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WE (SOMETIMES) KNOW NOT HOW WE FEEL: PREDICTING JOB PERFORMANCE WITH AN IMPLICIT MEASURE OF TRAIT AFFECTIVITY

RUSSELL E. JOHNSON
ANNA L. TOLENTINO
OZGUN B. RODOPMAN
EUNAE CHO
University of South Florida

In this study we examined relationships between trait affectivity and work performance. However, because trait affectivity is believed to operate primarily outside awareness, we assessed it using techniques designed to measure content at explicit *and* implicit levels. Although results were consistent across the explicit and implicit measures (i.e., positive affectivity was positively related to task performance and citizenship behavior, whereas negative affectivity was negatively related to task performance and positively related to counterproductive behavior), the implicit measure predicted greater proportions of variance in supervisor-rated criteria and did so incremental to the explicit measure. We discuss the implications of these results for theory and practice, and highlight the potential usefulness of implicit measures for applied research.

Various internal and external factors elicit an array of affect in employees. Affect, in turn, impacts critical organizational behaviors, including task performance and prosocial behaviors (George, 1991; Staw & Barsade, 1993). Given that employees' organizational lives are imbued with affect, it is critical to understand affective processes in the workplace (Barsade & Gibson, 2007). Although there are a variety of ways for conceptualizing and measuring affect, it is critical that the specific technique used to assess affect is theoretically consistent with the type of affect under investigation (Larsen, Diener, & Lucas, 2002). For example, discrete emotions are quite salient and potent but have a short duration (Weiss, 2002). Therefore, experience sampling methods (ESM) are a useful means for assessing such phenomena, which involve within-person analyses of daily experiences. Conversely, trait affectivity is more diffuse and often operates outside awareness by sensitizing actors to positive and negative stimuli (Weiss, 2002). Because trait affectivity operates at implicit levels (Brief, Butcher,

Correspondence and requests for reprints should be addressed to Russell E. Johnson, Department of Psychology, University of South Florida, 4204 E. Fowler Ave., PCD 4139, Tampa, FL 33620-7200; rjohnson@cas.usf.edu.

& Roberson, 1995), it may be more appropriate to use techniques that are designed to assess phenomena at implicit rather than explicit levels of information processing.

The purpose of this study was to examine the usefulness of an *implicit* measure of trait affectivity for predicting job performance. We therefore measured trait affectivity using explicit (viz., self-report survey items) and implicit (viz., word fragment completion items) techniques. Doing so enabled us to determine whether an implicit measure contributes to the prediction of job performance incremental to an explicit one, which is important for several reasons. First, implicit and explicit information processing are distinct phenomena. Implicit processing involves spreading activation in associative memory systems, whereas explicit processing involves propositional reasoning in symbolic memory systems (Smith & DeCoster, 2000). Because they are distinct phenomena, implicit and explicit processing represent different paths from cognition to behavior. Second, many of the characteristics of typical work settings—high cognitive load and routinization—exacerbate the effects of implicit processing. Researchers (e.g., Johnson & Steinman, 2009) have therefore argued that more attention ought to be paid to implicit processing in work settings. Lastly, measuring trait affectivity using both explicit and implicit techniques allows for a comparison of their relative contribution. It can then be determined how best to measure trait affectivity when the goal is to maximize the shared variance between trait affectivity and job performance. In the following sections, we review the literature on affect and job performance and present hypotheses concerning relationships between the two. We then discuss implicit information processing and techniques for measuring it.

Trait Affectivity

Affect is a generic term representing the various emotions an individual experiences that manifest as either intense, short-lived emotional experiences or as stable, chronic dispositions. Emotions (i.e., discrete reactions to an individual or event) and moods (i.e., general positive or negative states unrelated to a specific target) are feeling states owing to their dynamic nature (Barsade & Gibson, 2007). In contrast, feeling traits correspond to underlying, emotional predispositions to experience and exhibit positive or negative emotions and moods consistently across various situations (Watson, Clark, & Tellegen, 1988). Feeling traits are captured by two dimensions: positive affectivity (PA) and negative affectivity (NA; see Russell & Feldman Barrett [1999] for alternative conceptualizations). High PA is associated with positive emotions like joy and excitement, whereas high NA is associated with negative emotions like fear and

anxiety (Watson et al., 1988). Importantly, PA and NA are not opposite ends of a continuum but are relatively independent dimensions (Weiss, 2002). It is therefore possible for individuals to score high on both PA and NA, on only one dimension, or on neither. This fact is important because PA and NA have unique relationships with job performance.

Trait Affectivity and Job Performance

Job performance can be divided into three broad dimensions: task performance, organizational citizenship behavior (OCB), and counterproductive work behavior (CWB; Rotundo & Sackett, 2002). *Task performance* includes behaviors associated with employees' essential job tasks and duties that contribute to the manufacturing of a product or provision of a service (Borman & Motowidlo, 1993). *OCB* consists of behaviors that contribute to the social and psychological aspects of the work environment, such as helping a coworker and adhering to informal work policies (Organ, 1988). *CWB* refers to acts that harm the organization or its members (Spector & Fox, 2002). CWB may be directed toward the organization (e.g., working slowly) or specific people within the organization (e.g., coworker abuse). Previous research suggests that trait affectivity is related to all three dimensions of job performance (Barsade & Gibson, 2007).

Task performance. PA is believed to relate positively to task performance for a few reasons. First, PA facilitates creative problem solving and flexible cognitive processing (Isen, Daubman, & Nowicki, 1987), which are requisites of effective task performance in many jobs. Second, PA and its associated emotions often co-occur with a promotion regulatory focus (Gable, Reis, & Elliot, 2003; Larsen et al., 2002), which itself is positively related to task performance (Johnson & Chang, 2008). Promotion focus involves an approach-oriented motivation mindset, where individuals are driven by goals that point the way to ideal end states (Higgins, 1997). These tendencies to experience positive emotions and to set approach-oriented goals have beneficial effects on goal setting and striving (e.g., setting specific goals, experiencing high self-efficacy) that produce high task performance (Carver & Scheier, 1998). Third, because the nature of work is increasingly more interdependent and team oriented, achieving high task performance often requires effective social interactions. Having high PA may increase social cohesion at work because it entails tendencies to be enthusiastic and receptive to others (Watson et al., 1988). Consistent with theory, PA has been found to relate positively with supervisor ratings of task performance and managerial potential (Staw & Barsade, 1993; Staw, Sutton, & Pelled, 1994). We therefore expected a positive relationship between PA and task performance.

Hypothesis 1: PA will be positively related to task performance.

In contrast, theory and research suggest a negative relationship between NA and task performance (Cropanzano, James, & Konovsky, 1993), which may exist for a few reasons. First, the qualities associated with high NA (e.g., insecurity, irritability) can damage relationships with supervisors and coworkers (George, 1991). Second, activation of negatively valenced emotions like anxiety and frustration detract attention and cognitive resources needed for task behaviors (Keith & Frese, 2005). Feelings of anxiety and frustration also foster rumination about past mistakes and possible future mistakes, causing employees to lose sight of current task demands. Third, NA is closely related to prevention focus, which is negatively related to task performance (Johnson & Chang, 2008). Highly anxious and frustrated employees are likely to adopt a prevention focus mindset, which is centered on avoiding punishments and pursuing avoidance-oriented goals. However, focusing on what *not* to do detracts from performance because it fails to guide behavior toward ideal states (Carver & Scheier, 1998). Lastly, NA is associated with (and possibly a facet of) Neuroticism (Gable et al., 2003), which is negatively related to task performance (Barrick & Mount, 1991). We therefore predicted the following:

Hypothesis 2: NA will be negatively related to task performance.

OCB. PA is positively related to the performance of prosocial behaviors, including the performance of OCB in work contexts (Barsade & Gibson, 2007). Relationships between PA and OCB have been explained in a couple ways. First, people with high PA interpret their environment in a favorable light and recall positive memories of social interactions (Watson et al., 1988). These information processing biases create the perception of supportive relationships with supervisors and coworkers, which employees reciprocate by performing OCB. Second, people with high PA engage in behaviors that support and reinforce their positive affective states (Clark & Isen, 1982). One way for employees with high PA to sustain their positive affect is by performing OCB (Spector & Fox, 2002). Based on existing research (e.g., George & Brief, 1992), we expected a positive relationship between PA and OCB.

Hypothesis 3: PA will be positively related to OCB.

CWB. Whereas PA relates to OCB, it has been proposed that NA relates to CWB (Spector & Fox, 2002). CWB is often a behavioral response to negative stimuli (e.g., injustice, organizational constraints) that employees perceive in their work environment. Employees with high NA are

biased toward perceiving events in unfavorable ways and experiencing negative emotions (Watson et al., 1988), which they may respond to by performing CWB (Aquino, Lewis, & Bradfield, 1999). Employees with high NA may also perform CWB because they have difficulty enacting constructive coping behaviors (Diefendorff & Mehta, 2007). When people experience strong negative emotions, they may opt for emotion-focused coping, which sometimes involves impulsive and destructive responses. Paralleling theory, empirical findings have consistently revealed a positive relationship between NA and CWB (e.g., Hershcovis et al., 2007), which led us to predict the following:

Hypothesis 4: NA will be positively related to CWB.

In sum, theoretical and empirical evidence support the linkages between trait affectivity and job performance. Although our hypotheses are consistent with this evidence, we deviated from prior research because we examined different information processing channels through which trait affectivity operates. Although trait affectivity is believed to operate primarily at subconscious levels (Barsade & Gibson, 2007), it is typically assessed using techniques that are more appropriate for assessing conscious thought, thus creating a disconnect between theory and measurement. Our goal was therefore to evaluate the usefulness of an implicit measure of trait affectivity for predicting job performance. For reasons discussed below, we suspected that an implicit measure would contribute to prediction incremental to an explicit measure.

Explicit Versus Implicit Measures of Trait Affectivity

Many behaviors, attitudes, and processes occur outside people's awareness (Bargh & Chartrand, 1999; Greenwald & Banaji, 1995). This is especially true in the case of self-regulation because effective goal striving requires that needed information is accessible in memory at particular times and that irrelevant information is suppressed (Johnson, Chang, & Lord, 2006). Affect plays a crucial role in goal-related processes because it biases the availability of information and the operation of sensory, motor, and cognitive functions (Cosmides & Tooby, 2000). These biasing mechanisms of emotion are believed to occur at unconscious levels, which then impact subsequent processing at explicit levels (Strack & Deutsch, 2004).

At *explicit* levels, processing requires significant amounts of attention, motivation, and available time and resources to operate effectively (De Houwer & Moors, 2007). Information is represented as symbols (i.e., mental representations of organisms, relationships, and states of the world) that are interconnected via semantic relations (e.g., "is a" or "causes"), which form propositions (e.g., "I am happy"). The explicit system relies on

deductive reasoning to evaluate the validity of these propositions (Strack & Deutsch, 2004). For example, evaluating the proposition "I am happy" requires purposeful introspection in order to accurately appraise one's current affective state and then report it using an open-ended or scaled response format. Such an endeavor is possible when reporting discrete emotions because they are acute and attention grabbing (Weiss, 2002). In contrast, trait affectivity refers to predispositions to experience certain emotions, which are less available to introspection than discrete emotions. To date, trait affectivity has been inferred from people's purposeful recollections of what emotions they generally experience, which is an indirect way of assessing predispositions. Limitations regarding human encoding and recall also pose problems for introspection as a technique to assess trait affectivity. It is our thesis that techniques designed to assess phenomena at implicit levels are more appropriate for measuring trait affectivity.

Information processing at *implicit* levels occurs outside of people's awareness, control, and intention (De Houwer & Moors, 2007). It involves spreading activation in connectionist memory systems, where information is represented by neuron-like units and the pattern and strength of associations among units (Smith, 1996). The strength of these associations is based on similarity, contiguity, and frequency of co-activation (Kunda & Thagard, 1996). The ease with which mental representations are activated depends, in part, on their accessibility in connectionist networks (i.e., highly accessible representations have low thresholds for activation). The accessibility of positively valenced representations should be elevated for people with high PA, whereas the accessibility of negatively valenced representations should similarly be elevated for people with high NA. Trait affectivity has the effects it does because affect-laden representations are chronically accessible at implicit levels, which then bias downstream cognition and behavior (Strack & Deutsch, 2004).

The automatic nature of implicit content limits the usefulness of purposeful introspection as a way to assess accessibility. Because affect constrains the activation of representations and associations at implicit levels (Forgas, 2003), researchers should consider the use of measurement techniques that capture implicit content. However, trait affectivity is commonly assessed using techniques that are more suited for examining processing at explicit levels. A common method for measuring trait affectivity involves collecting ratings of the frequency that respondents generally experience particular emotions (e.g., Watson et al.'s [1988] Positive and Negative Affect Schedule). Generating these ratings requires respondents to consciously recall the relative frequency of instances when they felt the target emotions, which relies on symbolic processing at explicit levels. Although there are no "process pure" measures of explicit and implicit processing (Gawronski & Bodenhausen, 2007), there are better techniques than

survey items for assessing implicit content. Examples of such techniques include implicit association tests, Stroop tasks, and lexical decision tasks (Johnson & Steinman, 2009).

We measured trait affectivity using a word fragment completion task, which is a common technique for assessing implicit content (Vargas, Sekaquaptewa, & von Hippel, 2007). Word fragments were constructed in such a way that words corresponding to PA, NA, or neutral content can be formed. Because the accessibility of content at implicit levels biases responses on the task, the accessibility of PA and NA can be inferred from the proportion of PA and NA words, respectively, that participants generate. As a rule, responses on implicit measures denote the subconscious accessibility of content in memory, whereas responses on explicit measures are conscious evaluations of content in memory (Gawronski, LeBel, & Peters, 2007). Because trait affectivity denotes the accessibility of affect at implicit levels, we predicted that an implicit measure would account for more variance in job performance than an explicit measure. We therefore proposed the following:

Hypothesis 5: An implicit measure of trait affectivity will contribute more to the prediction of (a) task performance, (b) OCB, and (c) CWB than an explicit measure.

Before addressing Hypotheses 1–5, we first ran two pilot studies in order to assess the validity of the word fragment completion measure of trait affectivity. The pilot studies examined the extent of agreement between implicit and explicit scores of trait affectivity and the stability of implicit scores across time. For the primary study, we examined relationships of employees' implicit and explicit trait affectivity scores with supervisor ratings of job performance.

Pilot Study 1

The aim of Pilot Study 1 was to determine the extent of agreement between scores on implicit and explicit measures of trait affectivity. If the implicit measure is valid, then implicit PA and NA scores should be significantly and positively related to explicit PA and NA scores, respectively. Our method and results are discussed below.

Method

Participants and Procedure

Thirty-eight undergraduate students at a university in the southeast United States participated in exchange for extra credit. Demographics

of participants were as follows: 47% were male; their average age was 24.3 years ($SD = 7.6$); and the majority were either Caucasian (42%), Hispanic (23%), or African American (20%). Participants were administered a survey that contained implicit and explicit measures of trait affectivity (the order of presentation was counterbalanced).

Measures

Trait affectivity—implicit. We used a 20-item word fragment completion measure that was developed by Johnson (2006; see the Appendix). These 20 items were selected because there was sufficient variance in responses (i.e., at least 15% and no more than 85% of responses were the target affect word) and because they loaded on higher-order PA and NA factors. Participants were instructed to complete the word fragments as quickly as possible and to skip items when they were unable to immediately think of a word. PA and NA were operationalized by adding up the number of PA- and NA-oriented words, respectively, that participants generated. Responses were coded by two independent raters, and discrepancies were resolved by conferring with the first author (initial interrater agreement was 95% and Cohen's [1960] $\kappa = .91$). Because participants differed in the number of word fragments they completed, we calculated the total number of words generated by each person. We then divided the number of PA words and NA words by the total number of words that the participant generated. Calculating proportion scores was necessary because participants who completed fewer items were more likely to generate fewer PA and NA words. The proportion of PA words and NA words that participants generated served as their implicit PA and NA scores, respectively.

Trait affectivity—explicit. Employees completed Watson et al.'s (1988) PANAS measure. The PANAS contains a list of 20 affect-related adjectives, 10 each for PA ($\alpha = .91$; "interested") and NA ($\alpha = .90$; "irritable"). Because we were interested in measuring trait affectivity, participants received the following instructions: "Indicate to what extent you generally feel this way—that is, how you feel on average and across all situations." Participants responded to each adjective using a 5-point Likert scale (from 1 = *never* to 5 = *always*).

Results and Discussion

We examined intercorrelations among the implicit and explicit scores of trait affectivity. There was a significant correlation between the implicit and explicit PA scores ($r = .46$, $p < .01$), and between the implicit and explicit NA scores ($r = .50$, $p < .01$). The magnitudes of these

implicit–explicit relationships are consistent with those reported elsewhere (e.g., Hofmann, Gawronski, Gschwendner, Le, & Schmitt, 2005). Although only moderate in size, the correlations are positive and significant. In fact, it is unreasonable to expect large correlations between implicit and explicit measures because they tap qualitatively different forms of information processing (Gawronski et al., 2007). In support of the orthogonal nature of PA and NA, there were nonsignificant correlations between PA and NA when measured implicitly ($r = -.20$, $p = .23$) and explicitly ($r = -.16$, $p = .32$). Overall, these results provide support for the convergent validity of the word completion measure of trait affectivity.

Pilot Study 2

The aim of the second pilot study was to examine the stability of scores on the implicit measure of trait affectivity. To serve as referents, we also collected data on explicit measures of trait affectivity and Conscientiousness, a stable personality trait (Costa & McCrae, 1988). If the implicit measure is indeed capturing *trait* affectivity, then the stability coefficient for implicit scores should be similar to the stability coefficients for the explicit scores.

Method

Participants and Procedure

Forty-nine undergraduate students at a university in the southeast United States participated in exchange for extra credit. Demographics of participants were as follows: 44% were male; their average age was 23.7 years ($SD = 8.3$); and the majority were either Caucasian (39%), African American (25%), or Hispanic (21%). Participants were administered a survey that contained the implicit and explicit measures. Approximately 6 weeks later, participants were administered another survey with the same measures. The presentation order of measures was counterbalanced at both administrations.

Measures

Trait affectivity. Participants completed the same implicit and explicit measures of trait affectivity that were used in the previous pilot study. For the implicit measure, initial interrater agreement was 95% and Cohen's (1960) $\kappa = .90$ at Time 1, and 97% and $\kappa = .91$ at Time 2. For the explicit measure, internal consistencies for PA were .82 and .87 at Times

1 and 2, respectively, and for NA they were .89 and .84 at Times 1 and 2, respectively.

Conscientiousness. Conscientiousness was measured using 10 items ($\alpha = .81$ and .78 at Times 1 and 2, respectively) from Goldberg's (1999) International Personality Item Pool (IPIP). An example item is "I pay attention to details." Participants responded to each item adjective using a 5-point Likert scale (from 1 = *strongly disagree* to 5 = *strongly agree*).

Results and Discussion

Descriptive statistics and correlations among the variables are presented in Table 1. Correlations between the Time 1 and 2 scores for implicit trait affectivity were significant and positive for PA ($r = .72$, $p < .01$) and NA ($r = .64$, $p < .01$). These stability coefficients were comparable to the ones for explicit trait affectivity ($r = .56$, $p < .01$, for PA; and $r = .41$, $p < .01$, for NA) and Conscientiousness ($r = .80$, $p < .01$). Therefore, it appears that the word fragment measure assesses trait levels of affectivity. Also, consistent with findings from the first pilot study, there was satisfactory agreement between implicit and explicit scores of the same construct (*r*s ranged from .42 to .53). Taken together, results from the two pilot studies are encouraging with respect to the validity of the word fragment completion measure. This measure therefore served as the implicit measure of trait affectivity in the primary study.

Primary Study

For the primary study, we administered the implicit and explicit measures of trait affectivity to employees and collected job performance ratings from their immediate supervisors (CWB was self-reported by employees). These data were then used to test Hypotheses 1–5.

Method

Participants and Procedure

Survey data were collected from 120 matched pairs of employees and supervisors. Hardcopies of the survey were distributed several ways, including via networks of business contacts (64%) and university alums (13%), and dispersing them to full-time workers in evening and weekend MBA (11%) and psychology courses (12%) at a university in the southeast United States. Participants who were enrolled in university courses received extra credit.

TABLE 1
Descriptive Statistics and Correlations Among the Variables in Pilot Study 2

Variable	1	2	3	4	5	6	7	8	9	10
Time 1 scores										
1. PA (*implicit*)	–									
2. NA (*implicit*)	−.16	–								
3. PA (*explicit*)	.53	−.21	(.82)							
4. NA (*explicit*)	−.16	.45	−.24	(.89)						
5. Conscientiousness	.20	.00	.18	−.05	(.81)					
Time 2 scores										
6. PA (*implicit*)	.72	−.17	.47	−.09	.06	–				
7. NA (*implicit*)	−.01	.64	−.14	.46	−.02	−.15	–			
8. PA (*explicit*)	.43	−.19	.56	−.15	.15	.48	−.17	(.87)		
9. NA (*explicit*)	−.12	.42	−.23	.41	.17	−.12	.50	−.21	(.84)	
10. Conscientiousness	.17	.02	.14	−.08	.80	.15	.00	.13	−.06	(.78)
Mean	.18	.19	3.61	2.04	3.64	.19	.20	3.37	2.12	3.53
SD	.14	.12	.51	.65	.61	.14	.12	.72	.66	.58

Note. $N = 49$. PA and NA = Positive and negative affectivity, respectively.
Correlations greater than .27 are statistically significant at $p < .05$ (two-tailed).

Initially, 150 surveys containing measures of dispositional affect and CWB were distributed to consenting employees. One hundred and thirty-six completed surveys were returned. Three weeks later, the 136 participants were given another survey that they were instructed to pass along to their work supervisor. This survey contained measures of task performance and OCB. Supervisors returned completed surveys using a self-addressed, stamped envelope provided by the researchers. Of the 136 supervisor surveys that were distributed, we received useable data from 120 supervisors. We requested supervisor contact information (either a phone number or e-mail address) from both employees and their supervisors, which we used to contact a random sample of supervisors (approximately 25%) in order to verify that they completed the survey. Every supervisor that we contacted indicated that they had.

The demographics of employees were as follows: 59% were male; their average age was 35.7 years ($SD = 6.4$); the majority were either Caucasian (44%), Hispanic, (29%) or African American (19%); average tenure in their current job was 43.8 months ($SD = 17.5$); they worked an average of 41.0 hours per week ($SD = 9.9$); and they were employed predominantly in retail/service (e.g., auto mechanic; 42%), professional (e.g., dentist; 38%), or government (e.g., county clerk; 10%) industries. Demographics of supervisors were as follows: 63% were male; they ranged in age from 20–29 years (8%), 30–39 years (35%), 40–49 years (45%), and 50 and above (12%); and they worked an average of 47.5 hours per week ($SD = 7.3$). The average tenure of employees' working relationship with their supervisors was 37.5 months ($SD = 19.4$).

Measures

Unless otherwise noted, participants responded to all survey items using a 5-point Likert scale (from 1 = *strongly disagree* to 5 = *strongly agree*).

Trait affectivity. Employees completed the same implicit and explicit measures of trait affectivity that were used for the pilot studies. For the implicit measure, initial interrater agreement was 95% and Cohen's (1960) $\kappa = .89$. For the explicit measure, internal consistencies were .90 and .88 for PA and NA, respectively.

Task performance. Supervisors rated the task performance of their subordinates using Williams and Anderson's (1991) 7-item measure of in-role performance ($\alpha = .88$). An example item is "Adequately completes assigned duties."

OCB. Supervisors rated their subordinate's OCB using Williams and Anderson's (1991) OCB measure. This measure consists of separate

OCB-Individual ("Helps others who have heavy workloads") and OCB-Organization ("Conserves and protects organizational property") subscales. Seven items each assess OCBI ($\alpha = .86$) and OCBO ($\alpha = .81$).

CWB. We collected self-report ratings of CWB, which is customary because deviant behaviors are typically performed covertly (Spector, et al., 2006). Participants completed Robinson and O'Leary-Kelly's (1998) 9-item scale ($\alpha = .89$). Example items are "I have done things that have harmed my employer or boss" and "I have done work badly, incorrectly, or slowly on purpose." Although the items assess sensitive content, we are confident that participants responded honestly for a few reasons. First, self-report CWB measures are akin to overt integrity tests, which correlate with theft and other CWBs (Berry, Sackett, & Wiemann, 2007). Second, responses were kept confidential, which was clearly stated to participants in a cover letter and the survey. Third, the survey was solely for research purposes (not personnel or administrative ones), which tends to increase the accuracy of self-ratings of work behaviors (Fletcher & Baldry, 1999).

Results and Discussion

Descriptive statistics and correlations among the variables are listed in Table 2. Consistent with the pilot study results, the correlations between the implicit and explicit scores for PA ($r = .34$, $p < .05$) and for NA ($r = .38$, $p < .05$) were significant and positive.

Trait Affectivity and Job Performance

Tests of Hypotheses 1–4 were conducted by regressing each outcome on the explicit measures of trait affectivity in Step 1, followed by the implicit measures in Step 2. Separate regression models were specified for each outcome (see Table 3). We ran analyses with and without the inclusion of demographic variables as controls. Because none of these variables were significant, results are reported without control variables. In support of Hypothesis 1, explicit ($\beta = .36$, $p < .01$) and implicit ($\beta = .38$, $p < .01$) PA were positively related to task performance. In line with Hypothesis 2, implicit NA was negatively related to task performance ($\beta = -.22$, $p < .05$), but explicit NA was not ($\beta = -.17$, *ns*). Hypothesis 3 received partial support because explicit ($\beta = .33$, $p < .01$) and implicit ($\beta = .37$, $p < .01$) PA were positively related to OCBI, but only implicit PA was related to OCBO ($\beta = .40$, $p < .01$). Hypothesis 4 received full support because explicit ($\beta = .39$, $p < .01$) and implicit ($\beta = .21$, $p < .01$) NA were positively related to CWB. Although not predicted, explicit PA was also related to CWB ($\beta = -.20$, $p < .05$).

TABLE 2
Descriptive Statistics and Correlations Among the Variables in the Primary Study

Variable	1	2	3	4	5	6	7	8
Employee rated								
1. PA (*implicit*)	–							
2. NA (*implicit*)	−.26	–						
3. PA (*explicit*)	.34	−.19	(.90)					
4. NA (*explicit*)	−.17	.38	−.33	(.88)				
5. CWB	−.30	.35	−.36	.42	(.89)			
Supervisor rated								
6. Task	.55	−.40	.40	−.26	−.40	(.88)		
7. OCBI	.48	−.37	.33	−.07	−.16	.44	(.86)	
8. OCBO	.54	−.39	.20	−.20	−.35	.53	.42	(.81)
Mean	.27	.25	3.83	2.58	2.03	4.25	4.22	4.35
SD	.18	.14	.78	.85	.87	.59	.65	.72

Note. $N = 120$ matched supervisor–subordinate pairs. PA and NA = Positive and negative affectivity, respectively; CWB = Counterproductive work behavior; Task = Task performance; OCBI and OCBO = Organizational citizenship behavior directed at individuals and the organization, respectively.
Correlations greater than .19 are statistically significant at $p < .05$ (two-tailed).

TABLE 3
Predicting Work Performance With Explicit and Implicit Measures of Dispositional Affectivity

	Supervisor-rated criteria			Self-rated criterion
Predictors	Task	OCBI	OCBO	CWB
Step 1				
PA (*explicit*)	.36**	.33**	.18	−.20*
NA (*explicit*)	−.17	.03	−.14	.39**
F	9.94**	6.11**	3.69*	27.02**
R^2	.13	.11	.09	.22
Step 2				
PA (*implicit*)	.38**	.37**	.40**	−.09
NA (*implicit*)	−.22*	.16	−.17	.21**
ΔF	23.67**	16.01**	18.07**	7.38**
ΔR^2	.24	.22	.26	.07
Model F	20.64**	11.94**	11.48**	18.14**
Model R^2	.37	.33	.35	.29

Note. $N = 120$ matched supervisor–subordinate pairs. Standardized regression coefficients (β) are reported in the table, the values of which correspond to the step in which they were entered. PA and NA = Positive and negative affectivity, respectively; Task = Task performance; OCBI and OCBO = Organizational citizenship behavior directed at individuals and the organization, respectively; CWB = Counterproductive work behavior.
*$p < .05$, **$p < .01$ (two-tailed).

Predictive Efficacy of the Implicit Measure of Trait Affectivity

Hypothesis 5 concerned the effectiveness of predicting job performance using an implicit measure of trait affectivity. To test this hypothesis, we assessed both incremental importance and relative importance (LeBreton, Hargis, Griepentrog, Oswald, & Ployhart, 2007). *Incremental importance* involves demonstrating that the implicit scores account for variance in criteria above and beyond the explicit scores. We did so by examining ΔR^2 when the implicit scores were added to the regressions model in Step 2. As shown in Table 3, the implicit scores accounted for incremental variance in task performance, $\Delta F(2,115) = 23.67$, $p < .01$ ($\Delta R^2 = .24$); OCBI, $\Delta F(2,115) = 16.01$, $p < .01$ ($\Delta R^2 = .22$); OCBO, $\Delta F(2, 115) = 18.07$, $p < .01$ ($\Delta R^2 = .26$); and CWB, $\Delta F(2, 115) = 7.38$, $p < .01$ ($\Delta R^2 = .07$). The average ΔR^2 for the implicit scores was .20, which exceeded the average R^2 of .14 for the explicit measures. When we reversed the order of entry in the regression models for the explicit and implicit scores, the average ΔR^2 for the explicit scores dropped to .08 and they failed to predict incremental variance in OCBO, $\Delta F(2, 115) = .52$, *ns* ($\Delta R^2 = .01$).

TABLE 4
Relative Weights Analysis of the Trait Affectivity Measures

	Task		OCBI		OCBO		CWB	
Predictors	RW	%	RW	%	RW	%	RW	%
PA (*explicit*)	.02	5	.06	18	.02	6	.07	24
NA (*explicit*)	.07	19	.01	3	.01	3	.11	38
PA (*implicit*)	.08	22	.16	49	.23	65	.05	17
NA (*implicit*)	.20	54	.10	30	.09	26	.06	21
Model R^2	.37		.33		.35		.29	

Note. RW = Relative weights; % = Rescaled relative weights (RW divided by model R^2).

Relative importance involves determining the contributions that predictors make to R^2, both their unique contributions and their contributions when other predictors are considered (LeBreton et al., 2007). To do so we calculated relative weights (Johnson, 2000), which can be used to rank order predictors in terms of their relative importance. Results of these analyses are reported in Table 4. Using task performance as an example, results suggested that implicit NA was the most important predictor (relative weight [RW] = .20), followed by implicit PA (RW = .08), explicit NA (RW = .07), and explicit PA (RW = .02). Also reported in Table 4 are rescaled relative weights (i.e., RW divided by model R^2), which is the percentage of predicted criterion variance that is attributed to each predictor. Results revealed that the implicit scores contributed more to the prediction of task performance, OCBI, and OCBO, whereas the explicit scores contributed more to CWB. Overall, Hypothesis 5 received considerable support.

General Discussion

Consistent with emotion-centric research regarding voluntary work performance (e.g., Spector & Fox, 2002), we found that PA and NA were uniquely related to OCB and CWB, respectively. Our findings also speak to the status of the relationship of trait affectivity with in-role performance, which has received mixed support. Although PA and NA were positively and negatively related, respectively, to task performance, the relative magnitudes of these relationships differed (i.e., PA had a stronger relationship than NA). This finding may suggest that although PA has a consistent favorable relationship with task performance, relationships involving NA are more complex. For example, the experience of NA-related emotions (e.g., anxiety) may sometimes aid performance because it signals that performance–goal discrepancies are large, and thus, greater effort must be devoted to on-task activities (Carver & Scheier, 1998). In these cases,

anxiety is positively related to task performance. However, NA-related emotions may also lead to preoccupation and rumination, which interfere with goal striving (Keith & Frese, 2005). In these cases, anxiety is negatively related to task performance. Further research that teases apart the relationships between trait affectivity and job performance and identifies mediators of these relationships is therefore needed.

Trait affectivity is believed to relate to job performance owing to processes that occur primarily at implicit levels. For this reason, we predicted that measurement techniques designed to assess trait affectivity at implicit levels would account for more variance in job performance than explicit techniques. In order to test this proposition, we first validated an implicit measure of trait affectivity. Results across two pilot studies indicated that responses on the implicit measure were moderately and positively correlated with scores on an explicit measure and that implicit scores were stable over a 6-week period. Although our results replicated previous findings (e.g., PA is positively related to OCB), we extended prior research by demonstrating that an implicit measure of trait affectivity is a more effective predictor of job performance than an explicit measure. This conclusion is based on three findings. First, although all hypothesized relationships were supported when implicit scores were examined, the same was not true for the explicit scores (e.g., explicitly measured PA was unrelated to OCB). Second, the implicit scores accounted for variance in all criteria incremental to the explicit scores (average $\Delta R^2 = .20$), which exceeded the incremental variance explained by the explicit scores (average $\Delta R^2 = .08$) when they were entered in the last step of the regression model. Third, relative weights analyses suggested that the implicit scores contributed more than the explicit scores to the prediction of supervisor-rated performance. As a set, these findings bolster the contention that constructs believed to operate at subconscious levels ought to be measured using techniques that are suited for assessing implicit processes (Haines & Sumner, 2006; Johnson & Steinman, 2009).

Practical Implications and Future Directions

This study highlights the potential usefulness of including implicit measures as a complement to explicit measures in applied contexts. One well-known problem with explicit self-report measures is the relative ease with which respondents can distort their answers in order to paint a more desirable picture of themselves (Dovidio, Kawakami, Johnson, Johnson, & Howard, 1997). Indeed, respondent faking on personality and dispositional tests is potentially a serious problem in selection contexts (Snell, Sydell, & Leuke, 1999). The use of implicit measures may mitigate this problem if it limits opportunities for respondents to distort their

responses as some have suggested (Fazio & Olson, 2003). In support of this idea, some researchers (Asendorpf, Banse, & Mucke, 2002; Egloff & Schmukle, 2002) have found that responses on implicit measures were unaffected when respondents were instructed to fake. Because respondents lack awareness of the specific construct being assessed by implicit measures, it is difficult for people to "fake good." Using implicit measures may also reduce biased responding when respondents lack awareness of or access to existing attitudes and dispositional tendencies (Haines & Summer, 2006). We encourage future research that examines the extent to which faking impacts scores on implicit measures that are used specifically for selection purposes. Although it has been found that faking has minimal impact on responses in nonselection contexts, these effects may be moderated by the purpose of assessment.

Besides the possibility of faking, the usefulness of implicit measures in applied contexts is tempered by how practical they are to administer and score. Although some implicit measurement techniques may be less feasible to use in field settings, particularly those requiring the collection of reaction time or neural imaging data, "low tech" paper-and-pencil implicit measures like the one used in this study are viable options (Vargas et al., 2007). Another important consideration is whether implicit measurement techniques are seen as face valid by participants. If a measurement technique deviates too far from accepted practices, it may foster resistance, counterproductive response distortion, and perhaps legal action from respondents. The paper-and-pencil technique used in this study did not appear to engender resistance; in fact, several respondents commented how they enjoyed completing the word fragments because they broke up the monotony of responding to traditional survey items.

To extend the present research findings, several fruitful avenues for future research exist. First, there is a need for research that examines the use of implicit techniques for measuring other individual difference variables that are believed to operate subconsciously. Existing research has supported the use of implicit measures for variables such as self-concept (Haines & Sumner, 2006), self-esteem (e.g., Bosson, Swann, & Pennebaker, 2000), and regulatory focus (e.g., Johnson & Steinman, 2009), all of which are relevant in organizational contexts. Assuming that implicit measures tap into subconscious processing, account for unique variance relative to explicit measures, and may be resistant to faking, developing implicit measures of critical predictors of performance would benefit both researchers and practitioners. For example, implicit measures of key personality traits (e.g., conscientiousness, integrity) may provide further insights on relationships between personality and job performance.

A second direction for future research is to identify individual differences variables that impact information processing. For example,

impulsivity (Eysenck, 1967) and action-state orientation (Diefendorff, Hall, Lord, & Strean, 2000) may influence the likelihood of implicit versus explicit information processing. Given that impulsivity involves taking action with minimal consideration for consequences, we expect highly impulsive people to partake in greater implicit and less explicit processing than people low in impulsivity. In a similar fashion, action-oriented people may engage in more implicit and less explicit processing than state-oriented people. Action-oriented people are context sensitive, tend to initiate behaviors quicker, and quickly move between actions, suggesting a propensity for implicit processing. Alternatively, state-oriented people ruminate before making decisions, persist less, and are more preoccupied by counterproductive thoughts and worries, increasing the likelihood of explicit processing. Therefore, relationships of implicit scores with criteria may be moderated by impulsivity and action-state orientation, such that relationships are stronger when impulsivity and action orientation are high versus low. Other variables, like need for cognition, also appear to have moderating effects (Johnson & Steinman, 2009).

Lastly, in line with research in the stereotype and prejudice literature, researchers should investigate situations where implicit and explicit scores for the same construct oppose one another. In addition to unique relationships of explicit and implicit scores with work criteria, the congruence between the two scores may also predict criteria. Conflicting content at explicit and implicit levels can also be examined using experimental methods. One way of doing so is activating conflicting goals at the different levels by, for example, implicitly priming people with an accuracy goal and explicitly assigning a speed goal. The relative effects of content at explicit and implicit levels could then be compared, which may depend in part on individual differences (e.g., action–state orientation).

Although this study is not without limitations, our findings were consistent with previous research on trait affectivity. More importantly, we extended previous research by demonstrating that an implicit measure of trait affectivity predicted job performance and appeared to do so more effectively than an explicit measure. We believe that paying further attention to processes and constructs at implicit levels will provide a more comprehensive understanding of organizational attitudes and behavior. This knowledge can then be leveraged to improve the productivity and well-being of organizations and their members.

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APPENDIX

Items From the Word Fragment Completion Measure of Trait Affectivity

Word Fragment	PA	NA	Other
F E _ _	–	FEAR	FEEL, FEED
P R O _ _ _	PROUD	–	PROWL, PRONE
_ U I L T	–	GUILT	BUILT, QUILT
_ _ A D	GLAD	–	READ, DEAL
_ _ _ T I L E	–	HOSTILE	REPTILE
_ E R _ Y	MERRY	–	BERRY, FERRY
_ _ A R _ D	–	SCARED	STARED, FLARED
S M _ _ _	SMILE	–	SMOKE, SMART
_ _ _ _ O U S	–	NERVOUS	TEDIOUS
E X _ _ _ _	EXCITE	–	EXTEND, EXPAND
_ _ N S E	–	TENSE	SENSE, DENSE
_ O Y	JOY	–	SOY, BOY
_ _ S E T	–	UPSET	ASSET, RESET
_ _ E E	GLEE	–	FREE, TREE
D I S _ _ _ _ _	–	DISTRESS	DISPENSE
_ _ P P Y	HAPPY	–	HIPPY, SAPPY
A F _ _ _ D	–	AFRAID	AFFORD
C H _ _ R	CHEER	–	CHAIR, CHOIR
_ R O _ N	–	FROWN	CROWN, BROWN
_ _ L L Y	JOLLY	–	JELLY, BELLY