures of personality are implicit assessments, most often associated with cognitive structures and processes (e.g., motives, defense mechanisms) that are beyond the reach of introspection (Kihlstrom, 1999; Nisbett & Wilson, 1977). These implicit motives and cognitive schemas, like the self-attributed traits gathered with self-report measures, influence
behavioral tendencies otherwise known as personality (LeBreton, Barksdale, Robin, & James, 2007).

Just as there is a differentiation of the implicit and explicit personality, so too are there marked differences between the measures designed to assess these two types of personality. A primary advantage of self-report measures, especially for practitioners, is that they can be administered to groups. This, combined with the potential to quickly assess a number of job relevant traits, makes the use of self-report measures for prediction of workplace performance advantageous (Bing, Lebreton, Davison, Miget, & James, 2007a; Hurtz & Donovan, 2000). Also, explicit measures tend to have higher levels of face validity and intuitive appeal than implicit assessments (James & Mazerolle, 2002).

A major shortcoming of measures of explicit personality, however, is that they are subject to faking or socially desirable responding (James & Mazerolle, 2002; M Borgeson et al., 2007a). When measuring aggression, for example, few people like to think of themselves as aggressive, and are likely to respond with positive self-presentation and socially-desirable biases. In other words, inherently aggressive individuals are unlikely to assign socially stigmatized traits like aggression to themselves, regardless of any innate disposition to engage in aggressive behavior (James, 1998). Consequently, measuring personality through the sole use of self-reports may not gather the most accurate information.

It is also uncertain that respondents are able to give accurate responses for self-report measures even when intending to do so (Nisbett & Wilson, 1977). Recent advances in self-report personality measures like multidimensional forced-choice response formats have achieved less than desirable results (Heggestad, Morrison, Reeve, & McCloy, 2006). Perhaps the largest problem is that personality measures are just not great predictors of behavior or performance;
simply correcting modest validity coefficients to yield “operational” (read artificially stronger) values does not dismiss this problem (Schmitt, 2004). In sum, the problems that plagued personality measurement in I/O psychology 50 years ago are still present today (Holtzman, 2002).

It must be noted that the previously levied criticisms against self-report measures of personality are not meant to be interpreted such that implicit measures should be used exclusively in organizational research. Projective techniques such as the Rorschach Inkblot Test (Rorschach, 1921) or the Thematic Apperception Test (Murray, 1943) have been criticized for poor psychometric properties, (e.g., low test-retest reliabilities, Entwisle, 1972; interrater reliability, James & Mazerolle, 2002). This, in addition to costs for test administration and scoring and the inability to administer to groups, has made these tests largely impractical in the workplace. Implicit measures have thus been regarded as undesirable in the applied realm, lacking face validity, and have been largely marginalized in organizations (Frost, Ko, & James, 2007).
CHAPTER 4
CONDITIONAL REASONING TESTS

Many of the criticisms regarding the shortcomings of projective measures that prevented use in employment settings have been alleviated with the advent of Conditional Reasoning Tests (James & Mazerolle, 2002). Conditional Reasoning Tests (CRTs) are implicit personality measurement instruments, in that they assess unrecognized biases in reasoning, rather than explicit self-perceptions. These tests predict a number of behaviors in both laboratory and applied settings like work absence and attrition, theft, lying, and student-conduct violations (James, McIntyre, Glisson, Green, Patton, LeBreton, Frost, Russell, Sablynksi, Mitchell, & Williams, 2005).

Measurement of an implicit readiness to justify aggression, for example, is made possible by the construction of what appear to be inductive reasoning problems. After reviewing a set of statements, respondents select one of four possible answers. Each item contains an aggressive response, a non-aggressive response, and two distracter choices. James (1998) noted that intrinsically aggressive individuals often incur an inner conflict in that they have motives to aggress but also desire to adhere to social norms (e.g., “don’t be a jerk.”). This inconsistency leads to justifications of aggression such that an individual may fulfill aggressive motives while maintaining moral standards. Test takers’ inclinations to justify aggression are measured through their response choices on the CRT-A items. That is, only aggressive individuals tend to select the aggressive answer (James, McIntyre, Glisson, Bowler, Mitcheli, 2004).

Because the CRTs are measures of implicit motives, faking or responding with a social-desirability bias on this test is minimized when administered properly (LeBreton et al., 2007).
When measuring levels of a construct that are likely to be protected by an individual, such as aggression, this may not always be the case with self-report measures. Uncorrected validities around the .40 level for Conditional Reasoning Tests have been noted as “radically superior” (Schmitt, 2004, p. 355) compared to self-report measures, making this approach to personality assessment among the most valid currently available to consultants, clinicians, and researchers (James & Rentsch, 2004). Current instruments consist of measure for aggression (CRT-A) and achievement motivation/fear of failure (CRT-RMS), both facet level personality traits.
CHAPTER 5
THE BANDWIDTH-FIDELITY DILEmma

As previously noted, researchers have largely failed to address the predictive validity of facet level traits when examining associations of personality with turnover. An ongoing debate exists in regards to the most salient personality characteristics (high fidelity/narrow bandwidth versus low fidelity/broad bandwidth), in part due to shortcomings associated with use of the FFM, broad trait based research (Rothstein & Goffin, 2006). Most commonly termed the bandwidth-fidelity dilemma (Cronbach & Gleser, 1965), this problem is most simply described as a psychometric trade-off. That is, in measuring psychological characteristics, one may opt for higher fidelity, or specificity of information, or broader bandwidth, or the complexity of information. Focusing on either bandwidth or fidelity invariably comes at the cost of the other.

In personality research, the bandwidth-fidelity dilemma is most commonly associated with the measurement of broad, FFM traits, or more narrow, facet level traits, and has caused substantial debate in the literature (cf. Hogan & Roberts, 1996; Ones & Viswesvaran, 1996; Schneider, Hough, & Dunnette, 1996). Bandwidth, best defined as the complexity of information, represents broad personality traits, described as “inclusive, general, and abstract” (Ones & Viswesvaran, 1996, p. 612). Fidelity, on the other hand, refers to the degree of precision of measurement, or narrow, facet-level personality traits (Murphy, 1993).

Though current research supports the use of both broad and narrow personality measures for performance prediction, Dudley, Orvis, Lebiecki, and Cortina (2006) noted that investigations of facet level traits are lacking. Most research has examined relationships between the five factors and overall job performance (Rothstein & Goffin, 2006), as well as turnover
(Drew, Carless, & Thompson, 2008; Zimmerman, 2008). Despite this discrepancy, researchers have noted the advantages of using facet level traits in the workplace (Tett, Steele, & Beauregard, 2003). The present study proposes the use of a facet level personality trait for the prediction of VT.
CHAPTER 6
A FACET BASED APPROACH TO VOLUNTARY TURNOVER

Aggression is one facet level trait of interest to organizational researchers, particularly as it pertains to workplace aggression. Workplace aggression is defined as “any form of behavior by individuals that is intended to harm current or previous coworkers or their organization” (Folger & Baron, 1996, p. 52). Common conceptions of workplace aggression include more physical and overt forms of aggression, but these are low in base rate and do not represent the full extent of aggressive workplace behaviors (Baron & Richardson, 1995; Borum, 1996; James et al., 2004, Neuman & Baron, 1998). Folger and Baron (1996) write the following in regards to expanding the breadth of “workplace aggression:”

[S]ome forms of aggression might go unacknowledged because, in general, most research on human aggression has focused on relatively direct, active forms: physical and verbal assaults (see, e.g., Baron & Richardson, 1994; Huesmann, 1994). By contrast, we purposely emphasize that aggression in workplaces can, and generally does, take many different forms (70).

Folger and Baron (1996) argued that conceptions of workplace aggression should be broadened to include more indirect and passive forms of aggression. These behaviors include, but are not limited to, early and disruptive attrition, habitual absences and tardiness, subtle sabotage of work projects, vandalism, theft, and spreading rumors (Baron & Richardson, 1994; Buss, 1961; James et al., 2004; James et al., 2005; Neuman & Baron, 1998; O’Leary-Kelly, Griffin, & Glew, 1996). James and colleagues (2004; 2005) related these less direct forms of aggression to workplace deviance (e.g., Bennett & Robinson, 2000), organizational delinquency (e.g., Hogan & Hogan, 1989) and organizational retaliatory behaviors (e.g., Skarlicki & Folger, 1997).
Organizational retaliatory behaviors (ORBs) are “used to punish the organization and its representatives in response to perceived unfairness” (Skarlicki & Folger, 1997, p. 435).

Perceived unfairness is key in this definition, as researchers have indicated that aggressive individuals have a higher probability of perceiving unfairness (Douglas & Martinko, 2001; James et al., 2004). Moreover, it has been posited that aggressive individuals are more likely to experience emotions that engender a desire to punish, such as anger and resentment, and thus inflict adverse outcomes “which sustain the indirect and covert seeking of retribution (James et al., 2004, p. 282). Likely outcomes of this disposition are the indirect and passive behaviors noted above.

Other indirect indicators of aggression are behaviors indicative of workplace deviance, defined as “voluntary behavior that violates significant organizational norms and, in so doing, threatens the well-being of the organization or its members, or both” (Bennett & Robinson, 2000, p. 349). A measure of workplace deviance includes passive and indirect behaviors previously discussed, such as theft, absences, and lying (Bennett & Robinson, 2000). It has been noted by other researchers (e.g., James et al., 2005; Lee and Allen, 2002) that behaviors indicative of workplace deviance are qualitatively similar to types of aggression in Buss’s (1961) model.

Hogan and Hogan (1989) related acts of workplace deviance to an overall construct they termed organizational delinquency. Organizational delinquency was defined as “antisocial behavior – whose components include hostility toward authority, impulsiveness, social insensitivity, and feelings of alienation” (Hogan & Hogan, 1989, p.277). Behavioral indicators of organizational delinquency are in line with previously discussed passive and indirect forms of aggression such as habitual absences and tardiness, sabotage of work projects, noncompliance, and a high probability for frequent turnover and job change (James et al., 2004).
In connecting aggression to these indirect and passive behaviors, James et al. (2005) wrote:

[A]ggression is an integral component of organizational retribution... workplace deviance. This is because many if not most deviant, delinquent, retaliatory... behaviors involve intentionally hostile attempts to harm an organization or its constituents by exacting retribution, revenge and retaliation in ways that disrupt work schedules, impede productivity, weaken morale, undermine authority, encourage rebelliousness, and "get even" with a boss or coworkers (89).

That is, individuals with aggressive dispositions may seek to disrupt organizational productivity or "get even" through leaving an organization, perhaps at a maximally inconvenient time, or by opting not to give notice. Previous research indicates that higher aggression levels are associated with higher attrition rates, both with self-reports (Bernardin, 1977; Lounsbury, Saudargas, & Gibson, 2004; Meyer & Cuomo, 1962; Porter & Steers, 1973) and implicit measures (James et al., 2004, 2005). Needless to say, aggression is not the only personality trait that would contribute to the prediction of VT. There are potentially a number of other VT correlates unrelated to aggression or personality in general like the external and work related factors mentioned previously (Price, 1973; Roseman, 1981). Nevertheless, the previous discussion indicates that aggressive individuals may have a higher proclivity to engage in behaviors that may be detrimental to the organization, like leaving. For these reasons, the proposed investigation uses an indirect aggression criterion, early VT.
CHAPTER 7
THE PRESENT STUDY AND HYPOTHESES

While organizations encountering recurring VT may suffer the previously discussed consequences, recent increases in turnover rates in law enforcement jeopardize the ability of public-safety agencies to maintain adequate levels of trained personnel, which may in turn threaten the general public (DeLey, 1984; Orrick, 2005). Considerable research has been conducted in regards to the antecedents of employee turnover, but there are few investigations of use of pre-hire procedures to predict and reduce turnover (Barrick & Zimmerman, 1005). The few studies that focused on preventing turnover center on the implementation of realistic job previews, with such procedures unable to demonstrate anything more than modest effect sizes (Philips, 1998). To evaluate more effective pre-employment methods of reducing turnover, the present study proposes the use of personality measures to more accurately identify applicants who are likely to quit.

Personality measures such as the Inwald Personality Inventory (IPI), the Personality Research Form-E (PRF-E), and the Minnesota Multiphasic Personality Inventory (MMPI) have been employed to predict various performance criteria in law enforcement (Cortina, Doherty, Schmitt, Kaufman, & Smith, 1992). The MMPI is the most widely used instrument in this industry (Scogin, Schumacher, Gardner, & Chaplin, 1995). In the few published studies in which the MMPI has been used to predict turnover results have been mixed, and usually do not hold up under cross validation (Azen et al., 1974; Butterfield & Warren, 1962; Saxe & Reiser, 1976).

Because existing research is inconclusive, researchers have called for the evaluation of the predictive validity of other personality measures (Salgado, 2002; Timmerman, 2006; Varela,
Boccaccini, Scogin, Stump, & Caputo, 2004). Measures that may aid in assessment and prediction of turnover behavior over and above the widely used MMPI are the Conditional Reasoning Tests. Previous examinations of the Conditional Reasoning Tests (James, 1998) have demonstrated its predictive ability for a number of criteria, including turnover (James et al., 2005; James et al., 2004). These measures often add incremental validity over self-reports of personality, like the PRF-E (James & Rentsch, 2004). Past research serves as the basis for the following hypotheses:

\[ H_1: \text{The CRT-A will not significantly correlate with a composite of aggression obtained from the MMPI.} \]

\[ H_2: \text{The CRT-A will not significantly correlate with the aggression subscale from the PRF-E.} \]

\[ H_3: \text{The CRT-A will better predict voluntary turnover during the first 3 months of employment than the composite of aggression obtained from the MMPI aggression composite.} \]

\[ H_4: \text{The CRT-A will better predict voluntary turnover during the first 3 months of employment than the composite of aggression obtained from the PRF-E aggression subscale.} \]

Barrick and Zimmerman (2005) noted that “there has been little research investigating whether employers can reduce turnover through selection” (p. 159). The purpose of the proposed research is to assess the degree to which turnover could be reduced through the use of personality measures in the selection process. Additionally, the proposed investigation endeavors to fill three identified gaps in the turnover literature: (1) expand the minimal research that has been conducted in regards to facet level personality traits associated with turnover behaviors; (2) assess the predictive validity of an implicit personality measure in hopes of, (3) improving the moderate predictive validities obtained in previous research. The addition of the CRT-A to a pre-existing assessment battery may help identify candidates who are likely to withdraw. Such
candidates may be screened at the outset of the employment process, or perhaps identified and mentored to prevent attrition (Zimmerman, 2008). These processes may cut costs and prevent a downturn of morale in law enforcement agencies, but more importantly, prevent situations in which public safety is endangered due to understaffed and inexperienced personnel.
CHAPTER 8
METHOD

Participants

Law enforcement and corrections officer cadets residing in the southeastern United States who have been conditionally hired participated in this study. Conditionally hired cadets are those who have been offered employment that is conditional on their passage of a health exam (J. Heil, Personal Communication, October 18th, 2007). Cadets underwent a battery of tests including the Minnesota Multiphasic Personality Inventory – 2 (MMPI-2), the Personality Research Form-E (PRF-E), and the Conditional Reasoning Test for Aggression (CRT-A). Other tests administered at this time, such as the medical exam, are not relevant to the present research. The average age for this sample was 33.18 and 76.8% were male. The number of participants for the study on voluntary turnover was 141.

Materials

The CRT-A provides a single score as an indication of one’s implicit readiness to justify aggressive behavior, and will serve as one predictor. Another predictor, the MMPI-2, does not have subscales devoted to aggression or like constructs. Research involved in assessing aggressive behavioral tendencies using the MMPI has most consistently used a combination of $F$, 4, and 9 scales (Butcher, 1965; Huesmann, Lefkowitz, & Eron, 1978). Hargrave, Hiatt, and Gaffney (1988) used a combination of the $F$, 4, 9, and $Cn$ scales as a measurement of aggression in police officers. They wrote the following on the combination of these scales:

In general, scale F elevations indicate potential psychopathology in several spheres (for example, psychosis, antisocial behavior, severe anxiety, and so on). Elevations on scale 4 are associated with such characteristics as impulsivity, low frustration tolerance,
and poor social adjustment. Finally, scale 9 elevations reflect potential manic excitement and irritability (p. 269).

A composite of the F, 4, and 9 scales will serve as the other primary predictor for this study. The PRF-E will provide basis for further comparison, but the CRT-A and the MMPI will be of primary interest. Reviews and relevant information for the proposed measures is provided below.

**Conditional Reasoning Test for Aggression** – The CRT-A is an implicit measurement of aggression that assesses one’s readiness to justify aggression. The personality assessment tool has 25 items that are constructed to look like inductive reasoning problems. Various implicit biases to rationalize aggression, known as justification mechanisms (JMs), are measured in the CRT-A. Justification Mechanisms on the CRT-A are the Hostile Attribution Bias, Potency Bias, Derogation of Target Bias, Retribution Bias, Victimization by Powerful Others Bias, and the Social Discounting Bias. Refer to Appendix A for definitions of Justification Mechanisms (James et al., 2004). Internal consistency estimates of reliability for the CRT-A was .76, with hybrid alternative forms analyses of reliability yielding a result of .82 (James et al., 2004). Research using the CRT-A has found an average uncorrected validity of .44 against behavioral indicators of aggression (James et al., 2005).

**Minnesota Multiphasic Personality Inventory-2** – The 370 item MMPI-2, normed to a pathological population, was originally intended for use by clinicians to diagnose clients. Now used in some pre-employment settings, it is noted as the most widely used instrument in law enforcement screening (Detrick, Chibnall, & Rosso, 2001). This assessment tool has 13 subscales that evaluate constructs such as paranoia, hypomania, and social introversion. The 10 clinical scales are: 1-hypochondriasis, 2-depression, 3-conversion hysteria, 4-psychopathic deviate, 5-masculinity-femininity, 6-paranoia, 7-psychasthenia (obsessive compulsive), 8-schizophrenia, 9-hypomania, 0-social introversion. Three validity scales comprise the total of 13,
with the L (lying) scale, F (infrequency), and K (correction) scale. The L scale assess faking, the F scale measures random responses, and the K scale detects social desirable responding (Chibnall & Detrick, 2003). Butcher, Graham, Williams, and Ben-Porath (1990) found high test-retest reliabilities for both men and women, with values of .81 and .71, respectively. Varela et al. (2004) found that the MMPI had a predictive validity of .206 against performance criteria in police officers. Chibnall and Detrick (2003) found a correlation of .08 when comparing MMPI scores against performance criteria.

**Personality Research Form-E** – The PRF-E is a 352 true-false personality inventory that provides measures on constructs such as Aggression, Defendence, and Dominance (Jackson, 1974). The PRF-E has 20 subscales, with an additional 2 validity scales, Infrequency and Social Desirability. Other subscales include the following: Abasement, Achievement, Affiliation, Autonomy, Change, Cognitive Structure, Endurance, Exhibition, Harm Avoidance, Impulsivity, Nurturance, Order, Play, Sentience, Social Recognition, Succorance, Understanding, Infrequency, and Desirability. Each of the total 22 scales has 16 items. Whereas the MMPI-2 is based on pathological samples, the PRF-E is intended for normal functioning. Skinner, Jackson, and Rampton (1976) found median values of internal consistency of .92, and a median test-retest value after one week of .81. Validity estimates for peer behavior ratings were .52.

**Procedure**

Police cadets who were conditionally hired underwent a series of tests for further assessment. The cadets who agreed to move forward with the process of becoming a law enforcement officer were brought in to complete the test battery one at a time. The CRT-A, MMPI-2, and the PRF-E were administered during this procedure. Cadets took all tests, in random order from participant to participant, and were allowed to leave. No compensation was
offered as cadets underwent these tests as part of regular screening and assessment. The MMPI-2, and the PRF-E were used prior to the commencing this study, and scores had bearing on future employment. For the purposes of this research, the CRT-A was added into this battery, and scores on the CRT-A had no bearing on further employment decisions, and all results will be confidential.

Attrition rates were measured 3 months after being hired. This period was chosen because it is a natural, already occurring measurement time for the chosen agencies. Only those applicants who leave voluntarily will be counted in the turnover numbers.
CHAPTER 9

RESULTS

The voluntary turnover sample consisted of 141 individuals. Missing data was not an issue for this study, and no CRT-A scores had to be removed due to a high number of illogical responses.

Analysis

Three scores on personality inventories served as the predictor measures for this study. The means and standard deviations for the CRT-A, the implicit measure, and the self-report measures, the MMPI and PRF-E, are provided below.

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<th>Measure</th>
<th>Mean</th>
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</tr>
<tr>
<td>MMPI Aggression</td>
<td>143.94</td>
<td>11.82</td>
</tr>
<tr>
<td>PRF-E Aggression</td>
<td>41.47</td>
<td>7.62</td>
</tr>
</tbody>
</table>

N = 141

Typical distributions of the CRT-A, MMPI, and PRF-E were reflected in these data. Both of the self-report measures approached a normal distribution, and exhibited lower than average aggression scores, typical for job applicants (Chibnall & Detrick, 2003; Detrick, Chibnall, & Rosso, 2001; Kornfeld, 1995). The CRT-A exhibited a characteristic positive skew (James & McIntyre, 2000). These distributions are displayed in Figures 1 through 3.
Figure 1. Score Distributions of the CRT-A for the Voluntary Turnover Sample.

Figure 2. Score Distributions of the MMPI-Aggression Composite for the Voluntary Turnover Sample.
Figure 3. Score Distributions of the PRF-E Aggression Subscale for the Voluntary Turnover Sample.
Hypotheses

The first two hypotheses concerned the correlations between implicit and explicit personality measures. More specifically, the first hypothesis predicted that the CRT-A would not correlate significantly with the MMPI composite of aggression. The second hypothesis stated that the CRT-A would not correlate significantly with the PRF-E aggression subscale. These hypotheses were in line with previous research, though no published research exists comparing the CRT-A and the MMPI. The MMPI has been compared to other implicit measures, such as the Rorschach (Rorschach, 1921) and the Thematic Apperception Test (Murray, 1943), demonstrating weak and non-significant correlations (Archer & Krishnamurthy, 1993). In this investigation, both hypotheses 1 and 2 were supported. It is also interesting to note that the self-report measures were weakly and non-significantly correlated, though previous research comparing the MMPI and PRF-E obtained similar results (Bowman, Bennet, & Walsh, 1981; Trott & Morf, 1972). This is not entirely surprising for two reasons: 1) the PRF-E aggression subscale was created specifically to measure self-reported aggression, whereas the MMPI aggression score is a composite of subscales that have previously predicted aggressive behavior (Butcher, 1965; Huesmann, Lefkowitz, & Eron, 1978) and 2) the MMPI items are less transparent. The correlation matrix for the predictor measures is provided in Table 2.

<table>
<thead>
<tr>
<th></th>
<th>CRT-A</th>
<th>MMPI Aggression</th>
<th>PRF-E Aggression</th>
</tr>
</thead>
<tbody>
<tr>
<td>CRT-A</td>
<td>1</td>
<td></td>
<td></td>
</tr>
<tr>
<td>MMPI Aggression</td>
<td>.072</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>PRF-E Aggression</td>
<td>.117</td>
<td>.056</td>
<td>1</td>
</tr>
</tbody>
</table>
The final two hypotheses focused on the predictive validity of the personality measures for voluntary turnover. Before discussing these hypotheses, it is noteworthy that extreme restriction of range was evident on the turnover criterion, which is likely due to a deepening recession that occurred as these data were being gathered. The turnover rates in this study are much lower than what is typically the case for law enforcement. For instance, the Atlanta Police Department incurred an average yearly turnover rate of 57.6% between 2000-2005 (Sherman, 2005). The turnover rate in this study was much lower than what is typical for the region in which it was conducted (J. Heil, Personal Communication, May 6th, 2009). Both the voluntary and total turnover rates are depicted in Table 3.

<table>
<thead>
<tr>
<th>Sample</th>
<th>Number Lost</th>
<th>Number Remaining</th>
<th>Turnover Rate</th>
</tr>
</thead>
<tbody>
<tr>
<td>Voluntary</td>
<td>8</td>
<td>133</td>
<td>5.7</td>
</tr>
<tr>
<td>Total Turnover</td>
<td>27</td>
<td>134</td>
<td>16.8</td>
</tr>
</tbody>
</table>

It has been argued that economic conditions (e.g., a recession, unemployment rate) may influence the occurrence of turnover (Gerhart, 1990; Mobley, Griffeth, Hand, & Meglino, 1979). Cappelli and Sherer (1991) additionally noted that turnover rates, as influenced by market conditions, can affect the size of its correlates. Johns (2006) wrote the following on how a contextual variable (e.g., the economy) can result in restriction of range and thus attenuated correlations:

As a particular consequence of range restriction, context can have a profound effect on the base rates of key organizational variables across occupations or locations, or over time. In turn, such variations in base rates will have a marked impact on the imputed importance of these variables, their meaning to actors and observers, and the inferred significance of their correlates (396).
Hypothesis 3 predicted that the CRT-A would better predict voluntary turnover in the first 90 days of employment than the MMPI aggression subscale. Hypothesis 4 asserted that the CRT-A would better predict voluntary turnover than the PRF-E aggression subscale. There were, however, no significant correlations between any predictor and the criterion. Thus, hypotheses 3 and 4 were not supported. Polyserial correlations between the predictors and the criterion are shown in Table 4.

Table 4. *Polyserial correlations between voluntary turnover and CRT-A, MMPI Aggression, and the PRF-E subscale for the Voluntary Turnover Sample.*

<table>
<thead>
<tr>
<th>Measure</th>
<th>Polyserial Correlation</th>
</tr>
</thead>
<tbody>
<tr>
<td>CRT-A</td>
<td>-.084</td>
</tr>
<tr>
<td>MMPI Aggression</td>
<td>-.130</td>
</tr>
<tr>
<td>PRF-E Aggression</td>
<td>-.078</td>
</tr>
</tbody>
</table>

Though the turnover rate was somewhat higher for the total turnover sample, results were consistent with those reported in Table 4. That is, for the total turnover sample, hypotheses 1 and 2 were supported, 3 and 4 were not.
CHAPTER 10
DISCUSSION

Researchers have long argued that situations or contexts can have marked influence on relationships between personality and behavior (Bem & Allen, 1974; Mischel, 1977). Context is defined by Johns (2006) as the:

[S]ituational opportunities and constraints that affect the occurrence and meaning of organizational behavior as well as functional relationships between variables (386).

In other words, the strength of the relationship between personality characteristics and behavior often depends on the “degree to which the external environment inhibits a person’s freedom to behave in idiosyncratic ways” (Barrick & Mount, 1993, 112). For this investigation, the larger context was a deep recession with record unemployment levels.

The recession, with higher unemployment levels and less ease of movement, could serve as a context that limits the voluntary turnover rate, and thus relationships with personality (Bass & Ager, 1991). Johns (1991) wrote the following on turnover constraints:

Constraints against quitting or staying have received relatively little research attention, even though such constraints logically might be thought to be more potent than some of the more peripheral variables (e.g., job design and leadership style) that are observed in empirically derived models of turnover (87).

Johns (1991) notes one of the few topics that has received attention is market conditions (e.g., a recession, unemployment levels), particularly as they influence relationships predicting voluntary turnover.

The job satisfaction-voluntary turnover association is the most commonly known relationship moderated by market conditions (Carsten & Spector, 1987; Hom, Caranikas-Walker, Prussia, & Griffeth, 1992; Trevor, 2001). The economy has also similarly demonstrated strong
associations with the withdrawal cognitions-turnover relationship, (Gerhart, 1990; Hom et al., 1992; Trevor, 2001) and absenteeism (Markham, 1985; Steers & Rhodes, 1978). For relationships with personality, however, Johns (2001) noted that “issues of moderation” though potentially important, “are conspicuously absent from the personality-withdrawal literature” (245).

Perhaps this study is preliminary evidence of that the personality-voluntary turnover association is influenced by market conditions. It is important to note that the self-report measures utilized in this study have successfully predicted attrition in prior investigations (Bartol, 1991; Chibnall & Detrick, 2003; Cortina et al., 1992; Inwald, 1988; Maudal, Butcher, & Mauger, 1974; Mowday, Porter, & Stone, 1978). Concerning the implicit measure, James et al. (2005) employed the CRT-A and obtained a .32 validity coefficient predicting early attrition for a sample of restaurant employees. A Fisher’s Z transformation (Fisher, 1921) demonstrates that the correlations for the James et al., 2005 study and the current investigation are significantly different (Z = 3.416, p < .05).

The association between aggression and voluntary turnover, measured both implicitly and explicitly, is an empirically established relationship (Bernardin, 1977; James et al., 2004; Lounsbury, Saudargas, & Gibson, 2004; Meyer & Cuomo, 1962; Porter & Steers, 1973). The research presented here suggests that the relationships between both the implicit and explicit personality to voluntary turnover may be influenced by the severe market conditions in which this study was conducted. March and Simon (1958) alluded to this possibility, stating that “the most accurate single predictor of labor turnover is the state of the economy” (10). In the extreme context in which this study was conducted, that indeed seems to be the case.
Conclusions

Though these data do not support the personality-voluntary turnover association, there are noteworthy points regarding CRT-A and MMPI relationships. First, in the burgeoning enterprise of public safety employee assessment (Mortiairy & Field, 1994), the MMPI is the most widely used instrument (Detrick, Chibnall, & Rosso, 2001). However, there has as of yet been any published research comparing the CRT-A to the MMPI, particularly in this field. Thus, the present research extends previous work comparing psychological instruments in law enforcement by including the CRT-A (Detrick et al., 2001; Kornfeld, 1995).

The CRT-A has historically demonstrated low and non-significant correlations with self-report measures of personality (James et al., 2005). Likewise, comparisons of the MMPI to projective techniques like the Rorschach have by and large demonstrated similar results (Archer & Krishnamurthy, 1993). The results of this study are in line with this previous research, as the correlation of the CRT-A with the MMPI aggression composite was low and non-significant.

Research has shown that MMPI scores for job applicants tend to demonstrate a defensive or socially desirable response style (Butcher, 1994; Detrick et al., 2001; Ganellen, 1994; Kornfeld, 1995). Those results were replicated in this study, as applicants scores on validity scales K and L were higher than average. Other researchers have shown that job applicant’s self-report personality scores tend to be significantly different from incumbent or student samples (Birkeland, Manson, Kisamore, Brannick, & Smith, 2006; Hough, 1998), most often reflecting a response bias due to the selection situation.

However, defensive responding, response distortion, and faking are much less of a concern for the more indirect measurement system of the CRT-A (Lebreton et al., 2007). These researchers demonstrated that scores between job applicant and incumbent samples were not
significantly different, unlike results for self-report measures of personality. In this study, means, standard deviations, and overall distribution of CRT-A scores of these job applicants were reflective of previous results. Thus, the implementation of the CRT-A into an existing testing battery for these public safety occupations may aid in a more accurate assessment of overall aggression.

Detrick et al., (2001) wrote the following when comparing characteristics of the MMPI and the Inwald Personality Inventory for law enforcement applicants:

[T]he values presented here will allow psychologists involved in psychological screening of police officers to make comparisons between their data and those presented here, including the magnitude and pattern of scores (489).

The research presented in this study furthers this initiative, offering new information on an under-utilized, yet psychometrically sound indirect measure of aggression. Future research should endeavor to further these comparisons, and employ other criteria presumably reflective of aggressive behavior, like citizen complaints and performance ratings. Perhaps the voluntary turnover criterion could be revisited during more prosperous economic times, thus enabling the test of the moderating effects of market conditions. Further, the low and non-significant correlations between the CRT-A and MMPI indicate that more sophisticated approaches to personality like channeling (Frost, Ko, & James, 2007; Winter et al., 1998) and dissociation (Bornstein, 2002) may be fruitful.

Though the MMPI has been noted to predict police-relevant outcomes reasonably well (Detrick et al., 2001), the CRT-A has been termed “radically superior” (Schmitt, 2004, p. 355) compared to self-report measures in the prediction of aggressive behavior. The CRT-A has consistently predicted behaviors that may have implications for law enforcement occupations. These behaviors include, but are not limited to, overt-aggression, passive-aggression, theft,
performance ratings for police officers, and work unreliability (James et al., 2004). Although both the CRT-A did not successfully predict attrition in this investigation, this assessment has been historically superior to self-reports, and surely gives practitioners working in this field another tool to identify and eliminate aggressive individuals from these occupations.
REFERENCES


Ones, H.K. Sinangil, & C. Viswesvaran (Eds.), *Handbook of industrial, work, and organizational psychology* (pp. 232-252). London: Sage


