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Benefits of Transformational Behavior for Leaders:

A Daily Investigation of Leader Behavior and Need Fulfillment

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Abstract

Although a large body of work has examined the benefits of transformational leadership behavior, this work has predominantly focused on recipients of such behavior. Recent research and theory, however, suggest that people who perform transformational behavior may also benefit from it. Drawing from affective events theory and self-determination theory, we examined the effects of daily transformational behavior on actors' affective states across two experience-sampling studies. We found that transformational behavior was associated with improvement in actors' daily affect, more so than engaging in other leader behaviors (viz., transactional, consideration, initiating structure, and participative behaviors). These relations of transformational behavior with improvement in affect were partially mediated by fulfillment of daily needs. Furthermore, the impact of transformational behavior and need fulfillment on daily affect was moderated by extraversion and neuroticism such that extraverts benefitted less whereas neurotics benefit more in terms of affective changes. We consider the theoretical and practical implications of these findings and offer directions for future research.

Keywords: Transformational leadership; Affect; Needs; Self-determination theory; Experience sampling

Transformational leadership is one of the most frequently studied forms of leader behavior in the organizational sciences (Avolio, Walumbwa, & Weber, 2009; Bass & Riggio, 2006; Judge & Piccolo, 2004). This interest stems from evidence that transformational behavior is related to a variety of follower attitudes and behaviors, including followers' positive emotions, job satisfaction, affective commitment, self-efficacy, creativity, and proactive behavior (Bono, Foldes, Vinson, & Muros, 2007; Den Hartog & Belschak; 2012; DeRue, Nahrgang, Wellman, & Humphrey, 2011; Erez, Misangyi, Johnson, LePine, & Halverson, 2008; Gong, Huang, & Farh, 2009; Grant, 2012; Fu, Tsui, Liu, & Li, 2010; Kirkman, Chen, Farh, Chen, & Lowe, 2009). Theories of transformational leadership suggest that leaders achieve these outcomes by acting as role models, motivating and inspiring others, stimulating innovative solutions to work problems, and coaching and mentoring (Bass, 1985; Bass & Riggio, 2006).

Although a large body of research has established the benefits of transformational behavior for followers and work units (Hoffman, Bynum, Piccolo, & Sutton, 2011; Ling, Simsek, Lubatkin, & Veiga, 2008), little is known about how engaging in such behavior impacts leaders themselves (see Bono & Anderson, 2005, for an exception). This lack of attention is surprising given that transformational leadership is tied to social exchange processes that benefit not only followers but also leaders (Bass & Riggio, 2006). For example, Bass (1990) noted that leaders and followers are instrumental "to the fulfillment of each other's needs" (Bass, 1990, p.319), and Bass and Riggio (2006) posited that transformational leadership contributes to leaders' own development. To date, however, research on transformational leadership has predominantly focused on followers' needs and outcomes while ignoring those of leaders (Avolio, 2011; Avolio & Bass, 2002).

Furthermore, despite theatrical arguments that transformational behavior fluctuates in response to situational contingencies that arise from dealing with diverse subordinates, goals, and tasks (Bass 1998; Bass & Avolio, 1994), it is unclear whether daily acts of transformational behavior have implications for actors' well-being. This oversight is unfortunate because the effects of daily transformational behavior may extend beyond subordinates' performance and well-being (see Breevaart et al., 2014; Tims, Bakker & Xanthopoulou, 2011). Our central premise is that daily transformational behavior is beneficial for leaders. We believe this because such behavior consists of a set of positive work activities (Bass & Riggio, 2006; Turner, Barling, & Zacharatos, 2002) whose enactment likely contributes to leaders' own affective states. Specifically, transformational episodes are marked by enthusiasm, optimism, and positive emotions (Bass & Riggio, 2006; Bono & Ilies, 2006; Erez et al., 2008) that are likely to build leaders' psychological resources (Ryan & Deci, 2000; Weinstein & Ryan, 2010). We explore these possibilities in the current paper by integrating research on transformational leadership (Bass, 1990) with affective events theory (Weiss & Cropanzano, 1996) and self-determination theory (Deci & Ryan, 2000).

Specifically, we draw on recent work showing that transformational behavior varies daily (Breevaart et al., 2014; Johnson, Venus, Lanaj, Mao, & Chang, 2012; Tims et al., 2011) and examine the direct and indirect effects of daily transformational behavior on actors' affective states (e.g., Bono, Glomb, Shen, Kim, & Koch, 2013; Weinstein & Ryan, 2010). Based on affective events theory, we propose that engaging in transformational behavior improves leaders' affective states. Partly, this improvement occurs through recursive biofeedback cycles in which improvements in subordinate affect

spill over to improve leader affect. According to self-determination theory, this improvement may also occur because daily acts of transformational behavior help fulfill leaders' psychological needs for autonomy, competence, and relatedness. Extending this integrated theoretical framework, we posit that the extent to which daily need fulfillment improves affective states also depends on leader personality. We examine extraversion and neuroticism because they represent two basic personality dimensions most relevant to affective states (Costa & McCrae, 1980; David, Green, Martin, & Suls, 1997). Figure 1 depicts our conceptual model.

Our research contributes to transformational leadership theory and research in a few important ways. First, we integrate and apply affective events theory (Weiss & Cropanzano, 1996) and self-determination theory (Deci & Ryan, 2000) to examine how and why daily transformational behavior impacts leaders' affect and psychological need fulfillment. Doing so expands our knowledge base of the outcomes of transformational behavior beyond its effects on followers. Given increased interest in leader development (e.g., Day, Harrison, & Halpin, 2008; Lord & Hall, 2005), more attention needs to be placed on leaders themselves. For example, the benefits of transformational behavior could be communicated to leaders in attempts to educate them and promote daily transformational behavior through training (Barling, Weber, & Kelloway, 1996).

Second, we contribute to leadership research by examining daily transformational behavior. Research has long recognized that leadership is a dynamic process varying within person and across situations (Day, Sin, & Chen, 2004; Druskat & Wheeler, 2003), yet little work has examined leadership in a dynamic context. A within-person perspective on transformational behavior is particularly relevant when examining actor

outcomes such as state affect and need fulfillment because of the dynamic nature of these processes (Weinstein & Ryan, 2010). In addition to providing insight into actor outcomes, a within-person examination of transformational behavior also contributes to theory building by inviting future research to examine whether within-person effects also hold at the between-person level (e.g., Wang, Law, Hackett, Wang, & Chen, 2013).

Lastly, this novel investigation of the effects of daily transformational behavior on actors' affective states is important because affective states impact individual performance and attitudes (Beal, Weiss, Barros, & MacDermid, 2005; Dalal, Lam, Weiss, Welch, & Hulin, 2009; Dimotakis, Scott, & Koopman, 2011). For example, it has been found that changes in actors' positive and negative affective states impact their satisfaction and engagement at work as well as their citizenship and creativity (Bledow, Rosing, & Frese, 2013; Bledow, Schmitt, Frese, & Kühnel, 2011; Ilies, Scott, & Judge, 2006). In addition to being important in their own right (Pressman, Gallagher, & Lopez, 2013), actors' affective states are consequential for others too. For example, leaders' affective states influence followers' performance and evaluations of leaders (Bono & Ilies, 2006; Chuang, Judge, & Liaw, 2012; Erez et al., 2008). Thus, there is value in examining the antecedents of leader affective states.

Theory and Hypotheses Development

Although much knowledge has accumulated about the effects of transformational behavior (Bono & Judge; 2003; Judge & Piccolo, 2004; Podsakoff, MacKenzie, Moorman, & Fetter, 1990; Shamir, House, & Arthur, 1993), this research has been heavily one-sided in that we know a lot about the effects of such behavior on followers but not leaders. One important consequence of transformational behavior is that it elicits

affective responses at work (Avolio et al., 2009; Bono & Ilies, 2006; Erez et al., 2008), as evidenced by studies showing that transformational behavior influences follower affect (e.g., Bono & Ilies, 2006; Bono et al., 2007; Erez et al., 2008). We propose that transformational behavior impacts leaders' own affective states too. The examination of leader affect in the context of transformational behavior is relevant because affect has important downstream effects on cognition and behavior (Barsade & Gibson, 2007; Elfenbein, 2007). To understand how transformational behavior affects leaders, we draw from affective events theory (Weiss & Cropanzano, 1996) and self-determination theory (Deci & Ryan, 2000). Our integrated framework suggests that transformational leader behavior is likely to have both direct (via biofeedback cycles) and indirect effects (via need fulfillment) on leaders' affective states.

Daily Transformational Behavior and Leader Affect

Affective events theory (Weiss & Cropanzano, 1996) suggests that workplace events are significant sources of affect. Affective events refer to "a change in circumstances, a change in what one is currently experiencing … [that] generates an emotional reaction or mood change in people" (Weiss & Cropanzano, 1996, p. 31). A number of studies applying affective events theory indicate that positive interactions at work improve employees' mood (Bono et al., 2013; Dimotakis et al., 2011; Ilies, Keeney, & Scott, 2011; Miner, Glomb, & Hulin, 2005). Transformational behaviors facilitate positive interactions via optimistic leader expressions (Shamir et al., 1993) that foster high quality exchanges (Wang, Law, Hackett, Wang, & Chen, 2005), positive emotions (Erez et al., 2008), and feelings of inspiration (Bass, 1999).

Leaders spend considerable time each week interacting with subordinates who

seek assistance for work and personal issues (Burke, Weir, & Duncan, 1976; Kaplan & Cowen, 1981). These interactions provide ample opportunities for leaders to engage in daily transformational acts (Johnson et al., 2012) by emphasizing group values and interests, expressing optimism about achieving desired goals, empowering subordinates to make important decisions, and questioning taken-for granted assumptions. As an example of daily transformational behavior, former Campbell's Soup CEO, Douglas Conant, devoted one hour each day to writing 10-20 letters of praise and encouragement to his employees (McGregor, 2014). Transformational behavior, therefore, is not confined to extraordinary and rare events (e.g., organizational change and crises), but rather it includes common interpersonal behaviors such as expressing enthusiasm and confidence, modeling cooperation, using expressive (e.g., vivid imagery, metaphors) and inclusive (e.g., "we" and "us") language, non-verbal displays of charisma (e.g., making eye contact, hand gestures and facial expressions), and showing empathy (Antonakis, Fenley, & Liechti, 2011, 2012; Bass & Avolio, 1994). Consistent with this idea, empirical evidence verifies that transformational behaviors vary on a daily basis (Breevaart et al., 2014; Johnson et al., 2012; Tims et al., 2011), and we believe these daily acts are likely to improve not only followers' well-being but that of leaders as well.

Theories of transformational behavior acknowledge the affective component of transformational leadership (Bass, 1985; Shamir et al., 1993) and empirical research has shown that transformational behavior elicits affective reactions in recipients (Bono & Ilies, 2006; Erez et al., 2008). For example, Erez et al. (2008) found that transformational behavior was positively associated with followers' positive affect and negatively associated with their negative affect. They argued that followers experience affective

changes owing to emotional contagion from leaders. Transformational leaders express an optimistic outlook for the future and display positive emotions during transformational episodes that trigger positive emotions in subordinates, which may then spill back to leaders through emotional contagion (Bono & Ilies, 2006; Erez et al., 2008). The attentional, behavioral, and emotional synchrony that occur between leaders and followers makes it especially likely that leaders will experience similar affective changes as their followers via emotional contagion (Hatfield, Cacioppo, & Rapson, 1993). In support of this idea, research suggests that supervisors and subordinates often experience similar emotions due to their frequent interactions (Ilies, Wagner, & Morgeson, 2007; Johnson, 2008; Sy, Côté, Saavedra, 2005).

Furthermore, leaders ought to experience affective changes because of the recursive feedback loops that exist between behavior and felt emotions (e.g., Zuckerman, Klorman, Larrance, & Spiegel, 1981). Indeed, research suggests that there are bidirectional biofeedback associations between facial and bodily expressions on the one hand and felt emotions on the other (Adelmann & Zajonc, 1989; Carney, Cuddy, & Yapp, 2010). For example, Kraft and Pressman (2012) found that manipulating smiling during stressful tasks was associated with physiological (cardiovascular stress recovery) and psychological (less reduction in positive affect due to stress) benefits for the actor. Similarly, work by Carney et al. (2010) found that expansive bodily postures were associated with feelings of power for actors. Because transformational episodes involve positive facial expressions and displays of enthusiasm (e.g., Antonakis et al., 2011; Bass, 1999; Bono & Ilies, 2006; Erez et al., 2008), the biofeedback from such behavior ought to improve leaders' affective states.

Lastly, transformational behavior may influence actors' affective states because it facilitates progress towards valued goals (e.g., Harris, Daniels, & Briner, 2003; Wiese & Freund, 2005). Transformational behavior involves mentoring and helping followers transcend their self-interest and work for the good of the work unit (Bass, 1999), which facilitates perceived progress towards performance goals that are valued by both leaders and followers (Bass & Riggio, 2006). Given the research indicating that goal progress leads to more positive affective states (Johnson, Howe, & Chang, 2013; Wiese & Freund, 2005), transformational behavior ought to cultivate such states in leaders. Mentoring and helping others resolve work issues also improve leaders' own affective states, such that they experience more positive affect and less negative affect (Glomb, Bheave, Miner, & Wall, 2011). We therefore hypothesized the following:

> *Hypothesis 1:* Within individuals, performance of daily transformational behavior will be associated with an increase in positive affect.

> *Hypothesis 2:* Within individuals, performance of daily transformational behavior will be associated with a decrease in negative affect.

Transformational Behavior and Leader Daily Need Fulfillment

Self-determination theory posits that people have three basic psychological needs whose fulfillment is crucial for human functioning (Deci & Ryan, 2000; Ryan & Deci, 2000). These are the needs for autonomy, competence, and relatedness (Sheldon, Elliot, Kim, & Kasser, 2001). *Autonomy* refers to the need to experience volition and agency in one's behavior (Deci & Ryan, 2000). *Competence* refers to the need to feel effective in one's environment and capable of achieving valued outcomes (La Guardia, Ryan, Couchman, & Deci, 2000). *Relatedness* refers to the need to feel connected to and understood by others (Baumeister & Leary, 1995). Fulfillment of these needs is a

necessary ingredient of psychological well-being, which involves heightened positive affect and lessened negative affect (Deci & Ryan, 2000; Pavot & Diener, 2013). Although few studies have examined daily need fulfillment in a work context (Mojza, Sonnentag, & Boremann, 2011), there is reason to believe that transformational behavior contributes to the fulfillment of all three needs.

Satisfying the need for autonomy involves the concept of choice and pursuing self-endorsed values and goals (Ryan & Deci, 2008), which we believe is aligned with transformational behavior. First, transformational behavior is initiated by leaders and is more self-determined than other leader behaviors (e.g., reward and punishment behaviors are contingent on follower actions). Second, transformational leadership involves the internalization of organizational goals and values. Once internalized, they become concordant with personal goals and values, the pursuit of which is experienced as autonomous motivation (Gagné & Deci, 2005). Transformational leaders also regulate followers' behavior in pursuit of leader-endorsed values and goals, thus any value-expressive actions by followers contributes to leaders' autonomy. Third, when followers internalize leader-endorsed values and goals, they act in ways that benefit group interests rather than self-interests. In fact, according to Bass and Rigio (2006, p.4), followers "develop their own leadership potential" when exposed to transformational behavior. This frees leaders from the situational constraint of having to continually monitor and manage their subordinates to ensure that work obligations are being met. For the reasons listed above, autonomy needs are likely satisfied by transformational behavior.

The need for competence is satisfied when people view their actions as effective and as the source of valued outcomes. For leaders, their effectiveness is inferred from the

performance of their subordinates. Empirical evidence consistently indicates that transformational behavior is linked to higher follower performance relative to other leader behaviors (Dvir, Eden, Avolio, & Shamir, 2002; Judge & Piccolo, 2004), which ultimately reflects back on the leader. It is not surprising then that leaders who exhibit transformational behavior are rated as more effective by both their subordinates and their superiors (e.g., Johnson et al. 2012). This positive performance feedback, both in terms of objective follower performance and subjective ratings, communicates to leaders that they are capable of interacting effectively with their environment, thus satisfying competence needs (Gagné & Deci, 2005). Leader effectiveness is also inferred from the extent to which followers "buy in" to the strategies and values of leaders. Indeed, empirical evidence suggests that followers are more responsive to leader visions and that leader–follower value congruence is more likely when leaders exhibit transformational behavior (Bono & Judge, 2003; Jung & Avolio, 2000). Because transformational behavior promotes follower buy-in and effective performance, it likely satisfies leaders' competence needs.

Lastly, the need for relatedness is satisfied when people feel a genuine connection to others. Consistent with this notion, transformational behavior strengthens the relational ties between leaders and followers and promotes values and ideals that engender interpersonal trust (Wang et al., 2005). In fact, transformational behavior activates a relational identity in followers, causing leaders to be incorporated in followers' own self-definitions and leaders' values and goals to be internalized by followers (Kark, Shamir, & Chen, 2003). When followers have a salient relational identity, they care about leaders' welfare and act to promote high-quality of leader–follower relations (Lord & Brown,

2004). Also, as mentioned above, transformational behavior fosters value congruence between leaders and followers, which also strengthens the bonds between the two parties. Thus, transformational behavior is expected to fulfill leaders' need for relatedness.

In sum, transformational behavior facilitates self-concordant goals and values, interdependent and high functioning followers, perceived leader effectiveness, and high-quality relations. Thus, we suspect that such behavior fulfills actors' daily psychological needs for autonomy, competence, and relatedness. These needs are also fulfilled more generally by acts of helping others improve and grow (Reis, Sheldon, Gable, Roscoe, & Ryan, 2000; Weinstein & Ryan, 2010), which is characteristic of transformational behavior (Bass, 1985, 1990). In line with these ideas, we hypothesize the following:

Hypothesis 3: Within individuals, performance of daily transformational behavior will be positively associated with daily fulfillment of psychological needs.

Despite accumulating evidence that positive work events contribute to daily affect, few studies specify the mechanisms through which positive work events facilitate changes in affect. Recent work suggests that this may be because daily positive events fulfill actors' basic daily needs for autonomy, competence, and relatedness (Bono et al., 2013; Weinstein & Ryan, 2010). Indeed, self-determination theory specifically acknowledges that "fluctuations in need satisfaction will directly predict fluctuations in well-being" (Deci & Ryan, 2000, p. 243). Testing this prediction, a number of studies report that daily need fulfillment is associated with an increase in positive affect and a decrease in negative affect (Mojza et al., 2011; Reis et al., 2000; Sheldon, Ryan, & Reis, 1996; Weinstein & Ryan, 2010). Given that transformational behavior is expected to contribute to daily need fulfillment, such behavior may improve actors' affective states in part through need fulfillment. Thus, in addition to its direct effect on affective states (e.g.,

via biofeedback cycles), transformational behavior may also indirectly contribute to changes in leaders' affective states by satisfying actors' needs for autonomy, competence, and relatedness. We therefore hypothesized the following:

> *Hypothesis 4*: Daily psychological need fulfillment will mediate the increase in leaders' positive affect due to performance of transformational behavior.

> *Hypothesis 5*: Daily psychological need fulfillment will mediate the decrease in leaders' negative affect due to performance of transformational behavior.

Moderating Role of Actor Extraversion and Neuroticism

Several theoretical models map transitory mood onto the traits of extraversion and neuroticism owing to the idea that positive affect is at the core of extraversion and negative affect is at the core of neuroticism (Costa & McCrae, 1980; Diener, Oishi, & Lucas, 2003; Larsen & Ketelaar, 1991). As Watson and Clark (1992: 446) stated "Neuroticism and Extraversion represent basic dimensions of emotional temperament that broadly reflect individual differences in the propensity to experience negative and positive affect, respectively." Thus, extraversion and neuroticism may have implications for leaders' sensitivity to affect-based corollaries of their behavior and need fulfillment.

Extraversion captures the predisposition to be energetic, sociable, and talkative (Barrick & Mount, 1991). Extraverts experience more positive life events (Magnus, Diener, Fujita, & Pavot, 1993) and more positive emotions (Fleeson, Malanos, & Achille, 2002). They enjoy interpersonal events, are goal oriented, and derive pleasure from a host of stimulating activities such as pursuit of rewards and challenges (Depue & Collins, 1999; McCabe & Fleeson, 2012). A core characteristic of extraverted people is their tendency to behave in ways that attract social attention (Ashton, Lee, & Paunonen, 2002), and there is evidence that extraverts engage in more social activities than introverts

(Lucas, Le, & Dyrenforth, 2008). Thus, extraverted people derive positive emotions from a plethora of daily interpersonal activities and goal pursuits (McCrae & Costa, 2003).

In addition, research has established a robust direct link between extraversion and positive affect (Costa & McCrae; 1980; Smillie, Cooper, Wilt, & Revelle, 2012). Referring to this link, Lucas et al. (2008) stated that "Extraverts seem to be happier than introverts regardless of the amount and type of social activity in which they have recently engaged" (p. 410). Since extraverted people experience positive emotions naturally, which can occur independent of interpersonal events and reward pursuits (Lucas et al., 2008), their daily level of positive affect is less reliant on daily need fulfillment. Introverted people, on the other hand, are less well-socialized, experience more social anxiety and loneliness, and attend fewer social events than extraverted people. Compared to extraverts, introverts should experience a stronger association between need fulfillment and positive affect because they are exposed to fewer activities that directly improve their affective states. For these reasons, we expect the following:

> *Hypothesis 6:* The relation between daily psychological need fulfillment and change in positive affect is weaker when extraversion is high versus low.

Neuroticism captures peoples' predisposition to experience anxiety, self-consciousness, and insecurity (McCrae & Costa, 1987). People who are high in neuroticism perceive more daily stressors and engage in less effective coping tactics (Gunthert, Cohen, & Armeli, 1999). Neurotics also experience more negative life events and negative emotions (David et al., 1997; Magnus et al., 2003). This propensity to experience negative emotions creates a ceiling effect on how much negative emotions neurotics experience daily. This renders them more sensitive to processes that reduce negative affect, such as daily need fulfillment. Feeling autonomous, competent, and

connected to others reduces feelings of insecurity and anxiety, which neurotics are prone

to experience (Weinstein & Ryan, 2010). Thus, fulfillment of daily needs ought to have

self-affirming value for people who are high in neuroticism and amplify the effect of

need fulfillment on state affect. Leaders who are emotionally stable, in contrast, have

more balanced feelings and only experience negative emotions under heightened

stressors. As a result, they benefit less from daily need fulfillment. Hence, we

hypothesize the following:

> *Hypothesis 7:* The relation between daily psychological need fulfillment and change in negative affect is stronger when neuroticism is high versus low.

Overview of Studies

We tested our hypotheses across two experience sampling studies. In Study 1 we

established the main effects of transformational behavior on changes in affect. In Study 2

we replicated these main effects and further examined the mediating effects of daily need

fulfillment and the moderating effects of extraversion and neuroticism. Although our

interest is in transformational behavior specifically, we measured and controlled for other

prevalent types of leader behaviors (transactional, consideration, initiating structure, and

participative). We did so because leaders exhibit multiple types of leader behaviors daily

(Johnson et al., 2012) and overlap exists among the different types (e.g., transformational

and consideration behaviors both involve providing individualized support; DeRue et al.,

2011; Judge, Piccolo, & Ilies, 2004). Thus, our results capture the unique effects of

transformational behavior on changes in leaders' affective states.

Compared to the other leader behaviors, we expected transformational behavior to

have incremental effects on affect for three reasons. First, a hallmark of transformational

behavior is that it appeals to higher-order values associated with work tasks (Bass 1985;

Venus, Stam, & van Knippenberg, 2013). Invoking values increases the perceived importance and meaningfulness of tasks, which has positive effects on people's intrinsic motivation. When intrinsically motivated, leaders and followers experience greater well-being and more positive emotional states (Gagné & Deci, 2005). In contrast, the other leader behaviors lack the same impact because they focus on low-level, concrete aspects of work (e.g., contingent rewards for specific behaviors, prioritizing work tasks, etc.).

Second, another hallmark of transformational behavior is that it causes followers to transcend their own self-interests and instead focus on the goals and welfare of the group (Bass 1985; Bass & Avolio, 1994). This happens because such behavior activates followers' collective identities, thus they view themselves in terms of their group membership and act in ways that benefit the group and its members (Lord & Brown, 2004; Shamir et al., 1993). When collective identities are salient, there is greater cooperation and esprit de corps and less task and relational conflict within the team (Han & Harms, 2010; Janssen & Huang, 2008; Johnson & Saboe, 2011). Favorable outcomes such as these elicit positive emotional states in group members, including leaders. In contrast, the other behaviors promote quid pro quo exchanges and strengthen followers' dyadic identification with the leader, but not necessarily social goals or identification with the group or other members. As such, the other leader behaviors lack the same broad impact of transformational behavior.

Finally, more so than the other leader behaviors, transformational behavior "has an intense emotional component" (Bass, 1985: 36) and involves positive emotional expressions (Antonakis et al., 2011, 2012; Bono & Ilies, 2006). The affective nature of such behavior forges emotional links between followers and leaders, making affective

biofeedback even more likely to occur for leaders who enact daily transformational

behavior. Indeed, research shows that leaders' affective states are related to those of their

followers (Sy et al,, 2005). Furthermore, verbal and non-verbal displays of emotion are

central to transformational behavior (Antonakis et al., 2011, 2012; Bono & Ilies, 2006).

For these reasons, we expect that transformational behavior will have stronger effects on

actors' affective states than the other leadership behaviors.

STUDY 1

Method

Participants and Procedure

We surveyed 55 managerial employees who held a variety of positions within

their organizations, such as director of supply chain management, senior manager, senior

analyst, and product manager. Participants were recruited from an executive style MBA

course. We received usable data from 50 participants. The sample was mostly male

(80%) with a mean age of 47.3 years ($SD = 6.1$), they worked an average of 49.6 hours

per week ($SD = 7.9$), and their average organizational tenure was 6.7 years ($SD = 4.7$).

Participants were primarily Caucasian (52%) or Asian (30%).

Data were collected over a period of four weeks via an initial one-time survey and

a series of daily surveys. Approximately one week before the daily surveys began

participants completed a survey that assessed demographic information. Daily data were

collected twice a day for 15 consecutive work days. The morning survey (sent via email

to participants at 6 AM) assessed state affect. The afternoon survey (sent via email at 4

PM) assessed leadership behaviors and state affect. Participants completed an average of

11.8 pairs of AM and PM surveys. The average lapsed time between the AM and PM

surveys was 8.9 hours.

Measures

State affect. Morning and afternoon positive and negative affect were each measured with four items developed by MacKinnon and colleagues (1999). Participants used a five-point scale (from 1 = "*very slightly or not at all*" to 5 = "*extremely*") to indicate the extent to which each item captured how they felt at that moment. Example items for positive and negative affect are "enthusiastic" and "distressed," respectively. The average coefficient alphas for positive affect (α = .95 for AM and .95 for PM) and negative affect (α = .90 for AM and .87 for PM) were acceptable.

Leader behaviors. We adapted four items developed by Podsakoff and colleagues (1990) to measure *transformational behavior* (average α = .89; e.g., "I communicated a desirable goal or vision to a work group member"). Participants indicated the frequency with which they engaged in each behavior that day via a 6-point scale from 1 = "*never*" to 6 = "*five or more times*" (this response scale was used for all behaviors). *Transactional behavior* was also measured with four items (average α = .89; e.g., "I reminded a group member about the rewards s/he would get for accomplishing work tasks") adapted from Podsakoff and colleagues (1990). *Consideration behavior* was measured with four items (average α = .81; e.g., "I showed concern for a work group member") adapted from Euwema, Wendt, and Van Emmerik (2007) and from Stogdill, Goode, and Day (1962). *Initiating structure behavior* was measured with four items (average α = .88; e.g., "I assigned a specific task to a specific work group member") from Stogdill et al. (1962). Lastly, *participative behavior* was measured with four items (average α = .93; e.g., "When making a decision, I listened to my work group's ideas and suggestions") adapted

from Arnold, Arad, Rhoades, and Drasgow (2002).

To establish discriminant validity among the five types of leader behaviors, we conducted confirmatory factor analyses (CFA). We centered all item scores at each participant's mean item scores, which is appropriate when conducting CFAs with experience sampling data (Scott, Colquitt, Paddock, & Judge, 2010). Results revealed satisfactory fit for the 5-factor model: $\chi^2(160) = 652.93$, CFI = .90, RMSEA = .07. This model had significantly better fit than a 1-factor model: $\Delta\chi^2 (10) = 1703.04$, $p < .01$. The 5-factor model also had better fit than a 2-factor model (transformational and transactional items loaded on one factor and all other items on a second factor): $\Delta\chi^2 (9) = 1528.21$, $p < .01$. Lastly, the 5-factor model fit better than a 4-factor model (transformational and transactional items loaded on one factor, and all other behaviors on separate factors): $\Delta\chi^2 (4) = 503.36$, $p < .01$. Although the leader behaviors are moderately correlated (DeRue et al., 2011; Judge & Piccolo, 2004), our CFA results indicate that they are distinguishable constructs at the day level.

Results and Discussion

Because of the nested nature of our data (daily behaviors nested within leaders), we used hierarchical linear modeling (HLM; Raudenbush & Bryk, 2002) to test our hypotheses. To test Hypotheses 1 and 2, we regressed each outcome variable (afternoon positive and negative affect) on transformational leader behavior. We were interested in examining daily changes in affect associated with transformational behavior, thus we controlled for morning affect by entering it as an uncentered variable in the HLM regressions.[1] Doing so allowed us to control for both trait and state levels of morning

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[1] The pattern of findings is the same regardless of whether affect is included as an uncentered or group-mean centered variable in all analyses involving change.

affect on the dependent variables. We also controlled for transactional, consideration, initiating structure, and participative behaviors in all analyses. As recommended by Hofmann, Griffin, and Gavin (2000), these level 1 variables were group-mean centered so as to control for between-person confounds. To partial out any time-based effects, we also controlled for the day of the study in all analyses.

Presented in Table 1 are the within-person means, standard deviations, and correlations for the daily (level 1) variables. Presented in Table 2 are the between-person means, standard deviations, and correlations for all variables. To establish whether HLM is appropriate to test our hypotheses, we first examined the proportion of within-person variance in the level 1 variables. As shown in Table 3, a considerable amount of variance existed at the within person level (from 28% to 46%), necessitating the use of multilevel modeling.

Reported in Tables 4 and 5 are the results of our multilevel analyses. Consistent with Hypotheses 1 and 2, we found that daily transformational behavior was associated with an increase in leaders' positive affect ($b_{20} = .13$, $p < .05$) and a decrease in their negative affect ($b_{20} = -.09$, $p < .05$). In the next study we build on these findings by testing whether need fulfillment mediates these relations and whether leader extraversion and neuroticism moderate the impact of daily need fulfillment on changes in affect.

STUDY 2

Method

Participants and Procedure

Sixty three managerial employees enrolled in an executive style MBA course were recruited, of which 47 provided usable data (a different cohort from Study 1).

Respondents worked in a variety of positions within their organizations, such as director of technology, corporate human resource manager, and senior product manager. The sample was mostly male (60%) with an average age of 34.8 years ($SD = 8.7$), average number of hours worked per week was 47.8 ($SD = 9.0$), and average tenure in their current organization was 7.3 years ($SD = 6.9$). Participants were primarily Caucasian (78%) or Asian (14%).

Data were collected via a one-time survey and a series of daily surveys. One week prior to the start of the daily surveys, we administered a one-time survey to assess personality. Daily surveys were emailed to participants twice a day at 6 AM (morning affect) and at 4 PM (afternoon affect, need satisfaction, and leader behavior) for 15 consecutive workdays. On average, participants completed 9.8 pairs of daily surveys, and the average lapsed time between the AM and PM surveys was 9.6 hours.

Measures

Personality traits. *Extraversion* was assessed using 8 items ($\alpha = .90$; e.g., "I am the life of the party") from the International Personality Item Pool (IPIP; Goldberg et al., 2006). Participants rated the extent to which each item characterized them via a 5-point scale (from 1 = "*very inaccurately*" to 5 = "*very accurately*"). *Neuroticism* was also measured using 8 items ($\alpha = .73$; e.g., "I get stressed out easily") from the IPIP.

State affect. We used the same items and response scales as in Study 1 to assess participants' morning and afternoon affective states. Average coefficient alphas were .94 for both morning and afternoon positive affect, and .78 and .79 for morning and afternoon negative affect, respectively.

Leader behaviors. We used the same items and response scale as in Study 1 to

measure leader behaviors. Average coefficient alphas exceeded .80 for all five behaviors. Similar to Study 1, CFA results indicated that the 5-factor model had good fit: $\chi^2(160) = 558.53$, CFI = .92, RMSEA = .06, and that it fit better than the 1-factor model ($\Delta\chi^2(10) = 1480.96$, $p < .01$), the 2-factor model ($\Delta\chi^2(9) = 1246.89$, $p < .01$), and the 4-factor model ($\Delta\chi^2(4) = 142.85$, $p < .01$).

Psychological need fulfillment. Daily need fulfillment was measured with nine items ($\alpha = .78$; e.g., "Today at work I felt free to be who I am") developed by La Guardia et al. (2000). Participants indicated the extent to which each statement characterized their experience at work that day (from 1 = "*very slightly or not at all*" to 5 = "*very much*"). Following common practice (e.g., La Guardia et al., 2000; Patrick, Knee, Canevello, & Lonsbary, 2007; Weinstein & Ryan, 2010), we collapsed all items into an overall index of need fulfillment.

Results and Discussion

We again used HLM (Raudenbush & Bryke, 2002) to test our hypotheses. As in Study 1, morning affect was entered uncentered in all HLM regressions assessing change. Consistent with prior recommendations, we group mean-centered our level 1 control variables and grand-mean centered extraversion and neuroticism (Enders & Tofighi, 2007; Hoffman et al., 2000). Within-person and between-person means, standard deviations, and correlations are presented in Tables 6 and 7, respectively. To establish multilevel modeling as the appropriate method for analyzing the data, we first estimated the amount of within-person variance in each level 1 variable. As shown in Table 8, there was a considerable amount of within-person variance (ranging from 29 to 63%).

First we tested the predictions that transformational leader behavior is associated

with changes in daily positive and negative affect. Similar to Study 1, we controlled for morning affect, leader behaviors, and study day in all analyses. Presented in Tables 9 and 10 are the results for Hypotheses 1 and 2. Replicating our results from Study 1, transformational behavior was associated with an increase in daily positive affect (b_{20} = .17, $p < .05$) and a decrease in daily negative affect (b_{20} = -.09, $p < .05$). Furthermore, in support of Hypothesis 3, we found that transformational behavior was positively related to daily need fulfillment (b_{30} = .13, $p < .05$; see Table 11).

Next we examined whether psychological need fulfillment mediated the relations of transformational behavior with changes in positive affect. To do so, we followed procedures by Bauer, Preacher, and Gil (2006) designed to test mediation (1-1-1) in multilevel models. We estimated the indirect effect and conducted a Monte Carlo simulation with 20,000 replications to obtain a confidence interval (CI) around the indirect effect. The Monte Carlo simulation is appropriate because it does not make normality assumptions about the distribution of the indirect effect (Preacher, Zyphur, & Zhang, 2010). The estimate for the indirect effect for positive affect was .03 and the bias corrected 95% CI did not include zero (.01; .06), supporting Hypothesis 4. We ran similar analyses for Hypothesis 5, which posited that need fulfillment mediated the effects of transformational behavior on decreases in negative affect. Multilevel mediation analyses failed to support Hypothesis 5: the estimate for the indirect effect was -.007 and the biased corrected 95% CI included 0 (-.02;.001).

The next set of analyses involved testing the hypothesized cross-level interactions. According to Hypothesis 6, extraversion moderates the effect of daily need fulfillment on changes in positive affect such that this relation is weaker for extraverts

(vs. introverts). Slopes as outcome results show that extraversion significantly moderates the relationship between daily need fulfillment and afternoon positive affect (b_{72}= -.25, p < .01; see Table 12), supporting Hypothesis 6. This interaction, illustrated in Figure 1, indicates that the positive relation of need fulfillment with positive affect is weaker for extraverts (vs. introverts). Following procedures by Preacher et al. (2006), we conducted tests of simple slopes. We found that both slopes for high and low extraversion were significant. Specifically, the slope for low extraversion (−1 SD) was .70, $z = 7.51$, $p < .01$, whereas the slope for high extraversion (+1 SD) was .31, $z = 3.28$, $p < .01$. In support of Hypothesis 6, the simple slope for extraverts was approximately half that for introverts.

Hypothesis 7 posited that neuroticism moderates the association between daily need fulfillment and afternoon negative affect such that this relation is stronger for people high (vs. low) in neuroticism. Supporting Hypothesis 7, neuroticism was found to moderate the relationship of need fulfillment with decrease in negative affect (b_{71} = -.08, $p < .05$; see Table 13). As Figure 2 illustrates, the negative relation between need fulfillment and negative affect is stronger for people who are high (vs. low) in neuroticism. Results of the simple slopes test revealed a marginally significant slope for low neuroticism (−1 SD) (simple slope = -.11, $z = -1.89$, $p < .10$), but a significant slope for high neuroticism (+1 SD) (simple slope = -.20, $z = -3.07$, $p < .05$).

Supplemental Analyses

We conducted a set of supplementary analyses to provide a clearer picture of the relations examined in our two studies. First, although we did not hypothesize multilevel moderated mediation, in post hoc analyses we estimated the within-person indirect effect of transformational leadership on positive affect at high (+1 SD) and low (−1 SD) levels

of extraversion and neuroticism (second-stage moderated mediation models). Our analyses revealed that the indirect effect of transformational behavior on positive affect via need fulfillment was significant for low levels of extraversion (indirect effect = .04; 95% CI [.01; .08] as well as for high levels of extraversion (indirect effect = .02; 95% CI [.002; .05]. The effects difference between high and low extraversion was −.02 (90% CI: −0.04; −.001), suggesting that the indirect effect was smaller for extraverts versus introverts. The indirect effect of transformational behavior on negative affect, however, was not moderated by neuroticism. The effect difference for high versus low neuroticism was −.004 and not significant (90% CI: −.003;.003).

Second, we examined whether transformational behavior had carry-over effects over multiple days. Our lagged analyses revealed that neither transformational behavior nor the other leader behaviors directly and consistently influenced next-day affect in our two studies. We did observe, however, that afternoon positive and negative affect influenced next-morning positive and negative affect, respectively, suggesting that leader behaviors may have indirect effects on next morning affect. Following procedures by Bauer et al. (2006), we estimated indirect effects of leader behaviors on next morning affect and conducted Monte Carlo simulations with 20,000 replications to obtain CIs around the indirect effects. We found that only transformational behavior had a significant indirect effect on next-morning positive affect via its influence on previous-afternoon positive affect in both studies. In Study 1, the effect size for this indirect effect was .05 and the 95% CI did not include 0 (.01; .11). In Study 2, the indirect effect was .06 (95% CI: .02; .11). None of the leader behaviors had significant indirect effects on next-morning negative affect.

Third, we compared the variance explained in affect by each leader behavior in isolation. Specifically, we estimated the variance explained by each of the leadership behaviors in positive and negative affect by comparing a null model of afternoon affect with the nested models (LaHuis, Hartman, Hakoyama, & Clark, 2014), which included morning affect and the focal leader behavior. In Study 1, we found that each leader behavior explained from 1.3% to 6.3% of the variance in positive affect with transformational behavior explaining the most (6.3%). In Study 2, each leader behavior explained from 2.7% to 12.6% of the variance in positive affect, with transformational behavior explaining the most (12.6%). Thus, across both studies transformational behavior consistently explained the most variance in positive affect.

We next examined the individual effects of each leader behavior on negative affect in both studies. In Study 1, we found that only transformational behavior had a main effect on negative affect when the behaviors were considered in isolation. In Study 2, we found that transformational, participative, and consideration behaviors were related to reductions in negative affect in separate models. Because multiple behaviors were related to negative affect in Study 2, we examined the variance explained by each of the significant behaviors. Participative behavior explained the most variance (12%) followed by transformational behavior (7%). Taken together, these supplemental analyses show that, relative to the other leader behaviors, transformational behavior consistently related to changes in positive affect and negative affect in both studies. Furthermore, transformational behavior explained the most variance in positive affect, and it was the only predictor of negative affect that was significant in both studies.

Fourth, to rule out reverse causality, we examined whether morning affect predict

daily transformational behavior. Neither morning positive nor negative affect predicted performance of daily transformational behavior. Thus, it appears that leader behavior impacts affect rather than vice versa. Finally, we examined whether trait affectivity influenced the pattern of results observed in both studies. We did so by controlling for trait positive affect and negative affect both at the intercept of our dependent variables (e.g., daily affect and need fulfillment) and the slope of transformational behavior, which effectively controls for trait affectivity in multilevel modeling (Beal & Ghandour, 2011). We found that controlling for trait affect did not change the general pattern of our findings.

DISCUSSION

Prior research has consistently shown that transformational leader behavior is beneficial for followers and work units (Judge & Piccolo, 2004). Less, however, is known about the consequences of transformational behavior for the leaders themselves. Recognizing that transformational behavior is dynamic and fluctuates daily (Johnson et al., 2012), we investigated the effects of daily transformational behavior on leaders' daily affect across two experience sampling studies. Lending support to arguments that transformational behavior is a beneficial form of leader behavior (Avolio et al., 2009; Bass & Riggio, 2006), our findings revealed that transformational behavior uniquely impacted changes in daily affect. Specifically, in both studies we found that transformational behavior predicted increases in leaders' positive affect and decreases in their negative affect. Importantly, these effects were incremental to and stronger than other leader behaviors (i.e., transactional, consideration, initiating structure, and participative). In line with our integration of affective events theory (Weiss &

Cropanzano, 1996) and self-determination theory (Deci & Ryan, 2000), daily need

fulfillment partially mediated relations of daily transformational behavior with changes in

affect. Lastly, following theoretical arguments that some people are more prone to

experiencing affective changes, we examined the moderating effects of extraversion and

neuroticism. We found that the impact of daily need fulfillment on increases in positive

affect was weaker for extraverts (vs. introverts), whereas the impact of need fulfillment

on decreases in negative affect was stronger for neurotics (vs. emotionally stable people).

Extraversion also moderated the indirect effect of transformational leadership on changes

in positive affect, such that this indirect effect was smaller for extraverts (vs. introverts).

Theoretical and Practical Implications

We discuss two key theoretical contributions to research on transformational

behavior and affect. First, we show that the benefits of transformational behavior are not

limited to subordinates but extend to actors as well. This is important because with few

exceptions prior research has overlooked the impact that transformational behavior has

on leaders themselves. Given the onus often placed on leaders to behave

transformationally, it is important to examine how such behavior impacts their well-

being. Our results, therefore, offer an important advancement to research on outcomes of

transformational behavior by showing that actors also benefit from transformational acts.

Second, we are among the first to argue theoretically and to test empirically the

dynamic nature of transformational behavior, which was made possible by integrating

affective events theory (Weiss & Cropanzano, 1996) with self-determination theory (Deci

& Ryan, 2000). These two theories complement each other in important ways.

Specifically, affective events theory explicitly acknowledges that positive daily

interactions such as transformational acts contribute to fluctuations in positive and negative affect for actors. Self-determination theory acknowledges that positive interpersonal acts fulfill important daily needs, which in turn improve daily affective states. The integration of these two theories provides a solid basis for investigating consequences of transformational behavior for actors. This theoretical framework also holds promise for future research interested in examining other daily leader behaviors.

The finding that exhibiting transformational leader behavior is beneficial for actors has implications for practice as well, particularly for leadership training. There are several examples of how people can be effectively trained to increase transformational behavior (e.g., Antonakis et al., 2011; Barling et al., 1996; Kelloway, Barling, & Helleur, 2000). A typical transformational training paradigm includes an instruction component where trainees are introduced to the concept of transformational leadership and the behaviors that comprise this style, followed by a practice component where trainees have opportunities to exhibit transformational behaviors as part of role playing and group activities. During the instruction component, the primary emphasis is on highlighting the positive developmental and performance consequences of transformational behaviors for followers. Although these positive follower-based outcomes are no doubt desirable, greater trainee buy-in might be achieved by also spelling out the personal benefits of enacting transformational behavior. Our results suggest that performing such behavior satisfies leaders' needs and promotes favorable emotional states.

Another practical implication pertains to the consistency of transformational behavior. Paralleling what others have reported (e.g., Breevaart et al., 2014; Johnson et al., 2012), a meaningful amount of variance in transformational behavior was within-

person (36-46%), which suggests that actors vary in their daily displays of such behavior. Although we observed some evidence of next-day lagged effects, the biggest impact of transformational behavior on actors' well-being occurs on the day such behavior is exhibited. Thus, there is value in making a concerted effort to display transformational behaviors each day (e.g., expressing enthusiasm and confidence, using vivid and inclusive language). Regular daily displays of transformational behavior are also beneficial because leaders are rated as more effective leaders when they act consistent, possibly because the behavior is more likely attributed to the person rather than the situation (Johnson et al., 2012). Leadership training should therefore highlight the importance of frequent and consistent displays of transformational behavior, which pay bigger dividends for actors.

Finally, our findings have practical implications for the other leadership behaviors as well. Specifically, in supplementary analyses we found that all leadership behaviors are associated with increases in positive affect when considered in isolation. These findings suggest that when task demands, subordinate characteristics, or other contextual circumstances do not warrant the performance of transformational behavior, performance of these other leader behaviors will have similar (albeit weaker) effects on leader positive affect. For example, if a workgroup is already motivated to embrace a new technology thus making a leader's transformational behavior less relevant, the leader's affect would still improve from performance of more contextually pertinent behaviors such as initiating structure or consideration behaviors. Nevertheless, on days when leaders have opportunities to display any of these leadership behaviors, transformational behavior has a stronger impact on affect and it was the only one with indirect effects on next day

positive affect.

Limitations and Directions for Future Research

Our research has some limitations that are worth noting. As an initial investigation of the consequences of engaging in transformational behavior for actors, our focus in this study was on affective and psychological outcomes. We found that exhibiting such behavior improves leaders' need fulfillment and affective states, which are markers of well-being. However, our results do not speak to the possible cognitive and behavioral outcomes of exhibiting transformational behavior. For example, through its enhancing effects on well-being, engaging in transformational behavior may free up cognitive resources that actors can devote to on-task activities, ultimately resulting in higher job performance. The gains in positive emotions and reductions in negative emotions may also have consequences for actors' creative behaviors and prosocial behaviors (e.g., Bledow et al., 2013). Unfortunately, we did not assess downstream behavioral consequences, which is a limitation that can be addressed by future research.

The theoretical and empirical contributions of this current work open up a range of avenues for future research. While we examined beneficial effects in our study, future research ought to examine whether performance of daily transformational behavior has any detrimental consequences for leaders. For example, inexperienced leaders who try to enact transformational leadership with a new group of employees may find these behaviors particularly taxing on their cognitive and emotional resources. The resource-depletion resulting from such efforts may offset the beneficial effects that transformational behavior has on need fulfillment and affect. We invite future research to examine possible drawbacks of transformational behaviors as well.

Future research might also examine other outcomes of transformational behavior for both actors and followers and as rated by different sources. For example, we found that daily transformational behavior is associated with an increase in positive affect and prior research has shown that daily changes in positive affect contribute to daily creativity, helping, and work engagement (Binnewies & Wörnlein, 2010; Bledow et al., 2011; Dalal et al., 2009). Thus, transformational behavior may have indirect effects on such outcomes via affective changes. With regards to followers, it is possible that daily transformational leadership may also fulfill their daily needs for autonomy, relatedness, and competence. Transformational behavior endorses good-will and trust among interaction partners, which may fulfill followers' need for relatedness. Such behavior also enables greater initiative and transmits resources needed for success at work. As such, transformational behavior is likely to fulfill followers' needs for autonomy and competence. It is our hope that this current work will serve as a catalyst for future research on both actor and recipient outcomes of daily transformational behavior.

A final limitation of the current study is that we did not examine individual dimensions of transformational behaviors, which may have unique effects on actors' need fulfillment. Transformational leadership comprises a set of behaviors ranging from visioning and role modeling to providing individualized support and consideration (Avolio & Bass, 2002; Bass, 1985; Podsakoff et al., 1990). Some of these behaviors involve shifting responsibility and control from leaders to their followers by inspiring followers to act in ways that benefit the group by pursuing shared goals and conforming to social norms. Such behaviors (e.g., idealized influence, inspiration motivation) may affect well-being primarily through the satisfaction of leaders' need for autonomy. Other

behaviors strengthen social ties between leaders and followers (e.g., providing support and showing consideration on an individual-level basis) by building trust and respect between the partners. These behaviors would be expected to enhance actors' well-being via pronounced effects on need for relatedness. Yet other behaviors challenge followers to rethink how they approach problems, set more challenging goals for themselves, and invest greater effort in their task activities. Such behaviors enhance followers' performance, which ultimately reflects back on leaders in the form of high functioning units and favorable ratings of leader effectiveness (Dvir et al., 2002). These beneficial outcomes are a source of positive performance feedback that directly satisfies actors' need for competence. Thus, specific leadership behaviors may differ in the relative magnitude of effects they have on autonomy, relatedness, and competence needs.

Conclusion

The purpose of this current work was to examine the impact of exhibiting transformational behavior on leaders' own affective states. We find that daily transformational behavior is associated with increases in positive affect and decreases in negative affect. Importantly, the relations of transformational behavior with affect were incremental to and stronger than those of other leader behaviors (e.g., transactional and consideration behaviors). Daily need fulfillment partially mediates the effects of transformational behavior on affect, and the impact of need fulfillment on affective changes was dependent on actors' extraversion and neuroticism. Extraversion also moderated the indirect effect of transformational leadership on changes in positive affect. As one of the first studies to examine the effects of daily transformational behavior on actor outcomes, this work highlights the benefits of transformational behavior for actors

and identifies a number of important venues for future actor-centric research.

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TABLE 1

Study 1: Within-Individual Descriptive Statistics and Correlations[a]

	Variable	M	sd.	1	2	3	4	5	6	7	8	9
1	Morning Positive Affect	3.06	1.11	-								
2	Morning Negative Affect	1.46	0.80	-0.18**	-							
3	Afternoon Positive Affect	3.08	1.10	0.45**	-0.13**	-						
4	Afternoon Negative Affect	1.50	0.79	-0.14**	0.46**	-0.25**	-					
5	Transformational Behavior	2.72	1.27	0.04	-0.08*	0.23**	-0.12*	-				
6	Transactional Behavior	1.96	1.08	-0.05	-0.03	0.11*	-0.03	0.35**	-			
7	Consideration Behavior	2.46	1.07	0.02	0.00	0.17**	-0.07	0.35**	0.29**	-		
8	Initiating Structure Behavior	2.39	1.20	-0.01	0.03	0.09*	0.00	0.46**	0.47**	0.27**	-	
9	Participative Behavior	2.67	1.26	-0.02	0.02	0.14**	0.00	0.43**	0.31**	0.26**	0.36**	
10	Study Day	8.00	0.0	0.04	-0.10*	0.03	-0.13*	0.07	0.26**	0.05	0.07	0.01

a. Variables 1 through 9 are within-individual (level 1) variables (N = 592). Inter-correlations are based on within-individual scores. Means and standard deviations are based on between person scores. Study day is a monotonic variable representing the day of the study ranging from 1 to 15.

 * $p < .05$, ** $p < .01$.

TABLE 2

Study 1: Between-Individual Descriptive Statistics and Correlations[ab]

	Variable	M	sd.	1	2	3	4	5	6	7	8
1	Morning Positive Affect	3.08	0.98	-							
2	Morning Negative Affect	1.49	0.65	-0.31*	-						
3	Afternoon Positive Affect	3.08	0.98	0.96**	-0.31*	-					
4	Afternoon Negative Affect	1.52	0.64	-0.35*	0.94**	-0.35*	-				
5	Transformational Behavior	2.70	1.04	0.44**	-0.22	0.50**	-0.25	-			
6	Transactional Behavior	1.95	0.87	0.37**	-0.10	0.39**	-0.11	0.81**	-		
7	Consideration Behavior	2.44	0.82	0.40**	-0.08	0.45**	-0.11	0.81**	0.68**	-	
8	Initiating Structure Behavior	2.36	0.96	0.36**	-0.11	0.39**	-0.15	0.88**	0.85**	0.70**	-
9	Participative Behavior	2.68	1.04	0.45**	-0.11	0.50**	-0.19	0.77**	0.64**	0.74**	0.75**

a. N = 50. Means, standard deviations, and inter-correlations are based on between-individual scores. Correlations are based on between-individual scores (e.g., we aggregated 1-9 at the individual level).

* $p < .05$, ** $p < .01$.

TABLE 3

Study 1: Parameter Estimates and Variance Composition of Level 1 Variables[a]

Variable	Intercept b_{00}	Within-Individual Variance (e^2)	Between-Individual Variance (r^2)	Percentage of Within-Individual Variance
Morning Positive Affect	3.07**	0.36	0.92	28%
Morning Negative Affect	1.48**	0.26	0.40	40%
Afternoon Positive Affect	3.08**	0.33	0.92	26%
Afternoon Negative Affect	1.52**	0.26	0.39	40%
Transformational Behavior	2.70**	0.57	1.03	36%
Transactional Behavior	1.95**	0.45	0.72	39%
Consideration Behavior	2.44**	0.53	0.63	46%
Initiating Structure Behavior	2.36**	0.55	0.89	38%
Participative Behavior	2.68**	0.61	1.02	37%

$N = 592$. b_{00} represents the average level of the variable across individuals. e^2 represents the within-individual variance and, r^2 the between-individual variance in the variable. Percentage of within-individual variance was computed as the ratio of the within-individual variance/(within + between variance).
* $p < .05$, ** $p < .01$.

TABLE 4

Study 1: HLM Results for Predictors of Afternoon Positive Affect[a]

Predictor	Criterion: *Afternoon Positive Affect*		
	B	**s.e.**	**t**
Intercept (b_{00})	1.54	0.17	8.85**
Morning Positive Affect (b_{10})	0.51	0.05	11.02**
Transformational Behavior (b_{20})	0.13	0.04	3.71*
Transactional Behavior (b_{30})	0.05	0.03	1.49
Consideration Behavior (b_{40})	0.10	0.04	2.73*
Initiating Structure Behavior (b_{50})	-0.05	0.03	-1.52
Participative Behavior (b_{60})	0.06	0.03	1.95
Study Day (b_{70})	0.00	0.00	-0.61

a. N = 592. All level 1 predictors, except morning affect, were group-mean centered (i.e. centered at persons' mean); morning affect is entered uncentered in the model to estimate change in the dependent variable. Study Day is a monotonic variable taking values 1 to 15, corresponding to the day of the study and is entered uncentered in the model. Unstandardized regression coefficients are presented in the table.

* $p < .05$, ** $p < .01$

TABLE 5

Study 1: HLM Results for Predictors of Afternoon Negative Affect[a]

Predictor	*B*	s.e.	t
Criterion: Afternoon Negative Affect			
Intercept (b_{00})	1.00	0.13	7.59**
Morning Negative Affect (b_{10})	0.40	0.08	5.14*
Transformational Behavior (b_{20})	-0.09	0.03	-3.01*
Transactional Behavior (b_{30})	0.04	0.04	0.93
Consideration Behavior (b_{40})	-0.03	0.03	-0.89
Initiating Structure Behavior (b_{50})	0.03	0.03	0.87
Participative Behavior (b_{60})	0.01	0.03	0.36
Study Day (b_{70})	-0.02	0.01	-2.15*

a. N = 592. All level 1 predictors, except morning affect, were group-mean centered (i.e. centered at persons' mean); morning affect is entered uncentered in the model to estimate change in the dependent variable. Study Day is a monotonic variable taking values 1 to 15, corresponding to the day of the study and is entered uncentered in the model. Unstandardized regression coefficients are presented in the table.

* $p < .05$, ** $p < .01$

TABLE 6

Study 2: Within-Individual Descriptive Statistics and Correlations[a]

	Variable	M	sd.	1	2	3	4	5	6	7	8	9	10
1	Morning Positive Affect	3.38	0.88	-									
2	Morning Negative Affect	1.23	0.31	-0.28**	-								
3	Afternoon Positive Affect	3.30	0.86	0.20**	-0.17**	-							
4	Afternoon Negative Affect	1.29	0.33	-0.10*	0.34**	-0.23**	-						
5	Transformational Behavior	2.73	0.95	0.07	-0.01	0.32**	-0.11*	-					
6	Transactional Behavior	1.81	0.77	0.12**	0.01	0.24**	-0.08	0.47**	-				
7	Consideration Behavior	2.54	0.78	0.01	0.10*	0.18**	0.00	0.48**	0.33**	-			
8	Initiating Structure Behavior	2.31	0.90	-0.05	0.14**	0.12**	-0.03	0.40**	0.36**	0.28**	-		
9	Participative Behavior	2.85	1.01	-0.02	0.02	0.17**	-0.04	0.47**	0.31**	0.43**	0.31**	-	
10	Need Fulfillment	3.99	0.46	0.11*	-0.04	0.41**	-0.23**	0.28**	0.13**	0.20**	0.16**	0.22**	
11	Study Day	8.00	0.0	0.09*	-0.18**	0.02	-0.10**	-0.05	0.03	-0.06	-0.14**	-0.01	-0.07*

a. N = 396. Variables 1 through 10 are within-individual (level 1) variables. Inter-correlations are based on within-individual scores. Means, standard deviations are based on between person scores.

* p <.05, ** p < .01.

TABLE 7

Study 2: Between-Individual Descriptive Statistics and Correlations[a]

	Variable	M	sd.	1	2	3	4	5	6	7	8	9	10	11
1	Morning Positive Affect	3.38	0.88	-										
2	Morning Negative Affect	1.23	0.31	0.19	-									
3	Afternoon Positive Affect	3.30	0.86	0.93**	0.24	-								
4	Afternoon Negative Affect	1.29	0.33	0.14	0.77**	0.13	-							
5	Transformational Behavior	2.73	0.95	0.47**	0.17	0.47**	0.21	-						
6	Transactional Behavior	1.81	0.77	0.25	0.14	0.27*	0.20	0.77**	-					
7	Consideration Behavior	2.54	0.78	0.48**	0.08	0.43**	0.10	0.82**	0.60**	-				
8	Initiating Behavior	2.31	0.90	0.17	0.22	0.10	0.22	0.74**	0.74**	0.58**	-			
9	Participative Behavior	2.85	1.01	0.39**	0.22	0.33**	0.03	0.81**	0.55**	0.77**	0.71**	-		
10	Need Fulfillment	3.99	0.46	0.63**	0.04	0.62**	-0.04	0.33**	0.03	0.31**	0.02	0.24	-	
11	Extraversion	3.63	0.76	0.06	-0.09	0.13	-0.14	0.11	0.13	0.14	0.00	0.00	0.24	-
12	Neuroticism	2.34	0.60	-0.20	0.27	-0.24	0.19	-0.10	-0.10	-0.10	-0.05	-0.06	-0.22	-0.05

a. Pairwise N = 47-63. Extraversion and neuroticism are between-individual (level 2) variables. Means, standard deviations, and inter-correlations are based on between-individual scores. Correlations are based on between-individual scores (e.g., we aggregated 1-10 at the individual level).
* $p < .05$, ** $p < .01$.

TABLE 8

Study 2: Parameter Estimates and Variance Composition of Level 1 Variables[a]

Variable	Intercept b_{00}	Within-Individual Variance (e^2)	Between-Individual Variance (r^2)	Percentage of Within-Individual Variance
Morning Positive Affect	3.35**	0.30	0.72	30%
Morning Negative Affect	1.21**	0.10	0.07	57%
Afternoon Positive Affect	3.30**	0.36	0.72	33%
Afternoon Negative Affect	1.28**	0.14	0.08	63%
Transformational Behavior	2.86**	0.63	0.73	46%
Transactional Behavior	1.86**	0.27	0.57	32%
Consideration Behavior	2.64**	0.49	0.53	48%
Initiating Structure Behavior	2.32**	0.56	0.62	47%
Participative Behavior	2.30**	0.79	0.66	55%
Need Fulfillment	4.04**	0.15	0.18	46%

a. N =396. b_{00} represents the average level of the variable across individuals. e^2 represents the within-individual variance and, r^2 the between-individual variance in the variable. Percentage of within-individual variance was computed as the ratio of the within-individual variance/(within + between variance).
* $p < .05$, ** $p < .01$.

TABLE 9

Study 2: HLM Results for Predictors of Afternoon Positive Affect[a]

Predictor	Direct Effects Model			Mediated Model		
	B	s.e.	t	*B*	s.e.	t
Intercept (b_{00})	2.10	0.23	9.25**	2.36	0.25	9.53**
Morning Positive Affect (b_{10})	0.34	0.07	5.03**	0.27	0.07	3.89**
Transformational Behavior (b_{20})	0.17	0.05	3.49**	0.12	0.04	2.76*
Transactional Behavior (b_{30})	0.06	0.07	0.84	0.09	0.08	1.03
Consideration Behavior (b_{40})	0.08	0.04	2.11*	0.03	0.04	0.62
Initiating Structure Behavior (b_{50})	0.00	0.04	-0.07	-0.03	0.04	-0.67
Participative Behavior (b_{60})	0.02	0.04	0.48	0.00	0.04	0.10
Need Fulfillment (b_{70})				0.56	0.09	6.18**
Study Day (b_{80})	0.00	0.01	0.21	0.01	0.01	1.31

a. N = 396. All level 1 predictors, except morning affect, were group-mean centered (i.e. centered at persons' mean); morning affect is entered uncentered in the model to estimate change in the dependent variable. Study Day is a monotonic variable taking values 1 to 15, corresponding to the day of the study and is entered uncentered in the model. Unstandardized regression coefficients are presented in the table.
* p <.05, ** p < .01.

TABLE 10

Study 2: HLM Results for Predictors of Afternoon Negative Affect[a]

| Predictor | *Criterion*: Afternoon Negative Affect | | | | | |
| | Direct Effects Model | | | Mediated Model | | |
	B	s.e.	t	*B*	s.e.	t
Intercept (b_{00})	0.91	0.13	7.05**	0.93	0.16	5.85**
Morning Negative Affect (b_{10})	0.31	0.07	4.37**	0.32	0.08	3.88**
Transformational Behavior	-0.09	0.03	-2.91*	-0.06	0.02	-2.54*
Transactional Behavior (b_{30})	0.11	0.07	1.52	0.08	0.07	1.11
Consideration Behavior (b_{40})	0.04	0.05	0.80	0.05	0.05	1.06
Initiating Structure Behavior	-0.02	0.03	-0.69	-0.01	0.04	-0.15
Participative Behavior (b_{60})	-0.12	0.16	-0.74	-0.10	0.16	-0.63
Need Fulfillment (b_{70})				-0.15	0.05	-2.87*
Study Day (b_{80})	-0.01	0.01	-1.24	-0.02	0.01	-1.33

a. N = 396. All level 1 predictors, except morning affect, were group-mean centered (i.e. centered at persons' mean); morning affect is entered uncentered in the model to estimate change in the dependent variable. Study Day is a monotonic variable taking values 1 to 15, corresponding to the day of the study and is entered uncentered in the model. Unstandardized regression coefficients are presented in the table.
* p <.05, ** p < .01.

TABLE 11

Study 2: HLM Results for Predictors of Need Fulfillment [a]

Predictor	*Criterion*: Need Fulfillment		
	B	s.e.	t
Intercept (b_{00})	4.10	0.07	58.32**
Morning Positive Affect (b_{10})	0.06	0.04	1.43
Morning Negative Affect (b_{20})	-0.02	0.04	-0.44
Transformational Behavior (b_{30})	0.13	0.03	4.49**
Transactional Behavior (b_{40})	0.00	0.05	-0.08
Consideration Behavior (b_{50})	0.07	0.03	2.41*
Initiating Structure Behavior (b_{60})	0.04	0.03	1.27
Participative Behavior (b_{70})	0.04	0.03	1.54
Study Day (b_{80})	-0.01	0.01	-1.47

a. N = 396. All level 1 predictors, except morning affect, were group-mean centered (i.e. centered at persons' mean); morning affect is entered uncentered in the model to estimate change in the dependent variable. Study Day is a monotonic variable taking values 1 to 15, corresponding to the day of the study and is entered uncentered in the model. Unstandardized regression coefficients are presented in the table.
* $p < .05$, ** $p < .01$.

Table 12

Study 2: Moderating Effects of Extraversion on the Relations of Needs Fulfillment and Positive Affect [a]

Predictor	*Criterion*: Afternoon Positive Affect		
	B	s.e.	t
Intercept (b_{00})	2.39	0.24	9.83**
Level 2 Predictors			
Extraversion (b_{01})	0.11	0.10	1.03
Level 1 Predictors			
Morning Positive Affect (b_{10})	0.26	0.07	3.89**
Transformational Behavior (b_{20})	0.12	0.04	2.69*
Transactional Behavior (b_{30})	0.08	0.07	1.06
Consideration Behavior (b_{40})	0.04	0.05	0.80
Initiating Structure Behavior (b_{50})	-0.03	0.04	-0.76
Participative Behavior (b_{60})	0.01	0.04	0.23
Need Fulfillment (b_{70})	0.51	0.08	6.52**
Study Day (b_{80})	0.01	0.01	1.27
Cross-level Predictor			
Extraversion X Need Fulfillment (b_{71})	-0.25	0.07	-3.62*

a. Level 1 N = 396. Level 2 N = 47. All level 1 predictors, except morning affect, were group-mean centered (i.e. centered at persons' mean); morning affect is entered uncentered in the model to estimate change in the dependent variable. Study Day is a monotonic variable taking values 1 to 15, corresponding to the day of the study and is entered uncentered in the model. Unstandardized regression coefficients are presented in the table.

* $p < .05$, ** $p < .01$.

Table 13

Study 2: Moderating Effects of Neuroticism on the Relations of Needs Fulfillment and Negative Affect[a]

Predictor	Criterion: Afternoon Negative Affect		
	B	s.e.	t
Intercept (b_{00})	0.93	0.16	5.86**
Level 2 Predictors			
Neuroticism (b_{01})	0.04	0.05	0.85
Level 1 Predictors			
Morning Negative Affect (b_{10})	0.32	0.08	3.90**
Transformational Behavior (b_{20})	-0.06	0.02	-2.63*
Transactional Behavior (b_{30})	0.08	0.07	1.10
Consideration Behavior (b_{40})	0.05	0.05	1.08*
Initiating Structure Behavior (b_{50})	-0.01	0.04	-0.13
Participative Behavior (b_{60})	-0.10	0.16	-0.65
Need Fulfillment (b_{70})	-0.15	0.06	-2.72*
Study Day (b_{80})	-0.02	0.01	-1.34
Cross-level Predictor			
Neuroticism X Need Fulfillment (b_{71})	-0.08	0.04	-2.04*

a. Level 1 N = 396. Level 2 N = 47. All level 1 predictors, except morning affect, were group-mean centered (i.e. centered at persons' mean); morning affect is entered uncentered in the model to estimate change in the dependent variable. Study Day is a monotonic variable taking values 1 to 15, corresponding to the day of the study and is entered uncentered in the model. Unstandardized regression coefficients are presented in the table.
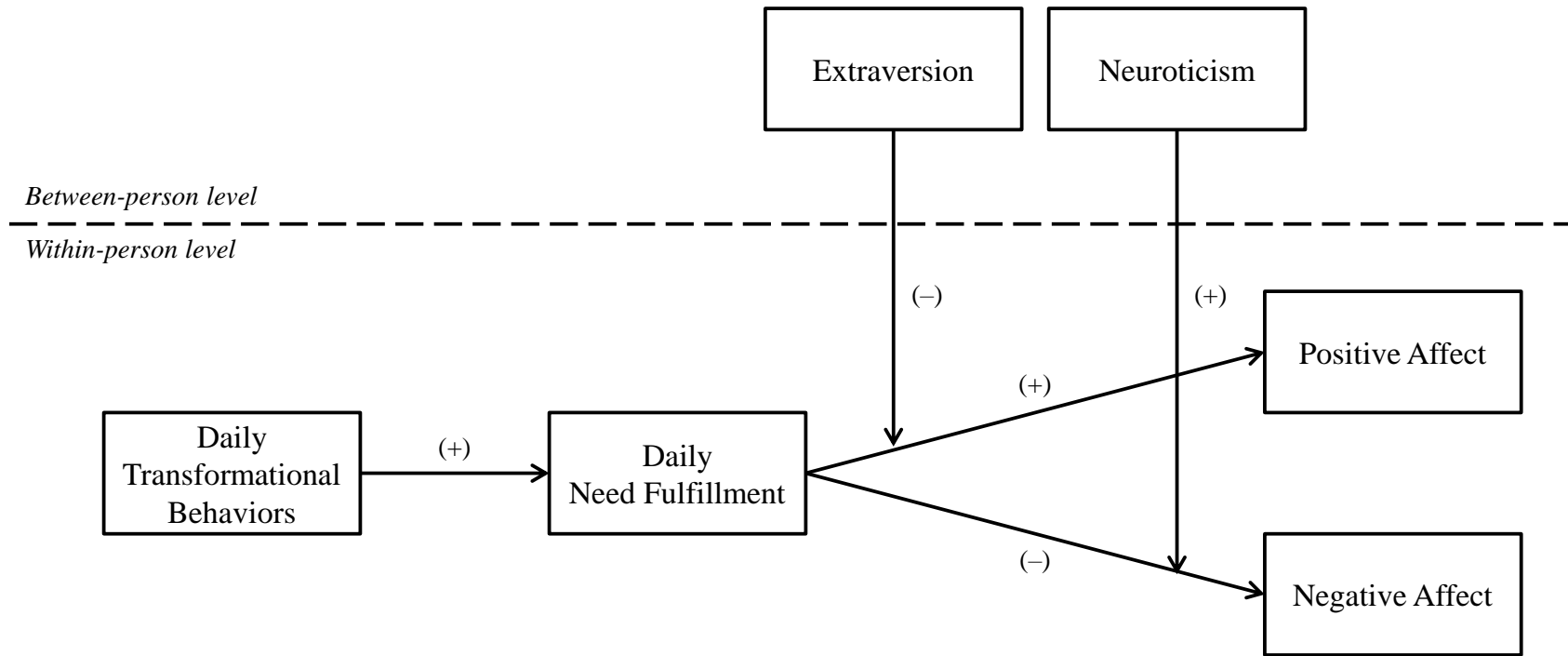
* p <.05, ** p < .01.

FIGURE 1

Conceptual Model

FIGURE 2

Cross-level Moderating Effect of Extraversion on the Need Fulfillment – Positive Affect Relationship
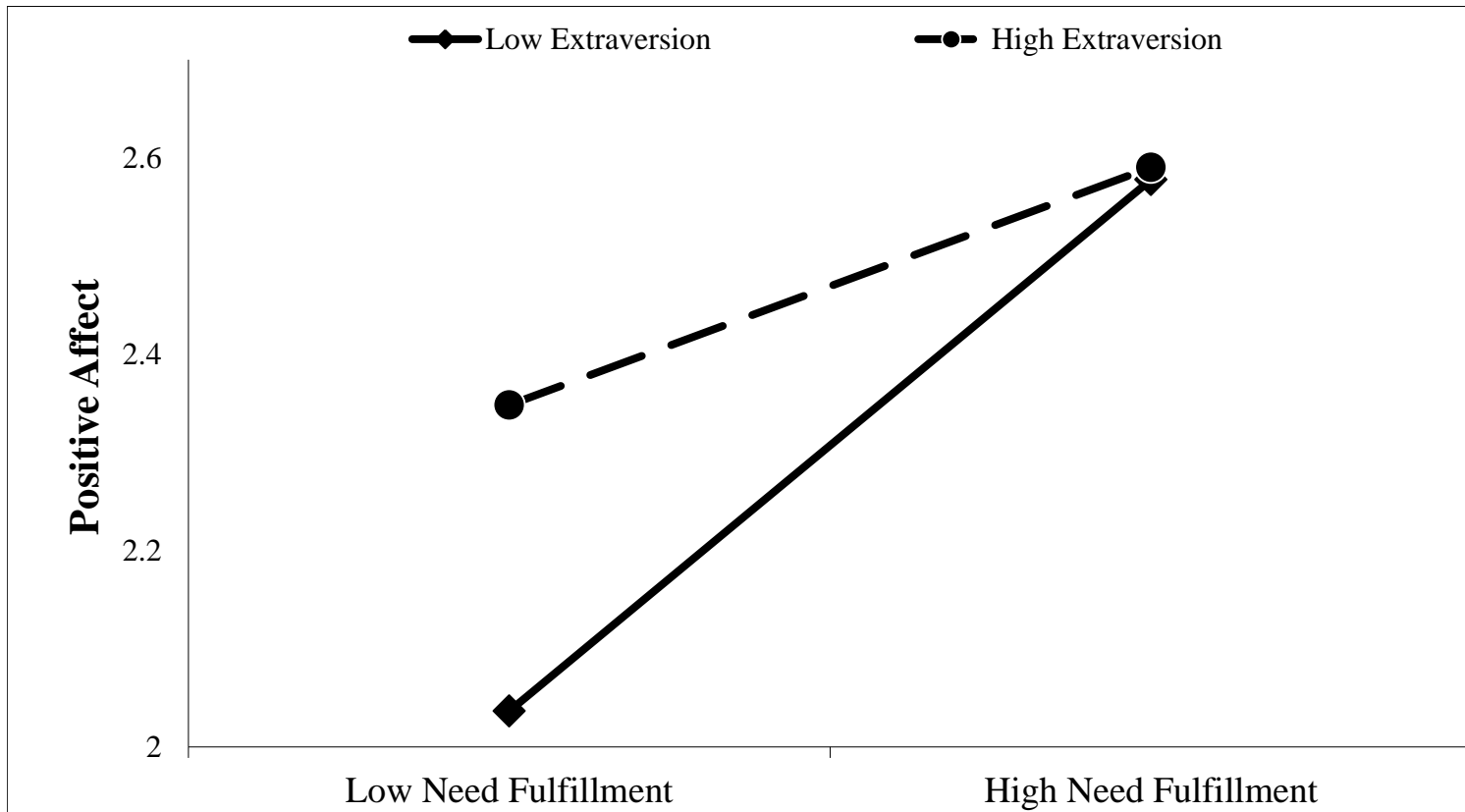
FIGURE 3

Cross-level Moderating Effect of Neuroticism on the Need Fulfillment – Negative Affect Relationship