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On the Role of Positive and Negative Affectivity in Job Performance:

A Meta-Analytic Investigation

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Abstract

Although interest regarding the role of dispositional affect in job behaviors has surged in recent years, the true magnitude of affectivity's influence remains unknown. To address this issue, we conducted a qualitative and quantitative review of the relationships between positive and negative affectivity (PA, NA) and various performance dimensions. A series of meta-analyses based on 57 primary studies indicated that PA and NA predicted task performance in the predicted directions, and that the relationships were strongest for subjectively-rated, versus objectively-rated performance. In addition, PA was related to OCBs, but not withdrawal behaviors, and NA was related to OCBs, withdrawal behaviors, CWBs and occupational injury. Mediational analyses revealed that affect operates through different mechanisms in influencing the various performance dimensions. Regression analyses documented that PA and NA uniquely predicted task performance, but extraversion and neuroticism did not, when the four were considered simultaneously. Discussion focuses on the theoretical and practical implications of these findings.

Keywords: Affect; Job Performance; OCBs; CWBs; Withdrawal; PA; NA

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The question of whether and when "happy" workers are "good" workers represents a fundamental query in the organizational sciences, long intriguing researchers in industrial/organizational (I/O) psychology (e.g., Harrison, Newman, & Roth, 2006; Judge, Thoresen, Bono, & Patton, 2001). Traditionally, studies seeking to quantify this relationship have entailed correlating workers' job satisfaction with an index of their performance. Contrary to "commonsense" (Fisher, 2003), several reviews conducted over the past fifty years reveal that the magnitude of the job-satisfaction – job performance relationship is rather modest (e.g., Iaffaldano & Muchinsky, 1985), and varies considerably across contexts (Judge, et al., 2001).

In spite of, or perhaps *because* of, the equivocal nature of these findings, scholars have not abandoned what Landy (1989) referred to as the "holy grail" of I/O psychology. Instead, researchers have broadened and reconceptualized the "happiness" (e.g., Brief, 1998) and "performance" constructs (e.g., Organ & Ryan, 1995). In particular, some researchers recently have suggested that conceptualizing happiness in terms of dispositional affect (Watson & Clark, 1984) will yield novel insights into the nature and strength of the happiness-performance relationship (e.g., Côté, 1999; Cropanzano & Wright, 2001).

Although several recent inquiries have examined the relationship between dispositional affect (i.e., affectivity) and various performance-relevant criteria (e.g., Staw & Barsade, 1993; Wright & Staw, 1999), the strength and consistency of the affectivity-performance link remains unknown, as no systematic quantitative review has been

undertaken. Especially noteworthy is that, while some studies have demonstrated

significant relationships between affectivity and performance (e.g. Staw & Barsade,

1993), others have not (e.g., George, 1991; Wright & Staw, 1999). These contradictory

findings suggest that affect may differentially relate to various aspects or types of job

performance. In the current study, we address this issue by meta-analytically examining

the relationship between dispositional affect and several job behaviors that are of

theoretical and practical interest.

Our objectives in conducting the present study are three-fold. First, as noted

above, we seek to quantify the magnitude of trait affect's influence on workplace

behaviors. In doing so, we also assess for which job behaviors trait affect is more or less

influential. Second, we investigate the role of three psychological mechanisms which are

posited to mediate the relationships between affectivity and workplace behavior. Finally,

we examine whether trait affect's impact on task performance is distinct from that of the

empirically-related traits of extraversion and neuroticism (Watson, 2000).

Trait Affect

In the most general sense, affect represents the phenomenononological experience of

"feeling," described in terms such as "elated," "fearful," or "sad" (Watson, 2000).

Although largely neglected for several decades, scholarly work examining affect has

burgeoned in recent years both within I/O psychology (see Barsade & Gibson, 2007;

Elfenbein, 2008 for reviews) and in psychology in general (e.g., Lyubomirsky, King &

Diener, 2005; Watson, 2000).

Within the affect domain, researchers typically distinguish between transient or

"state" affect, which includes moods and emotions, and "trait" affect (the focus of this

research), which is considered to function more like a stable and enduring personality

characteristic (c.f., Watson & Clark, 1984). Although a substantive debate persists

regarding the underlying dimensional structure of affect (Russell & Carroll, 1999;

Watson & Tellegen, 1985), we focus in this meta-analysis on the conceptualization

advanced by David Watson and colleagues (e.g., Watson, Clark, & Tellegen, 1988).

Watson et al,'s formulation represents the predominant approach both in the

organizational sciences (e.g., Burke, Brief, & George, 1993; Spector, Fox, & Van

Katwyk, 1999) and in psychology in general (Schimmack & Grob, 2000).

In this framework, affect(ivity) exists along two separate unipolar dimensions

(i.e., factors) - positive affect (PA; or positive activation) and negative affect (NA; or

negative activation). Higher positive affectivity is associated with experiencing a

preponderance of positive feeling states such as *enthusiasm*, *alertness*, and *joviality* while

lower PA is related to feelings of *lethargy* and *sluggishness*. Higher levels of negative

affectivity are associated with negative feelings such as *guilt, fear, anxiety,* and

nervousness while lower NA is instead related to feelings such as *serenity* and *calmness*

(Watson, et al., 1988).

Substantial research indicates that PA and NA, instead of representing opposite

ends of a bipolar continuum, exist as two unipolar factors that are primarily independent

of one another (e.g., Burke, et al. 1993). Supportive of this independence, findings

indicate that the two factors operate through different biological and behavioral

mechanisms (Watson, 2000) and correlate with other variables in differing magnitudes

(e.g., Watson & Pennebaker, 1989).

Consistent with its definition as being enduring in nature, evidence indicates that

trait, or dispositional, affect is partially heritable with genetic influences accounting for 40% of the observed variance in PA and 55% of the variance in NA (Tellegen, Lykken, Bouchard, Wilcox, Segal, & Rich, 1988). Moreover, trait affect remains relatively stable in terms of rank-order and mean-level change (Watson, 2004), and in predictive validity across time and situations (Watson & Walker, 1996).

Worth noting is that PA and NA are conceptually and empirically related to other personality factors including optimism and pessimism (e.g., Steed, 2002) and extraversion and neuroticism (Watson, 2000), but are not redundant with these other characteristics (e.g., Lucas, Diener, & Suh, 1995). Also, as discussed in more detail below, PA and NA predict other job outcomes more strongly than do extraversion and neuroticism (e.g., job attitudes, Thoresen, Kaplan, Barsky, Warren, & de Chermont, 2003). Such results suggest that researchers cannot assume that findings relating personality characteristics (e.g., the Big 5) to job performance will generalize to affectivity and performance relationships. As such, a quantitative review of the sort conducted here will be important in determining the nature of the relationship between affectivity and job performance. Before deriving hypotheses for the proposed relationships between trait affect and performance, we first discuss the various dimensions of performance considered in this study.

Dimensions of Job Performance

Over the past two decades, consensus within I/O psychology has emerged that the job performance domain is multidimensional (for reviews, see Rotundo & Sackett, 2002; Viswesvaran, & Ones, 2000). Considering performance as multidimensional is essential both because extra-role behaviors have a tremendous practical impact on group and

organizational functioning (e.g., Podsakoff & MacKenzie, 1997) and also because doing so reveals unique relationships with antecedent variables (e.g., Borman & Motowidlo, 1997; Smith, Organ, & Near, 1983). Thus, in the current investigation, we consider the relationship between trait affect and several dimensions of performance – namely task or in-role performance, organizational citizenship behaviors (OCBs), counterproductive work behaviors (CWBs), and work withdrawal behaviors (later we consider an additional outcome – occupational safety/injury).

Task or in-role performance, which has been the traditional focus of organizational research, refers to job activities that, "contribute to the organization's technical core" (Borman & Motowidlo, 1997) and appear in one's job description. Organizational citizenship behaviors (OCBs; and related constructs like contextual performance; Borman & Motowidlo, 1993) are commonly understood as behaviors that go "above and beyond" the employee's formal job description to facilitate organizational functioning (Lee & Allen, 2002). In contrast, CWBs or "workplace deviance," represent behaviors (e.g., theft, harassment, sabotage, physical aggression) that go against organizational values and norms and "threaten the well-being of the organization and/or its members" (Robinson & Bennett, 1995, p. 556). Finally, with regard to withdrawal, we rely on the definition of Hanisch and Hulin (1991), "as employees' attempts to remove themselves from their work tasks or environment (e.g., absenteeism, tardiness, turnover)."

Although these four performance dimensions are conceptually distinct, we posit that affect's influence on these various job behaviors occurs through a similar set of intervening, motivational processes, namely the experience of job stressors, job

satisfaction, and perceptions of organizational fairness (i.e., justice). The following discussion focuses on these processes, with reference made to the specific performance manifestations in which they may result.

Trait Affect and Job Performance

The basic perspective adopted here is that trait affect's influence on performance occurs via mediating, motivational processes (see George & Brief, 1996; Spector & Fox, 2002). In particular, we propose that one can approach affectivity – performance relationships by focusing on the basic motivational systems that underlie PA and NA.

Watson, et al., (1999), building on the seminal work of Gray (1970), suggested that PA and NA represent the subjective, emotional components of two basic bio-behavioral systems that have evolved to promote survival. According to these ideas, PA is a manifestation of a fundamental appetitive "approach" system, termed the Behavioral Activation System (BAS; Carver & White, 1994). In the presence of potentially favorable stimuli, experiences of positive emotionality should foster the vigor, energy, and excitement that accompany reward-seeking behavior. Conversely, NA is part of the Behavioral Inhibition System (BIS) which promotes survival by fostering avoidance-type behaviors when the organism encounters potentially threatening or aversive conditions (Gray, 1987).

Regarding dispositional affect, this approach implies that people higher in PA are more reactive to positive stimuli whereas people higher in NA are especially reactive to negative stimuli. Supporting this perspective, PA is related to self-reported BAS but not BIS, while NA is related to self-reported BIS but not to BAS (see Watson, et al., 1999). Furthermore, evidence indicates that PA is more strongly related to positive mood

inductions and to approach-related behaviors (cf., Cacioppo, Garnder, & Bernstein, 1999;

Larsen & Ketelaar, 1991), whereas NA is more strongly associated with negative mood

inductions and with avoidance-related emotions such as fear and anxiety (cf., Cacioppo,

et al., 1999; Carver & White, 1994). Below, we borrow from these and other ideas in

deriving theoretical predictions regarding trait affect's role in work performance.

Stress response. In the organizational literature, trait affect most frequently has

been examined in regard to job stress (e.g., Barsky, Thoresen, Warren, & Kaplan, 2004;

Burke, et al., 1993). Evidence consistently demonstrates that NA is associated with the

reporting of more work stressors (Spector, Fox, & Van Katwyk, 1999) and with greater

resultant strain (e.g., Barsky, et al., 2004). Although less frequently studied, some

research also shows that PA is negatively related to job stress (e.g., Fogarty, et al., 1999).

Affect's role in the stress process suggests several mechanisms through which it

might impact task performance. In terms of PA, for instance, higher positive affect is

associated with greater expectancy (Wegener & Petty, 1996) and optimism (Forgas &

George, 2001), which, in turn, should foster various behaviors beneficial to performance.

In particular, those high in PA may select more demanding goals (George & Brief, 1996),

demonstrate greater determination, engage in effective problem-solving strategies (Elliot,

Harkins, Sherwin, & Marmarosh, 1995), and utilize more efficacious coping strategies

(e.g., Judge, Thoresen, Pucik, & Welbourne, 1999). Thus, whereas other workers may

show less initiative or fail to persevere, the positive expectations held by higher PA

individuals ultimately should result in their selecting and completing challenging work

tasks. Based on this reasoning, we propose the following hypothesis:

Hypothesis 1: Positive affectivity will be positively related to task performance (H1), and

job stress partially will mediate this relationship (H1a).

        With regard to negative affectivity and stress, we posit that NA's influence on task performance primarily occurs through the encountering and managing of workplace stressors. Because people high in trait negative affect tend to encounter more objective stressors at work (e.g., interpersonal conflict, higher workload; Spector & Jex, 1998), they may be less likely to obtain the resources that facilitate effective task performance (e.g., coworker support, Zellars & Perrewe, 2001). Furthermore, because higher NA is related to persistent self-doubt (Watson & Pennebaker, 1989), it also likely leads to difficulties in terms of initiating task activities (e.g., Cook, Vance, & Spector, 1995), and setting appropriately ambitious goals. Also problematic, higher NA individuals may incur a downward spiral of efficacy, ultimately leading to lower performance and in turn lower efficacy for future performance.

Hypothesis 2: Negative affectivity will be negatively related to task performance (H2), and job stress partially will mediate this relationship (H2a).

        With regard to OCBs, we propose that people who are experiencing stress due to workload, interpersonal strife, or other factors will be less likely to engage in OCBs than unstressed individuals. Several theories associate stress with a lack of, or strain upon, resources such as time, money, and energy. Conservation of resources (COR) theory (Hobfoll, 1989), for example, suggests that stress can result from a loss of resources, the threat of loss, or the lack of appropriate gain of resources following an investment of one's resources. Also relevant is the theory of role stress, which relates both role ambiguity and role conflict to the experience of distress and burnout (Cordes & Dougherty, 1993). In both these theories, stress is associated with a lack of sufficient

resources. As such, we anticipate that people experiencing more stressors at work will lack the extra resources to contribute to non-essential tasks like OCBs. Given their predisposition to experience stress (Watson, 2000), higher NA individuals are unlikely to feel that they have the time, emotional energy, or abilities to engage in OCBs like volunteering for a committee or helping an overworked coworker. Conversely, those higher in positive affectivity, owing to their greater sense of perceived control and their use of more efficacious coping strategies (Bowman & Stern, 1995) will have greater available resources to devote to helping co-workers or the organization.

Hypothesis 3: Positive affectivity will be positively related to organizational citizenship behaviors (H3), and job stress partially will mediate this relationship (H3a).

Hypothesis 4: Negative affectivity will be negatively related to organizational citizenship behaviors (H4), and job stress partially will mediate this relationship (H4a).

With regard to CWBs and withdrawal, stress should be positively related to both types of behaviors. According to Spector and Fox (2002), negative emotions prompt actions that either directly attack the source of the negative emotion (e.g., retaliating against a coworker) or that aid in the avoidance of the source (e.g., turnover or chronic tardiness). Thus, CWBs and/or withdrawal may be tools used to help mollify or ameliorate the negative emotions and stress that people higher in NA tend to experience (e.g., Spector, et al., 2000). Higher PA, on the other hand, might function as a buffer, preventing the stress predictive of withdrawal. Moreover, those experiencing positive emotional states may refrain from withdrawing as the results of such behavior (e.g., displeasure from co-workers) could serve to end or limit their positive feeling states (George & Brief, 1992). We note that we were unable to locate a sufficient number of

studies examining the PA-CWB relationship that met the criteria for inclusion; thus we do not offer a hypothesis for this relationship.

Hypothesis 5: Positive affectivity will be negatively related to withdrawal behaviors (H5), and job stress partially will mediate this relationship (H5a).

Hypothesis 6: Negative affectivity will be positively related to withdrawal behaviors (H6), and job stress partially will mediate this relationship (H6a).

Hypothesis 7: Negative affectivity will be positively related to counterproductive work behaviors (H7), and job stress partially will mediate this relationship (H7a).

Job satisfaction and justice reactions. A second set of factors through which trait affect may impact job behaviors is individuals' job satisfaction and organizational justice reactions. Meta-analytic evidence indicates that NA is correlated with lower satisfaction (Thoresen, et al., 2003) and with perceptions of greater injustice (Barsky & Kaplan, 2007) while PA exhibits the opposite pattern of results.

The theoretical mechanisms underlying these relationships may also help in explaining affect's impact on performance. Consider first the relationships among affectivity, job reactions, and performance. In terms of PA, individuals higher in this characteristic exhibit greater attention and emotional reaction to extrinsic rewards and a lowered threshold for positive mood inductions (e.g., Fredrickson & Losada, 2005; Larsen & Ketelaar, 1991). Such findings imply that success at work (e.g., praise, promotions) is both a particularly satisfying outcome and an especially meaningful motivator for individuals higher on this trait. In this sense, satisfaction and motivation serve to mediate the influence of PA on task performance.

Hypotheses 1b and 1c: Job satisfaction (H1b) and fairness perceptions (H1c) partially

will mediate the relationships between positive affectivity and task performance.

In a parallel fashion, because people higher in NA tend to encounter and create more performance constraints (e.g., Spector & Jex, 1998), they should experience not only reduced satisfaction and fairness (e.g., Thoresen, et al., 2003), but also decreased task motivation and performance. In addition, these individuals' heightened distress from negative workplace events (e.g., Barsky, et al., 2004) also should hamper desires to persevere or sacrifice in order to achieve superior performance. Thus, these negative subjective evaluations should directly lead to poorer task performance.

Hypotheses 2b and 2c: Job satisfaction (H2b) and fairness perceptions (H2c) partially will mediate the relationships between positive affectivity and task performance.

In terms of the other three outcomes, researchers generally explain the relationships between job reactions (e.g., satisfaction and fairness) and these more volitional behaviors by invoking social exchange theory or reciprocity (Aquino, Lewis, & Bradfield, 1999). However, discretionary behaviors such as helping or harassing others also can be less calculated and more spontaneous and emotionally-driven (George & Brief, 1992). This recognition implies that PA and NA may impact OCBs, CWBs and withdrawal behaviors through their impact on the emotional reactions that ultimately constitute job attitudes and justice perceptions (Weiss & Cropanzano, 1996; Judge & Ilies, 2004). Thus, an individual higher in PA, for example, who experiences more frequent positive mood states will experience greater satisfaction (e.g., Judge & Ilies, 2004) and, in turn, engage in more OCBs and fewer CWBs and withdrawal behaviors. As another example, workers higher on NA, owing to their more pronounced sense of injustice, may refrain from helping behaviors, and instead retaliate to restore equity. In

sum, satisfaction and justice should serve to mediate affectivity's impact on these other three performance dimensions.

Before presenting hypotheses regarding these latter proposed relationships, we would note that two recent studies have investigated similar questions and have yielded results supportive of our propositions. Dalal (2005) meta-analyzed the relationships between affect and two of the present outcomes, OCBs and CWBs. Although his criteria for study inclusion were somewhat different than ours, his results generally are consistent with the above rationale (although the NA-OCB relationship was relatively weak in magnitude, $\rho = -.10$). In addition, Lyubomirsky, et al (2005) conducted a large-scale review of the relationship between "happiness" and "success." They reported weighted mean effect sizes between happiness and work life (e.g., job performance, autonomy, unemployment, etc.) of .20 and .05 for cross-sectional and longitudinal data, respectively. Thus, the current study builds upon and extends those two investigations by exploring additional outcomes and addressing potential mechanisms that may mediate these relationships.

Hypotheses 3b and 5b: Job satisfaction partially will mediate the relationships between positive affectivity and OCBs (H3b) and withdrawal behaviors (H5b).

Hypotheses 3c and 5c: Fairness perceptions partially will mediate the relationships between positive affectivity and OCBs (H3c) and withdrawal behaviors (H5c).

Hypotheses 4b, 6b, and 7b: Job satisfaction partially will mediate the relationships between positive affectivity and OCBs (H3b) and withdrawal behaviors (H5b).

Hypotheses 4c, 6c, and 7c: Fairness perceptions partially will mediate the relationships between positive affectivity and OCBs (H3c) and withdrawal behaviors (H5c).

Occupational Injury

Organizational scholars recently have begun to consider safety performance as another major dimension or type of performance (see Burke, Sarpy, Tesluk, & Smith-Crowe, 2002; Hofmann & Tetrick, 2003). Thus, we also consider safety outcomes or, more specifically, the occurrence of occupational injury in this investigation. Although individual characteristics are not as strong or consistent predictors of workplace safety behaviors as once thought, some individual differences do seem to influence safety performance and injury (Hansen, 1989). Several strands of evidence regarding the nature and influence of NA suggest that it is an important antecedent of these outcomes.

First, those higher on NA may encounter dangerous circumstances more frequently. Evidence indicates that trait anxiety, which is related to NA (e.g., Schaubroeck & Ganster, 1991), is associated with lower behavioral control which manifests in approaching threatening stimuli and a decreased latency in disengaging from such stimuli (Derryberry, Reed, & Pilkenton-Taylor, 2003). Moreover, because NA is related to a lowered sense of control and less proactive coping (e.g., Bosma, Stansfeld, & Marmot, 1998), those higher on this trait should be less likely to take precautions that prevent injury (e.g., wearing protective gear). Finally, as Iverson and Erwin (1997) noted, NA is associated with greater distractibility and attentional lapses, further increasing the likelihood of occupational injury. Thus, owing to these mechanisms, higher negative affectivity is likely predictive of greater occupational injury. Although one also could argue for the role of PA in safety outcomes (Iverson & Erwin, 1997) we were unable to locate other empirical studies examining this relationship.

Hypothesis 8: Negative affectivity will be positively related to the occurrence of

occupational injuries.

PA and NA in relation to Extraversion and Neuroticism

A final issue that warrants examination is that regarding the influence of PA and NA, as compared to extraversion and neuroticism, respectively, as predictors of performance. The relationship between neuroticism and NA and extraversion and PA remains an unresolved debate within the literature – beginning with Watson and Clark's (1984) assertion that the frequent experience of negative affect is a central component of neuroticism. Subsequently, researchers have amassed considerable evidence regarding the role of negative affect in neuroticism and positive affect in extraversion. For instance, Watson, et al. (1999) reported a correlation of .58 between NA and neuroticism and a correlation of .51 between PA and extraversion. In fact, given the conceptual and empirical overlap among these pairs of characteristics, some researchers have advocated regarding NA and neuroticism as synonymous or interchangeable and regarding PA and extraversion in the same manner (Tellegen, 1985; see Fortunato, 2004).

However, the equivalence of these characteristics has not gone unquestioned. Several investigations indicate that instead of being identical to one another, these traits are hierarchically structured with extraversion and neuroticism representing more general characteristics under which the affective traits (i.e., PA and NA) are subsumed (Nemanick & Munz, 1997). Support for the divergence of these characteristics comes from findings indicating that the affective traits more strongly predict other job outcomes, such as job attitudes (Thoresen et al., 2003) and justice perceptions (Barsky & Kaplan, 2003), than do the Big 5 traits.

Taken together, these findings suggest that the affective traits are related, but not identical to, extraversion and neuroticism, respectively. In the current study, we investigate this issue further by comparing meta-analytic effect sizes and also by examining whether PA and NA account for unique variance in task performance, when considered simultaneously with neuroticism and extraversion.

Rating Source as a Moderator

In an exploratory manner, we also assessed whether the effect sizes for task performance varied as a function of rating source (self versus supervisory ratings). Findings showing that the affect – performance relationship was stronger for supervisory- or self-rated performance would have implications regarding the theoretical meaning of affect's influence and also would be important for practical purposed (e.g., in terms of selection). To assess this potential moderator, we categorized studies based on the rating source and conducted separate analyses. Results indicating that the 95% confidence intervals do not overlap would indicate that moderation is present.

<center>Method</center>

Identification and Selection of Studies

We utilized several search and identification methods to ensure that we retrieved all relevant effect sizes for inclusion in the meta-analyses. First, a series of literature searches were conducted in December 2006 using computerized databases that contained research studies pertinent to industrial/organizational psychology, management, organizational behavior, personality psychology, and medicine. These databases included PsycINFO, ERIC, Social Science Citation Index, MEDLINE, and Dissertation Abstracts. Keywords for the predictor variables included: *positive affect(ivity), negative affect(ivity),*

anxiety, affectivity, personality, emotions, affect, disposition, emotional stability, extraversion, neuroticism, and those for the criteria included: *job performance, supervisory ratings, output, organizational citizenship (behaviors), extra-role (behaviors), contextual performance, helping (behaviors), counterproductive work behaviors, aggression, violence, bullying, theft, sabotage, harassment, withdrawal (behaviors), absenteeism, lateness, turnover, tardiness, safety (performance), injury, and occupational accidents*, among others.

Second, manual searches of major journals in industrial/organizational psychology and related fields (e.g., *Academy of Management Journal*, *Journal of Applied Psychology*, *Personnel Psychology*) were conducted to locate any additional articles. In addition, we consulted the reference sections of the articles collected as well as those of relevant review pieces to identify other articles that might be usable (e.g., Barsade & Gibson, 2007; Lyubomirsky, et al., 2005; Staw & Cohen-Charash, 2005). The initial search resulted in 142 studies for possible inclusion.

Criteria for Inclusion

After retrieving these studies, two of the researchers independently reviewed, and subsequently met to discuss, whether or not each study would be included in the meta-analysis. We relied upon several decision rules in determining the appropriateness of each study for inclusion. First, only those studies that included an effect size between positive and/or negative affectivity and one or more of the outcomes measures were retained. Determining which studies to include in terms of outcome measures was relatively straightforward as the primary studies generally used similar or one of the same measures (e.g., of OCBs, CWBs). In terms of PA and NA, we included only those studies

that employed an affect measure that was consistent with the current PA-NA framework in order to avoid combining proverbial "apples and oranges," Thus, for instance, we did not retain studies examining affectivity as a single dimension or as existing along the dimensions of valence and activation (e.g., Staw, et al., 1994). In addition, given the above theorizing, we did not include studies assessing neuroticism and/or extraversion.

Of the 57 total studies included in the meta-analysis, 29 utilized either the Positive and Negative Affect Schedule (PANAS; Watson, et al., 1988) or its expanded version, the PANAS-X (Watson & Clark, 1994), as the measure of affectivity. These measures consist of twenty feeling states, ten of which relate to PA (e.g., "enthusiastic," "alert," "determined") and the other ten corresponding to NA (e.g., "afraid," "ashamed," "guilty"). Two scale scores (one for PA and one for NA) are derived by summing participants' responses regarding how frequently they experience each feeling state. In addition, a few studies used either the Multidimensional Personality Questionnaire (MPQ; Tellegen, 1982) or the Multidimensional Personality Index (MPI; Watson & Tellegen, 1985), both of which are consistent with the PA-NA framework and were developed by Watson and/or colleagues. Studies including measures of trait anxiety such as Spielberger's STAI (Spielberger, Goruch, & Lushene, 1979) also were included as such measures often are used in place of NA (e.g., Schaubroeck & Ganster, 1991).

A second issue that required attention was determining the appropriate time frame in which affect was assessed. As Watson notes (2000, p. 149), the same measure can serve as an index of state or trait affect by altering the time frame specified in the item stem. Because our focus was on dispositional, not state, affect, we primarily retained only those studies in which study respondents reported how they felt "in general."

Additionally, a few studies asked participants how they had felt in "the past six months" and a few others asked how participants they had felt in "the past year." Discarding studies that assessed affect over shorter time periods (e.g., "right now" or "over the past week") or assessed discrete emotions, minimized the possibility that responses reflected ephemeral changes in affect due to life events and circumstances (Vaidya, Gray, Haig, & Watson, 2002). We considered our treatment of time as conservative, given that others have used much shorter time frames in differentiating state versus trait affect (e.g., one week; Brief, et al., 1995; Thoresen, et al., 2003). In addition, we only included "context-free" measures of affectivity and did not retain studies in which participants reported their mood or affect "while at work." This decision rule was consistent with our characterization of dispositional affect as a personality-like characteristic that influences work behaviors.

Coding of Studies

Four researchers were involved in coding the articles for the relevant information. Several steps were taken to ensure that the researchers coded in a consistent manner. As an initial step, the four researchers coded the same set of articles, after which they assessed agreement and further refined the decision rules. Subsequently, the researchers formed two separate pairs, each of which coded a subset of the articles. The members of each pair met weekly to review their independent coding and to resolve any discrepancies. Any issues that emerged during these meetings were discussed with the other pair to ensure that all four raters applied identical rules. Because most of the studies contained one or more effect sizes between a standard measure of affectivity (e.g., PANAS; Watson, et al., 1988) and a standard performance criterion (e.g., OCBs), coding

was relatively straightforward and agreement was quite strong – usually approaching 100% in weekly meetings. Most discrepancies in coding were a function of administrative errors (e.g., one coder not noticing that the reliabilities had been reported in the text), not a result of interpretive inconsistencies. When a study presented a novel or ambiguous scenario that required a more subjective decision, all of the coders independently reviewed the study and then met to discuss their strategy.

Meta-analytic Calculations

Given the objective of deriving population-level relationships between constructs dissattenuated for measurement error, we used the meta-analytic procedures proposed by Raju and colleagues (RBNL procedures; Raju, Burke, Langlois, & Normand, 1991; also see Hunter & Schmidt, 2004). The RBNL procedure yields construct-level effect sizes by correcting for artifactual error (i.e., sampling error, unreliability of measures) using information from primary studies (e.g., reliability estimates), rather than relying on artifact distributions (see Burke & Landis, 2003 for further elaboration). Simulation studies have demonstrated that this procedure yields more accurate estimates of the mean and variance of ρ (i.e., the population-level correlation) than do traditional "distributional" procedure (Raju et al., 1991). Also, by utilizing a random effects model, RBNL provides for more accurate Type I error rates and more realistic confidence intervals than does a fixed effect model (e.g., Erez, Bloom, & Wells, 1996).

In a few cases, multiple relationships were reported regarding a given construct (e.g., the relationship between NA and different dimensions of OCBs). In addition, a few studies were longitudinal in nature, yielding multiple effect sizes between constructs (e.g. NA and OCBs assessed over time). When either situation occurred, composite

correlations were derived using the Spearman-Brown formula (Hunter & Schmidt, 1990, pp. 454-463). Composite correlations, in addition to providing a higher level of construct validity, also negate the downward biasing estimates that occur from a simple averaging of correlations. In the few cases in which the information necessary to compute composite correlations was unavailable, average effect sizes were computed.

Tests of the Mediator Hypotheses

To assess the effect of the three proposed mediators, we generated a matrix of meta-analytic effect sizes among the relevant variables (see Table 3). In deriving this matrix, we searched the literature to locate the most comprehensive study that examined the relevant bivariate relationships. In every case, we were able to locate a meta-analysis that had examined the relationship of interest. Using the meta-analytic data, we conducted a series of multiple mediator path analyses (see MacKinnon, 2000). Specifically, for each outcome, we tested a model in which affect predicted the particular criterion variable both directly and through the three proposed mediators (which were free to correlate). This approach allowed us to examine if the three variables collectively mediated the effects of affect on performance. In addition, we also conducted a series of pairwise comparisons among the three indirect effects (see Preacher & Hayes, in press). A statistically significant difference would indicate that one mediator plays a stronger role than another mediator in transmitting the influence of affect on the performance variable. Because sample sizes varied, we utilized the harmonic mean, as doing so provides more conservative estimates than does the arithmetic mean (Viswesveran & Ones, 1995).

PA and NA in Relation to Extraversion and Neuroticism

In order to examine the incremental validity of PA and NA over extraversion and neuroticism, a correlation matrix of uncorrected meta-analytic effect sizes containing all relationships was formed and submitted to a simultaneous multiple regression. We used correlations that were based on the largest sample sizes that we were able to locate. The correlations involving neuroticism and extraversion and job performance were drawn from a quantitative review of fifteen meta-analyses of the Five Factor Model personality traits and performance conducted by Barrick, Mount and Judge (2001). The relationships between PA, NA, extraversion, and neuroticism were based on the results provided by Watson, et al., (1999), who aggregated the results of twelve primary studies. Finally, the correlations involving PA, NA and performance were those from the current investigation. As with the mediational analyses, we also used the harmonic mean here given that the sample sizes varied. We used these correlations to assess three models – one predicting performance from neuroticism and NA, one predicting performance from extraversion and PA, and a final model predicting performance from all four characteristics.

Results

Trait Affect and Task Performance

A main goal of the present work was to determine whether trait affect is related to different aspects of job performance and to quantify the magnitude of those various relationships. To address these issues, we computed meta-analytic effect sizes between affect and the various criteria. Table 1 contains the results of the analyses regarding task performance and Table 2 contains the results for the other performance dimensions.

According to Hypotheses 1 and 2, trait positive affect and trait negative affect

would relate to overall or technical job performance in a positive and negative direction,

respectively. As seen in Table 1, the results support these predictions as both

characteristics were related to performance in the predicted directions and the CI's did

not include zero (PA – task performance, $M\hat{\rho}$ = .19, CI = .12 to .26; NA – task

performance, $M\hat{\rho}$ = -.15, CI = -.21 to -.10).

These relationships are further broken down in terms of the nature/source of

performance evaluation. Table 1 shows that these relationships were stronger for

supervisory ratings of performance than for "objective" criteria (e.g., amount of sales),

and were especially strong for self-rated performance. To determine if these differences

are significant, one can examine whether or not the 95% Confidence Intervals (CI's) for

the various effect sizes overlap (Hunter & Schmidt, 2004). Because of the small number

of studies using objective measures, we only comment upon the comparisons involving

self- and supervisory ratings. As seen in Table 1, the 95% CI's differ, but do overlap for

PA. However, they do not overlap for NA, indicating that the relationship between

negative affectivity and task performance is significantly stronger for self- versus

supervisory ratings. We elaborate on these results in the Discussion section.

Trait Affect and Additional Performance Dimensions

Hypotheses 3 through 7 concerned the relationship between PA and NA would be

related to other aspects of performance, namely organizational citizenship behaviors

(OCBs), counterproductive work behaviors (CWBs), and work withdrawal behaviors. In

regard to PA's relationship with these criteria, Hypothesis 3 was supported in that

positive affectivity was significantly predictive of citizenship behaviors ($M\hat{\rho}$ = .23, CI =

.11 to .34). However, the relationship between PA and withdrawal behaviors was actually in the opposite direction from our prediction, although it was not significant, as indicated by the 95% confidence interval which included zero ($M\hat{\rho}$ = .05, CI = -.10 to .21). Thus, Hypothesis 4 was not supported.

In terms of NA, Hypothesis 5, which predicted that negative affectivity would have an inverse relationship with citizenship behavior, was supported ($M\hat{\rho}$ = -.10, CI = -.15 to -.06). Worth noting is that the obtained effect sizes regarding OCBs were similar to those reported by Dalal in his 2005 OCB-CWB meta-analysis (PA – OCB, ρ = .30; NA – OCB = -.10). Also consistent with Dalal's findings, the present estimate of the PA – OCB relationship was much stronger than that reported by Organ and Ryan (1995) in their meta-analysis ($M\hat{\rho}$ = .12). This discrepancy perhaps is due to the fact that Organ and Ryan, unlike Dalal's meta-analysis and the current one, included measures of extraversion as well as PA. These discrepant findings thus provide initial evidence of the differential effect of PA and extraversion. This issue is addressed more explicitly below.

Hypothesis 6 posited that negative affectivity would predict more frequent CWBs. The results in Table 2 support this proposition ($M\hat{\rho}$ = .30, CI = .20 to .40). Hypothesis 7 predicted that negative affect will be positively related to withdrawal behaviors. This prediction too was supported ($M\hat{\rho}$ = .16, CI = .06 to .26). Finally, in Hypothesis 8, we posited that negative affectivity would be positively related to the incidence of workplace injuries. As displayed in Table 2, this prediction also was supported ($M\hat{\rho}$ = .20, CI = .16 to .24).

To summarize, seven of the eight primary hypotheses were supported. Only the proposed relationship between positive affectivity and work withdrawal behaviors failed

to differ significantly from zero. Collectively, these results demonstrate the predictive

validity of trait affect in job behaviors. In fact, the present effect sizes for PA and NA are

as strong, and in most cases stronger, than the meta-analytic results for extraversion and

neuroticism, respectively, in relation to task performance, OCBs, and CWBs (Barrick, et

al., 2001; Berry, Ones, & Sackett, 2007; Organ & Ryan, 1995). We return to this issue in

more detail below.

Mediational Analyses

Given that the majority of the bivariate hypotheses were supported, we proceeded

with the second major objective of the study, which was determining the relative role of

the proposed mediators in explaining these relationships. As discussed above, we

conducted a series of multiple mediator analyses, predicting each performance outcome

from affect and the three proposed mediators using the meta-analytic correlations

reported in Table 3. The results of these analyses with respect to PA appear in Table 4

and those for NA appear in Table 5.

As seen in Table 4, the total indirect effect was significant for both models,

indicating that the three proposed mediators collectively accounted for a significant

amount of PA's influence on task performance and OCB's. PA, however, remained a

significant predictor when the mediators were included, implying that other factors also

explain these relationships. In terms of task performance, the indirect effects associated

with stress and fairness perceptions were significant, supporting H1a and H1c. However,

satisfaction was not a significant mediator of the PA – task performance relationship,

failing to provide support for H1b. The comparisons among the mediators indicate that

the indirect effect associated with fairness perceptions was stronger than that for either of

the other two variables. In terms of OCBs, the indirect effects related to job satisfaction and fairness were significant, yielding support for H3b and H3c, while that associated with stress approached statistical significance, providing modest support for H3a. The comparisons reveal that satisfaction and fairness both carried more of the influence of PA on OCBs than did stress.

The mediational results for NA appear in Table 5. As was the case with PA, the total indirect effects associated with the three variables were significant for all of the performance criteria. Especially noteworthy is that the mediation was complete with respect to OCBs, but partial for the other three outcomes. Turning to the individual outcomes, only fairness perceptions was a significant mediator of the NA – task performance relationship, supporting H1c; neither the indirect effect associated with stress nor with satisfaction was significant, failing to support H2a and H2b. Thus, for both PA and NA, fairness perceptions played the largest role in carrying affect's influence on fairness perceptions. With regard to OCBs, job satisfaction and fairness were significant mediators of the NA – OCB relationship, providing support for H4b and H4c. Stress was not a significant mediator; thus, H4a was not supported. The comparisons revealed that the indirect effect associated with job satisfaction was stronger than the effects associated with the other two variables. This finding along with the result for PA and OCBs indicate that job satisfaction is largely responsible for carrying the influence of affect on OCBs.

With respect to CWBs, Table 5 reveals that all three indirect effects were significant (although the effect associated with job satisfaction was only significant at p < .06). Thus, H6a, H6b, and H6c were largely supported. Inspection of the comparisons

among the effects, however, reveals that stress plays a much larger role than does

satisfaction or fairness in accounting for NA's effects on CWBs. Finally, with regard to

withdrawal behavior, all three mediators were significant, supporting H7a, H7b, and H7c.

Comparisons between the indirect effects indicated that fairness perceptions was the most

meaningful of the mediators. To summarize, fairness perceptions appear especially

important in mediating the effects of affect on task performance and withdrawal

behaviors, while job satisfaction is the strongest mediator in terms of OCBs, and stress

carries the effects of NA on CWBs.

Incremental Validity of PA and NA over Extraversion and Neuroticism

The final objective of this research was to examine whether PA and NA are

redundant with their respective Big Five counterparts – extraversion and neuroticism

(Watson, 2000). We note that Barrick and colleagues (2001), in their review of 15 meta-

analyses regarding the personality – performance relationship, reported the following

results: emotional stability (the inverse of neuroticism) correlated with job performance

at $M\hat{r} = .09$; $M\hat{\rho} = .15$, and extraversion correlated with performance at $M\hat{r} = .08$; $M\hat{\rho}$

$= .15$. The latter estimate is identical to the one reported here regarding NA, while the

current PA estimate is slightly stronger than that for extraversion.

In order to determine whether PA and NA accounted for unique variance in task

performance beyond one another and beyond extraversion and neuroticism, we conducted

a series of simultaneous multiple regressions using these four predictors. The results of

these analyses appear in Table 6. As seen in this Table, PA and NA were significant

predictors of task performance when considered in conjunction with their corresponding

Five Factor Model (FFM) personality traits. In fact, extraversion and neuroticism no

longer significantly related to performance in this analysis. This finding held both when the two sets of characteristics were considered separately and in combination. This result suggests that PA and NA account for unique variance in performance and that HR professionals might be better advised to assess these affective characteristics than the FFM traits.

Discussion

Summary of Findings

Trait affect and job performance. The purpose of this investigation was to quantitatively integrate research relating trait affect and various dimensions of job performance and to examine the mechanisms that mediate these relationships. The study results largely supported theoretical predictions in that seven of the eight main effect hypotheses were supported. As predicted, NA had deleterious effects on task performance and OCBs, and increased negative outcomes including CWBs, withdrawal behaviors, and occupational injuries. Conversely, PA was positively related to task performance and OCBs.

Notably, the predicted negative relationship between PA and withdrawal behaviors was *not* supported. This finding is consistent with the meta-analytic results of Thoresen, et al., (2003), who found that the PA – turnover intention relationship was the weakest of the affectivity– job attitude relationships they examined. Plausibly, this lack of relationship may be due to the fact that some instances of absenteeism, tardiness, and turnover are not completely under the volitional control of employees. A person with a sick child, for example, or whose spouse wants to move across the country, is likely to miss work or turnover regardless of affectivity. In contrast, because people have more

control over behaviors like task persistence or helping coworkers, PA can play a stronger role in these cases.

The current results, in conjunction with those reported by Dalal (2005) and Lyubomirsky, et al. (2005) provide strong support for the role of dispositional well-being variables in job performance. People who tend to experience positive emotional states perform better at work while those who experience a preponderance of negative states tend not to perform as well. An additional conclusion collectively borne out by these three studies is that *both* PA and NA predict performance. This finding is important because it indicates that the presence of positive emotions is as important as is the absence of negative ones in impacting performance. This conclusion is consistent with other research regarding affect in relation to job reactions (Barsky & Kaplan, 2007; Thoresen, et al., 2003).

Also worth emphasizing, PA and NA were differentially related to some performance dimensions. In particular, whereas the effect sizes for task performance were similar in magnitude, those involving other criteria were rather discrepant. For instance, NA was related to withdrawal behavior, but PA was not. In addition, PA was most strongly connected to OCBs while NA was most strongly connected to CWBs. In sum, the current findings indicate that, although both dimensions of affect matter in terms of performance, their relative influence differs across outcomes.

Mediational analyses. The three mediators, as a collective, partially or completely mediated the relationships between NA, PA and all of the behavioral outcomes. An intriguing finding, however, was that the three mediators differentially carried the influence of affect for the various outcomes. As noted above, fairness perceptions

appeared to be most consequential with regard to task performance and in explaining

NA's relationship with withdrawal behaviors. Meanwhile, job satisfaction was the

strongest mediator in terms of OCB's and stress mediated the effect of NA on CWBs.

While we only can speculate about the meaning of these results, they are largely

consistent with prior theory and findings. In terms of stress and CWBs, for instance,

Spector and Fox (2002) suggested that the greater distress that higher NA individuals

tend to incur (Watson, 2000) can lead them to behaviorally counter or eliminate their

negative affect by retaliating against another individual or the organization. Consistent

with this rationale, Fox and colleagues found relatively strong relationships between

negative emotions and both stressors and CWBs (r's ranged from .19 to .58; Fox,

Spector, Goh, & Bruursema, 2007).

The finding that job satisfaction largely carries the effects of PA and NA on

OCBs is also consistent with past work. Whereas CWBs are a means of eliminating

negative affect, OCBs function to promote or maintain positive emotional states (George

& Brief, 1992). Thus, insofar as positive emotions predict satisfaction (Weiss &

Cropanzano, 1996), those experiencing these emotions more frequently may be especially

likely to engage in extra-role behaviors to maintain or further increase that affect.

Especially interesting are the findings that fairness perceptions largely mediated

the influence of both PA and NA on task performance and of NA on withdrawal

behaviors. Two possibilities for these findings seem most plausible to us. One possibility

is that affect influences the degree to which workers perceive fair treatment from the

organization (Barsky & Kaplan, 2007). In turn, these justice perceptions inform workers'

decisions about whether to withhold effort – leading to lower performance and more

withdrawal, or to exert performance – leading to better performance and less withdrawal (Adams, 1965). Another possibility is that affect actually influences the objective circumstances that predict justice perceptions (e.g., having greater control and participation; Leventhal, 1980). That is, those lower in PA and those higher in NA may perform worse and withdraw from their work because the actually experience circumstances (e.g., poor leadership) that promote such outcomes (e.g., Spector & Jex, 1998). Obviously, all of these explanations are speculative. Future work attempting to further clarify why affect operates differently in impacting these various outcomes would be quite informative.

Beyond the Big Five: Unique influence of affectivity on performance. A key finding from this study was that PA and NA are *not* synonymous or interchangeable with extraversion and neuroticism. Although the magnitude of the relationships between affectivity and performance is similar to that of the relationships between extraversion and neuroticism, when all four variables were entered together, affectivity predicted performance whereas neuroticism and extraversion did not. Also worth noting is that the correlation between NA and CWB in the current study ($\rho = .30$) is greater than the meta-analytic correlations between neuroticism and CWB ($\rho = .23 - .24$; Berry et al., 2007).

This evidence suggests that despite the considerable empirical overlap, affectivity and these two Big Five traits are not perfect proxies for each other. These results are consistent with the suggestion that PA and NA may represent the specific emotional aspects of the more general personality traits of extraversion and neuroticism (Nemanick & Munz, 1997), both of the latter of which are also comprised of other behavioral and cognitive aspects. As such, prior meta-analyses which combine PA and extraversion into

one construct and NA and neuroticism into one construct (e.g., Organ & Ryan, 1995) may obscure the unique influences of the Big Five versus affectivity.

Source of performance ratings. The current results suggest that the *source* of performance ratings should be considered when examining these relationships. Self-ratings of task performance were more strongly predicted by NA and PA than were supervisory measures of performance. Moreover, the relationships between affect and objective performance were close to zero. Although this latter finding is based on only three effect sizes, it is significant and suggests that the "true" relationships between PA, NA and performance actually be much weaker than those suggested by studies using ratings. Future work exploring this possibility is needed.

Quite plausibly, the "rose-colored glasses" through which high PA individuals perceive the world carries over to how they view their own job performance as might the somewhat darker lenses of high NA individuals when self-assessing their performance. As such, relationships between affectivity and self-ratings of performance may be somewhat exaggerated to the extent that people high in PA might overestimate their own performance contributions and success while people high in NA might do just the opposite. Thus while NA, for example, could hinder job performance, it could also lead people high in this trait to *believe* that they are worse performers than they actually are.

Notably, the difference in effect sizes between self- and supervisory-ratings was significant for NA, but not PA. Although we only can conjecture about the meaning of this result, one possibility is that NA is more pervasive than PA and therefore exerts a more consistent and pronounced biasing effect. This notion is consistent with the well-established finding that individuals place more emphasis on negative versus positive

thoughts and experiences (Baumeister, Bratslavsky, Finkenauer, & Vohs, 2001) and also

with the idea that most people tend to view their own performance in a positive light

(Dunning, Heath, & Suls, 2004). Accordingly, those higher in NA perceive their

performance as especially poor because of the weight they attach to negative events and

emotions. Conversely, those higher in PA regard their own performance as only slightly

more favorable than do others in general.

Practical Implications

The preceding discussion suggests two main practical pieces of information for

organizations to consider. First, the finding that PA *and* NA impact performance implies

that organizational attempts to enhance worker well-being and performance should entail

both minimizing negative emotions (e.g., stress and anxiety) and promoting positive ones

(e.g., excitement and enthusiasm). Organizations might achieve these goals through two

different means. First, they might select workers based on their dispositional affect. In

particular, the findings that PA and NA predict as least as strongly as their Big 5

counterparts, and also predict uniquely beyond those variables, suggest that PA and NA

measures might be more effective selection tools than the more commonly-utilized Big

Five measures.

A second way through which organizations can attempt to increase well-being

and productivity is through various workplace interventions. While PA and NA are

dispositional variables that tend towards stability, they also are somewhat malleable.

Supportive of this point, Vaidya and colleagues (Vaidya, et al., 2002) found that test-

retest correlations over a two and a half year period were considerably lower for PA ($r =$

.51) and NA ($r = .49$) than for the Big 5 traits (r's ranged from .59 to .72). Indeed,

research on subjective well-being suggests that frequent positive environmental events can yield meaningful and lasting changes in well-being (Lucas, Clark, Georgellis, & Diener, 2004). According to such findings, one-time interventions (e.g., a yearly bonus) are not as likely to foster emotional benefits and performance increases as are consistent and frequent positive interactions and events (and a corresponding lack of negative ones).

A second practical conclusion is that organizations need to be especially cognizant of the effects of negative affectivity on counterproductive behaviors. The relationship between NA and CWBs was the strongest of those examined here and also the strongest among those reported by Dalal (2005). The sizable NA-CWB relationship indicates that the negative consequences of higher NA extend beyond its influence on task performance. Selecting higher NA workers could result in outcomes such as greater violence or theft that are especially deleterious to the organization. Thus, organizations may wish to refrain from hiring individuals especially high on this characteristic, especially when the organizational context is stressful (Spector & Fox, 2002). At the same time, because the current mediational results indicate that NA impacts CWBs largely through job stress, another strategy might be to reduce or remove stressors in the work environment or provide stress-management techniques for workers.

Study Limitations and Future Research

In addition to those noted above, another interesting future research avenue would entail determining whether the effects of PA and NA on task performance vary across jobs and examining for which job characteristics PA and NA are most influential. In exploratory analyses of these questions, we did conduct moderator analyses with the current data, examining whether effect sizes varied as a function of job characteristics.

Unfortunately, very few of the primary studies contained samples that represented a single job type, thereby precluding appropriate moderator analyses. Despite this limitation, one significant and interesting result emerged. Specifically, we found that the inverse relationship between NA and task performance was significantly attenuated as the consequences of errors in the job increased. This finding is consistent with the idea that NA serves an adaptive "alarm" function and is associated with greater vigilance and attention to threatening stimuli (Cacioppo, et al., 1999; Watson, et al., 1999). Thus, there may be benefits to having higher NA workers in jobs that require vigilance such as nuclear power plant control room operators. Future work examining this possibility and also, more generally, examining job type as a moderator would be informative.

Another consideration is that we only included measures of trait, or dispositional, affect, and did not consider transient mood states or discrete emotions. The decision to focus on trait affect was driven by two main considerations. First, considerably more organizational research has been conducted on trait affectivity than state affect in relation to performance (e.g., Côté, 1999), thereby allowing us to draw on a larger research domain. Second, research on affectivity and organizational outcomes is relatively homogeneous as compared to that on state affect. Studies of trait affect typically involve correlating self-reported measures of PA and NA with standard operationalizations of common criteria variables (e.g., supervisory ratings, e.g., Cropanzano & Wright, 2001). Conversely, because state affect is transient and can be manipulated, organizational scholars have examined its influence in laboratory and organizational settings, often adopting dissimilar manipulations and outcomes (see Elfenbein, 2008). Furthermore, because state affect is, by definition, fleeting, drawing causal conclusions from non-

experimental studies is not feasible.

These issues aside, future meta-analytic work examining more ephemeral affective states would be beneficial. Moreover, a growing body of work suggests that it is the interaction between state and trait affect that best predicts behavior (Rusting, 1998). In particular, the influence of trait affect on cognition and behaviors is strongest when individuals are experiencing a consistent mood state (e.g., someone high in trait NA is in a negative mood). Such findings suggest that the current results actually represent a conservative estimate regarding the role of trait affect on performance as its influence may be greater when individuals are enduring congruent moods.

Regarding the mediational analyses, we predicted directional relationships, but obviously were not able to completely support the causal nature of these relationships. Where possible, however, we did use estimates in which the mediator was assessed prior to performance in the primary study (e.g., the Harrison, et al., 2006 relationship between satisfaction and performance). Although the causal hypotheses presented here are most consistent with past theorizing and with recent results (e.g., Lyumobirsky, et al., 2005; Riketta, 2008), other relationships, such as performance leading to satisfaction, certainly are plausible as well (Judge, et al., 2001). Thus, although we used causal language throughout the paper, one certainly should recognize that the relationships very well may be bi-directional in some cases.

A final limitation is our static treatment of performance. Despite the growing recognition that job performance is a dynamic variable that changes over time (e.g., Hofmann, Jacobs, & Gerras, 1992), most primary studies in our analyses assessed job performance using a one-time measure. Given the dearth of longitudinal studies in this

domain, we chose to create composite correlations in the few studies that did have multi-time performance measures, essentially turning these studies into single-time measures. Future researchers interested in affectivity-performance relationships might consider adopting more dynamic conceptual and operational definitions of job performance. Such studies may reveal that the relationship between affectivity and performance changes over time. In support of this point, Thoresen and colleagues (Thoresen, Bradley, Bliese, & Thoresen, 2004) found that different Big 5 traits were more predictive of between-person differences in performance depending on the job stage the person was in (i.e., transition or maintenance; Murphy, 1989).

With regard to affectivity, NA and PA might create "performance spirals" such that NA, for example, hinders performance which in turn reduces efficacy and perhaps creates conflict with coworkers, both of which could further hinder future performance. Alternatively, because NA and PA are somewhat more malleable over time than the Big Five traits (Vaidya, et al., 2002), it might be the case that a one-time measure of NA and PA is less able to predict performance over long periods of time than are the Big Five.

Despite these limitations, the current meta-analyses clearly demonstrate the predictive validity of dispositional affect in job behaviors and also indicate several mediational vehicles through which affect impacts performance. The present findings should be of use to practitioners in choosing selection measures and also in designing workplace programs and policies to accentuate satisfaction and justice perceptions and reduce stress. From a theoretical perspective, the current findings help disentangle affectivity from the related Big Five traits of extraversion and neuroticism and also demonstrate the functionality (and disfunctionality) of affect in work behavior.

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Table 1

Meta-Analytic Results for the Relationships between Positive and Negative Affectivity and Task Performance

Relationship	k	N	$M\hat{r}$	$M\hat{\rho}$	SE	95% CI for $M\hat{\rho}$	90% CV for $M\hat{\rho}$
Positive Affectivity (PA)							
Task Performance	16	3084	.16	.19	.04	.12 to .26	-.01 to .39
Objective Measures	2	601	-.01	-.01	.01	-.02 to 0	*
Supervisory Ratings	11	1897	.17	.20	.03	.14 to .26	.12 to .28
Self Ratings	3	586	.30	.35	.07	.21 to .49	.19 to .51
Negative Affectivity (NA)							
Task Performance	25	7164	-.13	-.15	.03	-.21 to -.10	-.36 to .05
Objective Measures	1	432	.03	-	-	-	-
Supervisory Ratings	16	4428	-.08	-.09	.01	-.12 to -.07	*
Self Ratings	8	2304	-.24	-.30	.06	-.40 to -.19	-.53 to -.06

Notes. k=number of independent samples in analysis; N=total sample size in k studies; $M\hat{r}$ =mean n-weighted "bare-bones" uncorrected correlation; $M\hat{\rho}$ =estimated mean population correlation; SE =estimated standard error of measurement for estimated mean population correlation; 95% CI for $M\hat{\rho}$ =95% confidence interval for estimated mean population correlation; 90% CV for $M\hat{\rho}$ =90% credibility interval for estimated mean population correlation. *These variance estimates were negative. Such occurs when the observed variance is less than what be predicted by sampling error, a situation that is common in meta-analyses incorporating a relatively small number of primary studies.

Table 2

Meta-Analytic Results for the Relationships between Positive and Negative Affectivity and OCBs, CWBS, Withdrawal Behaviors, and Occupational Injury

Relationship	k	N	$M\hat{r}$	$M\hat{\rho}$	SE	95% CI for $M\hat{\rho}$	90% CV for $M\hat{\rho}$
PA – OCBs	7	1492	.19	.23	.06	.11 to .34	.01 to .45
NA – OCBs	11	2240	-.08	-.10	.02	-.15 to -.06	*
PA – CWBs	-	-	-	-	-	-	-
NA – CWBs	8	1461	.25	.30	.05	.20 to .40	.11 to .50
PA - Withdrawal	7	2165	.05	.05	.08	-.10 to .21	-.25 to .36
NA – Withdrawal	9	2650	.14	.16	.05	.06 to .26	-.06 to .38
NA – Occupational Injury	3	759	.17	.20	.02	.16 to .24	*

Notes. PA = positive affectivity ; NA = negative affectivity; OCBs = organizational citizenship behaviors; CWBs = counterproductive work behaviors; k=number of independent samples in analysis; N=total sample size in k studies; $M\hat{r}$=mean n-weighted "bare-bones" uncorrected correlation; $M\hat{\rho}$ =estimated mean population correlation; SE =estimated standard error of measurement for estimated mean population correlation; 95% CI for $M\hat{\rho}$ =95% confidence interval for estimated mean population correlation; 90% CV for $M\hat{\rho}$ =90% credibility interval for estimated mean population correlation.

*These variance estimates were negative. Such occurs when the observed variance is less than what be predicted by sampling error, a situation that is common in meta-analyses incorporating a relatively small number of primary studies.

Table 3

Meta-analytic Correlations between Negative and Positive Affectivity, Performance Dimensions, and Proposed Mediators

Variable	1	2	3	4	5	6	7	8
1. PA								
2. NA	-.23[a]							
k studies	12							
N total	4457							
3. Task Perform.	.19[b]	-.15[b]						
k studies	16	25						
N total	3084	7164						
4. OCBs	.23[b]	-.10[b]	-					
k studies	7	11	-					
N total	1492	2240	-					
5. CWBs	-	.30[b]	-.	-				
k studies	-	8	-	-				
N total	-	1461	-	-				
6. Withdrawal	.05[b]	.16[b]	-	-	-			
k studies	7	9	-	-	-			
N total	2165	2650	-	-	-			

Table 3 Continues

Table 3 Continued

Variable	1	2	3	4	5	6	7	8
7. Job Sat.	.33[c]	-.37[c]	.28[g]	.24[j]	-.37[l]	-.27[m]		
k studies	71	145	23	72	25	3		
N total	22,148	52,120	3,251	7,100	6,101	732		
8. Fairness	.30[d]	-.20[d]	.36[h]	.23[j]	-.33[h]	-.46[h]	.62[h]	
k studies	4	22	30	40	18	39	40	
N total	796	9,382	8,317	1,975	4,720	24,273	31,774	
9. Stress	-.28[e]	.36[f]	-.20[i]	-.09[k]	.60[m]	.16[k]	-.57[k]	-.31[m]
k studies	3	*	73	*	3	27	81	3
N total	363	1746	14,493	1,888	733	7,355	20,943	434

Notes. All correlations are corrected for unreliability. Superscripts indicate the source of the meta-analytic correlations as follows: [a] = Watson, et. al. (1999); [b] = Current analyses; [c] = Thoresen, et al. (2003), [d] = Barsky & Kaplan (2007); [e] = Fogarty, et al. (1999); [f] = Spector & Jex (1998); [g] = Harrison, et al. (2006); [h] = Colquitt, Conlon, Wesson, Porter, & Ng, 2001; [i] = LePine, Podsakoff, & LePine (2005); [j] = LePine, Erez, & Johnson (2002); [k] = Podsakoff, Lepine, & Lepine (2007); [l] = Dalal (2005); [m] = Spector, Fox, Penney, Bruursema, Goh, & Kessler (2006). * = Could not determine number of samples based on information provided in article. Because Watson, et al., (1999) did not report the corrected correlation between PA and NA, this correlation was corrected using the average reliability from the studies in the current meta-analysis.

Table 4

Effects of Positive Affectivity and Mediating Variables on Performance Outcomes

	Task Performance		OCBs	
	Point Estimate	t	*Point Estimate*	t
PA w/out Mediators	.19	8.25	.23	10.07
PA with Mediators	.07	2.88	.16	6.82
Indirect Effects				
Job Sat.	.02	1.70	.05	4.35
Fairness	.09	8.15	.03	3.68
Stress	.02	2.85	-.01	-1.90
Total Indirect	.12	8.90	.07	6.29
Contrasts				
JS vs Stress	-.00	-.25	.06	4.16
JS vs Fairness	-.07	-4.12	.01	.07
Fairness vs Stress	.07	5.21	.05	3.96

Notes. t values > 1.96 are significant at p < .05. t values > 2.58 are significant at p < .01

Table 5

Effects of Negative Affectivity and Mediators on Performance Outcomes

	Task Performance		OCBs		CWBs		Withdrawal	
	Point Estimate	t	*Point Estimate*	t	*Point Estimate*	t	*Point Estimate*	t
NA w/out Mediators	-.15	-6.47	-.10	-4.29	.30	13.40	.16	6.91
NA with Mediators	-.05	-1.96	-.02	-.96	.07	3.50	.07	2.86
Indirect Effects								
Job Sat.	-.02	-1.57	-.06	-4.86	.02	1.95	-.03	-2.84
Fairness	-.06	-6.76	-.03	-4.11	.03	4.55	.09	7.82
Stress	-.03	-1.57	.01	1.05	.19	13.68	.03	3.51
Total Indirect	-.10	-7.71	-.08	-6.14	.23	14.63	.09	6.52
Contrasts								
JS vs Stress	.01	.49	-.07	-4.08	-.17	-9.69	-.06	-3.99
JS vs Fairness	.04	2.61	-.03	-2.00	-.01	-.52	-.12	-6.7
Fairness vs Stress	-.04	-2.71	-.04	-3.12	-.16	-11.25	.06	4.32

Notes. t values > 1.96 are significant at p < .05. t values > 2.58 are significant at p < .01

Table 6

Multiple Regression Results for Analyses Predicting Task Performance from Positive and Negative Affectivity, Neuroticism, and Extraversion

Multiple Regression Predicting Task Performance from Neuroticism and NA	
Predictors	B
Neuroticism	-.02
Negative Affectivity	-.12 R^2 for equation = .02

Multiple Regression Predicting Task Performance from Extraversion and PA	
Predictors	β
Extraversion	.00
Positive Affectivity	.16 R^2 for equation = .03

Multiple Regression Predicting Task Performance from PA, NA, Neuroticism, and Extraversion	
Predictors	B
Positive Affectivity	.16*
Negative Affectivity	-.12*
Neuroticism	.02
Extraversion	-.02 R^2 for equation = .04

Notes. * = $p < .05$