THE ROLLER COASTER OF LEADER AFFECT: AN INVESTIGATION OF OBSERVED LEADER AFFECT VARIABILITY AND ENGAGEMENT

Abstract

Recognizing the dynamic nature of affect, we consider *observed leader affect* and its *variability* as important social signals that jointly impact employees' daily affective reactions and work engagement. Integrating the *emotion as social information* model and *adaptation-level theory*, we hypothesized that the impact of daily observed leader affect on employees' affect and subsequent work engagement is moderated by *observed leader affect variability*. To test the model, an experience sampling method (ESM) involving two surveys per day over 10 days was employed with a sample of 75 employees. Results indicated that observed leader affect variability weakened the positive relationship between observed leader positive affect and employee work engagement via employee positive affect. Also, observed leader negative affect was negatively related to employee work engagement via employee negative affect, but this indirect effect was not moderated by observed leader affect variability. Our results highlight the critical role of observed leader affect variability in understanding leaders' affective influence on employee affect and engagement.

Keywords: observed leader affect; affect variability; emotion as social information model; adaptation-level theory; work engagement.

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"Since spiking your boss's coffee with mood-altering pharmaceuticals is not an option, watch for patterns…and avoid over-reacting yourself."

—Lynn Taylor, author of *Tame Your Terrible Office Tyrant* (Smith, 2013)

Over the past three decades, significant research progress has been made in understanding *work engagement*, which is defined as "the harnessing of organization members' selves to their work roles" (Kahn, 1990: 694). Results of meta-analyses have supported work engagement as a critical precursor of companies' profit (Harter, Schmidt, & Hayes, 2002) and employees' job attitudes (Cole, Walter, Bedeian, & O'Boyle, 2012), performance (Christian, Garza, & Slaughter, 2011), and health (Halbesleben, 2010). The value of work engagement is also recognized and appreciated by practitioners (Harter et al., 2002).

To cultivate engagement in everyday managerial practice, recent research has shifted focus from individual level engagement to how *leaders* precipitate *fluctuations* in employees' work engagement on a daily basis (Bakker & Albrecht, 2018). This burgeoning area posits that employee engagement varies with leaders' daily *behaviors*, as evidenced in studies on transformational leadership (Tims, Bakker, & Xanthopoulou, 2011) and episodic social exchange (e.g., Liao, Liu, Li, & Song, 2019). This *behavior-centered approach* is clearly important; however, leadership scholars have recently proposed an *affect-centered approach* to understanding leaders' daily influence. This perspective suggests that leaders' influence may sometimes be *unintentional* and *nonbehavioral*, such as when employees proactively pay attention to leaders' affect and attempt to interpret it (van Knippenberg & Van Kleef, 2016). The

current study follows this affect-centered approach to investigate whether and how *observed leader affect* impacts employees' daily work engagement. Adopting an affect-centered perspective is essential due to the *dynamic* nature of *affect* (Frijda, 1986, 1988) and the recognition that work engagement fluctuates with "momentary rather than static circumstances of people's experiences" (Kahn, 1990: 703).

Even though the dynamic nature of affect has been acknowledged in leadership research (van Knippenberg & Van Kleef, 2016), previous studies mainly consider the within-person level phenomenon of leader affect, treating each day's observation of leader affect as isolated (e.g., Liu et al., 2017). Indeed, the dynamic nature of affect suggests that employees may also observe how their leader's affect changes over time. Specifically, some employees may perceive their leader repeatedly expressing similar affect, while others may observe different leader affect over several days. In the present study, the extent to which employees observe a leader displaying different affect over time is referred to as *observed leader affect variability*. Notably, identifying variabilities in one's context is an inherent aspect of human nature (Wasserman, Young, & Cook, 2004). Thus, the information conveyed in the *variability* of leader affect goes beyond the information conveyed in each observation (Ariely & Carmon, 2000). Given the unique social signals employees receive from observing the variability of leader affect, we raise our central question— "How does observed leader affect variability impact employees' daily work engagement?"

Answering this question is meaningful for both theoretical and practical reasons. Our research calls attention to the importance of affect variability in understanding how individuals respond to others' display of affect. Considering affect variability as a substantive construct challenges the view that leaders' daily displays of affect are isolated incidents and acknowledges

that the degree to which leader affect fluctuates over time matters as well (van Knippenberg & Van Kleef, 2016). Therefore, our research question, which recognizes that employees are impacted by their leaders' affect variability in their environment (Wasserman et al., 2004), identifies a critical aspect of context that should be considered in research on employee work engagement. Practically, our research may increase leaders' awareness that their displayed affect on a particular day is interpreted by employees based on how their affect has varied over a period of time. Further, because our investigation links leader and employee affect to employee work engagement, our results may provide guidance to managers on how to adjust their displays of emotion so as to increase their employees' work engagement.

====== Insert Figure 1 about here ======

We integrate the *emotion as social information* (EASI) model (Van Kleef, 2016) and *adaptation-level theory* (Helson, 1948, 1964a, 1964b) in developing a cross-level moderated mediation model (see Figure 1). We first examine the impact of observed leader affect on work engagement at the within-person level. Based on the EASI model (Van Kleef, 2016), we propose an indirect effect through an affective pathway, in which employee affect mediates the relationship between observed leader affect and work engagement. Then, we focus on how observed leader affect variability, a between-person level phenomenon, influences the within-person level impact of observed leader affect on employee affect. The development of this cross-level moderating effect is based on adaptation-level theory (Helson, 1964a), which posits that "exposure to earlier stimuli serves as a frame of reference by which later stimuli are judged" (Bowling, Beehr, Wagner, & Libkuman, 2005: 1046). Based on this notion, we reason that when observing a leader displaying many different affective states over time (i.e., high observed leader affect variability), employees tend to adapt to the uncertain and confusing information conveyed

in these unstable social signals. As a result, employees' affective reaction to observed leader affect is weakened.

Through developing and examining this model, our research contributes to the existing literature in three substantive ways. First, our study extends the EASI model (Van Kleef, 2016) by exploring variability of observed leader affect. Drawing on adaptation-level theory (Helson, 1964a), we emphasize that each single observation of leader affect does not occur in a void but happens in the "background" of previous observations. Therefore, our focus on observed leader affect variability goes beyond the typical paradigm of the EASI model that treats a single observation of emotion as an isolated event (Van Kleef, 2016).

The second contribution of this research relates to the affect-centered perspective we adopt when exploring leaders' impact on employee daily work engagement. This approach complements previous research that has mainly focused on the impact of leaders' *behaviors* on employee daily work engagement (e.g., Liao et al., 2019; Tims et al., 2011). Adopting the EASI model (Van Kleef, 2016) as the theoretical foundation, the present research illuminates a pervasive phenomenon in the workplace, which is that employees pay attention to leaders' affective expressions on a daily basis and are impacted by observed leader affect and its variability. Thus, an examination of how observed leader affect impacts employee daily work engagement provides a unique perspective on the precursors of work engagement fluctuations.

Third, our research introduces a novel way to measure variability of affective signals (i.e., observed leader affect) by adopting the *spin* index. Spin is a statistical index that has previously been used in management research to capture variability of employees' *own* affect (Beal & Ghandour, 2011; Beal, Trougakos, Weiss, & Dalal, 2013). It is a method to quantify the variability of a construct formed by two orthogonal dimensions (e.g., Côté, Moskowitz, &

Zuroff, 2012; Moskowitz & Zuroff, 2004). In the present study, we consider *observed leader positive affect* and *observed* leader *negative affect* as two orthogonal dimensions based on the *circumplex model of affect* (Watson & Tellegen, 1985). Thus, our use of the spin index may broaden the scope of research on variability of contextual stimuli in the workplace.

THEORY AND HYPOTHESES

Observed Leader Affect and Employee Reactions: Applying the EASI Model

Affect is commonly used as an umbrella term that refers to both state affect (i.e., the within-person level state over a short period of time) and trait affect (i.e., the individual-level stable affect) (Frijda, 1986, 1988). In the present study, we refer to state affect, which encompasses different emotions and moods (van Knippenberg & Van Kleef, 2016). Emotions are discrete feelings that typically have specific causes, whereas moods are diffuse states that are not necessarily triggered by specific events (Frijda, 1986). In the present study, we focus on observed leader affect, which is a comprehensive construct capturing leaders' emotions and moods overall on a particular day; it also refers to employees' observations of leader affect, instead of leaders' subjective feelings.

The EASI model (Van Kleef, 2016) proposes that observed affect conveys critical social signals that help observers understand their current interpersonal situation. In organizational contexts, leaders usually hold relatively high power in deciding many important aspects of employees' work, such as what to do, how to do it, and what resources are available (Yukl, 2010). As a result, employees are motivated to pay attention to leaders' affective expressions and are consequently impacted by what they observe (Van Kleef, Oveis, Van der Löwe, LuoKogan, Goetz, & Keltner, 2008).

According to the EASI model (Van Kleef, 2016), employees may be impacted by their

observations of leader affect via two steps. First, observed leader affect evokes employees' own affect, and second, employees' affect further influences how they approach their work.

Step 1: Observed leader affect and employee affect. The first step of the EASI model, affective influence, states that a person (e.g., an employee) who observes another person's (e.g., the employee's leader's) affect may elicit a similar affect state (Van Kleef, 2016). This process is similar to what has been proposed in emotion-contagion theory (Hatfield, Cacioppo, & Rapson, 1994), but follows a different logic. Comparatively, emotion-contagion theory discusses the simultaneous experience of emotions between two parties (or in a group) via the mechanisms of emotional mimicry and synchrony (Hatfield et al., 1994), which are usually *nondirectional* and *subconscious* (Davis, 1985). The EASI model (Van Kleef, 2016) not only takes this automatic contagion process into account but also suggests that affective influence can be directional and involve complex cognitive processes.

The EASI model (Van Kleef, 2016) proposes cognitive pathways to explain why employees may experience affect similar to the affect displayed by their leader. First, the EASI model considers discerning leaders' emotions as a deliberate process of social appraisal, whereby employees may use this information to interpret their own situation and come to feel similarly as a result (Parkinson & Simons, 2009). For example, when observing their leader displaying anxiety, employees may view the situation as potentially threatening and risky, and then experience anxiety as well. Second, employees may feel empathy and take the leader's perspective when responding to observed leader affect (Hawk, Fischer, & Van Kleef, 2011). For instance, an employee who sees his/her leader as sad and knows the sadness results from the recent loss of a family member, that employee may also experience feelings of sadness. Both of these mechanisms (i.e., social appraisal and perspective taking) require cognitive efforts,

suggesting that how observed leader affect impacts employee affect may not be captured by a purely subconscious process.

We reason that both the subconscious emotion-contagion and the deliberate cognitive processing explanations proposed by the EASI model suggest that employees' affect may be impacted by observed leader affect on a daily basis. While observing their leader's daily affect, employees may devote intensive cognition to interpret the situation; in other situations, they may "catch" leader affect without consciously knowing why. Taking these different mechanisms into account, we propose that when observing the leader displaying positive affect, employees are likely to perceive positive affect on that day. However, when the leader expresses negative affect on a particular day, employees tend to experience negative affect that day as well.

Hypothesis 1a: Observed leader positive affect is positively related to employee positive affect at the within-person level.

Hypothesis 1b: Observed leader negative affect is positively related to employee negative affect at the within-person level.

Step 2: Employee affect and work engagement. The second step of the EASI model proposes that affect derived from observing another's affect (leader affect) can extend beyond the observer's (employee's) affect such that it influences attitudes and behaviors as well (Van Kleef, 2016). The rationale of this second step is consistent with *feelings-as-information theory* (Schwarz, 2012; Schwarz & Clore, 1983), which proposes that individuals may (mis)interpret their affect as a result of the current situation and use their affective feelings as inputs when assessing the environment and making decisions. In the context of employees' daily work, employees may (mis)interpret their positive or negative affect as the result of their work at hand and change their strategy for completing work, such as investing more or less energy. For

example, when an employee feels happy, he/she may interpret that happiness as coming from tasks' motivating characteristics, and thus become more engaged.

Extending beyond the feeling-as-information process, the EASI model considers other mechanisms for explaining the impact of employee affect, such as an affect priming process (Bower, 1981; Forgas & Bower, 1987; Isen, 1987; Van Kleef, 2016). This cognitive process suggests that when an employee's positive or negative affect is evoked, he/she is more likely to recall some positive or negative events that have occurred and pay more attention to those aspects of work. As a result, the employee's interpretation of his/her current work becomes more positive or negative, such that they tend to increase or decrease their work engagement.

Following the EASI model, we propose that employees' daily affect is related to their work engagement. When employee positive affect is transmitted from leader positive affect on a certain workday, employees may view their current work through rose-tinted glasses and recall more positive events that occurred recently. Through a mood-congruent judgement process, employees tend to perceive their tasks at hand as consistent with their positive affect and feel energized (George & Brief, 1996), which increases their motivation. Also, positive memories are likely to emerge in their mind due to a mood-congruent recall process (George & Brief, 1996). As a result, they may fully engage themselves at work. Relatedly, researchers examining work engagement have also adopted the *broaden-and-build perspective* (Fredrickson, 1998), which considers positive affect as a facilitator of psychological resources that can spark vigorous, dedicated, and absorbed states (also identified as the three states of work engagement) (Leiter & Bakker, 2010).

The mood-congruent judgment and mood-congruent recall process (George & Brief, 1996) can also explain the negative impact of employee negative affect on work engagement,

following a similar logic. The negative affect evoked through observing leader negative affect may arouse employees' vigilance of the potential threats or impediments in their work environment. Additionally, employees may recall negative experiences that evoked negative affect similar to the one they are currently experiencing. Consequently, employees may become cautious and conservative in investing psychological and physical energies into work tasks, and thus lower their work engagement.

By means of the second step of the EASI model, we hypothesize a positive relationship between employees' positive affect and work engagement, and a negative relationship between employees' negative affect and work engagement.

Hypothesis 2a: Employee positive affect is positively related to employee work engagement at the within-person level.

Hypothesis 2b: Employee negative affect is and negatively related to employee work engagement at the within-person level.

Observed leader affect on employee work engagement via employee affect. Integrating the two steps of the EASI model (Van Kleef et al., 2010), we further propose that employee affect is a mediating mechanism that explains the relationship between observed leader affect and employee work engagement. According to the EASI model (Van Kleef, 2016), employees' daily affect may be impacted by their observations of leader affect through both emotion contagion and cognitive processes. Subsequently, employees' appraisal of their work at hand tends to be consistent with their affect, and they likely recall previous events that arouse similar affect as they are currently experiencing. As a result, employees' work engagement, manifested as the extent to which they are physically, cognitively, and emotionally connected to their work (Rich, Lepine, & Crawford, 2010), may be significantly impacted by their affect,

emanating from observing their leader's affect. Specifically, when observing leader positive affect, employees are likely to display positive affect, as well as focus on the positive aspects of their work by investing more physical, cognitive, and emotional energies. However, when observing leader negative affect, employees may recall similar negative affective experiences and view their current work negatively. Consequently, employees have fewer psychological energies to devote to their tasks at hand, resulting in lower engagement.

Hypothesis 3a: Observed leader positive affect is indirectly and positively related to employee work engagement via employee positive affect at the within-person level.

Hypothesis 3b: Observed leader negative affect is indirectly and negatively related to employee work engagement via employee negative affect at the within-person level.

The Impact of Observed Leader Affect Variability: Applying Adaptation-Level Theory

Although the EASI model (Van Kleef, 2016) explains the influence of observed leader affect at the within-person level, this approach treats the incidental observations of leader affect as isolated or independent events, without considering the connections among different observations. Complimenting the EASI model, adaptation-level theory (Helson, 1948, 1964a, 1964b) highlights a universal principle in human cognition: individuals' *experience* of a certain type of stimuli (e.g., observed leader affect) may influence their responses to a new stimulus in the same category.

In addition, adaptation-level theory (Helson, 1964a) emphasizes observers' adaptation to the "sameness" (low variability) and "differentness" (high variability) of these stimuli. The ability to detect sameness and differentness is rooted in human nature (Young & Wasserman, 2002) and is critical to human beings' survival. William James (1907), the founder of psychology, even commented that the "sense of sameness is the very keel and backbone of

consciousness" (1907: 240). In the organizational context, the variability of social signals, like observed leader affect, is informative to employees when interpreting their current situation. When employees perceive their leader's affect as similar over time, they likely interpret their overall work environment as stable and constant. On the other hand, when observing divergent displays of leader affect over a series of days, they may feel uncertain or confused. Importantly, this suggests that signals or information conveyed by observed leader affect variability extends beyond the information conveyed by each observation (i.e., daily) of leader affect.

Adaptation-level theory (Helson, 1964a) proposes alternative mechanisms in explaining how observers adapt to lower or higher variability, and thus, provides the theoretical grounding for the effects of observed leader affect variability on employees' affective reactions.

When observed leader affect variability is low. Adaptation-level theory (Helson, 1964a) proposes that in situations where the same or similar stimuli (e.g., observed leader affect) repeatedly appear, observers (e.g., employees) may form a relatively stable *adaptation-level*. This implies that observers react consistently (e.g., stable employee affect) to stimuli that repeatedly appear. As a result, observers maintain their reactions at this adaptation-level and become sensitive to any difference between a new stimulus (e.g., observed leader affect on a new day) and their repeatedly observed stimuli (e.g., leader affect they usually observe).

We follow this logic to explain employees' experiences when observing *low* variability in their leaders' affect. Across most days, employees may observe the leader displaying similar affect, so their affective reactions (i.e., employee affect) to this repeated and constant leader affect is correspondingly stable. Using the language of adaptation-level theory, we consider this situation as employees maintaining their own affect at the adaptation level, which mirrors their observed leader's affect.

However, employees who observe low leader affect variability may occasionally see their leader displaying different affective states on some days. The conspicuously different leader affect state may increase its saliency, capturing employees' attention, and stimulating them to interpret their leader's unique affective state. According to the EASI model, employees' strong motivation to interpret leader affect (also termed as *epistemic motivation*) may also evoke significant affective reactions to observed leader affect (Van Kleef, Homan, Beersma, van Knippenberg, van Knippenberg, & Damen, 2009). It suggests that employees' close attention and cognitive efforts to the unusual observed leader affect may elicit employee affect that is similar to that of their leader. Therefore, employees' affect diverges from their adaptation-level (i.e., the stable affect mirrors the frequently observed leader affect) and changes in accordance with observed leader affect.

Taking these points together, we argue that when observed leader affect variability is low, employee affect is strongly related to observed leader affect, no matter whether the leader displays similar affect as before or displays disparate affect on a particular day.

When observed leader affect variability is high. In the situation where observed leader affect variability is high, employees observe their leader displaying different affect states, which prevents them from forming a stable affective reaction to leader affect. According to adaptation-level theory (Helson, 1964a), employees may not be sensitive to changes in observed leader affect that varies widely because such variability does not provide a clear adaptation level, or comparison criterion. As a result, when a clear adaptation-level of observed leader affect is lacking, employees are less impacted by observed leader affect on a daily basis.

In addition, adaptation-level theory (Helson, 1964a) provides another reason for why employees are less impacted by greater variability in observed leader affect. It is based on the

premise that, to human beings, "too much variety suggests a lack of coherence, produces overstimulation, and engenders a longing for things familiar, predictable, or regular" (Wasserman et al., 2004: 879). For this reason, adaptation-level theory suggests that individuals tend to control the impact of external variability to maintain a stable internal state (Helson, 1964a). Thus, this mechanism proposed by adaptation-level theory (Helson, 1964a) suggests that, to maintain relatively constant affective states, employees tend to control their reactions to high levels of variability in external stimuli (i.e., observed leader affect) and avoid over-reacting themselves to the variability. Therefore, when observing their leader displaying high levels of affect variability, employees attempt to maintain a stable affect state and thus react weakly to these diverse stimuli.

Considering these two reasons (i.e., not forming a stable adaptation-level and adapting to maintain internal stability), we propose that employee affect is less impacted by observed leader affect on a daily basis when observed leader affect variability is higher than lower.

Hypothesis 4a: Observed leader affect variability moderates the positive relationship between observed leader positive affect and employee positive affect, such that this positive relationship is weaker when observed leader affect variability is higher than lower.

Hypothesis 4b: Observed leader affect variability moderates the positive relationship between observed leader negative affect and employee negative affect, such that this positive relationship is weaker when observed leader affect variability is higher than lower.

Integrating the EASI model and adaptation-level theory, which formed the basis for Hypotheses 1 to 4, we further develop a *cross-level moderated mediation model* that depicts how

observed leader affect and its variability jointly impact employees' daily affect and subsequent work engagement. The hypotheses for the full model are the following.

Hypothesis 5a: Observed leader affect variability moderates the positive and indirect relationship between observed leader positive affect and employee work engagement via employee positive affect, such that this positive and indirect relationship is stronger when observed leader affect variability is lower than higher.

Hypothesis 5b: Observed leader affect variability moderates the negative and indirect relationship between observed leader negative affect and employee work engagement via employee negative affect, such that this negative and indirect relationship is stronger when observed leader affect variability is lower than higher.

METHOD

Sample and Procedure

The data collection consisted of two parts: the initial survey and 10 pairs of daily surveys. We invited 88 employees from a real estate company in mainland China to participate in the study. The employees' job responsibilities included project design, development, sales, and after-sale services. The initial survey was conducted on site in one of the bi-weekly meetings that every employee was required to attend. The main topic of these bi-weekly meetings was company news and goals for the upcoming two weeks. The initial survey was administered at the start of the meeting and included demographical information and the between-person control variables (i.e., perceived leader positive and negative affect expressivity). Eighty-three employees completed the initial survey, yielding a response rate of 94%.

One week after the initial survey, we invited employees who had completed the initial survey to complete daily surveys. The daily survey was administered over 10 consecutive

workdays (two calendar weeks). The two-week time span was chosen based on the recommendations of previous experience-sampling studies (e.g., Rosen, Koopman, Gabriel, & Johnson, 2016). During the two weeks, employees were asked to complete questionnaires twice a day, one at noon and the other at approximately 5:00 p.m. (before they left the workplace). At noon, employees were asked to rate their observations of their leader's positive and negative affect in the morning; respondents had a two-hour time window (11 a.m. — 1 p.m.) to complete the survey. Before leaving work, they reported their own positive and negative affect and work engagement based on their feelings during the afternoon. The second daily survey was distributed at 4 p.m. and respondents were required to complete it no later than 7 p.m. If an employee failed to complete the survey within the corresponding time window, the survey was treated as invalid. Upon completion of the initial survey, we gave each participating employee two movie tickets (worth about $10). For the daily surveys, we provided free beverages and snacks during the survey administration. All of the surveys were administered in paper-pencil format by a member from our research team who has no personal relationship with the company.

Data from eight employees were removed because they failed to complete at least three pairs of daily surveys, which was the threshold for generating the score for variability (Beal & Ghandour, 2011). These deletions resulted in a final sample of 75 employees who provided 615 day-level responses (two surveys per day), yielding a response rate of 74%. Of these employees, 47% were female, and 39% had a college or equivalent degree. The average age was 33.44 (*SD* = 9.98), and the mean organizational tenure was 23.04 months (*SD* = 18.71 months). We compared the eight employees who failed to provide valid data for the daily surveys to employees who were retained in our sample with respect to age, education, organizational tenure, dyadic tenure with the leader, and control variables (i.e., positive and negative leader expressivity). The eight

employees did not significantly differ from the 75 employees who completed the daily surveys on any of the demographical and control variables, showing minimal attrition bias.

Measures

All variables were initially developed in English. Following Brislin's (1986) suggestions, two bilingual researchers translated all of the scales into Chinese, and then another bilingual researcher back translated all of the items into English. Afterwards, a native English speaker compared the original items and the translated-back-translated items. Finally, the general manager of the company commented on the clarity of the items in consideration of the education level of the employees in the organization. The response scale was a 7-point Likert scale ranging from 1 (*strongly disagree*) to 7 (*strongly agree*), except where otherwise noted.

Observed leader positive and negative affect (Time 1 daily survey). We used six affect adjectives ("happy," "excited," "enthusiastic," "calm," "relaxed," and "satisfied") to measure observed leader positive affect, and another six adjectives ("angry," "nervous," "tired," "unhappy," "depressed," and "disappointed") for observed leader negative affect, following Dong, Seo, and Bartol (2014). These adjectives were selected from Barrett and Russell's (1998) PA/NA scale, which was originally used to measure state affect at the within-person level. In the Time 1 daily survey, the respondents were asked to rate the extent to which they observed their immediate leader displaying each feeling (e.g., happy) during the morning. To calculate the reliabilities of within-person changes across the ten days, we used the Multilevel Confirmatory Factor Analysis approach (Muthén, 1994; Muthén & Asparouhov, 2011), following the instructions of Bolger and Laurenceau (2013)[1]. The Omegas for observed leader positive and negative affect across 10 days were .92 and .94, respectively.

Employee positive and negative affect (Time 2 daily survey). We used the same 12

affect adjectives for measuring observed leader positive and negative affect to assess employee positive and negative affect in the Time 2 survey. Specifically, we asked respondents the extent to which they experienced each of the six positive and six negative feelings in the afternoon. Omega, which indicates the reliabilities of within-person changes over two weeks, was 0.91 for employee positive affect and .92 for employee negative affect.

Work engagement (Time 2 daily survey). Following Bakker and Xanthopoulou (2009), we used the six-item, short-version of the Utrecht Work Engagement Scale (UWES; Schaufeli, Bakker, & Salanova, 2006) to measure state work engagement at the end of each workday. The UWES measures three dimensions of engagement: *vigor* (e.g., "At my work, I feel bursting with energy"), *dedication* (e.g., "I am enthusiastic about my work"), and *absorption* (e.g., "I was completely immersed in my work"). Consistent with previous studies (Bakker & Xanthopoulou, 2009; Schaufeli et al., 2006), we computed an overall daily work engagement index. The reliability of within-person changes across time (Omega) of state work engagement was .84.

Observed leader affect variability—the index of spin. Previous studies have introduced different statistical indexes to operationalize variability, such as standard deviation (e.g., Huang, Ford, & Ryan, 2017), variance (e.g., Erdogan & Bauer, 2010), skewness (e.g., Sinha, Janardhanan, Greer, Conlon, & Edwards, 2016), and kurtosis (e.g., Seo, Nahrgang, Carter, & Hom, 2018). The choice of the index of variability is mainly dependent on the nature of the concept. When the concept is unidimensional, standard deviation, variance, or skewness are potential options, and the final decision is dependent on the distribution of the variable (e.g., normal distribution or skewed distribution). For the situation where a concept is formed by two orthogonal dimensions, recent studies have adopted the index of spin as the method to capture the variability concept. For example, Moskowitz and Zuroff (2004) used the index of spin to

capture the intraindividual variability of interpersonal behaviors.

In the present study, we relied on affect theory (Cacioppo & Bemtson, 1994; Warr, Barter, & Brownbridge, 1983; Watson & Tellegen, 1985) and thus considered observed leader affect as a two-dimensional concept, meaning that each observation of leader affect could be located on a specific location on the circumplex of observed leader positive and negative affect.

======Insert Figure 2 about here======

In Figure 2, we illustrate two examples representing high and low observed leader affect variability, respectively. Both circumplexes of observed leader affect include four observations represented by the arrows with a dot at the arrow points. In the high observed leader affect variability example on the left (Figure 2a), the four arrows represent distinct observed leader affect states because the arrows are located in four different quadrants and the arrow tips are distant from each other. Conversely, the arrows in the low observed leader affect variability example on the right (Figure 2b) are all located in the first quadrant of the circumplex, so the observed leader affect depicted by these four arrows are similar to each other. We operationalized observed leader affect spin following the procedure commonly used in previous studies (e.g., Beal & Ghandour, 2011; Beal et al., 2013; Kuppens, Oravecz, & Tuerlinckx, 2010; Kuppens, van Mechelen, Nezlek, Dossche, & Timmermans, 2007). Herein, observed leader affect spin is a single score generated by all scores of observed leader positive and negative affect that were assessed across 10 daily surveys. There were four steps in this process. First, we placed the within-person centered scores for observed leader positive and negative affect on the same two-dimensional circumplex. Following Beal et al.'s (2013) suggestions, we chose relative center points (i.e., each participant's average scores of observed leader positive and negative affect) instead of absolute center points (i.e., scale midpoint) in order to standardize leader

positive and negative affect scores. Second, we converted the Cartesian coordinates of observed leader positive and negative affect into unit vectors. Third, we computed the resultant vector (R) of all observed leader positive and negative affect of an individual with the formula $\left(\sum_{t=1}^{n}\frac{PA_t}{\sqrt{PA_t^2+NA_t^2}},\sum_{t=1}^{n}\frac{NA_t}{\sqrt{PA_t^2+NA_t^2}}\right)$, which was adapted using the vector by Kuppens et al. (2007). Each vector can be visualized as an arrow in an illustration, as shown in Figure 2. Fourth, the length of R was normalized by dividing the number of observations (represented as $\frac{||\vec{R}||}{n}=\frac{\sqrt{\left(\sum_{t=1}^{n}\frac{PA_t}{\sqrt{PA_t^2+NA_t^2}}\right)^2+\left(\sum_{t=1}^{n}\frac{NA_t}{\sqrt{PA_t^2+NA_t^2}}\right)^2}}{n}$), resulting in a range from 0 to 1. Fifth, observed leader affect spin was calculated using the formula $\sqrt{-2\ln\left(\frac{||\vec{R}||}{n}\right)}$, ranging from 0 to +∞.

Control variables. First, at the within-person level, we controlled for the linear and cyclical variation of affect and work engagement within the time span of a week. Beal and Ghandour (2011) presented a regular paradigm of fluctuation of state affect during five workdays. Following their work, other researchers (e.g., Rosen et al., 2016) also controlled for the linear and cyclical fluctuation of other daily variables, such as daily self-control, instigated incivility, and fatigue. Accordingly, we controlled for linear growth, sine, and cosine functions within the time span of a week. The formulas applied to generate the five-workday sine and cosine functions followed Beal and Weiss's (2003) recommendations.

Second, Bakker and Xanthopoulou (2009) suggest that affect crossover between two parties is contingent on their face-to-face interactions during each workday. We thus controlled for employees' interaction time with the leader. Specifically, we asked participants to indicate how many minutes they interacted with the leader (1) face-to-face and (2) via cell-phone or

email during the morning (or afternoon). Third, at the between-person level, following the suggestions of Tee (2015), we controlled for leader affect expressivity, measured via the initial survey, because it may influence emotion-contagion from leaders to followers. We adapted Gross and John's (1997) 10-item emotion expressivity scale to measure leader affect expressivity based on followers' observations and perceptions. Paralleling state positive and negative affect, leader affect expressivity also consists of positive and negative dimensions. A sample item for positive affect expressivity is "When my supervisor is happy, other people can tell that he/she is happy" (α = 0.72) and for negative affect expressivity is "Whenever my supervisor feels negative emotions, people can easily see exactly what he/she is feeling" (α = 0.70).

Fourth, we controlled for the between-person level *mean* values of observed leader positive and negative affect alongside observed leader affect variability. Previous studies (e.g., Barid, Le, & Lucas, 2006) have warned that the variability of a variable may be essentially an artifact of the variable's mean value when the distribution of this variable is highly skewed. To exclude the potential impact of the mean level of observed leader positive and negative affect, we included them as controls in our analyses in order to reveal the unique impact of observed leader affect variability.

Data Analyses

To examine the hierarchical data structure (daily surveys that were nested in individuals), we first estimated the intra-class correlation coefficients to distinguish the amount of variance at the within-person and between-person levels. The results revealed that observed leader positive affect, observed leader negative affect, employee positive affect, employee negative affect, and employee work engagement displayed 40%, 57%, 43%, 59%, and 40% of within-person level variation respectively, suggesting sufficient within-person level variation for these variables.

Our hypotheses were estimated through Mplus, which allows us to integrate the multilevel framework (Preacher, Zyphur, & Zhang, 2010) and the moderated mediation analyses (Hayes, 2015; Preacher, Rucker, & Hayes, 2007). Given that a small proportion of leaders (22%) were rated by more than one employee (17% were rated by two employees and 5% were rated by three employees), we used the sandwich estimator to correct the biases at the leader level for all analyses, following the suggestions of previous studies (McNeish, Stapleton, & Silverman, 2017). Accordingly, we called for "TYPE = COMPLEX TWOLEVEL RANDOM" module in Mplus for all of the analyses. Additionally, the independent variables (i.e., observed leader positive and negative affect) and mediators (i.e., employee positive and negative affect) were group-mean centered (consistent with Beal et al., 2013). When testing the cross-level moderation effect and the moderated mediation effects, we grand-mean centered the between-person level moderators (i.e., observed leader affect variability) and specified it on the random slopes between observed leader positive affect and employee positive affect, and between observed leader negative affect and employee negative affect. For the indirect effects and conditional indirect effects, we employed the Monte Carlo simulation procedure method with 20,000 simulations in R, which considered the asymmetric nature of the distribution of the compound estimates (Preacher et al., 2010). To interpret the moderation effects and moderated mediation effects, we plotted how random slopes (i.e., observed leader affect → employee affect) and indirect effects (observed leader affect → employee affect → work engagement) vary across the full range of values of the moderator (i.e., observed leader affect variability). This method can overcome the potential limitations of choosing arbitrary values of moderators (e.g., ± 1 SD) when plotting the conditional effects (Dawson, 2014; Finsaas & Goldstein, in press; McCabe, Kim, & King, 2018). The hypothesized model was tested both with and without control

variables, and the results were substantially the same, so only the results for the model with control variables are reported.

RESULTS

Table 1 presents the means, standard deviations, and correlations of the variables at the within-person and between-person levels, respectively.

======Insert Table 1 about here======

Confirmatory Factor Analyses

We first examined whether our measures were sufficiently distinct from each other with multilevel confirmatory factor analyses. Referring to previous research (Little, Cunningham, Shahar, & Widaman, 2002), we formed three-indicator parcels for all five variables because they have six items and are unidimensional. Results showed that the five-factor model (i.e., observed leader positive affect, observed leader negative affect, employee positive affect, employee negative affect, and employee work engagement) had a better model fit ($\chi^2(160) = 431.08$, $p < .001$, CFI = .96, TLI = .95, RMSEA = .05, $SRMR_{(within)} = .02$, and $SRMR_{(between)} = .03$) than two alternative models. Specifically, the first alternative model loaded items on the same factor for variables measured with the same scale (i.e., observed leader positive affect and employee positive affect, and observed leader negative affect and employee negative affect) (χ^2 (174) = 2891.47, $p < .001$, CFI = .59, TLI = .50, RMSEA = .16, $SRMR_{(within)} = .15$, and $SRMR_{(between)} = .10$); The second alternative model loaded all items on a single factor (χ^2 (180) = 5909.34, $p < .001$, CFI = .13, TLI = -.01, RMSEA = .23, $SRMR_{(within)} = .24$, and $SRMR_{(between)} = .37$).

Tests of Hypotheses

The results of the direct paths in the model are shown in Figure 3. The confidence intervals of indirect and conditional indirect effects are shown in Table 2.

Hypotheses 1a and 1b propose that observed leader affect is positively related to employee affect. These hypotheses were supported as the relationships between observed leader positive affect and employee positive affect ($\gamma = 0.58$, $p < .01$) as well as for the relationship between observed leader negative affect and employee negative affect ($\gamma = 0.53$, $p < .01$) were positively related and significant.

Hypotheses 2a and 2b pertain to the relationship between employee affect and work engagement. The results indicate that the relationship between employee positive affect and work engagement was positive and significant ($\gamma = 0.16$, $p < .01$), while the relationship between employee negative affect and work engagement was negative and significant ($\gamma = -0.08$, $p = .04$), lending support to Hypotheses 2a and 2b.

Hypotheses 3a and 3b posit that employee affect mediates the relationship between observed leader affect and employee work engagement at the within-person level. The results of parametric bootstrapping with 20,000 Monte Carlo replications (Preacher et al., 2010) supported the positive and indirect effect (Hypothesis 3a: *indirect effect* = 0.09, 95% confidence interval (CI) = [0.02, 0.16]) from observed leader positive affect to work engagement via employee affect. Applying the same method, we found a significant and indirect relationship between leader negative affect and employee work engagement via employee negative affect (Hypothesis 3b: *indirect effect* = -0.04, 95% CI = [-0.08, -0.001]). These results indicate support for Hypotheses 3a and 3b.

======Insert Figure 3 and Table 2 about here======

Hypotheses 4a and 4b consider the moderating role of observed leader affect variability on the positive relationships between observed leader positive affect and employee positive affect (H4a), and between observed leader negative affect and employee negative affect (H4b).

The cross-level moderation analyses were conducted by examining whether observed leader affect variability, as a between-person level moderator, predicted the random slopes formed by the within-person level observed leader affect and employee affect. The results showed that observed leader affect variability buffered the positive relationship between observed leader positive affect and employee positive affect (γ = -0.21, p = .01). We tested the slopes of the relationship between observed leader positive affect and employee positive affect when observed leader affect variability is high (+1 *SD*) and low (-1 *SD*). The results indicated that the positive relationship is stronger when observed leader affect variability is low ($slope_{(low)}$ = 0.68, p < .01) compared to high ($slope_{(high)}$ = 0.47, p < .01), and the difference between the slopes was significant (*diff* = -0.21, p = .01). We further plotted how the relationship between observed leader positive affect and employee positive affect varies across the range of values of observed leader affect variability in our data (i.e., -1.04 to 1.69) (Figure 4). The figure indicates that the positive relations between observed leader positive affect and employee positive affect become weaker when the value of observed leader affect variability is increasing, yielding support for Hypothesis 4a. With respect to the cross-level interaction of observed leader affect variability and negative affect on employee negative affect, the results showed that the moderating effect was not significant (γ = -0.19, p = .29). Thus, Hypothesis 4b was not supported.

======Insert Figure 4 about here======

Hypotheses 5a and 5b predict moderated mediation effects. It was hypothesized that observed leader affect variability moderates the indirect effects of observed leader positive affect on employee work engagement via employee positive affect (H5a) and also the negative and indirect effect of observed leader negative affect on employee work engagement via employee negative affect (H5b). The moderated mediation effect of observed leader affect variability on

the positive and indirect relationship between observed leader positive affect and employee work engagement via employee positive affect was supported (*moderated mediation effect* = -0.03, 95% CI = [-0.08, -0.004]). We also examined the conditional indirect effects when the moderator is high (+1 *SD*) versus low (-1 *SD*). Results, shown in Table 2, indicated that the indirect effect between observed leader positive affect and employee work engagement via employee positive affect was significant when observed leader affect variability is high (*indirect effect* $_{(High)}$ = 0.07, 95% CI = [0.02, 0.14]) as well as low (*indirect effect* $_{(low)}$ = 0.11, 95% CI = [0.03, 0.19]). The difference between these two indirect effects was significant, as the 95% CI ([-0.07, -0.01]) did not include zero. Figure 5 indicates that the indirect effects between observed leader positive affect and work engagement via employee positive affect was weakening when observed leader affect variability becomes larger. Taken together, we found support for Hypothesis 5a. We did not test Hypothesis 5b because observed leader affect variability failed to moderate the direct effect between observed leader negative affect and employee negative affect.

======Insert Figure 5 about here======

DISCUSSION

Highlighting the dynamic nature of affect, the present study investigated how observed leader affect variability (a between-person level construct) influences the impact of observed leader affect on employee work engagement through employees' own affect (a within-person level relationship). Consistent with our hypothesized model, the results showed that observed leader positive affect had a positive impact on employees' positive affect and subsequent work engagement. Similarly, observed leader negative affect was positively related to employees' negative affect, and negatively associated with their work engagement. Our results also supported the hypothesized and divergent impact of low versus high variability in leader positive

affect on employees. Employees who observed high variability in leader affect, compared to those who observed low variability, showed weaker reactions to observed leader positive affect on a daily basis in terms of their own positive affect and subsequent work engagement.

Theoretical Implications

The findings of the present research contribute to the literature in the following ways. First, the current study extends research on leader affect by accounting for the *variability* of leaders' affective expressions. Recent leadership research has witnessed a surge of incorporating affect in leadership models (Gooty, Connelly, Griffith, & Gupta, 2010). This stream of research has emphasized the dynamic nature of affect (e.g., Gooty et al., 2010), even though limited attention has been directly paid to how leader affect changes over time. In the present study, we introduced *observed leader affect variability* as a substantiated phenomenon. Our research findings showed that employees' observations of leader daily positive affect and leader affect variability jointly impacted their daily positive affect and subsequent work engagement. This research finding suggests that followers may not perceive their observations of leader affect as isolated incidents, but instead are impacted by the variability of their observations of leader affect over time, providing a new approach for the investigation of affect in leadership research.

In a related vein, our research also broadens the scope of the EASI model (Van Kleef, 2016) by considering the variability of emotional signals from the perspective of the observer (e.g., observed leader affect). The EASI model is a comprehensive framework that explains the attentional and motivational process triggered by observed affect. However, most of the existing studies of the EASI model manipulated *discrete emotions* in experimental designs (e.g., Van Kleef et al., 2008, 2009), while exploration of the connections between different affective signals is limited (c.f., Filipowicz, Barsade & Melwani, 2011; Sinaceur, Adam, Van Kleef, & Galinsky,

2013). Our findings indicate that observed leader affect variability plays a critical role in understanding employees' reactions to positive leader affect, and thus extends the EASI model from a focus on incidental observations of affect to a consideration of affect variability. The focus on variability of observed leader affect echoes Van Kleef's (2016) comment that "individuals often display emotions that change over time. It is interesting to ponder how observers may respond to such dynamic emotional displays" (2016: 242). Thus, our research provides support to observers' responses (i.e., employees' affect and engagement) toward the dynamic displays of affect (i.e., observed leader affect variability) as suggested by Van Kleef (2016).

Second, in light of the literature on work engagement, the present study adopted the affect-centered approach to study leaders' impact on employees' daily work engagement, extending the behavior-centered approach implemented in previous studies. Although previous research on work engagement has provided individual-level evidence suggesting that leaders' affect may impact employee work engagement (e.g., Ten Brummelhuis, Haar, & Roche, 2014), at the within-person level, there is a lack of evidence showing how leader affect impacts employee work engagement on a daily basis. In addition, the exploration of leaders' impact on employee daily work engagement usually takes the *leaders*' perspective, with the purpose of revealing what a leader can *do* to promote employee work engagement (see a recent review by Bakker & Albrecht, 2018). Our research extends the research on work engagement fluctuation by taking the perspective of *employees*. Based on the EASI model, we measured observed leader affect, instead of leaders' own affect states, on a daily basis to examine how work engagement is impacted by employees' observations of leader affect. Our approach complements current studies of within-person level work engagement by identifying employees' daily observations of

leader affect as an important precursor of employee daily work engagement.

Third, the nonsignificant moderating effect of observed leader affect variability on the relationship between observed leader negative affect and employee negative affect is surprising. Our results suggest that observed leader affect variability may only impact the strength of employees' reactions to observed leader *positive but not negative* affect. One possible explanation relates to the distinctive social signals conveyed in positive and negative affect. For example, previous studies have discussed that negative affect conveys stronger social signals than positive affect (Chi, Chang, & Huang, 2015; Van Kleef, 2016) and, in turn, impacts observers' attention and cognitions to a greater extent (Baumeister, Bratslavsky, Finkenauer, & Vohs, 2001; Siegrist & Cvetkovich, 2001). Theories of evolutionary psychology (Barrett, Dunbar, & Lycett, 2002) have suggested that people remain alert to every negative signal in the environment because it has relevance to their safety and survival. For these reasons, in organizational contexts, employees may consider every piece of information conveyed in leader negative affect as endangering the status quo at work, and thus pay close attention to observed leader negative affect and attempt to interpret it. Because employees devote their attention and cognitions to interpreting every display of leader negative affect, they may "pause" their adaptation to high observed leader affect variability such that it does not play a moderating role. In other words, employees may *prioritize* the informative signals conveyed in each incident of observing leader negative affect, rather than the tendency of maintaining stable internal states and adapting based on high observed leader affect variability. Therefore, employees who observe high leader affect variability may react similarly to observed leader negative affect as those who observe low leader affect variability. Conversely, the information conveyed in observed leader positive affect is not threatening, nor alerting, so as we found in the present study, when

observing high variability in leader affect, employees tend be less impacted by observed leader positive affect.

Last but not least, the current study has implications beyond the leadership and work engagement literatures. Our results showed that employees have weaker reactions to observed leader positive affect when the variability of observed leader affect is higher than lower. This result supports a basic notion of adaption-level theory (Helson, 1964a) that individuals' reaction to a new stimulus is related to their previous experiences with stimuli of the same kind. This basic principle of human reaction to the external environment can be applied to countless situations in employees' organizational lives. Recent studies have begun to investigate the connections between a current situation and previous experiences. For example, Rosen and colleagues found that whether challenge stressors had a positive or negative impact on employees depended on how challenge stressors vary, rather than its mean level (Rosen et al., in press). Our study contributes to this stream of research by highlighting the dynamic nature of the work environment and demonstrating that the variability of observed leader affect impacts the strength of employees' reactions (i.e., positive affect and work engagement) to observed leader positive affect, providing evidence to support the connections between employees' current experience and the variability of their overall experiences.

Practical implications

Work engagement has become a popular topic in management consulting over the past three decades. Companies such as Gallup and Aon Hewitt developed their own engagement instruments and devoted substantial effort in assisting organizations seeking to increase employee engagement (Harter, 2018). The results of the current study provide theoretical nuances regarding the precursors of work engagement from the perspective of employees' daily

observations on leader affect. Specifically, we found that employees' work engagement was impacted by positive and negative affect expressed by the leader on a daily basis. These within-person level results may help practitioners better understand employees' daily experiences related to work engagement and thus improve their current practices in cultivating work engagement in the workplace. These results also suggest that in designing interventions intended to increase daily work engagement (Knight, Patterson, & Dawson, 2017), practitioners should take employees' observation of leader affect and its variability into account.

Our findings also provide new perspectives on improving leaders' emotional intelligence, which has been recognized as an important component of leadership effectiveness (George, 2000; Goleman, Boyatzis, & McKee, 2001). One of the critical abilities embedded in the broad concept of emotional intelligence is the "knowledge about emotions" (George, 2000: 1037), including whether a leader can identify the sources and consequences of an employee's feelings or affect. The results of the present study may help in improving leaders' knowledge about employees' emotions by disentangling how employees use their observations of leader affect as social signals and how they adapt based on whether leader affect variability is high or low. Therefore, incorporating the findings of the present research in leadership training increases leaders' awareness that employees pay close attention to their expressions of affect, and also its variability, which impact employees' own emotions and work engagement.

Strengths, Limitations, and Future Directions

The first strength of this study is that we adopted an experience sampling design and collected data twice a day during 10 consecutive workdays. To reduce potential common method bias (Podsakoff, MacKenzie, & Podsakoff, 2012) when measuring perceived leader affect and employee affect, we measured these two variables at different times each workday. Second, we

adopted the spin index to operationalize observed leader affect variability. This method allows us to consider positive and negative affect as orthogonal dimensions and to locate each observed affect on an affect circumplex. Finally, by virtue of the multilevel moderated mediation methodology, we estimated all the relationships in the model simultaneously. This statistical approach facilitated understanding of how observed leader affect variability impacts employees' reaction to observed leader affect.

The strengths of this study should be qualified by its limitations, which also point to some potential directions for future research. First, as we took the perspective of the employee in developing our theoretical model, we measured leader affect based on employees' subjective perceptions. Even though this perspective deserves attention in current and future studies, we acknowledge other meaningful aspects also need to be studied, such as leaders' subjective feelings and affective expressivity (van Knippenberg & Van Kleef, 2016). Second, the sample of the current study includes employees who are working in the same company. Choosing such a sample was appropriate because we wanted to minimize the irrelevant environmental factors (physical environment, locations, cultures, occupations, etc.) that may impact leaders' affective influence (Van Kleef, 2016). Future studies with samples from other occupations and cultures are needed to determine the generalizability of our findings. Third, we measured employee affect and work engagement at the same point in time, preventing us from determining the causal order between these two variables. Indeed, longitudinal research has suggested that employee affect and work engagement may form a gain spiral such that they reciprocally influence each other (Salanova, Llorens, & Schaufeli, 2011). As the focus of the current research was to investigate the role of observed leader affect variability in employees' work engagement fluctuations, we did not test the causal order between affect and work engagement, but we encourage future studies to

examine this relationship with experimental designs, which can better reveal the causal relationship between these two variables.

In conclusion, the present study extended our understanding of how and when observed leader affect influences followers' affect and work engagement by considering the dynamic nature of observed leader affect. Taking the perspective of followers' attentional process, we found observed leader affect impacts employees' work engagement via employee affect at the within-person level. Our results also showed that the indirect relationship between observed leader positive affect and employee work engagement via employee positive affect was weakened by observed leader affect variability. We hope that our study encourages researchers to pay attention to the dynamic nature of observed leader affect and employee work engagement, finding more nuances of employees' daily work experiences.

FOOTNOTE

1. We are grateful to our anonymous reviewer for this suggestion.

Reference

Ariely, D., & Carmon, Z. 2000. Gestalt characteristics of experiences: The defining features of summarized events. *Journal of Behavioral Decision Making*, *13*: 191-201

Bakker A. B., & Albrecht, B. 2018. Work engagement: current trends. *Career Development International*, 23: 4-11.

Bakker, A. B., & Xanthopoulou, D. 2009. The crossover of daily work engagement: Test of an actor-partner interdependence model. *Journal of Applied Psychology*, 94: 1562-1571.

Baird, B. M., Le, K., & Lucas, R. E. 2006. On the nature of intraindividual personality variability: reliability, validity, and associations with well-being. *Journal of Personality and Social Psychology*, 90: 512-527.

Barrett, L., Dunbar, R., & Lycett, J. 2002. *Human Evolutionary Psychology*. Princeton, NJ: Princeton University Press.

Barrett, L. F., & Russell, J. A. 1998. Independence and bipolarity in the structure of current affect. *Journal of Personality and Social Psychology*, 74: 967-984.

Baumeister, R. F., Bratslavsky, E., Finkenauer, C., & Vohs, K. D. 2001. Bad is stronger than good. *Review of General Psychology*, 5: 323-370.

Beal, D. J., & Ghandour, L. 2011. Stability, change, and the stability of change in daily workplace affect. *Journal of Organizational Behavior*, 32: 526-546.

Beal, D. J., Trougakos, J. P., Weiss, H. M., & Dalal, R. S. 2013. Affect spin and the emotion regulation process at work. *Journal of Applied Psychology*, 98: 593-605.

Beal, D. J., & Weiss, H. M. 2003. Methods of ecological momentary assessment in organizational research. *Organizational Research Methods*, 6: 440-464.

Bolger, N., & Laurenceau, J. P. (2013). *Intensive Longitudinal Methods: An Introduction to*

Diary and Experience Sampling Research. New York: Guilford Press.

Bower, G. H. 1981. Mood and memory. *American Psychologist*, 36: 129-148.

Bowling, N. A., Beehr, T. A., Wagner, S. H., & Libkuman, T. M. 2005. Adaptation-Level Theory, Opponent Process Theory, and Dispositions: An Integrated Approach to the Stability of Job Satisfaction. *Journal of Applied Psychology,* 90: 1044–1053.

Brislin, R. W. 1986. The wording and translation of research instruments. In W. J. Loner & J. W. Berry (Eds.), *Field methods in cross-cultural research*: 137-164. Newbury Park, CA: Sage.

Cacioppo, J. T., & Bemtson, G. G. 1994. Relationship between attitudes and evaluative space: A critical review, with emphasis on the separability of positive and negative substrates. *Psychological Bulletin*, 115: 401-423.

Chi, N. W., Chang, H. T., & Huang, H. L. 2015. Can personality traits and daily positive mood buffer the harmful effects of daily negative mood on task performance and service sabotage? *Organizational Behavior and Human Decision Processes*, 131: 1-15.

Cole, M. S., Walter, F., Bedeian, A. G., & O'Boyle, E. H. 2012. Job burnout and employee engagement: A meta-analytic examination of construct proliferation. *Journal of Management*, 38:1550-1581.

Côté, S., Moskowitz, D. S., & Zuroff, D. C. 2012. Social relationships and intraindividual variability in interpersonal behavior: Correlates of interpersonal spin. *Journal of Personality and Social Psychology,* 102: 646-659.

Christian, M. S., Garza, A. S., & Slaughter, J. E. 2011. Work engagement: A quantitative review and test of its relations with task and contextual performance. *Personnel Psychology*, 64: 89-136.

Davis, M. R. 1985. Perceptual and affective reverberation components. In A. B. Goldstein & G.

Y. Michaels (Eds.), *Empathy: Development, training, and consequences*: 62–108. Hillsdale, NJ: Erlbaum.

Dawson, J. F. 2014. Moderation in management research: What, why, when, and how. *Journal of Business and Psychology*, 29: 1-19.

Dong, Y., Seo, M., & Bartol, K. M. 2014. No pain, no gain: An affect-based model of developmental job experience and the buffering effects of emotional intelligence. *Academy of Management Journal*, 57: 1056-1077.

Erdogan, B., & Bauer, T. N. 2010. Differentiated leader–member exchanges: The buffering role of justice climate. *Journal of Applied Psychology*, 95: 1104.

Filipowicz, A., Barsade, S., & Melwani, S. 2011. Understanding emotional transitions: the interpersonal consequences of changing emotions in negotiations. *Journal of Personality and Social Psychology*, 101: 541-556.

Finsaas, M. C., & Goldstein, B. L. in press. Do simple slopes follow-up tests lead us astray? Advancements in the visualization and reporting of interactions. *Psychological Methods*.

Forgas, J. P., & Bower, G. H. 1987. Mood effects on person-perception judgments. *Journal of Personality and Social Psychology*, 53: 53-60.

Fredrickson, B. L. 1998. What good are positive emotions? *Review of General Psychology*, 3: 300-319.

Frijda, N. H. 1986. The emotions. Cambridge: Cambridge University Press.

Frijda, N. H. 1988. The laws of emotion. *American Psychologist,* 43: 349–358

George, J. M. 2000. Emotions and leadership: The role of emotional intelligence. *Human Relations*, 53: 1027–1055.

George, J. M., & Brief, A. P. 1996. Motivational agendas in the workplace: The effects of

feelings on focus of attention and work motivation. *Research in Organizational Behavior*, 18: 75–10.

Goleman, D., Boyatzis, R., & McKee, A. 2001. Primal leadership: The hidden driver of great performance. *Harvard Business Review*, 79: 42–51.

Gooty, J., Connelly, S., Griffith, J., & Gupta, A. 2010. Leadership, affect and emotions: A state of the science review. *Leadership Quarterly*, 21: 979-1004.

Gross, J., & John, O. P. 1997. Revealing feelings: Facets of emotional expressivity in self-reports, peer ratings, and behavior. *Journal of Personality and Social Psychology*, 72: 435-448.

Halbesleben, J.R.B. 2010. A meta-analysis of work engagement: Relationships with burnout, demands, resources and consequences. In A.B. Bakker & M.P. Leiter (Eds.), *Work engagement: Recent developments in theory and research.* New York: Psychology Press.

Hatfield, E., Cacioppo, J. T., & Rapson, R. L. 1994. *Emotional contagion—studies in emotion and social interaction.* Cambridge, UK: Cambridge University Press.

Harter J., 2018. Employee Engagement on the rise in the U.S. Retrieved from https://news.gallup.com/poll/241649/employee-engagement-rise.aspx

Harter, J. K., Schmidt, F. L., & Hayes, T. L. 2002. Business-unit-level relationship between employee satisfaction, employee engagement, and business outcomes: a meta-analysis. *Journal of Applied Psychology,* 87: 268-279.

Hawk, S. T., Fischer, A. H., & Van Kleef, G. A. 2011. Taking your place or matching your face: Two paths to empathic embarrassment. *Emotion*, 11: 502-513.

Hayes, A. F. 2015. An index and test of linear moderated mediation. *Multivariate Behavioral Research*, 50: 1-22.

Helson, H. 1948. Adaptation-level as a basis for a quantitative theory of frames of reference. *Psychological Review*, 55: 297-313.

Helson, H. 1964a. *Adaptation-level theory*. Oxford, England: Harper & Row.

Helson, H. 1964b. Current trends and issues in adaptation-level theory. *American Psychologist*, 19: 26-38.

Huang, J.L., Ford, J.K. and Ryan, A.M. 2017. Ignored no more: Within-Person variability enables better understanding of training transfer. *Personnel Psychology*, 70: 557-596.

Isen, A. M. 1987 Positive affect, cognitive processes, and social behavior. *Advances in Experimental Social Psychology,* 20: 203-253.

James, W. 1907. *Psychology*. New York: Holt.

Kahn, W. 1990. Psychological conditions of personal engagement and disengagement at work. *Academy of Management Journal*, 33: 692-724.

Knight, C., Patterson, M., & Dawson, J. 2017. Building work engagement: A systematic review and meta-analysis investigating the effectiveness of work engagement interventions. *Journal of Organizational Behavior*, 38: 792-812.

Kuppens, P., Oravecz, Z., & Tuerlinckx, F. 2010. Feelings change: Accounting for individual differences in the temporal dynamics of affect. *Journal of Personality and Social Psychology*, 99: 1042-1060.

Kuppens, P., van Mechelen, I., Nezlek, J. B., Dossche, D., & Timmermans, T. 2007. Individual differences in core affect variability and their relationship to personality and psychological adjustment. *Emotion*, 7: 262-274.

Leiter, M. P., & Bakker, A. B. 2010. Work engagement: Introduction. In A. B. Bakker & M. P. Leiter (Eds.), *Work engagement: A handbook of essential theory and research*: 1-9. Hove,

East Sussex: Psychology Press.

Liao, Z., Liu, W., Li, X., & Song, Z. 2019. Give and take: An episodic perspective on leader-member exchange. *Journal of Applied Psychology*, 104: 34-51

Little, T., Cunningham, W., Shahar, G., & Widaman, K. 2002. To parcel or not to parcel: Exploring the question, weighing the merits. *Structural Equation Modeling*, 9: 151–173.

Liu, W., Song, Z., Li, X., & Liao, Z. 2017. Why and when leader's affective states influence employee upward voice. *Academy of Management Journal*, 60: 238-263.

McCabe, C. J., Kim, D. S., & King, K. M. 2018. Improving present practices in the visual display of interactions. *Advances in Methods and Practices in Psychological Science*, 1: 147-165.

McNeish, D., Stapleton, L. M., & Silverman, R. D. 2017. On the unnecessary ubiquity of hierarchical linear modeling. *Psychological Methods*, 22: 114-140.

Moskowitz, D. S., & Zuroff, D. C. 2004. Flux, pulse, and spin: Dynamic additions to the personality lexicon. *Journal of Personality and Social Psychology*, 86: 880-893.

Muthén, B. O. 1994. Multilevel covariance structure analysis. *Sociological Methods and Research*, 22: 376–398.

Muthén, B. O., & Asparouhov, T. 2011. Beyond multilevel regression modeling: Multilevel analysis in a general latent variable framework. In J. Hox & J. K. Roberts (Eds.), *Handbook of Advanced Multilevel Analysis*: 15–40. New York: Taylor & Francis.

Parkinson, B., & Simons, G. 2009. Affecting others: Social appraisal and emotion contagion in everyday decision making. *Personality and Social Psychology Bulletin*, 35: 1071-1084.

Podsakoff, P. M., MacKenzie, S. B., & Podsakoff, N. P. 2012. Sources of method bias in social science research and recommendations on how to control it. *Annual Review of Psychology*,

63: 539-569.

Preacher, K. J., Rucker, D. D., & Hayes, A. F. 2007. Addressing moderated mediation hypotheses: Theory, methods, and prescriptions. *Multivariate Behavioral Research*, 42: 185-227.

Preacher, K. J., Zyphur, M. J., & Zhang, Z. 2010. A general multilevel SEM framework for assessing multilevel mediation. *Psychological Methods*, 15: 209-233.

Rich, B. L., Lepine, J. A., & Crawford, E. R. 2010. Job engagement: Antecedents and effects on job performance. *Academy of Management Journal*, 53: 617-635.

Rosen, C. C., Koopman, J., Gabriel, A., & Johnson, R. E. 2016. Who strikes back? A daily investigation of when and why incivility begets incivility. *Journal of Applied Psychology*, 101: 1620-1634.

Rosen, C. C., Dimotakis, N., Cole, M. S., Taylor, S. G., Simon, L. S., Smith, T. A., & Reina, C. S. in press. When challenges hinder: An investigation of when and how challenge stressors impact employee outcomes. *Journal of Applied Psychology*.

Salanova, M., Llorens, S., & Schaufeli, W. B. 2011. "Yes, I can, I feel good, and I just do it!" On gain cycles and spirals of efficacy beliefs, affect, and engagement. *Applied Psychology: An International Review*, 60 255-285.

Schaufeli, W. B., Bakker, A. B., & Salanova, M. 2006. The measurement of work engagement with a short questionnaire: A cross-national study. *Educational and Psychological Measurement*, 66: 701-716.

Schwarz, N. 2012. Feelings-as-information theory. In P. A. M. Van Lange, A. Kruglanski, & E. T. Higgins (Eds.), *Handbook of Theories of Social Psychology*: 289-308. Thousand Oaks, CA: Sage.

Schwarz, N., & Clore, G. L. 1983. Mood, misattribution, and judgments of well-being: Informative and directive functions of affective states. *Journal of Personality and Social Psychology*, 45: 513-523.

Seo, J., Nahrgang, J. D., Carter, M. Z., & Hom, P. W. 2018. Not all differentiation is the same: Examining the moderating effects of leader-member exchange (LMX) configurations. *Journal of Applied Psychology,* 103: 478-495.

Siegrist, M., & Cvetkovich, G. 2001. Better negative than positive? Evidence of a bias for negative information about possible health dangers. *Risk Analysis*, 21: 199-206.

Sinaceur, M., Adam, H., Van Kleef, G. A., & Galinsky, A. D. 2013. The advantages of being unpredictable: How emotional inconsistency extracts concessions in negotiation. *Journal of Experimental Social Psychology*, 49: 498-508.

Sinha, R., Janardhanan, N. S., Greer, L. L., Conlon, D. E., & Edwards, J. R. 2016. Skewed task conflicts in teams: What happens when a few members see more conflict than the rest? *Journal of Applied Psychology,* 101: 1045-1055.

Smith, J. 2013. How to manage a moody boss. Retrieved from https://www.forbes.com/sites/jacquelynsmith/2013/06/25/how-to-manage-a-moody-boss/#128ffc35330a

Tee, E. Y. 2015. The emotional link: Leadership and the role of implicit and explicit emotional contagion processes across multiple organizational levels. *The Leadership Quarterly*, 26: 654-670.

Ten Brummelhuis, L. L., Haar, J. M., & Roche, M. 2014. Does family life help to be a better leader? A closer look at crossover processes from leaders to followers. *Personnel Psychology*, 67: 917-949.

Tims, M., Bakker, A. B., & Xanthopoulou, D. 2011. Do transformational leaders enhance their followers' daily work engagement? *The Leadership Quarterly*, 22: 121-131.

Van Kleef, G. A. 2016. *The interpersonal dynamics of emotion: Toward an integrative theory of emotions as social information*. Cambridge, UK: Cambridge University Press.

Van Kleef, G. A., Homan, A. C., Beersma, B., van Knippenberg, D., van Knippenberg, B., & Damen, F. 2009. Searing sentiment or cold calculation? The effects of leader emotional displays on team performance depend on follower epistemic motivation. *Academy of Management Journal*, 52: 562–580.

Van Kleef, G. A., Oveis, C., Van der Löwe, I., LuoKogan, A., Goetz, J. & Keltner, D. 2008. Power, distress, and compassion: Turning a blind eye to the suffering of others. *Psychological Science*, 19: 1315–1322.

van Knippenberg, D., & Van Kleef, G. A. 2016. Leadership and affect: Moving the hearts and minds of followers. *Academy of Management Annals*. 10: 799–840.

Warr, P. B., Barter, J., & Brownbridge, G. 1983. On the independence of positive and negative affect. *Journal of Personality and Social Psychology*, 44: 644–651.

Wasserman, E. A., Young, M. E., & Cook, R. G. 2004. Variability discrimination in humans and animals: Implications for adaptive action. *American Psychologist,* 59: 879–890

Watson, D., & Tellegen, A. 1985. Toward a consensual structure of mood. *Psychological Bulletin*, *98*: 219-235.

Young, M. E., & Wasserman, E. A. 2002. Detecting variety: What's so special about sameness? *Journal of Experimental Psychology: General*, 131*:* 131–143.

Yukl, G. 2010. Leadership in organizations (7th ed.). Englewood Cliffs, NJ: Prentice Hall.

Table 1

Means, Standard Deviations, and Correlations

	Mean	*SD*	1	2	3	4	5
Within-person Level							
1. *Linear (Day)*	—	—					
2. *Sine (Day)*	—	—	-.69**				
3. *Cosine (Day)*	—	—	-.52**	.03			
4. *Interaction T1 (minutes)*	10.70	40.18	.01	-.02	.05		
5. *Interaction T2 (minutes)*	12.82	41.89	.02	-.03	.02	.85**	
6. Observed leader positive affect T1	4.28	1.53	.08*	-.09*	.02	.27**	.27**
7. Observed leader negative affect T1	2.02	1.16	-.02	.05	.01	.03	.00
8. Employee positive affect T2	4.38	1.42	.10*	-.10*	.02	.06	.08
9. Employee negative affect T2	2.11	1.19	-.06	.03	.02	.01	.02
10. Employee work engagement T2	4.95	1.13	-.03	.03	.06	-.03	.00
Between-person Level							
11. *Leader positive affect expressivity*	5.17	0.80	—	—	—	-.01	-.02
12. *Leader negative affect expressivity*	3.93	0.74	—	—	—	-.19	-.15
13. Observed leader affect variability	1.74	0.49	—	—	—	.48**	.52**

Table 1 (Continued)

	6	7	8	9	10	11	12
Within-person Level							
1. *Linear (Day)*							
2. *Sine (Day)*							
3. *Cosine (Day)*							
4. *Interaction T1 (minutes)*							
5. *Interaction T2 (minutes)*							
6. Observed leader positive affect T1							
7. Observed leader negative affect T1	-.06						
8. Employee positive affect T2	.51**	-.09*					
9. Employee negative affect T2	-.10*	.47**	-.23**				
10. Employee work engagement T2	.23**	-.14**	.29**	-.19**			
Between-person Level							
11. *Leader positive affect expressivity*	.05	.12	-.03	.14	-.11		
12. *Leader negative affect expressivity*	-.19	.06	-.27*	.23	-.37**	.20	
13. Observed leader affect variability	.09	.19	.08	.17	-.19	-.01	-.21

Note: Within-person level $n = 613$; Between-person level $n = 75$; T1 = Time 1 daily survey; T2 = Time 2 daily survey. Variables in italics represent the control variables at each level. Correlations for the within-person level variables are group-mean centered relationships among the variables. For the between-person level correlations, the variables measured at the within-person level were aggregated to the between-person level. "—" indicates values not available. $^{*}p<.05$; $^{**}p<.01$. Two-tail tested.

Table 2

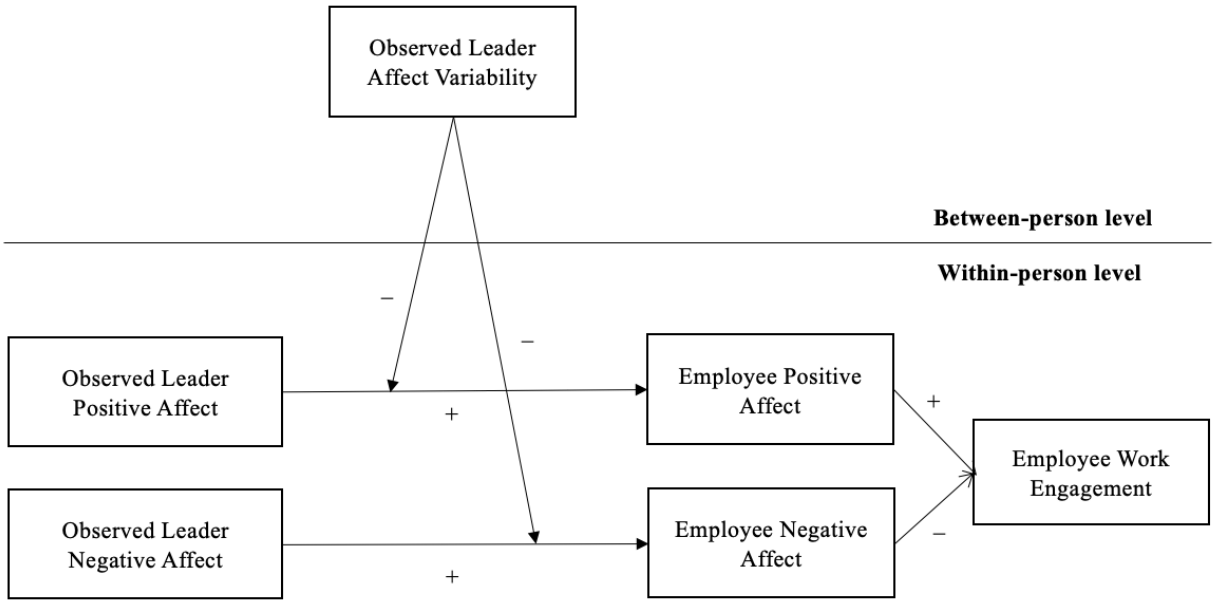
Summary of Indirect and Conditional Indirect Effects

	Coefficient	95% CI
Indirect effect (within-person level):		
Observed leader positive affect → Employee positive affect → Work engagement (H3a)	0.09	**[0.02, 0.16]**
Observed leader negative affect → Employee negative affect → Work engagement (H3b)	-0.04	**[-0.08, -0.001]**
Cross-level moderated mediation effects:		
Observed leader positive affect × Observed leader affect variability → Employee positive affect → Work engagement (H5a)	-0.03	**[-0.08, -0.004]**
High observed leader affect variability (+1 *SD*)	0.07	**[0.02, 0.14]**
Low observed leader affect variability (-1 *SD*)	0.11	**[0.03, 0.19]**
Difference	-0.03	**[-0.07, -0.01]**
Observed leader negative affect × Observed leader affect variability → Employee negative affect → Work engagement (H5b)	0.02	[-0.01,0.06]

Note. CI = Confidence Interval. H = Hypothesis. The estimation of CIs for indirect, conditional indirect, and moderated mediation indexes was based on 20,000 parametric resamples generated by the Monte Carlo stimulation. The results in bold indicates the 95% CI excluded zero. Because the moderated mediation effect in H5b were not significant, the results of conditional indirect effects were not presented in the table.

Figure 1

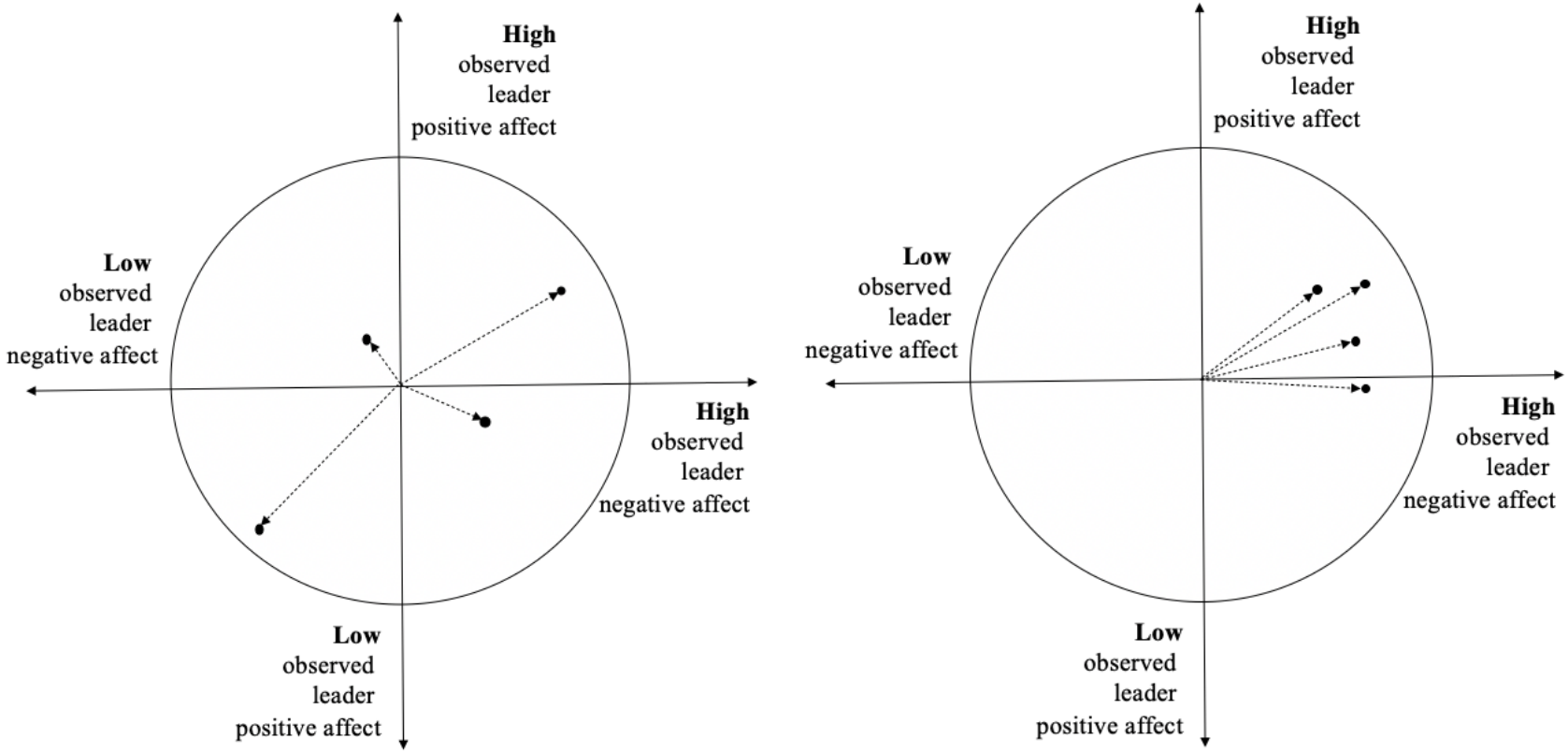
Hypothesized model



For the sake of readability, control variables were not presented in the model. At the within-person level, the linear growth, sine, and cosine functions based on the measuring day were controlled for with the mediators (i.e., employee positive and negative affect) and the dependent variable (i.e., employee work engagement). In addition, the interaction time (in minutes) with the leader in the morning was controlled for with the mediators and the dependent variable, while the interaction time in the afternoon was controlled for with the dependent variable. At the between-person level, we controlled for the group mean observed leader positive affect and leader positive affect expressivity on the random slope between leader positive affect and employee positive affect. Similarly, we controlled for the group mean observed leader negative affect and leader negative affect expressivity on the random slope between leader negative affect and employee negative affect.

Figure 2

Examples of high and low observed leader affect variability in the format of the spin index on the circumplex of observed leader affect



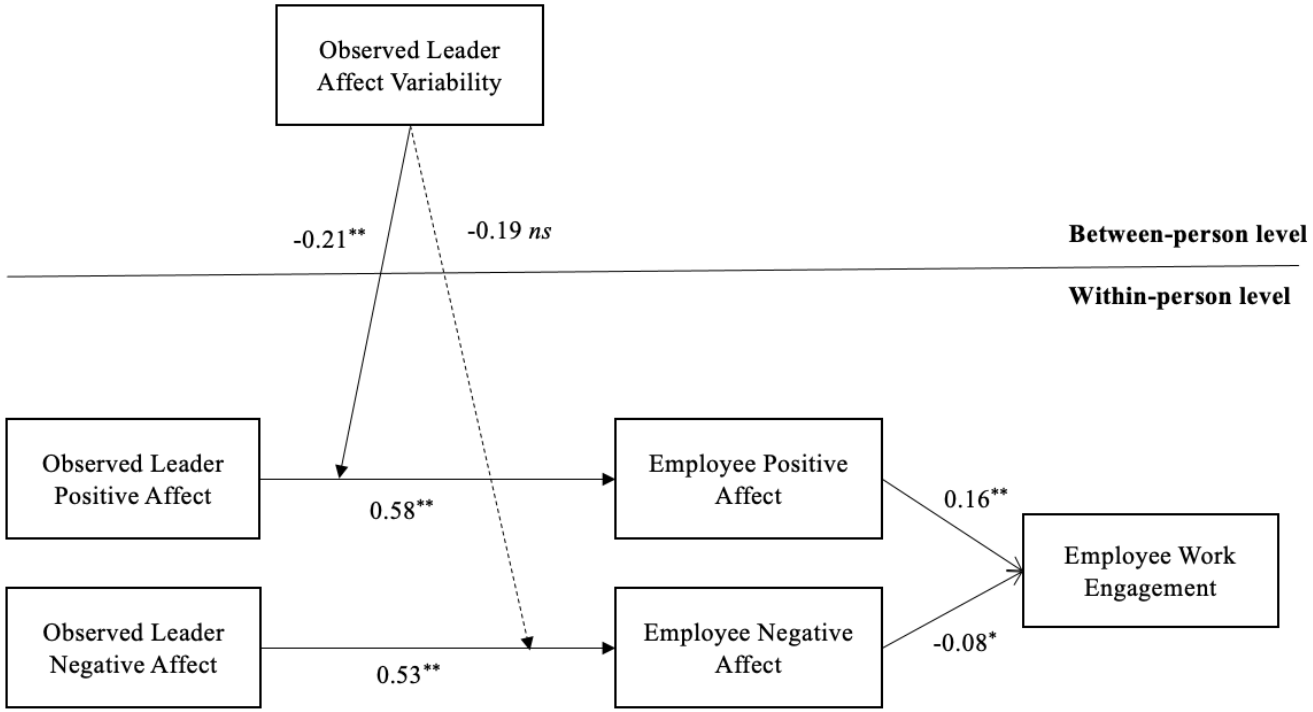
(a) High observed leader affect variability (spin)

(b) Low observed leader affect variability (spin)

Each of these two circumplexes present four observations of leader affect, which are represented by the arrows.

Figure 3

Results of the cross-level moderated mediation model.

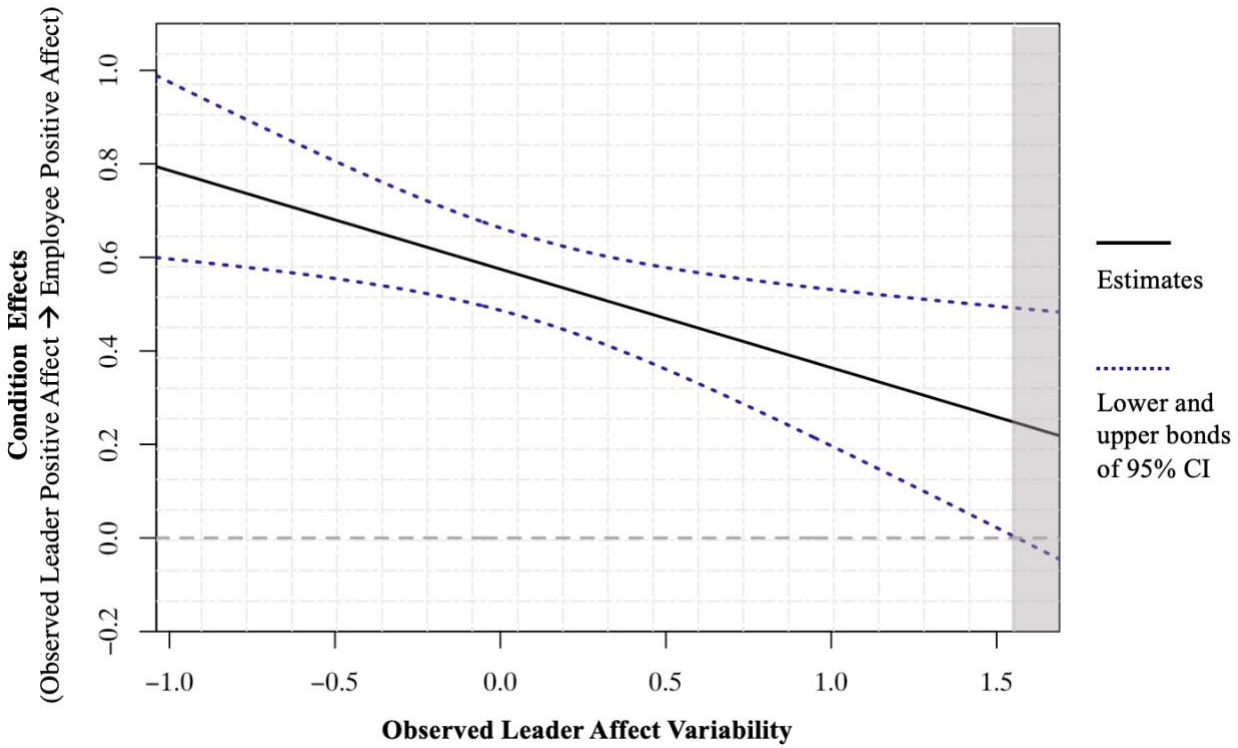


Within-person level n = 613; Between-person level n = 75. Solid lines indicate significant paths and dashed lines denote nonsignificant paths. For the sake of readability, control variables were not included in the figure. We also tested the model without including control variables, and the results remain similar. Unstandardized path estimates are presented.

$^{*}p<.05$; $^{**}p<.01$. Two-tail tested.

Figure 4

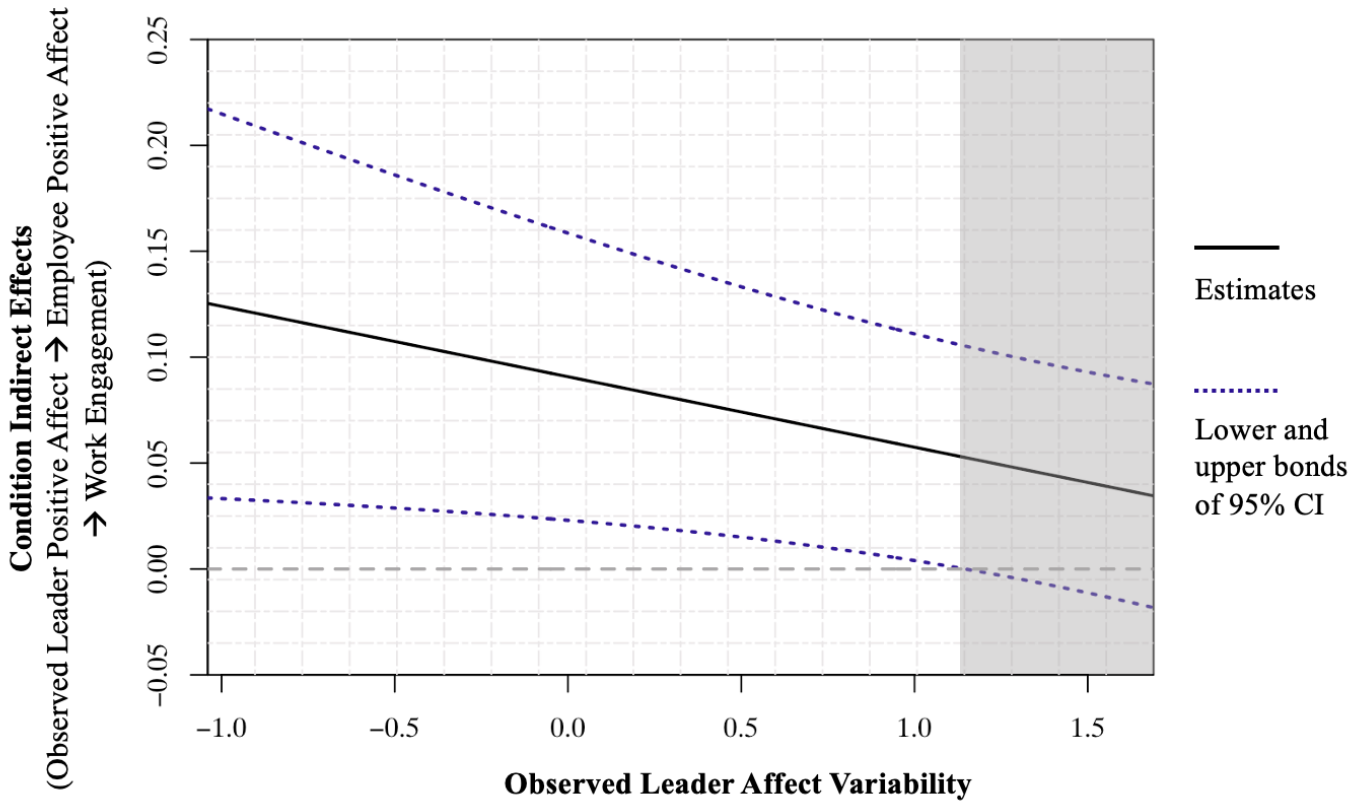
The moderating effect of observed leader affect variability on the relationship between observed leader positive affect and employee positive affect.



The X axis represents the real range of observed leader affect variability in the data after grand-mean centering (i.e., -1.04 to 1.69). The grey area indicates the situations in which the relationship between observed leader positive affect and employee positive affect is nonsignificant.

Figure 5

The moderated mediation effect of observed leader affect variability on the indirect relationship between observed leader positive affect and work engagement via employee positive affect.



The X axis represents the real range of observed leader affect variability in the data after grand-mean centering (i.e., -1.04 to 1.69). The grey area indicates the situations in which the indirect relationship between observed leader positive affect and employee work engagement via positive affect is nonsignificant.