

# What I Experienced Yesterday Is Who I Am Today: Relationship of Work Motivations and Behaviors to Within-Individual Variation in the Five-Factor Model of Personality

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Historically, organizational and personality psychologists have ignored within-individual variation in personality across situations or have treated it as measurement error. However, we conducted a 10-day experience sampling study consistent with whole trait theory (Fleeson, 2012), which conceptualizes personality as a system of stable tendencies and patterns of intraindividual variation along the dimensions of the Big Five personality traits (Costa & McCrae, 1992). The study examined whether (a) internal events (i.e., motivation), performance episodes, and interpersonal experiences at work predict deviations from central tendencies in trait-relevant behavior, affect, and cognition (i.e., state personality), and (b) there are individual differences in responsiveness to work experiences. Results revealed that personality at work exhibited both stability and variation within individuals. Trait measures predicted average levels of trait manifestation in daily behavior at work, whereas daily work experiences (i.e., organizational citizenship, interpersonal conflict, and motivation) predicted deviations from baseline tendencies. Additionally, correlations of neuroticism with standard deviations in the daily personality variables suggest that, although work experiences influence state personality, people higher in neuroticism exhibit higher levels of intraindividual variation in personality than do those who are more emotionally stable.

**Keywords:** personality, five-factor model, Big Five, within-individual variation, experience sampling

Organizational scholars have recently begun to consider the more complex, dynamic perspective on personality that has been building momentum over the past decade (e.g., Huang & Ryan, 2011; Minbashian, Wood, & Beckmann, 2010). After decades of debate over whether the person or the situation exerts more power over behavior (for a review, see Fleeson, 2012; Mischel, 2004), scholars have been moving toward integrative perspectives on personality that attempt to explain the paradox that people do exhibit stability of cognition, affect, and behavior over time and, yet, also vary across occasions and change over the life span (Fleeson & Jolley, 2006). For example, someone who scores highly on a measure of trait extraversion may tend to be more outgoing and cheerful than others, on average, but may vary

widely in the level of extraversion enacted at various times and become less or more extraverted with age (Roberts & DelVecchio, 2000).

If individuals vary in their trait enactments from one occasion to another, their life experiences may be responsible, to some degree, for that variation. Given the central role of work in the lives of most adults (Hulin, 2002), experiences at work would seem to be a major source of influence on within-person variation (Dalal, Lam, Weiss, Welch, & Hulin, 2009). Yet, because of the effect of traits, there should be certain consistencies within that variation. In this paper, we investigate these patterns of stability and within-person variation. Within individuals, we examine the influence of performance episodes (i.e., organizational citizenship behavior, or OCB), internal events (i.e., goal-setting motivation and intrinsic motivation), and interpersonal experiences (i.e., conflict) on daily personality states, which are defined as momentary enactments “having the same affective, behavioral, and cognitive content as a corresponding trait” (Fleeson, 2012, p. 52). At the between-individual level, we investigate (a) whether there is consistency in the extent to which individuals’ personality states vary from one week to the next and (b) whether this consistency is associated with trait neuroticism.

To build our arguments, we draw from Fleeson’s (2012) whole trait theory, which provides the most comprehensive account to date of the mechanisms underlying between- and within-individual variation in personality and the interrelationships between the two

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levels. Whole trait theory describes traits as stable distributions of “Big Five” (Costa & McCrae, 1992) personality states. Shifts in personality states occur in response to environmental or internal events that initiate processes of interpretation and activate goals. Despite fluctuations in behavior, personality traits influence average levels of personality states and individual differences in the degree of personality state variation (Fleeson, 2007; Fleeson & Gallagher, 2009; Moskowitz & Zuroff, 2004). Thus, people are constantly shifting in response to events in their work lives; yet, these shifts are not entirely random, nor do the patterns that emerge from these shifts look the same for everyone.

In the following section, we develop hypotheses regarding relationships between personality traits, work experiences, and personality states. First, we provide a definition of the personality state construct that grounds our investigation. Second, we discuss the general framework that guided our expectations for the relationship of work experiences and personality states. Next, we elaborate on specific experience–state relationships. Finally, we address the stable aspects of personality at work, considering consistency in both average levels of personality states and in their variability.

### Meaning of Personality States

Although there are myriad definitions of personality in the literature, personality consists of three main properties. First, there is stability and variability over time. Someone’s current standing on a particular personality trait (i.e., their score on a personality inventory just completed) could be conceptualized as comprising both a fixed quality—which is genetic and relatively immutable—and a variable quality. The variable quality can be distinguished by the span of the change. Change in personality can range from fluctuations over the course of a day (Fleeson & Gallagher, 2009) to sustained changes over a lifetime (Roberts & DelVecchio, 2000). Few personologists would deny that personality exhibits long-term and short-term change and, indeed, research supports this view (Caspi & Roberts, 2001).

Second, personality can be judged by the degree to which traits (and the cognitions, attitudes, and behaviors associated with them) are stable or variable across different contexts. Behavior that shifts with circumstances, is shaped by context, or is easily manipulated would appear less likely to qualify as originating from personality. If stability over time and across contexts is considered the sine qua non of personality (Conley, 1984), these issues occupy an uneasy status in personality theory. For example, some researchers argue that personality provides immunity to contextual influences (Staw & Ross, 1985). Similarly, McCrae and Costa (1994) define stability as an inherent, if not essential, feature of personality. On the contrary, Pervin and others argue that it makes little sense to think of personality as anything other than its interaction with the environment (Pervin, 1989). Examining the interplay of continuity and change may be the most meaningful way to study personality. As noted by Ardel (2000), “Continuity and change in personality cannot be studied without simultaneously considering the continuities and changes in social environment and the reciprocal effects between an individual’s personality, social environment, and experiences” (p. 402).

A third property of personality is breadth. Breadth in terms of personality constructs is commonly considered in personality re-

search, but breadth in terms of predictive validity is worthy of consideration as well. After all, to qualify as a personality construct, the measure of that construct should be able to predict multiple criteria. A tendency to fidget, for example, might be quite narrow, but the behavior’s usefulness as an aspect of personality can be validated by whether it occurs consistently, and whether it predicts behavior in more than one setting.

These three properties should not be assumed to be isomorphic. One might have a very specific aspect of one’s personality that remains stable for a lifetime but exists only in narrow contexts (e.g., one may be easily drawn to tears at operas). Similarly, one might, on average, have a high score on conscientiousness, but that does not mean that the true score was always such, nor does it necessarily mean that one is conscientious in every situation.

Thus, short-term variation in a personality construct—what we call a personality *state*—does not disqualify the personality *trait*. We should not assume that a personality state is any less reflective of personality than a personality trait. If personality has both stable and variable components, then the personality state simply reflects the latter. Of course, psychologists have long studied the degree to which personality is stable over time, consistent across contexts, or both (e.g., Mischel & Shoda, 1995; Sherman, Nave, & Funder, 2010; Tett & Burnett, 2003). Less studied, however, is the degree to which variability in both personality and contexts may jointly influence one another. The study of the dynamic relationship between personality states and contexts is no less valid when the period in question is very brief than when it is very long.

### Connecting Experiences and Personality States

The Big Five traits (i.e., extraversion, agreeableness, conscientiousness, neuroticism, and openness) were conceived of—and are usually studied as—between-individual differences (Costa & McCrae, 1992). There is ample justification for this temperament-based perspective (McCrae, Scally, Terracciano, Abecasis, & Costa, 2010; Saucier, 2009). However, individuals who are followed over a number of occasions enact varying levels of the Big Five personality states across occasions, resulting in nearly as much intraindividual variability in expressions of the Big Five as between-individual variability (Fleeson, 2001; Fleeson & Gallagher, 2009).

According to whole trait theory (Fleeson, 2012), within-person variation in personality states results from interpretive processes that arise in reaction to environmental and internal events. Environmental “events” correspond to what have typically been termed “situations” in the social psychology literature: externally observable occurrences in which the individual may be an active party, a target, or a bystander. But people may create or *be* the situations to which they respond. Although, by our definition, events are observable, often events are inherently filtered through the perceptual lens of the actor. For instance, a salesperson may interpret several sales calls as unsuccessful, which could prompt reflections on goal progress that invoke negative affect, failure cognitions, and withdrawal behavior; in other words, high state neuroticism. Other events may be more objective in the sense that they did not just happen to the actor, or were observed by others. For example, a harsh email sent from a supervisor to an entire work unit could cause an individual to be reserved, pensive, and unsociable (i.e., low extraversion). Regardless of whether the event is objective or

subjective, the dynamic nature of such events has the potential to induce short-term variation in personality states.

The framework of approach and avoidance orientation may prove useful to understanding how work episodes, whether experienced or enacted, relate to personality states. The basic organismic tendency to approach positive stimuli and avoid negative stimuli has long served as a principle for models of motivation, emotion, and behavior (e.g., Elliot, 2006; Gray, 1991; Higgins, 1997). Individuals' evaluations of the meaning and implications of their experiences may elicit an approach orientation—the impetus to promote or sustain desired physical or psychological stimuli—or an avoidance orientation, the motive to prevent or reduce negative stimuli (Elliot, 2006; Gray, 1991). Either an approach or an avoidance orientation should result in commensurate changes in personality states. Approach orientation may engender motivation to achieve mastery, status enhancement, affiliation, altruism, or learning (Carver & White, 1994; Elliot & Thrash, 2002; Read et al., 2010). These motives are consistent with conscientiousness, extraversion, agreeableness, and openness. Avoidance orientation may create vigilance to threat, resulting in negative affect or withdrawal (Carver & White, 1994; Elliot, 2006; Elliot & Thrash, 2002). Experiences that evoke an avoidance orientation should result in heightened state neuroticism, or tendencies toward negative affect, disengagement, and volatility (DeYoung, Quilty, & Peterson, 2007; McCrae & Costa, 1987).

The personality state thus results from context and motives. For an approach-oriented personality state to result, for instance, the focus of the approach motive is key. Experiences that prime social approach motives should influence manifestations of extraversion and agreeableness, which are largely interpersonal in content (McCrae & Costa, 1989; Wiggins & Trapnell, 1996). Extraversion includes tendencies toward sociability and social dominance, whereas agreeableness encompasses cooperativeness, helping, and warmth (McCrae & Costa, 1989). Corresponding to the trait, state openness consists of exploration and divergent thinking, with state conscientiousness defined as goal-directedness, attention to detail, and ambition (McCrae & Costa, 1987). Experiences relevant to mastery or learning should be linked to state openness and conscientiousness (McCrae & Costa, 1989), the content of which refer largely to cognitive tendencies (Sadowski & Cogburn, 1997).

Our reasoning regarding linkages of performance episodes, cognitive states (i.e., internal events), and interpersonal experiences to content-congruent traits is consistent with two important studies on personality state variation in the work setting (Huang & Ryan, 2011; Minbashian et al., 2010). A study of service workers by Huang and Ryan (2011) found that customer friendliness during service interactions was associated with employees' state levels of agreeableness and extraversion, whereas task immediacy was related to state conscientiousness. Minbashian et al. (2010) demonstrated a relationship between task demands and momentary conscientiousness. Furthermore, they found individual differences in the extent to which state conscientiousness was influenced by task characteristics.

Although these studies are notable for considering specific personality states to vary as a function of work experiences, neither study considers the possibility that personality states could vary as a function of an individual's own behaviors and cognitions, factors that whole trait theory (Fleeson, 2012) credits with as much significance in the trait expression process as situations entirely

external to the individual. The Huang and Ryan (2011) and Minbashian et al. (2010) studies also considered personality state contingent on situational characteristics occurring at that moment. Our study, on the other hand, examines personality states as a result of previous day experiences. There are two strengths to this approach. First, temporal precedence, the separation in time of measurement of the predictors and of the personality states, provides stronger support for the hypothesized causal relationship in correlational research (Brewer, 2000). When relationships between inputs and personality state at a single occasion are examined, it is more difficult to conclude that the personality state is an outcome of the situation. As both Bandura (1978) and Schneider (1987) have asserted, people create their situations as much as they are affected by those situations. Thus, for instance, an individual who is in a conscientious state may choose more demanding tasks to take advantage of their present state of mind.

Second, in addition to the methodological strengths of considering next day personality states, investigating relationships at the day-to-day level seems appropriate based on research findings that work behaviors and attitudes exhibit meaningful daily variation (e.g., Bakker & Xanthopoulou, 2009; Ilies, Johnson, Judge, & Keeney, 2011; Rodell & Judge, 2009). To date, there has been more research attention given to antecedents to daily performance and attitudes than to consequences. If interpretive processes are responsible for the influence of daily experiences on personality states, a considerable amount of interpretation may occur in the hours after work. This may include conscious and subconscious processing of one's experiences that day. There is evidence to suggest that cognitive processes that occur during sleep play an important role in learning and memory (for a review, see Walker & Stickgold, 2006). Therefore, the period between workdays may be an important phase during which daily work experiences are interpreted. The resulting effect on personality state then folds into next-day cognition, affect, and behavior.

### Hypothesized Links Between Work Experiences and Personality

In the previous section, we argued that shifts in personality states are based on (a) whether the situation evokes an approach or avoidance orientation; and (b) the congruence between the social, affective, and cognitive elements of the experience, on one hand, and the content of a given personality state (Fleeson & Jolley, 2006; Minbashian et al., 2010; Mischel & Shoda, 1995; Read & Miller, 2002) on the other. Next, we elaborate upon this framework by considering each predictor and its proposed links to next-day personality states.

**Organizational citizenship behavior.** The power of one's own behavior to influence personality states has already been indirectly demonstrated by experimental research that relies on behavioral primes to examine the influence of approach and avoidance orientation on cognition. For instance, researchers have found repeatedly that simply performing a motor action associated with an approach orientation (e.g., contracting one's arm) or avoidance orientation (e.g., extending one's arm) influences cognitive processes (Förster, Friedman, Özel, & Denzler, 2006), presumably because the acts of pulling toward or pushing away are automatically associated with attainment of rewards or avoidance of undesirables, respectively. In one set of experiments, for example,

participants who contracted their arms performed better at creative tasks than those who extended their arms (Förster et al., 2006). Approach and avoidance behaviors have also been found to influence perceptions of the trustworthiness of novel faces (Slepian, Young, Rule, Weisbuch, & Ambady, 2012). Similarly, Slepian et al. (2012) found that participants instructed to push their nondominant hands down on a desk (i.e., arm extension/avoidance behavior) rated neutral faces as less trustworthy than those instructed to push their nondominant hands up on the underside of a desk (i.e., arm flexion/approach behavior).

Flexing one's arm or pressing one's hand on a desk are not, of course, equivalent to engaging in OCB, but the findings imply that even subtle behaviors that suggest attainment of positive outcomes could result in approach-oriented personality states. Further, there is evidence that performing OCB provides a rewarding sense of fulfillment. In one study, OCB earlier in the work day was associated with higher levels of positive affect later that day (Glomb, Bhawe, Miner, & Wall, 2011). Glomb et al. (2011) suggested that the social aspect of OCB, and the gratitude and recognition that it elicits from coworkers, may be rewarding to individuals. This signals that striving toward success in social and task aspects of work may evoke an approach orientation, which in turn provides the emotional and psychological resources to engage in further approach-oriented behaviors. OCB combined with an approach focus may therefore activate certain personality states. For instance, an approach focus in the social domain is associated with seeking fun (Elliot, Gable, & Mapes, 2006), which is characteristic of extraversion. Approach motivation is, furthermore, associated with the effort to bond, to establish intimacy, and with the propensity to trust, which are consistent with agreeableness (Costa, McCrae, & Dye, 1991; Elliot et al., 2006; Slepian et al., 2012). Finally, approach orientation is also associated with broadening of thought processes (Förster et al., 2006), an aspect of state openness.

*Hypothesis 1:* Within-individual variation in organizational citizenship behavior will be positively related to next-day within-individual variation in extraversion (H-1a), agreeableness (H-1b), and openness (H-1c).

**Interpersonal conflict.** Interpersonal conflict may eventually advance work goals, depending on whether and how the conflict is resolved; however, in the short run, conflict may focus attention on avoiding loss and averting further unpleasantness. Incidents of interpersonal conflict are also likely to breed negative feelings (Jehn, 1995). As a result, people may behave less sociably and cooperatively after interpersonal conflict and feel higher levels of hostility or anxiety than usual. Indeed, though not focused on the work domain, research suggests that conflict has avoidance-oriented effects on individuals, which results in withdrawal from social relationships (Woodin, 2011), aggression (Hammock & Richardson, 1992), tension, anxiety, and stress (Srivastava & Pandey, 2000). Each of these behaviors has a close correspondence to extraversion (withdrawal from social relationships [−]), agreeableness (aggression [−]), and neuroticism (tension and stress [+]). Supporting these linkages, evidence indicates that responses to conflict experienced in one domain of life spill over into other domains (Van Doorn, Branje, VanderValk, De Goede, & Meeus,

2011), suggesting that conflict may have generalized effects on individuals.

*Hypothesis 2:* Within-individual variation in interpersonal conflict will be negatively related to next-day within-individual variation in extraversion (H-2a) and agreeableness (H-2b), and positively related to next-day within-individual variation in neuroticism (H-2c).

**Goal-setting motivation.** The conceptual link between goal-setting motivation and conscientiousness is obvious in that the desire to achieve goals may be intrinsic to conscientiousness. Conscientiousness has often been examined as a predictor of goal-setting motivation (Barrick, Mount, & Strauss, 1993; Judge & Ilies, 2002), but never the reverse. Although people high in trait conscientiousness may be generally higher in goal-setting motivation, setting specific and challenging goals could increase state conscientiousness. A key premise of goal-setting theory is that goal setting will make people act more conscientiously. Goals direct energy and attention toward goal-relevant activities like planning, organizing, and exercising self-discipline, all of which are consistent with conscientiousness (Locke & Latham, 1990). Goals are expected to raise self-efficacy, or one's sense of competence, which is also a facet of conscientiousness (Costa & McCrae, 1992). In effect, goal setting serves to make people think and behave more conscientiously, regardless of their trait levels of conscientiousness.

*Hypothesis 3:* Within-individual variation in goal-setting motivation will be positively related to next-day within-individual variation in conscientiousness.

**Intrinsic motivation.** Intrinsic motivation is an affectively positive self-regulatory state in which activity is pursued simply because it is inherently rewarding (Deci, 1971). By definition, intrinsic motivation should foster approach-oriented behavior. Like goal-setting motivation, intrinsic motivation increases effort and direction (Grant, 2008; Ryan & Deci, 2000), which should foster a conscientious orientation. Second, a sense of intrinsic motivation tends to arise when people feel their needs for affiliation are being met (Ryan & Deci, 2000). This may lead to greater concern for achieving goals with the needs and preferences of coworkers in mind, a tendency that should be associated with agreeableness. Finally, because of its link to deeply held values and interests, intrinsic motivation also fosters curiosity and exploration (Amabile, 1985; Deci & Ryan, 1985), which are aspects of openness. That the exploration is autonomous is intimately tied to intrinsic motivation (Ryan, 1982); because individuals who possess high levels of openness strongly prefer autonomy (Judge & Cable, 1997), the self-guided nature of intrinsic motivation should increase openness.

*Hypothesis 4:* Within-individual variation in intrinsic motivation will be positively related to next-day within-individual variation in agreeableness (H-4a), conscientiousness (H-4b), and openness (H-4c).

## Personality as Patterns of Variability

Although people's enactments of Big Five states fluctuate in response to work events, traits still play a role in determining work



behavior. Numerous repeated-measures studies (e.g., Fleeson, 2001; Fleeson & Gallagher, 2009; Nofle & Fleeson, 2010) have revealed that global trait measures are valid predictors of individuals' average behavioral tendencies over extended periods (i.e., over the course of one to two weeks). This may occur due to the effects of traits on situation selection (Sherman et al., 2010). If one consistently chooses work situations that tend to increase state openness, for example, then one's average level of openness may be higher than that of someone who less often experiences such events. Also, even as people fluctuate within a given personality state, those who are high in a given trait may maintain their position relative to others in the expression of that state in particular situations (Fleeson & Nofle, 2008), resulting in a relatively higher average.

Though this hypothesis is less novel than the previous set of hypotheses, conceptually (i.e., according to whole trait theory; Fleeson, 2001, 2012) and empirically it is important to take both the trait (the general factor) ratings and mean levels of the within-individual ratings into account so that the resulting within-individual fluctuations for each trait are net of the generalized traits. Of course, the other side of the coin is valid as well: Such a model allows determination of whether the traits and between-individual differences are important once within-individual variation is taken into account.

*Hypothesis 5:* Global trait ratings factors (measured by three single occasion personality scales) for each of the Big Five personality dimensions positively predict the corresponding dimension of the daily or state personality factors.

One of the more interesting findings to emerge from recent research on personality dynamics is that there are between-individual differences not only in average levels of personality states (McCrae et al., 2010; Saucier, 2009) but also in personality variability. For example, Fleeson (2001) found that individuals' personality state distributions tend to be consistent, such that both the mean levels of personality and the variability around those means tended to be correlated from one week to the next. Additionally, Minbashian et al. (2010) found a stability coefficient of  $r = .52$  between estimates of task-contingent conscientiousness across time periods. Thus, although personality states are responsive to situational influences, some people seem to be more variable than others.

Relatively few studies have demonstrated the stability of degrees of variation in personality states, and they were primarily with student populations (Fleeson, 2001; Fleeson & Gallagher, 2009). Moreover, there has been little investigation of the causes of this aspect of personality stability. Whole trait theory suggests, in the vein of Mischel and Shoda's (1995) cognitive affective processing systems model, that people develop distinctive ways of responding to certain situations. If certain situations tend to vary consistently within and across weeks, then people's personality states might exhibit consistent variation as well. For instance, an individual might have lunch with a group of coworkers each Friday and often behave in an extraverted (e.g., dominant, enthusiastic) and disagreeable (e.g., argumentative) fashion with that group. The same individual might eat lunch at his or her desk on Mondays to complete a pressing weekly report and may tend to be

in a more conscientious and neurotic (i.e., task-oriented and anxious) state at that time.

Physiological processes may also play a role in consistency of personality state variability. Extensive research on diurnal patterns has established that people undergo changes in physiological measures, such as cortisol levels and blood pressure, over the course of the day. These changes tend to be consistent from one day to the next, tend to vary consistently across seasons (Golder & Macy, 2011), and are associated with individual differences (Golder & Macy, 2011), and environment (Chida & Steptoe, 2009; Karb, Elliott, Dowd, & Morenoff, 2012). For instance, there is evidence that people low in neuroticism tend to experience peak arousal in the morning (DeYoung, Hasher, Djikic, Criger, & Peterson, 2007) and that job stressors are associated with the release of cortisol over the course of the day (Chida & Steptoe, 2009). Diurnal and seasonal physiological changes could influence personality state changes directly (e.g., Hermans, Putman, & van Honk, 2006) or via variation in mood (Clark, Watson, & Leeka, 1989; Golder & Macy, 2011).

In sum, prior findings on personality state variation, along with (a) the likelihood that individuals encounter temporal regularities in their work situations and (b) evidence of consistency across time in variability of physiological and mood states, suggests that there should be consistency over time in the variability of personality states at work.

*Hypothesis 6:* Individuals will exhibit consistency in patterns of personality variability at work such that variability in personality states in one week will be positively related to variability in personality states the following week.

### Neuroticism as a Predictor of Variability

Although personality state variation tends to be stable within individuals, some people are more variable than others (Fleeson, 2007). For instance, people living in low-stress neighborhoods exhibit more decline in cortisol levels over the course of the day than do people in high-stress neighborhoods (Karb et al., 2012), suggesting that environmental context can influence the degree of daily variation. If, as previously articulated, variability in work situations influences variability in personality states at work, then it is possible that people who work in more routine environments might have less cause for personality state variation than those who work in more dynamic settings. However, there could also be a dispositional basis for differing levels of personality state variation. Although numerous traits could influence volatility, of the Big Five, neuroticism seems the most natural candidate.

Volatility is an important component of neuroticism (DeYoung, Quilty, & Peterson, 2007). There is ample evidence that people high in neuroticism are more reactive to negative stressors (e.g., Suls & Martin, 2005), which implies a higher level of personality state variation. This is true not only of variation in state neuroticism, which would be an obvious outcome of stress (e.g., heightened negative affect), but also of other types of personality states. For instance, negative affect influences attentional focus (Gable & Harmon-Jones, 2010) and self-regulation (Heatherington & Wagner, 2011). Thus, if people high in neuroticism are more reactive to stress (Suls & Martin, 2005), they would also be expected to vary more in states associated with attention and focus (i.e., openness and conscientiousness).

People high in neuroticism may vary widely not only among negative emotions and behaviors but also between the negative and positive poles of affect and behavior. Minnix and Kline (2004) found that neuroticism was associated with more variance in asymmetries between the left- and right-frontal brain regions, which are responsible for approach- and avoidance-related emotions, respectively. These results suggest that people high in trait neuroticism also fluctuate between approach and avoidance behaviors. Another study found that, controlling for the Big Five traits, neuroticism predicted variability in negative affect, positive affect, and positive behavioral engagement (Murray, Allen, & Trinder, 2002). Furthermore, Robinson and Tamir (2005) found that people high in neuroticism had more irregular cognitive operations, which might feed inconsistency in behavior and cognitive states. Finally, Moskowitz and Zuroff (2004) found that, controlling for extraversion and agreeableness, neuroticism was related positively to variability in types of interpersonal behavior (i.e., submissive, dominant, quarrelsome, and agreeable). Thus, neuroticism seems likely to be associated with how much people vary in their personality states.

*Hypothesis 7:* Neuroticism is positively related to average levels of within-person variability in personality states.

## Method

### Participants and Procedure

To recruit participants, we placed a brief advertisement on a community website (see [www.craigslist.org/about/sites](http://www.craigslist.org/about/sites)) for multiple cities across the United States. The advertisement requested that individuals interested in participating in university research about “personality, motivation, job attitudes, and behaviors” e-mail the second author to receive a link to a brief registration form containing study participation details and eligibility requirements. Individuals who worked full-time and who anticipated working 10 days during the course of the study period were considered eligible to participate. Participation was limited to the first 150 qualified registrants, who represented a variety of industries including finance, construction, health care, education, legal, engineering, service, and information technology. The study took place over the course of a 2-week period in April during which no major holidays occurred.

Using an experience sampling design, participants were asked to complete a survey each day that they attended work. Links to the surveys were emailed daily and participants were instructed to complete the surveys as close to the end of each workday as possible. Surveys were available only from 3:00 p.m. to 11:00 p.m. In addition to the daily surveys, participants also each completed a single survey which assessed individuals’ general levels of the Big Five traits. Daily surveys contained measures of personality, citizenship behavior, intrinsic motivation, goal-setting motivation, and interpersonal conflict. The participant’s single survey contained measures of control variables, global personality traits, and other constructs not used in this study. To ensure confidentiality, all surveys were linked with four-digit identification numbers provided to participants.

Of the 150 individuals invited to participate in the study, 129 (86%) started the study. The average age of participants was 33.48

years, and the majority of participants (73.4%) were female, Caucasian (74.2%), and married or living with a partner (53.1%). All of the participants had a high school diploma, and just over half (51.6%) received at least a bachelor’s degree. Participants had worked for their current organizations for an average of 4.89 years.

By the study’s end, usable data were available for 122 participants (81.3%). Out of a maximum 1,220 observations for each study variable ( $122 \times 10$ ), 1,081 were provided (86.3%). Those participants who either fully or partially completed the study received honorariums.

### Level 2 (Between-Individual) Measures

**Big Five personality traits.** To assess participants’ personalities (as conceptualized and assessed in the accustomed between-individual manner) in the initial survey, we asked them to complete three different Big Five personality inventories: the 44-item Big Five Inventory (BFI; John, Donahue, & Kentle, 1991), the 20-item Mini-IPIP (Donnellan, Oswald, Baird, & Lucas, 2006), and a 65-item representation of the Goldberg (1992) Big Five markers. Participants rated the extent to which each trait generally applied to them, using a 1 (*strongly disagree*) to 5 (*strongly agree*) scale to respond to the first two measures and a 1 (*very inaccurate*) to 5 (*very accurate*) scale to respond to the third measure. Estimated coefficient alphas of these trait measures for the BFI, Big Five Markers, and Mini-IPIP respectively, were as follows: conscientiousness,  $\alpha = .83$ ,  $\alpha = .87$ ,  $\alpha = .78$ ; agreeableness,  $\alpha = .81$ ,  $\alpha = .89$ ,  $\alpha = .83$ ; neuroticism,  $\alpha = .82$ ,  $\alpha = .91$ ,  $\alpha = .69$ ; openness,  $\alpha = .74$ ,  $\alpha = .84$ ,  $\alpha = .78$ ; extraversion,  $\alpha = .86$ ,  $\alpha = .89$ ,  $\alpha = .79$ . For each trait, a factor measured by indicators from each of the three scales was used to test our relevant hypotheses and control for trait personality when testing within-person hypotheses.

### Level 1 (Within-Individual) Measures

For each measure, participants were asked to rate items on a 1 (*strongly disagree today*) to 5 (*strongly agree today*) response scale unless otherwise noted. To reflect experiences that had occurred during the day up to and including the present moment, where feasible, we used a present perfect participle (“I have been”) in phrasing each item.

**Big Five personality traits.** To capture daily levels of each Big Five trait, we used the same 65 items (Goldberg, 1992) utilized in the initial survey. Participants were asked to “Describe yourself as you honestly see yourself *today*, not as you are in general, or as you wish to be in the future,” using a 1 (*very inaccurate today*) to 5 (*very accurate today*) response scale. Sample items for conscientiousness include “dependable” and “hard-working.” Sample items for agreeableness include “cooperative” and “considerate,” and sample items for neuroticism include “emotional” and “insecure.” Sample items for openness include “imaginative” and “artistic.” Finally, sample items for extraversion include “talkative” and “assertive.” Coefficient alpha, calculated for each measure on each of the 10 days, ranged from  $\alpha = .94$  to  $\alpha = .97$  for conscientiousness,  $\alpha = .91$  to  $\alpha = .94$  for agreeableness,  $\alpha = .91$  to  $\alpha = .95$  for neuroticism,  $\alpha = .86$  to  $\alpha = .91$  for openness, and  $\alpha = .89$  to  $\alpha = .91$  for extraversion.

**Intrinsic motivation.** Intrinsic motivation was assessed by adapting four items from Jaramillo, Locander, Spector, and Harris

(2007) for use at the daily level. Participants rated the extent to which they agreed with the following items: "Today, my opinion of myself has gone up when I've done this job well," "I've felt a great sense of personal satisfaction when I've done my job well today," "Today, I've not needed a reason to work; I've worked because I want to," and "Today, I've felt that even if I were independently wealthy, I would still work for the challenge of it." Coefficient alpha for this scale, calculated for each of the 10 days, ranged from  $\alpha = .76$  to  $\alpha = .90$ .

**Goal-setting motivation.** We measured goal-setting motivation with three items adapted from two studies (Erez & Judge, 2001; Klein, 1991). Participants rated the extent to which they agreed with items including, "Today at work, I set goals for myself," "I've felt the work goals I have set for myself today are difficult and challenging," and "The work goals I have set for myself today are very specific and detailed." Coefficient alpha for this scale, calculated for each of the 10 days, ranged from  $\alpha = .75$  to  $\alpha = .86$ .

**Interpersonal conflict.** To measure interpersonal conflict, we adapted Spector and Jex's (1998) four-item interpersonal conflict at work scale for use at the daily level. Sample items include "I had a disagreement with someone at work today," "Today at work, someone seemed to get testy with me," and "Someone was rude to me today at work." Coefficient alpha for this scale, calculated for each of the 10 days, ranged from  $\alpha = .86$  to  $\alpha = .97$ .

**Organizational citizenship behavior.** We measured OCB with 12 items from Lee and Allen (2002). Items represented both interpersonal and organizational citizenship behaviors. Consistent with prior research that supports a unidimensional view of citizenship behavior (Dalal, 2005; LePine, Erez, & Johnson, 2002), interpersonal and organizational citizenship items were averaged to form a measure of overall citizenship behavior. Sample items include, "Today, I have helped others who needed it," "Today, I have shown genuine concern and courtesy toward coworkers, even under the most trying situations," "Today, I have done things that are not required but that help the organization," and "Today, I have offered ideas to improve the functioning of my organization." Coefficient alpha for this scale, calculated for each of the 10 days, ranged from  $\alpha = .89$  to  $\alpha = .96$ .

## Results

### Variance Partitioning

To understand the variance structure of the personality and work experience variables more fully, we partitioned variance in two ways. First, we used the HLM 6.08 program (Raudenbush, Bryk, Cheong, & Congdon, 2006) to estimate multilevel, unconditional means models (i.e., mixed-effects or hierarchical linear models; Bryk & Raudenbush, 1992; Snijders & Bosker, 1999) for each of the personality and work experience variables using restricted information maximum likelihood estimation. These models use an intercept to describe the set of scores for each of the individuals with a fixed effect (i.e., the mean among all individuals) and a unique effect (i.e., a deviation from the overall mean unique to the individual). Estimating these models also provides within- and between-individual variance components, allowing us to calculate the intraclass correlation coefficient (ICC), or the proportion of variance in each variable that is due to differences among individ-

uals, by dividing the variance between individuals by the total variance. This ICC is analogous to omega-squared from an analysis of variance context and can be regarded as the reliability of the scores at each time point for the specified model. In this unconditional means model, the ICC is also the autocorrelation among the errors (cf. Singer & Willett, 2003, pp. 93–97).

Although ICCs are a common tool for partitioning variance, there is some discussion that discerning trait and situational sources of variability should not be done exclusively with ICCs. The logic behind using additional metrics is based on the notion that a truly perfect measure of within-person variance cannot be calculated because any variance that is not found between individuals may be attributed to (a) true within-person variance, (b) any person-by-day interaction effects, or (c) random error. Because we are unable to distinguish error or person-by-day interaction effects from true within-person variance, the total variance in the denominator of the ICCs as a measure of the between-person and within-person variance may be inflated, resulting in an underestimate of the percentage of between-person variance.

These shortcomings have led some scholars to consider the coefficient of generalizability when determining variance structures (Golding, 1975). The generalizability coefficient is analogous to the reliability of the intercept (estimated with the unconditional means model), which quantifies the degree to which the variance among the individual intercepts is true variance relative to total variance. Thus, in addition to the ICC, which is interpreted as the reliability of the scores at each time point, we also calculated the reliabilities of the intercepts for each variable by taking the weighted mean of the  $N$  individuals' reliability estimates (e.g., Raudenbush & Bryk, 2002). Given that the intercept in unconditional means models can be interpreted as an individual's mean across the study, understanding how much variability there is in the true mean across individuals (i.e., the intercept) relative to the total variance of the mean, provides a way of assessing the degree to which there are stable interindividual differences in the personality and work variable measures.

Within and between-individual variance components, ICCs, and reliabilities of the intercepts for each variable are provided in Table 1. As the table shows, the variability in the variables was relatively evenly split between within-individual (including any random error and person-by-day interaction effects) and between-individual variation. As expected, the proportion of within- to between-individual variation was greater for the work variables than for personality. However, it is somewhat surprising that the differences were not larger—roughly 5% more variance was within-individual for the work than for the personality variables. Of the personality traits, conscientiousness had the highest proportion of within-individual variation (56.74%) and openness had the least (37.97%). Of the work variables, interpersonal conflict had the highest proportion of within-individual variation (57.58%) with citizenship behavior representing the least (48.10%). Thus, the results show that both the work and personality variables have substantial variation both within and between individuals and that the Big Five personality traits show more within-individual (day-to-day) variation than expected. Additionally, reliabilities of the intercepts were high, ranging from .863 for interpersonal conflict to .934 for openness, which suggests that much of the variance among individual intercepts is true variance rather than error variance.



**Table 1**  
*Variance Decomposition and Reliability of the Intercept of Personality and Work Variables*

Variable	Variance decomposition (%)		Reliability of intercept
	Within	Between	Estimate
Personality traits			
Extraversion	50.55	49.45	.894
Agreeableness	46.92	53.08	.907
Conscientiousness	56.74	43.26	.868
Neuroticism	49.22	50.78	.899
Openness	37.97	62.03	.934
Mean	48.28	51.72	.900
Standard deviation	6.81	6.81	.024
Work variables			
Interpersonal conflict	57.58	42.42	.863
Citizenship behavior	48.10	51.90	.902
Goal-setting motivation	55.56	44.40	.872
Intrinsic motivation	50.61	49.39	.893
Mean	52.96	47.03	.883
Standard deviation	4.37	4.38	.018

*Note.* Variance decompositions are computed by dividing the between- or within-variance estimate by the sum of the two (between and within) variance estimates.

## Latent Variable Models

Because of the presumed autoregressive effect a variable has on itself at future time points, the potential for cross-lagged effects, and the common trait linking of variables that have been repeatedly measured, we simultaneously consider each in our model. Figure 1 shows the overall model as a path diagram that was fitted to each of the Big Five personality measures crossed with each relevant work variable (i.e., 10 total models). In modeling the relationships between work and personality variables, we used Mplus Version 6.12 (Muthén & Muthén, 2011) to fit latent variable models that allowed us to assess the effects of trait and state personality across the two consecutive workweek (Monday–Friday) study periods. The models consisted of a measurement model for the personality variables (based on the daily measures and trait measures modeled to directly impact the daily measures) and the work experience variable (based on daily measures). In addition to the measurement model, each of the errors for the daily measures, with the exception of the error on the initial day for which there would be no antecedent, was modeled with an (a) autoregressive effect from the previous day’s personality error (and from the previous day’s work experience error); and (b) cross-lagged effects from the previous day’s personality variable to the next day’s work experience variable, and from the previous day’s work experience variable to the next day’s personality variable. We allowed for a correlation from the same-day error on the work experience and personality variables to understand more clearly how work experiences and personality were linked when measured at the same point in time. Because demographic variables (e.g., industry, tenure, age, sex, and race) were not consistently related to state personality and state work variables, we did not control for these or other variables in our model. Moreover, the autoregressive links partial out the effect of any variable that is stable, such as demographic factors, over the corresponding time intervals. For all of our models, we allowed the intercepts (means)

for each of the daily measures (10 personality and 10 work variables) to be freely estimated, as well as the intercepts for the Big Five trait, Big Five daily factor, and the daily work context variable.

Our model is a general latent variable model fitted using full information maximum likelihood estimation. Our model can also be described as a special case of a multivariate simplex latent curve model, as described by Curran and Bollen (2001). Specifically, the model is multivariate because personality and work experiences are both incorporated into the model. The model is (Markov) simplex because of the autoregressive effect on the  $t + 1$  measurement occasion from the  $t$ th measurement occasion. The model is a latent curve model because it could incorporate a growth trajectory over time, although we did not model any growth trajectory due to the focus on the intrinsic dynamics of the unexplained part of the model (i.e., the errors) as driving our hypotheses, not systematic change over time (e.g., we have no reason to believe, all else equal, that participants become more agreeable or more neurotic over 10 days as a pure function of time). Rather, the change we seek to model is that of an individual state on a given day as it is influenced by a previous day and as it influences the next day. The error structure of the model addresses this change.

In Figure 1, the squares represent the manifest variables (e.g., time series measurements of the personality measure and the work variable measures). The labeled circles are latent variables of the traits, whereas the unlabeled circles are errors. Curved, two-headed arrows connecting two variables are covariances, whereas curved, two-headed arrows pointing to a single variable represent variances. Single-headed arrows represent direct (e.g., purported causal) effects. As noted in the Methods section, the overall personality traits were measured by self-reports of the BFI, the Mini-IPIP, and the Big Five markers, whereas daily personality states were assessed using the Big Five markers. One path for each of the latent constructs was fixed to 1.00 for scaling purposes so that the other paths and variance of the latent variables could be estimated. Given that there was no theoretical reason to expect a stronger effect from, say, Monday to Tuesday than from Tuesday to Wednesday, within each of the two workweeks, we constrained the corresponding parameter estimates (e.g., error variances, autoregressive effect, cross-lagged effects) to the same value (to be equal). However, due to the possibility of a weekend effect and the untheorized impact of Friday measures on Monday measures, those paths, which are denoted with dashed arrows, were free to differ from their within-week analogs. Given the increased time interval and weekend event effects, we did not expect the hypothesized within-individual linkages to operate over this interval, though that assumption was tested.

Because so much of our interest concerns the structure of the errors due to their potentially dynamic effect that is separate from the measurement models, we created Figure 2 as a detailed version of the gray box in Figure 1. In Figure 2, path labels are provided so that the figure can more easily be interpreted and understood in connection to the tables where the coefficients are given. The error term represents that which is not accounted for by the trait factor or the daily work factor, which consists of both (a) state variation and (b) other sources of variance that are not accounted for by the model. The errors in our models thus consist of state measures of personality or work experiences in addition to any unexplained variance. We model the error with a structure that allows us to



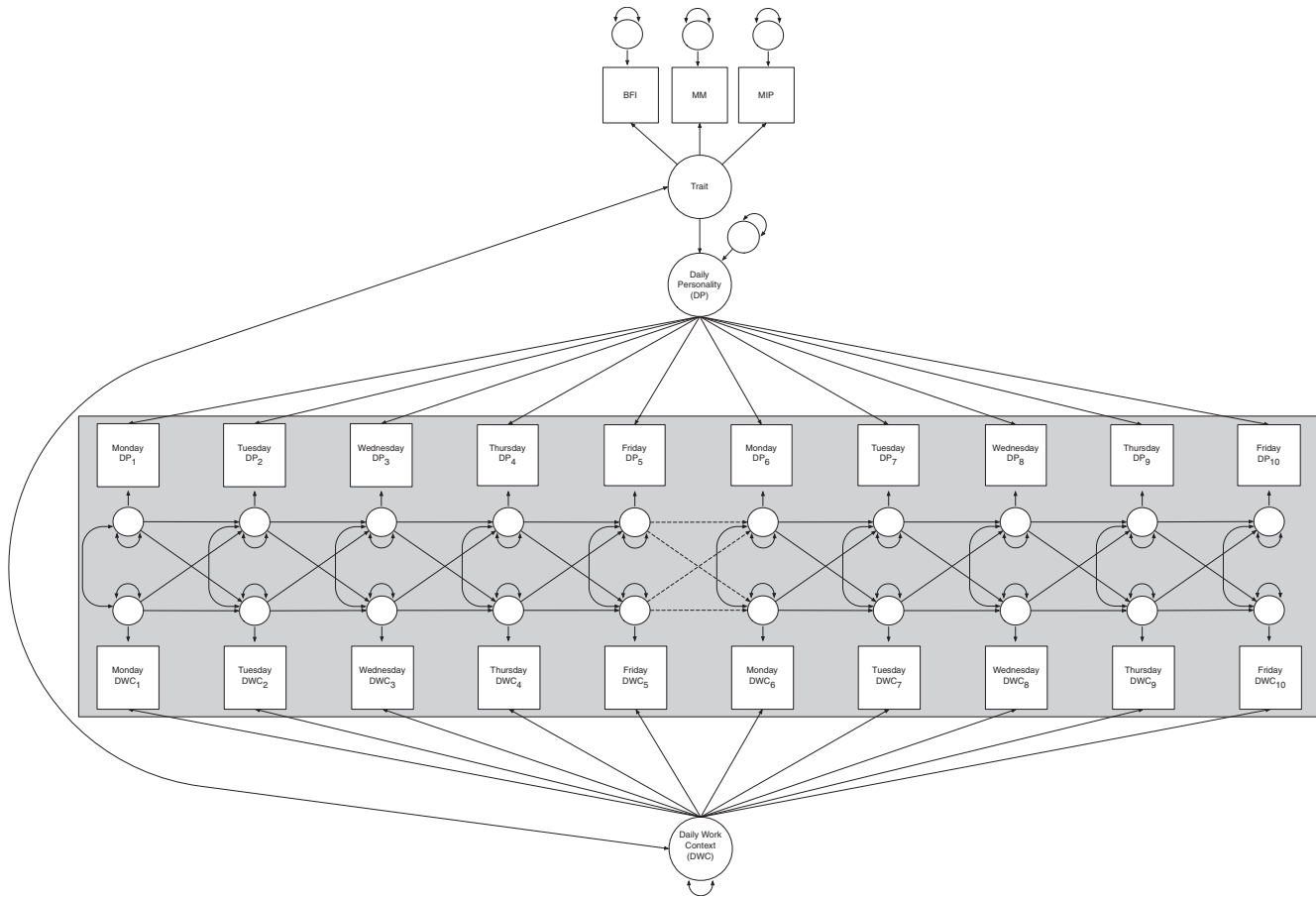


Figure 1. Path diagram illustrating the latent variable model used to model the data and evaluate our hypotheses. The shaded area represents the part of the overall model that is displayed in Figure 2. The dashed lines from Friday of Week 1 to Monday of Week 2 denote free parameters that were estimated for the effect of the weekend. Each type of parameter within Week 1 was constrained to be equal and also constrained to be equal to the corresponding within Week 2 parameters. DP = daily personality; DWC = daily work context; BFI = Big Five Inventory; MM = Big Five markers; MIP = Mini-IPIP. The numeric subscripts denote the day of the measurement.

assess the state variability from the state work context to the next day's personality state and from the state personality state to the next day's state work context. The structure of the errors thus enables us to evaluate how the previous day's state of one variable (e.g., work context) is a predictor of the next day's state on the other variable (e.g., personality).

In Figure 2, the  $DP_t$  to  $DP_{t+1}$  arrows represent the autoregressive effect of the daily personality (DP) measure on the next day's personality measure. Similarly, the  $DWC_t$  to  $DWC_{t+1}$  arrows represent the autoregressive effect of the daily work experience (DWC) measure on the next day's work experience measure. The  $DP_t$  to  $DWC_{t+1}$  arrows represent the purported causal effect of daily personality on the next day's daily work experience. The  $DWC_t$  to  $DP_{t+1}$  arrows represent the purported causal effect of daily work experience on the next day's personality. The two-headed arrows connecting  $DP_t$  to  $DWC_t$  represent the correlation of the errors of the daily personality measure to the daily work experience variable on the same day. All of the latent variable models exhibited acceptable fit, with RMSEA values ranging from

.05 to .08 ( $M = .07$ ,  $SD = .008$ ). As Browne and Cudeck (1992) discuss, an RMSEA of .05 is generally considered "close" fit, an RMSEA of .08 is considered "reasonable" fit, and they do not recommend using a model with an RMSEA greater than .10.

### Main Effects of Work Experiences on Personality

Results containing path coefficients from the latent variable models (such as the model in Figure 2) are contained in Tables 2–5. The tables are organized around the work variables: Table 2 pertains to citizenship behavior, Table 3 concerns interpersonal conflict, Table 4 pertains to goal-setting motivation, and Table 5 concerns intrinsic motivation. In Tables 2–5, there are two column panels of estimates. The first column panel of estimates—labeled "Personality state"—refers to the Big Five traits that are the dependent variables. The second column panel of estimates—labeled "Citizenship behavior" in Table 2, "Interpersonal conflict" in Table 3, "Goal-setting motivation" in Table 4, and "Intrinsic motivation" in Table 5—refers to the work variable as the depen-

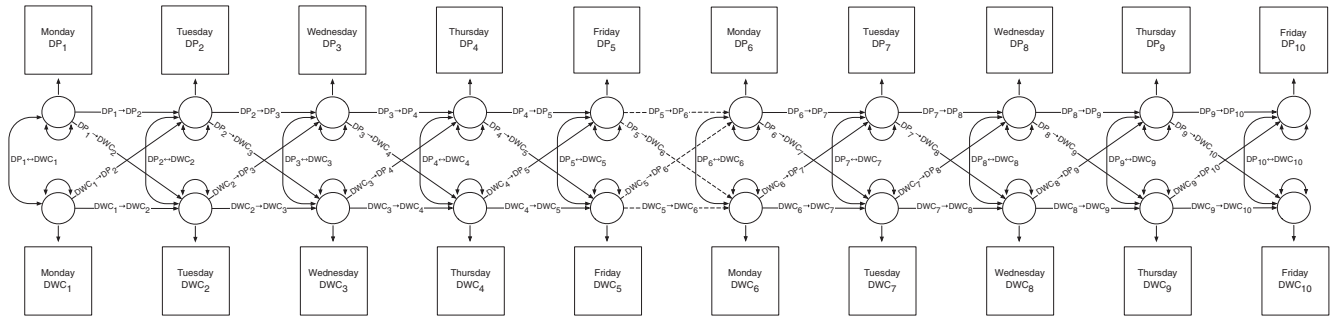


Figure 2. A detailed path diagram of the relationship among the errors after accounting for the measurement parts of the model showing the autoregressive, cross-lagged, and correlations that were highlighted in gray in Figure 1. The dashed lines from Friday of Week 1 to Monday of Week 2 denote free parameters that were estimated for the effect of the weekend. Each type of parameter within Week 1 was constrained to be equal and also constrained to be equal to the corresponding within Week 2 parameters. DP = daily personality; DWC = daily work context.

dent variable. Embedded within each of these two panels are lower level columns representing coefficient estimates (Estimate), standard errors for those estimates (*SE*), test statistics derived from dividing the coefficient estimates by the standard errors (*z*-value),

and the lower and upper bounds of confidence intervals around the estimates (95% CI).

Running across these column panels are row panels, organized by hypothesized trait (for example, in Table 2, the rows are

Table 2

*Concurrent, Autoregressive, and Cross-Lagged Relationships Between Personality and Citizenship Behavior*

Independent variable	Dependent variable									
	Personality state					Citizenship behavior				
	Estimate	<i>SE</i>	<i>z</i> -value	95% CI lower	95% CI upper	Estimate	<i>SE</i>	<i>z</i> -value	95% CI lower	95% CI upper
Extraversion										
Concurrent effect (no lag)										
Extraversion						.105	.011	9.777**	.084	.126
Weekday effect (1-day lag)										
Extraversion	.070	.043	1.629	-.014	.153	-.057	.036	-1.584	-.128	.014
Citizenship behavior	.147	.034	4.299**	.080	.214	.246	.042	5.820**	.163	.329
Weekend effect (3-day lag)										
Extraversion	-.016	.088	-0.178	-.189	.157	-.082	.083	-0.987	-.246	.081
Citizenship behavior	.186	.090	2.059*	.009	.364	.272	.093	2.925**	.090	.454
Agreeableness										
Concurrent effect (no lag)										
Agreeableness						.126	.010	12.378**	.106	.143
Weekday effect (1-day lag)										
Agreeableness	.078	.043	1.818	-.006	.162	-.015	.041	-0.374	-.095	.064
Citizenship behavior	.179	.032	5.654**	.117	.241	.256	.044	5.840**	.170	.342
Weekend effect (3-day lag)										
Agreeableness	.271	.091	2.996**	.094	.449	-.042	.098	-0.433	-.235	.150
Citizenship behavior	.108	.084	1.288	-.056	.271	.287	.099	2.905**	.093	.481
Openness										
Concurrent effect (no lag)										
Openness						.085	.009	9.575**	.067	.102
Weekday effect (1-day lag)										
Openness	.187	.042	4.429**	.104	.270	-.004	.042	-0.106	-.086	.077
Citizenship behavior	.119	.029	4.100**	.062	.176	.235	.043	5.492**	.151	.319
Weekend effect (3-day lag)										
Openness	.119	.076	1.574	-.029	.268	-.061	.087	0.707	-.109	.231
Citizenship behavior	.072	.075	0.954	-.076	.219	.222	.095	2.335*	.036	.409

Note. Coefficient estimates represent daily dependent variable predicted by previous day's independent variables. Autoregressive, cross-lagged, and concurrent effects were estimated in one model. A measurement model with the overall personality trait and work experience variable indicated by their measures was also specified. Within-week coefficients are equal due to within-week equality constraints (imposition of these constraints did not significantly detract from model fit). Actual values may vary slightly due to rounding. 95% CI lower = lower limit of 95% confidence interval around estimate; 95% CI upper = upper limit of 95% confidence interval around estimate.

\*  $p < .05$ . \*\*  $p < .01$ .

Extraversion, Agreeableness, and Openness). Embedded within each of these row panels, there are first concurrent effects representing the same-day correlation between the personality and work variables. (In the Concurrent effect rows, dashes indicate paths that are not applicable; personality cannot concurrently predict itself.) Second, there are weekday effects, showing the effect of one variable on the next-day variable. The first row of weekday effect estimates under each row panel (in Table 2, this refers to the "Extraversion" row under the extraversion row panel, for example) represents the effect of personality on the next day's personality under the Personality state column panel, and the effect of personality on the next day's work variable (in Table 2, this is the Citizenship behavior column panel). The second row of Weekday effect estimates (in Table 2, this refers to the Citizenship behavior row under the Extraversion row panel) represents the effect of the work variable (in Table 2, this is Citizenship behavior) on next-day personality under the Personality state column panel, and the effect of the work variable on the next-day work variable (in Table 2, this is the Citizenship behavior column panel). This pattern is repeated for the Weekend effect estimates, where the first row represents the effect of Friday's personality on Monday's personality under the Personality state column panel, and on Monday's work variable (in Table 2, this is the Citizenship behavior column panel). The second row of Weekend effect estimates represents the effect of Friday's work variable (in Table 2, this is Citizenship behavior) on Monday's personality (under the Personality state column panel), and on Monday's work variable (in Table 2, this is the Citizenship behavior column panel). These are repeated for each personality state within each table (three Big Five traits in Tables 2, 3, and 5, and one in Table 4).

Results of analyses conducted to test H-1a, H-1b, and H-1c are shown in Table 2. As hypothesized, citizenship behavior positively predicted next-day extraversion ( $B = .147, p < .01$ ), agreeableness ( $B = .179, p < .01$ ), and openness ( $B = .119, p < .01$ ), meaning that the more individuals engaged in citizenship behavior toward others or toward the organization, the more extraverted, agreeable, and open they reported themselves to be the following day. In standardized form, citizenship behavior predicting next-day extraversion had values that ranged from .135 to .155 ( $M = .150$ ;  $SD = .006$ ) for the within-week effects (i.e., not the weekend effect). The standardization used here and in the rest of this section is the STDYX standardization method in Mplus. Note that there are eight paths representing the above-noted descriptions (four within each week). In standardized form for citizenship behavior predicting next-day agreeableness, within-week values ranged from .192 to .200 ( $M = .198$ ;  $SD = .003$ ). In standardized form for citizenship behavior predicting next-day openness, within-week values ranged from .116 to .128 ( $M = .125$ ;  $SD = .004$ ). Moreover, the effects of extraversion ( $B = -.057, ns$ ), agreeableness ( $B = -.015, ns$ ), and openness ( $B = -.004, ns$ ) on next-day citizenship behavior were nonsignificant, providing some support for the causal direction of the hypothesized relations. (Although the standardized coefficient estimates may appear to be relatively small, it is important to note that these are within-individual estimates with standard deviations that are significantly smaller than is the case with between-individual variables. Thus, a coefficient of, say .10, is generally much more meaningful for within-individual estimates than between-individual estimates.) On average, these models explained 49% of the variance in daily extraversion, 52% of the

variance in daily agreeableness, and 62% of the variance in daily openness. Conversely, the extraversion, agreeableness, and openness models explained 52%, 51%, and 51% of the variance, respectively, in daily citizenship behavior.

Table 3 contains results of analyses testing H-2a, H-2b, and H-2c, which proposed that individuals who experienced more interpersonal conflict on a given day would report themselves as less extraverted, agreeable, and emotionally stable the following day. Counter to H-2a, interpersonal conflict did not significantly predict next-day extraversion ( $B = -.021, ns$ ), nor did extraversion predict next-day interpersonal conflict ( $B = -.040, ns$ ). Thus, H-2a was not supported. H-2b also failed to obtain support, in that interpersonal conflict did not significantly predict the next day's agreeableness ( $B = -.023, ns$ ). However, agreeableness did significantly predict next-day interpersonal conflict ( $B = -.148, p < .01$ ), meaning that reporting oneself as agreeable on a given day tended to reduce interpersonal conflict the following day. In standardized form, the paths from agreeableness to next-day interpersonal conflict ranged from  $-.12$  to  $-.11$  ( $M = -.113$ ;  $SD = .004$ ) for the within-week values. Finally, H-2c, which predicted that conflict was positively associated with next-day neuroticism, was supported ( $B = .078, p < .01$ ); the effect size in standardized units ranged from .087 to .094 ( $M = .092$ ;  $SD = .003$ ) for the within-week values. The effect of neuroticism on interpersonal conflict was also significant ( $B = .120, p < .01$ ), suggesting that interpersonal conflict and neuroticism mutually reinforce one another. In standardized form, the paths from neuroticism to next-day interpersonal conflict ranged from .087 to .104 ( $M = .099$ ;  $SD = .005$ ) for the within-week values. The models explained 50% of the variance in daily extraversion, 52% of the variance in daily agreeableness, and 48% of the variance in neuroticism. The extraversion, agreeableness, and neuroticism models explained 42%, 41%, and 39% of the variance in daily conflict.

H-3 posited that goal-setting motivation on a given day would positively predict the next day's levels of conscientiousness. Results of analyses conducted to test this hypothesis are displayed in Table 4. Consistent with H-3, goal-setting motivation was positively associated with next-day conscientiousness ( $B = .156, p < .01$ ). Thus, for every 1 unit increase in goal-setting motivation, our model predicts an expected increase of .156 units in the next day's conscientiousness. Conceptualizing this effect size in standardized units, the effect ranges from .155 to .165 ( $M = .162$ ;  $SD = .003$ ) for the within-week values. Thus, for a one standard deviation increase in goal-setting motivation, the next day's conscientiousness is expected to increase .162 standard deviation units. The effect of conscientiousness on goal-setting motivation was also positive and significant ( $B = .089, p < .05$ ), suggesting the possibility of a reciprocal relationship between these variables. Thus, for every 1 unit increase in conscientiousness, our model predicts an expected increase of .089 units in the next day's goal-setting motivation. Conceptualizing this effect size in standardized units, the effect ranges from .080 to .086 ( $M = .084$ ;  $SD = .002$ ) for the within-week values. Thus, for a one standard deviation increase in goal-setting motivation, next-day conscientiousness is expected to increase .084 standard deviation units.

Table 5 displays results of analyses involving intrinsic motivation. As shown in the table, and in support of H-4a, intrinsic motivation positively predicted next-day agreeableness ( $B = .052, p < .05$ ); this effect size in standardized units ranged from .063 to



Table 3  
Concurrent, Autoregressive, and Cross-Lagged Relationships Between Personality and Interpersonal Conflict

Independent variable	Dependent variable									
	Personality state					Interpersonal conflict				
	Estimate	SE	z-value	95% CI lower	95% CI upper	Estimate	SE	z-value	95% CI lower	95% CI upper
<b>Extraversion</b>										
Concurrent effect (no lag)										
Extraversion						-.065	.014	-4.809**	-.091	-.038
Weekday effect (1-day lag)										
Extraversion	.090	.041	2.198*	.010	.170	-.040	.046	-0.862	-.130	.050
Interpersonal conflict	-.021	.025	0.824	-.071	.029	.186	.042	4.462**	.104	.268
Weekend effect (3-day lag)										
Extraversion	-.002	.083	-0.021	-.165	.161	-.022	.106	-0.210	-.231	.186
Interpersonal conflict	-.100	.060	-1.672	-.217	.017	.049	.082	0.589	-.113	.210
<b>Agreeableness</b>										
Concurrent effect (no lag)										
Agreeableness						-.105	.013	-8.193**	-.130	-.080
Weekday effect (1-day lag)										
Agreeableness	.138	.041	3.332**	.057	.219	-.148	.051	-2.923**	-.248	-.049
Interpersonal conflict	-.023	.023	-0.982	-.068	.023	.178	.042	4.220**	.095	.260
Weekend effect (3-day lag)										
Agreeableness	.255	.093	2.744**	.073	.437	-.197	.136	-1.450	-.463	.069
Interpersonal conflict	-.073	.059	-1.238	-.189	.043	.008	.094	0.080	-.176	.191
<b>Neuroticism</b>										
Concurrent effect (no lag)										
Neuroticism						.103	.015	6.980**	.074	.132
Weekday effect (1-day lag)										
Neuroticism	.224	.043	5.248**	.140	.308	.120	.044	2.729**	.034	.206
Interpersonal conflict	.078	.027	2.877**	.025	.132	.198	.042	4.658**	.115	.280
Weekend effect (3-day lag)										
Neuroticism	.273	.086	3.173**	.104	.441	.122	.108	1.129	-.090	.335
Interpersonal conflict	-.012	.071	-0.169	-.151	.127	.038	.099	0.384	-.156	.232

Note. Coefficient estimates represent daily dependent variable predicted by previous day's independent variables. Autoregressive, cross-lagged, and concurrent effects were estimated in one model. A measurement model with the overall personality trait and work experience variable indicated by their measures was also specified. Within-week coefficients are equal due to within-week equality constraints (imposition of these constraints did not significantly detract from model fit). Actual values may vary slightly due to rounding. 95% CI lower = lower limit of 95% confidence interval around estimate; 95% CI upper = upper limit of 95% confidence interval around estimate.

\*  $p < .05$ . \*\*  $p < .01$ .

.068 ( $M = .067$ ;  $SD = .002$ ) for the within-week values. However, agreeableness did not significantly predict next-day intrinsic motivation ( $B = -.005$ ,  $ns$ ). H-4b was also supported, in that intrinsic motivation positively predicted next-day conscientiousness ( $B = .074$ ,  $p < .05$ ); this effect size in standardized units ranged from .077 to .082 ( $M = .081$ ;  $SD = .002$ ) for the within-week values. However, conscientiousness did not predict next-day intrinsic motivation ( $B = .015$ ,  $ns$ ). Finally, consistent with H-4c, intrinsic motivation positively predicted next-day openness ( $B = .053$ ,  $p < .05$ ); this effect size in standardized units ranged from .063 to .066 ( $M = .065$ ;  $SD = .001$ ) for the within-week values. Openness also positively predicted next-day intrinsic motivation ( $B = .134$ ,  $p < .05$ ); this effect size in standardized units ranged from .096 to .108 ( $M = .105$ ;  $SD = .004$ ) for the within-week values. Thus, openness and intrinsic motivation seem to mutually influence one another. On average, these models explained 52% of the variance in daily agreeableness, 43% of the variance in daily conscientiousness, and 63% of the variance in daily openness. Conversely, the agreeableness, conscientiousness, and openness models explained 48%, 47%, and 47% of the variance, respectively, in intrinsic motivation.

### Additional Effect Sizes

In sum, the majority (8 of 10) of our hypotheses involving the main effects of work experiences on the subsequent day's personality states were supported. However, it is interesting that certain work experiences and personality states appeared to be either reciprocally related or to exhibit effects inconsistent with those that were hypothesized. These findings suggest that, at least in some cases, personality and work experiences are mutually reinforcing. To shed light on this issue, we calculated an additional effect size which allowed us to better compare the strength of the cross-lagged effects of personality and work experiences. In particular, we evaluated the size of the difference between the cross-lagged effect of work experience at time  $t$  on personality at time  $t + 1$  and the cross-lagged effect of personality at time  $t$  on work experience at time  $t + 1$ . If the effect of the work experience at time  $t$  on personality at time  $t + 1$  is larger than the effect of personality at time  $t$  on the work experience at time  $t + 1$ , the difference between the parameters will be positive. A positive estimate indicates that the effect of the work experience variable on next-day personality is stronger than the effect of the personality variable on the next-day work experience variable. A negative value

Table 4

*Concurrent, Autoregressive, and Cross-Lagged Relationships Between Personality and Goal-Setting Motivation*

Independent variable	Dependent variable									
	Personality state					Goal-setting motivation				
	Estimate	SE	z-value	95% CI lower	95% CI upper	Estimate	SE	z-value	95% CI lower	95% CI upper
Conscientiousness										
Concurrent effect (no lag)										
Conscientiousness						.176	.016	11.345**	.146	.207
Weekday effect (1-day lag)										
Conscientiousness	.213	.043	4.942**	.129	.298	.089	.040	2.254*	.012	.167
Goal-setting motivation	.156	.032	4.799**	.092	.219	.217	.043	4.997**	.132	.302
Weekend effect (3-day lag)										
Conscientiousness	.048	.103	0.460	-.155	.250	.172	.111	1.188	-.045	.263
Goal-setting motivation	.213	.097	2.194*	.023	.403	.110	.118	1.165	-.121	.302

Note. Coefficient estimates represent daily dependent variable predicted by previous day's independent variables. Autoregressive, cross-lagged, and concurrent effects were estimated in one model. A measurement model with the overall personality trait and work experience variable indicated by their measures was also specified. Within-week coefficients are equal due to within-week equality constraints (imposition of these constraints did not significantly detract from model fit). Actual values may vary slightly due to rounding. 95% CI lower = lower limit of 95% confidence interval around estimate; 95% CI upper = upper limit of 95% confidence interval around estimate.

\*  $p < .05$ . \*\*  $p < .01$ .

means that the opposite occurred: The effect of the personality variable on the next-day work experience variable is stronger than the effect of the work experience variable on next-day personality. For either positive or negative estimates, the  $z$ -value indicates whether the differences are significant (as do confidence intervals which exclude zero). Although this type of effect size does not seem to have been widely used, to our knowledge, it conforms to the specific question of interest as discussed in Kelley and Preacher (2012) regarding the generalized nature of effect sizes and their uses.

Phantom variables (Rindskopf, 1984), constrained to be functions of variables in the model, were created so that effect sizes could be estimated with maximum likelihood estimation procedures, along with their corresponding confidence intervals and  $p$  values, by using the "Model Constraint" command in Mplus. These values allow us to evaluate the null hypothesis that the cross-lagged effects of personality and work experiences are of equal strength (e.g., Cheung, 2007).

The results of these analyses are displayed in Table 6. As shown in the table, in 2 of 10 cases, the effect of state personality on the work variable was stronger than the effect of the work variable on state personality and in neither of these cases was the difference significant. However, in 8 of the 10 cases, the effect of work experience on next-day personality was stronger than the effect of personality on the next-day work experience variable, and four of these differences were statistically significant. These results suggest that, overall for the relationships examined, work experiences tended to influence personality at least as much as—and often more so than—the reverse, offering some support for the notion that work experiences can predict personality. Nonetheless, although the purpose of our research was largely to understand the predictors of within-person variation in personality states, the ability to predict state personality becomes more important when personality states can predict important criteria (e.g., job performance). The bidirectional effects of certain personality states and work experiences thus bolsters the contribution of our research, as it suggests that state personality can sometimes emerge as a

predictor of key job-related outcomes. We elaborate further on this point in the discussion section.

### Effects of Trait Personality on State Personality

In an effort to test H-5, which argued that global trait ratings of personality would predict the corresponding dimension of daily personality, we turned to the relevant path coefficients from the latent variable models estimated to test H-1 through H-4. In each of these models, a path coefficient from the global trait personality factor (measured by the BFI, Mini-IPIP, and Big Five markers) to the daily personality factor (measured by daily assessments of the Big Five markers) was estimated. These path coefficients, displayed for each estimated model in Table 7, can be interpreted as the effects of trait personality on state personality. As shown in the table, trait personality always emerged as a significant predictor of state personality, with trait agreeableness having the strongest average effect on its corresponding personality state ( $B = .90, p < .01$ ) and trait neuroticism having the weakest effect on its corresponding personality state ( $B = .29, p < .01$ ). Thus, the results support H-5.

### Between-Individual Stability in Personality States

Consistent with Fleenor (2007), to examine whether there were between-individual differences in the distribution of individuals' personality states, we examined whether average levels of state personality and within-individual variation in state personality were stable from one week to the next. To do so, we calculated the mean and standard deviation of the state Big Five scores obtained for each individual during the first and second week of the study. Week 1 individual means and standard deviations were then correlated, respectively, with Week 2 individual means and standard deviations. The results of these analyses are displayed in Table 8. Stability coefficients for individuals' mean personality states were quite high, ranging from .73 for neuroticism to .82 for conscientiousness and openness. In support of H-6, although stability coefficients for indi-

Table 5  
Concurrent, Autoregressive, and Cross-Lagged Relationships Between Personality and Intrinsic Motivation

Independent variable	Dependent variable									
	Personality state					Intrinsic motivation				
	Estimate	SE	z-value	95% CI lower	95% CI upper	Estimate	SE	z-value	95% CI lower	95% CI upper
<b>Agreeableness</b>										
Concurrent effect (no lag)										
Agreeableness						.145	.012	11.670**	.120	.169
Weekday effect (1-day lag)										
Agreeableness	.131	.043	3.049**	.047	.214	-.005	.049	-0.111	-.102	.091
Intrinsic motivation	.052	.025	2.038*	.002	.101	.165	.043	3.861**	.081	.248
Weekend effect (3-day lag)										
Agreeableness	.291	.089	3.255**	.116	.466	.047	.117	0.401	-.182	.275
Intrinsic motivation	.034	.062	0.555	-.086	.155	.091	.089	1.020	-.084	.266
<b>Conscientiousness</b>										
Concurrent effect (no lag)										
Conscientiousness						.220	.016	13.617**	.188	.251
Weekday effect (1-day lag)										
Conscientiousness	.217	.045	4.813**	.129	.306	.015	.043	0.354	-.069	.099
Intrinsic motivation	.074	.033	2.226**	.009	.139	.168	.044	3.861**	.083	.253
Weekend effect (3-day lag)										
Conscientiousness	.117	.094	1.240	-.068	.302	-.020	.098	-0.209	-.212	.171
Intrinsic motivation	.054	.079	0.678	-.102	.209	.130	.092	1.418	-.050	.309
<b>Openness</b>										
Concurrent effect (no lag)										
Openness						.120	.011	10.915**	.098	.141
Weekday effect (1-day lag)										
Openness	.199	.043	4.619**	.114	.283	.134	.052	2.577*	.032	.237
Intrinsic motivation	.053	.024	2.169*	.005	.100	.124	.043	2.879**	.040	.209
Weekend effect (3-day lag)										
Openness	.093	.079	1.176	-.062	.247	.065	.110	0.591	-.151	.281
Intrinsic motivation	.070	.058	1.208	-.044	.184	.091	.091	1.003	-.087	.269

Note. Coefficient estimates represent daily dependent variable predicted by previous day's independent variables. Autoregressive, cross-lagged, and concurrent effects were estimated in one model. A measurement model with the overall personality trait and work experience variable indicated by their measures was also specified. Within-week coefficients are equal due to within-week equality constraints (imposition of these constraints did not significantly detract from model fit). Actual values may vary slightly due to rounding. 95% CI lower = lower limit of 95% confidence interval around estimate; 95% CI upper = upper limit of 95% confidence interval around estimate.

\*  $p < .05$ . \*\*  $p < .01$ .

viduals' standard deviations were relatively lower in magnitude than the stability coefficient of the mean, they were substantial, ranging from .30 for conscientiousness to .42 for agreeableness. All stability coefficients were statistically significant. Taken together, these results suggest that, although individuals experience fluctuations in their personality states from one day to the next, they also display consistencies in both the extent to which they experience each personality state and in the extent to which they deviate from their more characteristic levels of these states.

It is worth noting that one explanation for this week-to-week consistency may be that individuals have tendencies to respond in a consistent manner when completing questionnaires. However, significant within-individual variation in personality and meaningful prediction of this variation by work variables, even when controlling for trait and autoregressive effects, provides some evidence that the stability coefficients are not entirely due to response biases.

### Neuroticism as a Predictor of Within-Individual Personality Variability

To examine whether trait neuroticism was associated with average levels of within-person variability in personality states, we correlated trait neuroticism (a factor measured by the BFI, Mini-IPIP, and Big

Five Markers) with the within-individual standard deviation of each state personality dimension. Results of these analyses revealed that within-person variability in three personality traits—agreeableness ( $r = .18$ ,  $p < .05$ ), conscientiousness ( $r = .19$ ,  $p < .05$ ), and neuroticism ( $r = .31$ ,  $p < .01$ )—were positively and significantly correlated with the trait neuroticism factor, whereas within-person variability in extraversion ( $r = .08$ ,  $ns$ ) and openness ( $r = .03$ ,  $ns$ ) were not significantly correlated with trait neuroticism. Thus, H-7 was partially supported in that average levels of within-person variability for several, but not all, of the Big Five personality dimensions were associated with trait neuroticism.

### Neuroticism as Moderator of Work Experience–Personality State Relationships

There is evidence that trait neuroticism is associated with increased reactivity (Bolger & Zuckerman, 1995; Moskowitz & Zuroff, 2004; Rodell & Judge, 2009), which may be because people who possess higher levels of neuroticism exhibit more variance in asymmetries between the left- and right-frontal brain regions (Minnix & Kline, 2004). Thus, one would expect neuroticism to moderate the within-individual relationship between work situations and next-day personality states. Unfortunately, the com-



Table 6  
Comparison of Cross-Lagged Work Experience–Personality Effects

Relationship	Difference in cross-lagged effects				
	Estimate	SE	z-value	95% CI lower	95% CI upper
Agreeableness–citizenship behavior	.194	.056	3.464**	.084	.304
Agreeableness–interpersonal conflict	.126	.057	2.202*	.014	.238
Agreeableness–intrinsic motivation	.057	.059	0.974	–.058	.172
Conscientiousness–goal-setting motivation	.066	.055	1.210	–.041	.174
Conscientiousness–intrinsic motivation	.059	.060	0.977	–.059	.176
Extraversion–citizenship behavior	.205	.053	3.892**	.102	.308
Extraversion–interpersonal conflict	.019	.053	0.351	–.085	.123
Neuroticism–interpersonal conflict	–.042	.053	–0.789	–.145	.062
Openness–citizenship behavior	.123	.053	2.329*	.020	.227
Openness–intrinsic motivation	–.082	.061	–1.342	–.201	.038

*Note.* The difference in cross-lagged effects is coded as  $(WC_t \rightarrow P_{t+1} - P_t \rightarrow WC_{t+1})$  such that a positive (negative) value means the work variable  $\rightarrow$  personality estimate is stronger (weaker) than the personality  $\rightarrow$  work variable estimate. For example, the cross-lagged effect of citizenship behavior at time  $t$  to agreeableness at time  $t + 1$  is .179. The cross-lagged effect of agreeableness at time  $t$  to citizenship behavior at time  $t + 1$  is –.015. Thus, the difference in autoregressive effects is  $.179 - (-.015) = .194$  (i.e., the first table entry). Actual values may vary slightly due to rounding. 95% CI lower = lower limit of 95% confidence interval around estimate; 95% CI upper = upper limit of 95% confidence interval around estimate.

\*  $p < .05$ . \*\*  $p < .01$ .

plex nature of our model, which (as depicted in Figures 1 and 2) involved a large number of parameter estimates, made tests of interactions infeasible. However, on an exploratory basis, we did test interactions using hierarchical linear models. Specifically, trait neuroticism predicted ( $p < .01$ ) the within-individual relationship between organizational citizenship behavior and next-day extraversion, and the within-individual relationship between organizational citizenship behavior and next-day agreeableness. Additionally, trait neuroticism emerged as a marginally statistically significant ( $p < .10$ ) predictor of three other within-individual relationships: the interpersonal conflict to agreeableness relationship, the interpersonal conflict to openness relationship, and the organizational citizenship behavior to openness relationship. Graphs of one of the statistically significant ( $p < .01$ ) relationships (the relationship between organizational citizenship behavior and agreeableness) and one of the marginally significant ( $p < .10$ ) relationships (the relationship between interpersonal conflict and openness) are provided in Figures 3 and 4.

## Discussion

Consistent with whole trait theory (Fleeson, 2001; Fleeson & Jolley, 2006), the results of this study demonstrate that personality at work exhibits both stability and variation within individuals. The most striking finding was the degree to which within-individual variability in work experiences and performance episodes predicted within-individual variation in personality. Although these results are consistent with whole trait theory (Fleeson, 2012), these relationships have not been tested previously. Consistent with a social-cognitive perspective on personality (Mischel & Shoda, 1995), the apparent degree to which personality trait expression is shaped by the immediate work context expands the domain of whole trait theory. Furthermore, the results suggest that the approach or avoidance nature of an episode or event “triggers” the cognitive, affective, and behavioral content of avoidance- and approach-oriented personality

states. It has long been argued that the two systems underlying approach and avoidance orientation are independent (Carver & White, 1994; Gray, 1970). Thus, an increase in activation of one system does not necessarily mean a decrease in activation of the other.

We believe it is noteworthy that the core results—the effect of within-individual variation in work experience on within-individual variation in personality—were obtained taking four conceptually and methodologically important sources of variation into account. Specifically, trait effects were modeled in a way that created a general trait factor, and the average within-individual score on each relevant personality state was modeled as an influence on daily personality. Thus, the within-individual relationships are not confounded with individuals’ trait standings on these variables. Second, we estimated both concurrent and forward-lagged relationships. Therefore, if “simultaneous relationships are usually ruled out” as far as causal inference is concerned (Moreno & Martínez, 2008, p. 600), then although the results do not prove causality, they do provide evidence for such inferences. Third, the effects of within-individual variation in the work experiences on within-individual variations in personality are net of autoregressive effects on both variables. Together, these specifications reduce the possibility that stable (dispositional) or ephemeral (mood-based) response sets confounded the substantive inferences made.

Finally, and perhaps most importantly, the effects of within-individual variation in work experiences on next-day variation in personality took into account the reverse causal direction – from within-individual variation in personality to next-day variation in the work experience. In accordance with a few other experience-sampling studies which used lagged designs to facilitate causal inferences (Foo, Uy, & Baron, 2009; Ilies, Dimotakis, & De Pater, 2010), we modeled reciprocal effects to ameliorate “chicken and egg” interpretational issues. In general, the results suggest that experiences at work do predict next-day personality states, though

Table 7  
*Personality Traits as Predictors of Personality States*

Personality trait (work variable model)	Personality state				
	Estimate	SE	z-value	95% CI lower	95% CI upper
Agreeableness (from citizenship behavior model)	.884	.120	7.387**	0.649	1.118
Agreeableness (from interpersonal conflict model)	.897	.120	7.350**	0.658	1.136
Agreeableness (from intrinsic motivation model)	.908	.122	7.448**	0.669	1.147
Conscientiousness (from goal-setting motivation model)	.705	.144	4.888**	0.422	0.988
Conscientiousness (from intrinsic motivation model)	.648	.134	4.825**	0.385	0.911
Extraversion (from citizenship behavior model)	.555	.085	6.541**	0.389	0.721
Extraversion (from interpersonal conflict model)	.548	.084	6.531**	0.383	0.712
Neuroticism (from interpersonal conflict model)	.294	.078	3.769**	0.141	0.446
Openness (from citizenship behavior model)	.620	.116	5.331**	0.392	0.848
Openness (from intrinsic motivation model)	.651	.119	5.481**	0.418	0.883

*Note.* Estimates are derived from each latent variable model. Actual values may vary slightly due to rounding. 95% CI lower = lower limit of 95% confidence interval around estimate; 95% CI upper = upper limit of 95% confidence interval around estimate.

\*\*  $p < .01$ , two-tailed.

in two of the 10 cases this was not found and, in several others, mutually reinforcing (bidirectional) effects were found.

Of the work experience variables as precursors of personality state fluctuations, the results were least consistent for interpersonal conflict. Contrary to our expectations, individuals who reported conflict at work did not become less agreeable or more introverted the next day. Although these findings seem consistent with the approach/avoidance framework when one considers the independent nature of the approach and avoidance systems, it also seems likely that in certain circumstances, interpersonal conflict influences extraversion and agreeableness. It may be, though, that conflict alters subsequent agreeableness or extraversion only for those who already are relatively disagreeable or introverted.

It is also possible that the mechanisms underlying these relationships are more complex than expected. We explored trait neuroticism, finding that it moderated the impact of interpersonal conflict on several personality states. Specifically, interpersonal conflict had a negative effect on next-day openness and next-day

agreeableness only for individuals with above-average levels of neuroticism. These findings make sense in light of the increased reactivity of those with above-average levels of neuroticism (e.g., Bolger & Zuckerman, 1995; Moskowitz & Zuroff, 2004), but they do not provide a granular explanation of this or other theoretical processes. For example, perhaps conflict causes some individuals to become more agreeable as a means of applying salve to the wound, or as a generalized means of mood repair. Alternatively, it could be that conflict fosters agreeableness in the same way that displays of hostility and threats foster concession-giving in negotiations (Sinaceur, Van Kleef, Neale, Adam, & Haag, 2011).

Responses to conflict may also differ depending on both the relational history of the parties engaging in the conflict and the severity of potential consequences of the conflict. Current experiences of conflict are likely to be interpreted with characteristics of the relationship in mind (Wall & Callister, 1995). The nature of the relationship between parties may impact the perceived consequences of conflict, which should further influence individuals' reactions (Deutsch, 1973). Consistent with this logic, it is conceivable for levels of agreeableness to decrease in response to conflict when one party has lost confidence in the benevolence of the other party's intentions. Research on interpersonal conflict at work and target specificity has found that individuals respond differently to conflicts with supervisors and coworkers because they are more fearful of retaliation from supervisors who may have power over their employment (Bruk-Lee & Spector, 2006). Further investigation is needed.

The results also suggested that individuals with higher levels of neuroticism were more variable in their personality in that trait neuroticism was correlated with daily variation in agreeableness, conscientiousness, and neuroticism. These results indicate that employees with above average levels of neuroticism are dispositionally less stable in addition to being emotionally less stable (Murray et al., 2002). For individuals who scored relatively high on trait neuroticism (1 *SD* above the mean), results suggest a tendency for more neurotic individuals to be more affected by the work experience variables. Thus, not only are such individuals

Table 8  
*Correlations Between Week 1 and Week 2 State Personality Means and Standard Deviations*

Trait	Correlation between Week 1 and Week 2	
	Mean of personality state	SD of personality state
Extraversion	.76**	.35**
Agreeableness	.81**	.42**
Conscientiousness	.82**	.30**
Neuroticism	.73**	.41**
Openness	.82**	.36**

*Note.* Table entries are correlations between the means of Week 1 and Week 2 and correlations between the standard deviations (*SDs*) of Week 1 and Week 2 for each personality variable. The correlation coefficients were calculated by splitting the within-individual data into first half (i.e., Week 1) and second half (i.e., Week 2) and correlating each individual's two means and two standard deviations for each trait obtained during the first half of the study with those obtained during the second half of the study.

\*\*  $p < .01$ , two-tailed.

more variable in their personalities, their personalities are more likely to be contingent on time-varying job events and conditions.

In making such interpretations, it is important to keep in mind that the personality measures used in this study do not allow us to identify maladaptive variants of the Big Five personality factors (Widiger & Mullins-Sweatt, 2009). Both adaptive (“normal”) and maladaptive (“abnormal”) manifestations of each trait have been identified in the clinical psychology literature (Mullins-Sweatt, Jamerson, Samuel, Olson, & Widiger, 2006). A person who possesses levels of neuroticism within the normal–high range, for example, might be pessimistic, whereas an individual who possesses maladaptively high levels of neuroticism may exhibit rageful behavior. Likewise, a person who possesses levels of agreeableness within the normal–high range might be trusting, whereas an individual who scores maladaptively high on this dimension may be childishly naive.

With respect to the moderation results, interpretations refer to individuals who scored a single standard deviation above or below the mean on neuroticism. Thus, our interpretations of these and other study results should not be assumed to generalize to maladaptive variants of the Big Five. Nonetheless, because a significant portion of the population is likely to possess at least some maladaptive variants of personality (Lenzenweger, 2008), it would seem valuable for organizational scholars to better understand the precise ways and particular levels at which traits influence state aspects of personality. Future research is needed to examine these issues and to replicate and extend our results to other job context and work experience variables, as well as to other adaptive and maladaptive personality variables.

### Theoretical Implications

Within the field of organizational behavior, the emerging, more nuanced picture of personality as both fixed and dynamic (Minbashian et al., 2010) has implications for our understanding of the malleability of behavior and its consequences for individuals and work groups. A first step toward developing an understanding of the significance of stability and variation in personality requires further research that sheds light on how people tend to be consistent. Researchers have often considered consistency almost strictly as stable behavior across time or, at best, in terms of interactions between traits and situations. But, as Fleeson and Nofle (2008)

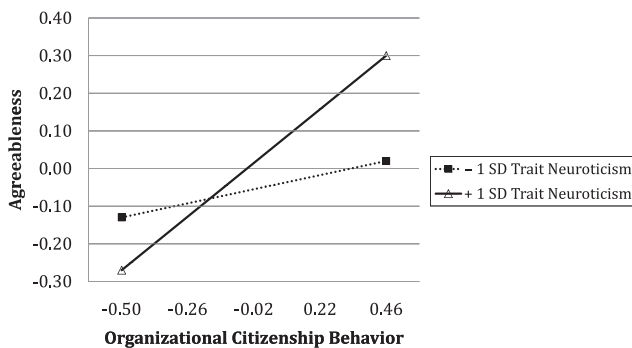


Figure 3. Trait neuroticism as a moderator of the within-individual organizational citizenship behavior–state agreeableness relationship. *SD* = standard deviation.

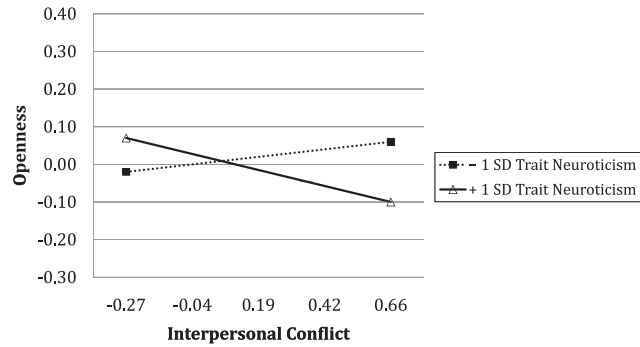


Figure 4. Trait neuroticism as a moderator of the within-individual organizational interpersonal conflict–state openness relationship. *SD* = standard deviation.

argued, there are many ways in which consistency can be expressed, and any one of these can be considered an aspect of personality.

It is also important to examine the implications of looking at personality in terms of patterns of consistency in variation. This increased complexity in thinking about personality is of little use if it offers no additional predictive validity. Yet, it is quite likely that it would. If a set of individuals has identical scores on trait measures and, yet, exhibits distinctly different patterns of variation from the mean in the course of a day or week, these patterns may result in unique experiences at work. For instance, variance in personality states may influence impression formation. Individuals who vary more may gain reputations as being unpredictable. In fact, one recent study found that people who varied extensively along the behavioral dimensions of agency and communion—which are associated with extraversion and agreeableness, respectively (McCrae & Costa, 1989; Wiggins & Trapnell, 1996)—have more distant relationships with their coworkers. Their coworkers tended to avoid them, partially because these individuals incited negative affect in the coworkers (Côté, Moskowitz, & Zuroff, 2012). This suggests that variability—apart from stable traits—could have implications for work relationships as well as work performance.

Another question for future research is what traits are best suited to study in relation to within-individual variation, particularly in relation to work experiences? The Big Five do not exhaust the list of important traits, and in some cases other traits are theoretically more appropriate. Moreover, specific facets of the Big Five traits might be expected to be more theoretically relevant in certain situations. For example, it seems quite possible that stressful days at work (as compared to less stressful days) are particularly relevant to the vulnerability facet of neuroticism (Costa & McCrae, 1992), compared to the broad trait or other neuroticism facets such as impulsivity or self-consciousness. This could be true with other within-individual links between personality and work, including those studied here.

More generally, a challenge for researchers in the dynamic personality domain is to create a framework that enables the accumulation of knowledge the way the Big Five has for traits. This challenge has two undercurrents. One undercurrent is what we might term “bottom-up”: How are findings between state personality and work best cumulated and understood? Here, re-



search on the five-factor model traits has proven very influential by linking each of the Big Five traits to multiple work criteria. Such cumulative knowledge may prove more difficult for future state personality research; the work variables considered may be more contextualized, the relationships to personality states may more likely be reciprocal, and the personality states themselves may be more specific.

The other undercurrent is “top-down”: What are the best theoretical frameworks from which to study links between personality states and work processes? This has not been a strong area of research on five-factor model traits. It is possible, for example, that the approach–avoidance framework used here provides one way of classifying state personality to work environment relationships; however, more research is needed regarding the viability of this perspective. Other frameworks might be more relevant. Our choice of the approach–avoidance theoretical framework is not meant to disregard complementary motivational theories.

Some may find curious the robustness of the links from work behaviors and experiences to personality states relative to the links from personality states to work behaviors and experiences. Though, theoretically, the former make sense in the context of prior personality research, one may wonder about the theoretical and practical importance of this study if the personality states did not influence work experiences and behaviors. A personality state will not always predict those things that predict it. Indeed, we doubt that the personality states observed in this study are “dead end” states that have no behavioral (or attitudinal) implications. Rather, the implications may rest outside the scope of variables or timeframe investigated in our study. For example, whereas daily variation in state extraversion did not predict daily variation in next-day interpersonal conflict, it seems quite possible that within-individual variation in extraversion predicts other criteria not included in this study (e.g., job satisfaction, leadership behaviors), and that predictive validity could vary when different time lags are considered (e.g., effects may be stronger when measurements are closer together in time). Finally, it is worth noting that state personality and work context relationships do appear to be reciprocal. Future research should study other theoretically relevant personality to work linkages, recognizing the possibility of antecedent to consequence asymmetries noted above.

It is also important to recognize that short-term variation in personality may play a role in long-term personality development. There is considerable evidence that personality shifts over the life course, but the causes of the shifts are not entirely clear (Caspi, Roberts, & Shiner, 2005). Between-individual research has, like our study, shown that work experiences can shape subsequent personality change (Roberts, Walton, Bogg, & Caspi, 2006), but we do not know whether short-term change and long-term change are linked. Nor do we know whether the factors that induce changes are similar. This may be an important topic for future research.

Although our results demonstrate that aspects of the work environment may influence personality states, and in some cases vice versa, they do not directly speak to the extent to which variability in personality states is heritable or environmentally influenced. Initially, the large amount of within-individual variation found in Table 1 and other research on within-individual variation in personality (Fleeson & Gallagher, 2009) may, in fact, seem at odds with meta-analytic heritability estimates of personality which

range from .35 (35%) for agreeableness to .49 (49%) for extraversion (Ilies, Arvey, & Bouchard, 2006; Loehlin, 1992). It is important to recognize, however, that standard heritability estimates refer only to between-individual differences. In many other instances, research has shown that change itself is heritable (Bor-novalova, Hicks, Iacono, & McGue, 2009; Pereira et al., 2004), suggesting that both between-individual variation and within-individual variation in personality can be influenced by genetic and environmental factors. Thus, if extraversion is highly heritable, one may see higher than expected within-individual variation if variability in extraversion over short or long periods is also heritable. The only way to sort this out is to study short- and long-term personality variation within the behavioral genetics paradigm.

A related point is that our results do not say much about why certain traits exhibit more within-individual variation than others. For instance, openness exhibited comparatively low levels of within-individual variation (38%) than the other personality dimensions (e.g., within-person variation in conscientiousness = 57%). Perhaps stable organizational influences play a stronger role for some personality dimensions than for others. To the extent that extreme organizational differences or strong situations exist, between-individual variance estimates for relevant aspects of personality are likely to be heightened. Traits like conscientiousness may be more universally appealing for organizations, resulting in lower between-individual variation estimates relative to openness. Understanding why certain personality factors exhibit more within-individual variation than others is an area for future research.

## Practical Implications

Our findings have practical implications in several areas. First, because personality represents ways of thinking, feeling, and acting that are “expressed in many ways” (Mischel, Shoda, & Smith, 2003, p. 4), our results suggest that an astute manager is sensitive not only to work events that influence an employee’s general disposition on a particular day but also to the downstream consequences of those dispositions. Managers should realize that encouraging employee helping behaviors, for example, is likely to have salutary effects well beyond the employee’s help. Similarly, managers who devote some of their day toward encouraging intrinsic motivation—by fostering participation in decision making and engaging in other empowering activities (Zhang & Bartol, 2010), for example—may find that the increase in employee openness has implications for other criteria such as creativity or entrepreneurial decision making.

Second, several aspects of the specific situation–personality state relationships bear noting for their managerial implications. For three sets of relationships—neuroticism and interpersonal conflict, conscientiousness and goal-setting motivation, and openness and intrinsic motivation—there were reciprocal next-day relationships. Awareness of these vicious (neuroticism and conflict) and virtuous (conscientiousness and goal-setting motivation, and openness and intrinsic motivation) cycles can help managers discourage the vicious and encourage the virtuous. For example, assume that a manager observes that an employee seems less emotionally adjusted (anxious, down) following a fight with a coworker yesterday. An astute manager would realize that the employee’s lack

of adjustment may prolong or even exacerbate the conflict and might well spill over into other areas. In such a case, reassuring the employee or offering a pep talk might well arrest the vicious cycle. Similarly, if a supervisor discussed upcoming goals and upcoming organizational challenges with an employee on one day and observed that she seemed especially conscientious the next day (showed up to work early, and seemed unusually focused on work), the supervisor should continue to encourage the employee, knowing that encouragement increases productivity for that employee. Of course, there are many unanswered questions over the exact contours of these cycles (e.g., How long do they last? How widespread are the side effects?); these would extend the implications reported here even further and more clearly.

Finally, one may wonder about the implications of our findings for use of personality tests in selection decisions. To a large degree, our results do nothing to challenge the use of such tests in hiring decisions. After all, the within-individual variability observed here has traditionally been thought of as transient error to be controlled or corrected (Schmidt, Le, & Ilies, 2003). That error exists any time one makes selection decisions based on a “one shot” inventory. What is error variance for one purpose (reducing or correcting the instability in personality test scores for selection decisions) is substantive variance to be explained for another; one does not contradict the other.

### Limitations and Future Research

This study has several limitations. First, our method prevents certainty regarding the causal relationships among situations and personality states. We took steps to bolster confidence in our arguments by (a) temporally separating measurement of situations and personality states in our analyses; (b) controlling for autoregressive (previous day) and concurrent (same day) effects to reduce the possibility that unobserved variables and response sets confounded the results; and (c) conducting reciprocal influence analyses in which personality states predicted situations, in addition to work experiences predicting personality. That the results of these analyses were reasonably consistent with most of our hypotheses may be taken as supportive of our assertions regarding temporal ordering. Nevertheless, the relationships among situations and personality states is complex, and we appreciate that this study, as the two studies that precede it (Huang & Ryan, 2011; Minbashian et al., 2010) are only opening overtures in a developing literature.

A second limitation with our study is that each of the models relating work experiences and personality states were tested separately. Ideally, we would have tested the entire model with all personality traits, states, and work experience variables included in one model. There were both methodological realities and conceptual reasons for testing the models as we did. Methodologically, the complexity of the models we tested precluded an “all in one” test. Conceptually, many studies of the Big Five traits isolate one or a few in isolation, including many of the studies cited in this paper (e.g., Huang & Ryan, 2011; Minbashian et al., 2010). Though this is a limitation of our study, theory and research on the Big Five typically regards the personality dimensions as distinct traits (Costa & McCrae, 1992; McCrae & Costa, 1987; McCrae & John, 1992), with each worthy of study in its own right.

A third limitation to our study is that some of the measurement strategies might be criticized: (a) our intrinsic motivation measure might be criticized for reflecting intrinsic job content as much as intrinsic motivation; (b) our treatment of time was at the daily (present day, next-day, and 3 days hence) level, which leaves open the question of periodicity effects that may vary over the course of the day, or in response to particular events as they occur; and (c) we used self-report surveys for daily reports of situations and personality states. Future research might build on our findings with different measurement approaches and different time intervals. As with our study, however, the methodologies should serve to address the substantive questions of interest (in this case, the dynamic interplay between personality and work), not the converse.

Perhaps the most important limitation of our study is that our choice of work experience variables, though based on the theoretical approach–avoidance framework, was intimately tied to the personality traits themselves. The limitation of our study—that the work experience variables are somewhat loosely coupled based on their correspondence with the Big Five traits—could be rectified in future research. Researchers could approach the topic from the other perspective: Which personality traits best reflect a coherent set of situational characteristics? There have been notable efforts to define and classify the work context in organizational psychology research (Meyer, Dalal, & Hermida, 2010; Johns, 2006; Wood, Roberts, & Whelan, 2011). Johns (2006) suggests classifying context into four considerations: occupation (*who?*), location (*where?*), time (*when?*), and rationale (*why?*). Although our research partially addresses each of these considerations, it is only a very early start.

Future research could build on this study in the aforementioned ways. However, another promising area of research is to more explicitly consider the role of approach and avoidance motivation in explaining the interrelationships among variables. There is a growing literature on these motivations in applied psychology (e.g., Ferris et al., 2011), and given our theoretical grounding, it would be worthwhile for future studies to investigate whether approach and avoidance motivation does indeed explain how and why work experience impacts personality states on a within-individual basis.

### Conclusion

Although the implications of behavioral variation for understanding personality structure and processes has been an issue for quite some time among personality psychologists, it seems that this topic is only recently coming into its own. The finding that there may be aspects of personality not captured by single-occasion trait measures has numerous implications for the role of personality as both an outcome and a predictor of work experiences and organizational processes. This study provides some insight into how both traits and work experiences might influence trait-relevant behavioral variation. Furthermore, it suggests a framework for future explorations in this area which, we hope, will further elucidate the nature of personality processes and how they influence both work outcomes and personality development.

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