

# The Affective Shift Model of Work Engagement

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On the basis of self-regulation theories, the authors develop an affective shift model of work engagement according to which work engagement emerges from the dynamic interplay of positive and negative affect. The affective shift model posits that negative affect is positively related to work engagement if negative affect is followed by positive affect. The authors applied experience sampling methodology to test the model. Data on affective events, mood, and work engagement was collected twice a day over 9 working days among 55 software developers. In support of the affective shift model, negative mood and negative events experienced in the morning of a working day were positively related to work engagement in the afternoon if positive mood in the time interval between morning and afternoon was high. Individual differences in positive affectivity moderated within-person relationships. The authors discuss how work engagement can be fostered through affect regulation.

*Keywords:* work engagement, motivation, affect, PSI theory, affective events theory

Work engagement has evolved as a core construct in industrial and organizational psychology to describe the mental state underlying high degrees of work motivation. It is defined as an affective-motivational state characterized by vigor, dedication, and absorption (Macey & Schneider, 2008; Schaufeli, Salanova, González-Romá, & Bakker, 2002). Work engagement is a valued psychological phenomenon because of its importance for performance outcomes and for individual well-being (Rothbard, 2001; Salanova, Agut, & Pieró, 2005).

Whereas evidence for the positive consequences of work engagement is accumulating (e.g., Bakker & Bal, 2010; Salanova et al., 2005), its psychological underpinnings have been insufficiently explored. As a dynamic motivational state, work engagement

waxes and wanes as a person moves through a working day, shifts between different tasks, and encounters events that occur at work (e.g., Fisher, 2002; Sonnentag, Dormann, & Demerouti, 2010). The dynamic mechanisms from which work engagement emerges are, however, not well understood. Investigating these mechanisms holds the potential of an improved psychological understanding of work engagement and may show pathways to facilitate work engagement.

The aim of the present study was to move toward a dynamic account of work engagement by examining its link to external affective events and to internal mood states. There is wide theoretical agreement and abundant empirical evidence that work motivation in general is closely tied to affect (e.g., Carver & Scheier, 1990; Ilies & Judge, 2005). As work engagement is characterized by high involvement of the self and the presence of positive work-related feelings (Kahn, 1990; Rich, Lepine, & Crawford, 2010), it is particularly dependent on affect, compared with more passive ways of acting, in which the individual invests less effort and focused attention (George, 1989; Schaufeli et al., 2002).<sup>1</sup>

The affective shift model of work engagement is based on the assumption that both positive and negative affect have important functions for work engagement (Carver & Scheier, 1990; George & Zhou, 2007; Kuhl, 2000). The model proposes that a core mechanism underlying the emergence of high work engagement is a shift from negative to positive affect. Work engagement results if people move from a situation in which negative affect is experienced to a state of high positive affect.

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<sup>1</sup> We use the term *affect* as a superordinate concept that encompasses short-term affective processes, discrete emotions, and longer lasting mood states and differentiate positive and negative affect as the two fundamental dimensions of affect (Watson, 2000; Watson, Clark, & Tellegen, 1988).

## Work Engagement as a Dynamic Motivational State

Work engagement was first described by Kahn (1990) as a construct that refers to the investment of physical, cognitive, and emotional energy at work. Schaufeli et al. (2002) provided a refined definition of work engagement as an affective-motivational construct characterized by the three dimensions vigor, dedication, and absorption. Vigor means feeling strong while working and exhibiting high levels of energy. Dedication is characterized by experiencing challenge, inspiration, and enthusiasm toward work. Absorption means that people are concentrating and experiencing a sense of harmony while time passes quickly. Absorption is closely linked to flow, a momentary experience that is characterized by being immersed in and fully concentrating on one's work (Csikszentmihalyi, 1975; Hallberg & Schaufeli, 2006). In contrast to flow, work engagement is not conceptualized as a temporarily highly confined peak experience but as an ongoing motivational state that can vary in strength (Hallberg & Schaufeli, 2006; Sonnentag, 2003).

As an affective-motivational state, work engagement can be distinguished from constructs such as job satisfaction, job involvement, and commitment (Macey & Schneider, 2008; Rich et al., 2010). Whereas the attitudinal component of work engagement overlaps with these constructs, work engagement is distinct as it also comprises an energetic component and a component that reflects high involvement of the self (Sonnentag et al., 2010). As work engagement reflects high degrees of motivation, indicators of employee performance have been found to be superior when work engagement is high. For instance, Xanthopoulou, Bakker, Demerouti, and Schaufeli (2009) found that financial returns in the service sector were higher on days when employees reported higher work engagement. Furthermore, individual differences in work engagement have been found to be related to performance as rated by customers (Salanova et al., 2005).

## Affect and Work Engagement

A state of high work engagement implies the presence of positive work-related feelings such as happiness and enthusiasm while performing work tasks (Kahn, 1990; Schaufeli et al., 2002). Theories of self-regulation explain why there is a close relationship between positive affect and work engagement: Positive affect functions as a signal to approach and to continue along a line of action (Elliot, 2006; Frijda, 1988). When experiencing positive affect, people set high goals for a task and expect that engaging in a task yields positive outcomes (Hakanen, Bakker, & Schaufeli, 2006; Ilies & Judge, 2005). Positive affect also plays an important role for initiating goal-directed action, a precondition for work engagement (Kazén, Kaschel, & Kuhl, 2008). During the process of goal-directed action, positive affect supports the mindset distinctive of work engagement. It broadens people's momentary thought-action repertoires and leads to a heuristic and global mode of information processing that allows a person to become absorbed in an ongoing activity (e.g., Baumann & Kuhl, 2002; Frederickson, 2001). Although work engagement is tied to the presence of positive affect, self-regulation theories suggest that positive affect alone does not suffice for the emergence of high work engagement and that negative affect plays an important role as well (Carver & Scheier, 1990; Kuhl, 2000).

In contrast to positive affect, negative affect is not compatible with being absorbed in an ongoing activity, feeling vigorous at work, and being dedicated to a task. Arising negative affect interrupts the ongoing stream of action, leads to a "tightening" of mental processes, and hinders rapid mobilization of cognitive resources and behavioral options (Fredrickson, Tugade, Waugh, & Larkin, 2003; Koole & Jostmann, 2004). Whereas negative affect is not compatible with high work engagement at any given moment, it has important self-regulatory functions and can lay the foundation for high work engagement at a later point in time.

Negative affect facilitates an analytic mode of information processing in which people analyze information step by step, pay close attention to details, and are sensitive to discrepancies (Schwarz & Bless, 1991). In such a mode of information processing, people develop a detailed and realistic understanding of a situation and prepare for taking goal-directed action so that they can become engaged in a subsequent activity (Frijda, 1988; Kuhl, 2000). Negative affect signals that things are not going well and that action needs to be taken. According to the control-process view of affect, negative affect indicates that the rate with which a person is approaching a goal falls below the person's standard. As a consequence, the person's focus narrows on the pursuit of the goal, and additional effort is invested so that the rate of goal progress returns to the desired level (Carver & Scheier, 1990). Thus, negative affect can, under some conditions, have motivating potential and can lead to subsequent increases in effort and work engagement. In support of this proposition, Foo, Uy, and Baron (2009) found that entrepreneurs spend more effort on immediately required tasks if they experienced negative affect. Empirical evidence by Louro, Pieters, and Zeelenberg (2007) suggests that people allocate more effort to a proximal goal if they experience negative affect related to that goal.

## Affective Shift and Work Engagement

The core proposition of the affective shift model is that work engagement will only result from the experience of negative affect if a shift to positive affect takes place. Work engagement is expected to be low if people remain in a negative affective state without experiencing positive affect. In contrast, if people move to a positive affective state, the motivating potential of negative affect can unfold and work engagement can increase (Lyubomirsky, King, & Diener, 2005). We refer to the temporal sequence of negative affect followed by positive affect as an *affective shift* (see Figure 1). The higher the level of negative affect that is first experienced and the higher the level of positive affect that is subsequently experienced, the more pronounced is the affective shift. It is important to note that an affective shift does not imply

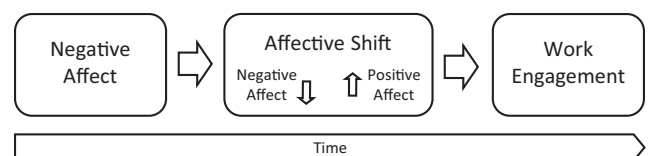


Figure 1. The affective shift model of work engagement. An affective shift comprises down-regulation of negative affect and up-regulation of positive affect.

that people first experience only negative affect and then exclusively positive affect. Positive and negative affect are not two poles on one dimension but two dimensions, and people can experience both positive and negative affect within a time interval (Ilies, Dimotakis, & Watson, 2010; Larson & Csikszentmihalyi, 1980).

The affective shift model of work engagement is based on personality systems interaction (PSI) theory, a broad framework of self-regulation (Kuhl, 2000). According to this framework, two intertwined processes underlie an affective shift: up-regulation of positive affect and down-regulation of negative affect. Up-regulation of positive affect enables action initiation and engagement in an activity (Kazén et al., 2008). Down-regulation of negative affect is accompanied by a change from a narrow and discrepancy-sensitive mode of information processing to a global mode of information processing in which a person can access extensive networks of self- and environment-related information (Baumann & Kuhl, 2002; Koole & Jostmann, 2004). According to this theory, work engagement should be most pronounced in a situation that follows up-regulation of positive affect and down-regulation of negative affect. Positive affect without the preceding experience of negative affect should be associated with less work engagement because only down-regulation of negative affect can strongly activate the mode of information processing distinctive of work engagement (Kuhl, 2001).

An affective shift can occur in different time intervals. There can be a rapid shift from negative to positive affect in the range of milliseconds, and there can be a gradual affective shift in the time frames of hours, days, or longer periods (Barrett, Mesquita, Ochsner, & Gross, 2007; Gray, 2004). In the present study, we focus on an affective shift during a working day. This is reflected in our use of the term *mood*, which refers to a person's level of positive and negative affect during a time interval of several hours (Frijda, 1993). When people experience negative mood in the morning of a working day and positive mood in the subsequent time interval, work engagement should be high because an affective shift has occurred. This implies that the consequence of negative mood in the morning for work engagement in the afternoon depends on the level of positive mood that is experienced between morning and afternoon. Positive mood that follows negative mood should therefore moderate the relationship between negative mood in the morning and work engagement in the afternoon. Negative mood in the morning should be positively related to work engagement in the afternoon if negative mood is followed by high positive mood. Negative mood should be negatively related to work engagement in the afternoon if negative mood is followed by low positive mood.

*Hypothesis 1:* The relationship between negative mood in the morning and work engagement in the afternoon is moderated by positive mood, such that the relationship is positive if positive mood is high and negative if positive mood is low.

### Affective Events and Work Engagement

People's mood and their level of work engagement are not only influenced by internal mechanisms of affect regulation but also by the work context in which people are embedded. As people encounter events at work, their mood changes, and work engagement

increases and decreases subsequently (Kuppens, Van Mechelen, Nezlek, Dossche, & Timmermans, 2007; Watson, 2000). According to Weiss and Cropanzano's (1996) affective events theory, events are defined as significant happenings that produce a change in circumstances and "generate an emotional reaction or mood change in people" (p. 31). The theory differentiates positive events that are goal congruent (e.g., receiving praise) and negative events that are incongruent with work-related goals (e.g., personal failures). Events are situational antecedents of affect and transmit their influence on work engagement through the affective reaction on the part of the individual (Frijda, 1988; Weiss & Cropanzano, 1996). Positive events yield positive mood and increase work engagement; negative events are associated with negative mood and decrease work engagement. If people receive praise by their supervisor for a task they are working on, the subsequent increase in positive mood should be supportive of work engagement. In contrast, an event such as becoming aware of a failure is incongruent with people's goals and should disrupt work engagement.

Although negative events interrupt work engagement and should thus be initially negatively related to work engagement, the affective shift model suggests that they can have motivating potential. As with negative mood, externally occurring negative events can be positively related to subsequent work engagement if a shift in affect takes place. We expect high work engagement if people experience the sequence of negative events followed by positive mood. That is, if people experience negative events in the morning of a work day but later that day positive mood is high, work engagement should be particularly pronounced. After a negative affective event a person may reflect about the problematic situation and potential courses of action and may perceive the necessity to invest additional effort (Carver & Scheier, 1990; Kuhl, 2000). If a shift to positive mood occurs subsequently, for instance, because the person anticipates the positive consequences of completing the task despite initial failure, work engagement should increase. The important point made by the affective shift model is that this increase in work engagement is dependent on both a negative event taking place first and a subsequent shift to positive mood.

*Hypothesis 2:* The relationship between negative events in the morning and work engagement in the afternoon is moderated by positive mood, such that the relationship is positive if positive mood is high and negative if positive mood is low.

### Dispositional Positive Affectivity

The affective processes underlying work engagement are unlikely to be uniform across persons but conditional on the disposition of positive affectivity (Weiss & Cropanzano, 1996). Positive affectivity is a personality trait that predicts general affective tendencies across domains of life (Thorensen, Kaplan, Barsky, Warren, & de Chermont, 2003; Watson, Clark, & Tellegen, 1988). People high in positive affectivity have a high baseline of positive mood. They tend to be lively, happy, and sociable, whereas people low in positive affectivity tend to be listless and apathetic (Watson & Clark, 1984). Positive affectivity is accompanied by a generalized approach tendency and is positively related to work engagement (Fredrickson et al., 2003; Langelaan, Bakker, van Doornen, & Schaufeli, 2006).

The affective shift model suggests that dispositional positive affectivity buffers against detrimental consequences of negative mood and negative events for work engagement (Judge, Thoresen, Pucik, & Welbourne, 1999; Lucas, Clark, Georgellis, & Diener, 2003). After experiencing positive or negative events, people tend to return to their baseline mood (Bowling, Beehr, Wagner, & Libkuman, 2005). As people high in positive affectivity have a high baseline of positive mood, they can return quickly to positive mood and high work engagement after negative events occur and negative mood is experienced. In contrast, people low in positive affectivity should remain in a disengaged state of mind for a prolonged period of time due to their lower baseline level of positive mood (Lucas et al., 2003). We therefore expect that the short-term detrimental consequences of negative events and negative mood for work engagement should be more pronounced for people low in positive affectivity.

*Hypothesis 3a:* The relationship between negative mood and work engagement is moderated by positive affectivity, such that the relationship is more negative for people low in positive affectivity.

*Hypothesis 3b:* The relationship between negative events and work engagement is moderated by positive affectivity, such that the relationship is more negative for people low in positive affectivity.

We further expect that positive affectivity enables people to show work engagement independent of whether or not positive events occur at work. Positive events and dispositional positive affectivity have an equivalent function for work engagement as both facilitate a shift to positive affect (Fisher, 2002; Weiss & Cropanzano, 1996). People high in positive affectivity are less dependent on positive events, because positive affectivity compensates for a lack of positive events at work. High-positive affectivity indicates that people have internal mechanisms of affect regulation that enable a shift to positive affect independent of external circumstances (Bowling et al., 2005; Diener & Lucas, 1999). In contrast, there is no internal compensation for a lack of positive events for people low in dispositional positive affectivity. They are therefore more dependent on positive events that occur in the external work environment in order to shift to a positive affective state and to show high work engagement. In the absence of positive events, their work engagement should be low. The relationship between positive events and work engagement should thus be more positive for people low in positive affectivity.

*Hypothesis 4:* The relationship between positive events and work engagement is moderated by positive affectivity, such that the relationship is more positive for people low in positive affectivity.

## Method

Experience sampling methodology was applied to test the affective shift model of work engagement. Over the course of 2 weeks, affective events, mood, and the level of work engagement were measured twice a day. Hypotheses were tested by predicting the level of participants' work engagement just before filling out the survey with affective events and positive and negative mood

that were experienced in the hours before. The consequence of an affective shift for work engagement was investigated by examining the sequence of negative mood and negative events in the morning and positive mood in the afternoon.

**Participants and procedure.** Software developers and computer scientists participated in the experience sampling study. Fifty-five employees of six companies agreed to take part in the study on a voluntary basis. The total sample included 49 (89%) men and six (11%) women. Their mean age was 34.7 years ( $SD = 6.6$ ), and their mean organizational tenure was 6.2 years ( $SD = 4.4$ ). Sixty-nine percent held a university degree.

Data collection was divided into two parts: First, participants filled out a general questionnaire to measure dispositional positive and negative affectivity and demographic variables. Second, interval-contingent experience sampling methodology was used, and participants repeatedly reported on work events, positive and negative mood, and momentary work engagement. Participants completed a Web-based survey twice a day at approximately 11 a.m. and 3 p.m. over a period of 9 working days. An experience sampling design with two points of measurement each day was used in order to provide an immediate and accurate record of work events, mood, and engagement and to minimize retrospection bias (Reis & Wheeler, 1991). A 2-week period for the daily surveys was chosen on the basis of the recommendation of Reis and Wheeler (1991), who stated that "the 2-week record-keeping period is assumed to represent a stable and generalizable estimate of social life" (p. 287). All 55 general questionnaires were returned, and 706 usable daily surveys were received. On average, participants completed the Web-based questionnaire 12.8 times ( $SD = 3.93$ ).

### Measures.

**Demographic variables.** Gender, age, educational level, job title, daily working hours, and tenure were measured with one item each. None of these demographic variables were significantly related to work engagement and its antecedents.

**Positive affectivity and negative affectivity.** The German translation of the Positive and Negative Affect Schedule (Watson et al., 1988) by Krohne, Egloff, Kohlmann, and Tausch (1996) was used to measure dispositional positive and negative affectivity. Participants were presented 10 positive (e.g., interested, excited, proud) and 10 negative adjectives (e.g., nervous, afraid, distressed). They were asked to indicate for each adjective on a 5-point scale ranging from 1 (*not at all*) to 5 (*extremely*) to what extent it reflects how they feel in general. The instruction was constrained neither to a certain time period nor to the work setting. Coefficient alpha was .82 for the positive affectivity scale and .85 for the negative affectivity scale.

The Web-based experience sampling survey required participants to respond twice each day. To ensure compliance over the period of 9 working days, it was important to use short and efficient measures. Therefore, the scales for the experience sampling survey were shortened compared with their original form.

**Work engagement** was assessed with five items of the Utrecht Work Engagement Scale (UWES) at each point of measurement (Schaufeli et al., 2002). Participants were asked to refer to the level of engagement they experienced just before filling out the survey. Items are "I feel strong and vigorous in my work" and "At my work, I feel bursting with energy" for vigor, "I am enthusiastic about my work" and "My work inspires me" for dedication, and

"I'm happily engrossed in my work" for absorption. All items were scored on a 7-point scale ranging from 1 (*does not apply at all*) to 7 (*fully applies*). Coefficient alpha for the work engagement scale was .92. In order to validate this short five-item state measure of work engagement, 15 items of the UWES were also administered at the beginning of the study asking employees about their general level of work engagement. Coefficient alpha for this 15-item measure of general work engagement was also .92. The correlation of the 15-item scale with the mean level of work engagement participants reported over the 12.8 measurement occasions on the five-item scale was .61 ( $p < .000$ ). The high correlation together with the high internal consistency of the five-item scale confirms that the short scale adequately assessed the construct of work engagement.

**Positive mood and negative mood.** A list of 12 adjectives that describe positive and negative mood states was used to measure participants' mood in the hours before filling out the survey (Fisher, 2000; Krohne et al., 1996; Watson et al., 1988). The positive mood adjectives were *proud, enjoying, happy, optimistic, content, and enthusiastic*. Negative mood was assessed by the adjectives *depressed, angry, unhappy, frustrated, disappointed, and worried*. Participants rated the extent to which they had experienced these mood states during the last hours on a scale ranging from 1 (*very slightly or not at all*) to 5 (*extremely*). The composite measures of the positive and negative mood adjectives indicate the level of positive and negative mood a person experienced during the time interval before each measurement occasion. Coefficient alpha was .90 for the positive mood scale and .88 for the negative mood scale.

As work engagement is a positive affective state, it is inherently linked to the experience of positive affect (Macey & Schneider, 2008). Therefore, it was important to ensure that positive mood and work engagement were two distinct factors. Exploratory factor analysis showed that positive mood and work engagement were indeed two separate factors. However, the item "enthusiastic" of the positive mood scale showed a cross-loading of .38 with the work engagement factor. This item was therefore dropped from the positive mood scale. In a second step, multilevel confirmatory factor analysis was applied by using Mplus software (Muthén & Muthén, 2007). In addition to testing latent factors as causes of between-person differences, this method simultaneously tests latent factors as causes of within-person fluctuations over time. Model fit indicators supported a two-factor solution (comparative fit index [CFI] = .95, root-mean-square error of approximation [RMSEA] = .05, Akaike information criterion [AIC] = 15856, standardized root-mean-square residual [SRMR][within] = .04, SRMR[between] = .09) rather than a one-factor solution (CFI = .81, RMSEA = .11, AIC = 16328, SRMR[within] = .08, SRMR[between] = .09). This result confirms that work engagement and positive mood were two distinct factors and provides the foundation for testing the hypotheses.

**Positive and negative work events.** Participants rated the occurrence of three positive and three negative work events during the hours before filling out the survey. The selection and wording of events was based on the event-emotion matrix by Basch and Fisher (2000) and a study by Kanner, Coyne, Schaefer, and Lazarus (1981). The positive events were praise from the supervisor, being asked for help, and being involved in planning- and decision-making processes. The negative events were making er-

rors, working under time pressure, and conflicts with colleagues and/or supervisor. Participants' ratings were scored as 1 if they indicated that the event had occurred and as 0 if the event had not occurred. Two separate composite measures reflecting the frequency of positive and negative events were formed. In order to account for affective events that were not mentioned in the standardized list of events, participants were asked to write down additional events they had experienced as either positive or negative in two open-ended questions. In total, participants reported 84 positive and 90 negative additional events. The events mentioned were related to work tasks (e.g., coming up with a solution for a problem), the workplace (e.g., technical components were broken), work relationships (e.g., feeling ignored by one's supervisor), and participants' private concerns (e.g., sudden illness of one's little son). Each additional event participants mentioned in the open-ended questions was coded as 1 and added to the composite measures for positive or negative events. The two final composite measures thus represent the number of positive or negative events participants reported for each measurement interval.

**Analyses.** For all analyses, multilevel modeling (HLM 6; Raudenbush, Bryk, & Congdon, 2004) was used. Repeated measures data from the surveys that were administered twice a day were nested within persons. This led to a two-level model with a series of repeated measures on the within-person level (affective events, mood, work engagement) and individual differences on the between-person level (positive affectivity and negative affectivity). For the test of Hypotheses 1 and 2, the sequence of negative mood and negative events in the morning followed by positive mood was examined. At 11 a.m., participants reported negative mood and negative events they had experienced since the beginning of a working day; at 3 p.m., participants reported positive mood they had experienced during the time period between 11 a.m. and 3 p.m. and their level of work engagement at 3 p.m. To test Hypothesis 1, we examined whether positive mood in the time period between 11 a.m. and 3 p.m. moderated the relationship between negative mood in the morning and work engagement in the afternoon. An *affective shift* refers to a situation in which negative mood was high before 11 a.m. and positive mood was high between 11 a.m. and 3 p.m. To test Hypothesis 2, we examined whether positive mood participants reported for the time period between 11 a.m. and 3 p.m. moderated the relationship between negative events before 11 a.m. and work engagement in the afternoon at 3 p.m. In all analyses, the main effects of positive and negative mood at both points of measurement were controlled for.

The sample size for the test of Hypotheses 1 and 2 was reduced from 706 to 292 observations because morning and afternoon observations of each day were combined. Observations could only be included if participants had completed the experience sampling survey in the morning and the afternoon. Four participants were dropped from the analyses as they had not provided pairs of morning and afternoon observations yielding a sample size of 51 rather than 55 participants. Hypotheses 3 and 4 were tested with the full set of 706 observations nested within 55 participants. For these analyses, there were two daily observations of the independent and the dependent variables.

Table 1  
Means, Standard Deviations, and Intercorrelations of Study Variables

Variable	1	2	3	4	5	6	7
1. Work engagement	—	.22**	-.13*	.63**	-.45**		
2. Positive events	.15	—	.06	.25**	-.10*		
3. Negative events	-.15	.30*	—	-.23**	.34**		
4. Positive mood	.77**	.31*	-.28*	—	-.50**		
5. Negative mood	-.35**	.02	.56**	-.41**	—		
6. Positive affectivity	.65**	.14	-.17	.61**	-.35**	—	
7. Negative affectivity	.01	.25	.37**	-.06	.40**	-.32*	—
<i>M</i>	4.05	2.18	1.68	2.80	1.50	3.52	1.83
<i>SD</i>	1.31	0.72	0.65	0.76	0.67	0.51	0.53

Note. Correlations below the diagonal represent the between-person level ( $n = 55$ ). In order to calculate between-person correlations, variables were aggregated across occasions. Correlations above the diagonal represent the within-person level ( $n = 706$ ). In order to obtain standardized coefficients on the within-person level, we standardized all variables prior to calculating the coefficients.

\*  $p \leq .05$ . \*\*  $p \leq .01$ .

## Results

Descriptive statistics and intercorrelations among all variables are provided in Table 1. Correlations below the diagonal represent between-person correlations based on mean scores for each participant aggregated over the repeated observations. Correlations above the diagonal represent within-person correlations. Prior to testing the theoretical model, we investigated whether systematic within- and between-person variance existed in the variables. For work engagement, 53% of the variance was within individuals. There was also substantial within-individual variance in positive (55%) and negative mood (67%) as well as in positive (86%) and negative work events (56%). The within-person relationships between negative events as well as negative mood with work engagement were negative, the within-person relationships between positive events and positive mood with work engagement were positive. The lower frequency of negative events ( $M = 1.68$ ) and the lower mean levels of negative mood ( $M = 1.50$ ) compared with positive events ( $M = 2.18$ ) and positive mood ( $M = 2.80$ ) are consistent with existing evidence on the relative infrequent occurrence of momentary negative events and negative mood (Miner, Glomb, & Hulin, 2005).

**Tests of hypotheses.** We examined whether positive mood moderated the relationship between negative mood in the morning and work engagement in the afternoon to test Hypothesis 1. Model 1 in Table 2 shows that positive mood measured in the morning was positively related to work engagement in the afternoon. In Model 2, positive mood and negative mood measured in the afternoon were added. As we controlled for morning measurement of positive and negative mood, results of Model 2 reflect how change in mood was related to work engagement. Results suggest that an increase in positive mood explained incremental variance in work engagement. In Model 3, the interaction between negative mood in the morning and positive mood measured in the afternoon explained variance in work engagement in addition to the increase in positive mood that was significant in Model 2 ( $\gamma = 0.17$ ;  $p = .05$ ;  $\Delta R^2 = .01$ ). In support of the affective shift hypothesis, the sequence of negative mood followed by positive mood was thus related to work engagement over and above a mere increase in positive mood. Figure 2a illustrates this moderation effect. The

relationship between negative mood in the morning and work engagement in the afternoon was positive if positive mood was high. Region-of-significance tests for simple slopes (Preacher, Curran, & Bauer, 2006) indicated that the relationship between negative mood in the morning and work engagement was significantly positive for values  $\geq 0.92$  above the mean of moderator positive mood. Simple slopes were significantly negative for values  $\leq -1.20$  below the mean of the moderator. Additional analyses showed that Hypothesis 1 was also supported if predictors were person-mean centered and if work engagement in the morning was entered as a control variable.<sup>2</sup>

We performed descriptive analyses to shed light on the processes underlying a shift in affect. We examined change in positive and negative mood from morning to afternoon for the high quartile of work engagement observations compared with the low quartile of work engagement observations. For the high quartile of work engagement observations, there was on average a decrease in negative mood from morning ( $M = 1.38$ ) to afternoon ( $M = 1.27$ ) and an increase in positive mood from morning ( $M = 3.26$ ) to afternoon ( $M = 3.55$ ) that preceded work engagement in the afternoon. For the low quartile of work engagement, the pattern of

<sup>2</sup> We examined further interactions between positive and negative mood measured in the morning and in the afternoon to test alternative theoretical propositions: First, we examined whether a reverse affective shift from positive to negative mood was related to work engagement. One might argue, for instance, that negative mood is particularly disruptive for work engagement if it follows positive mood. However, negative mood measured in the afternoon did not moderate the relationship between positive mood in the morning and work engagement in the afternoon. The sequence of positive mood followed by negative mood thus did not have consequences for work engagement over and above the main effect of positive and negative mood. Future research may examine whether a shift from positive to negative affect has distinct consequences for outcome variables other than work engagement. Second, we examined the interaction terms between positive mood measured in the morning and the afternoon as well as between negative mood measured in the morning and the afternoon. Such interactions could reflect nonlinear relationships between change on a single mood dimension and work engagement. However, both interaction terms were non-significant when predicting work engagement.

Table 2  
Affective Shift and Work Engagement

Predictor	Model 1	Model 2	Model 3	Model 4
Intercept	3.95 (0.13)**	3.95 (0.09)**	3.95 (0.09)**	3.96 (0.09)**
Morning measurement				
Negative mood	0.11 (0.13)	-0.01 (0.09)	-0.05 (0.06)	-0.01 (0.10)
Positive mood	0.47 (0.11)**	0.04 (0.09)	0.03 (0.09)	0.03 (0.09)
Negative events	-0.01 (0.08)	0.05 (0.06)	0.05 (0.06)	0.05 (0.06)
Afternoon measurement				
Negative mood		-0.05 (0.10)	-0.03 (0.10)	-0.09 (0.10)
Positive mood		1.22 (0.9)**	1.21 (0.9)**	1.24 (0.09)**
Affective shift				
Negative Mood (morning) × Positive Mood (afternoon)			0.17 (0.08)*	
Negative Events (morning) × Positive Mood (afternoon)				0.19 (0.06)**
Model $R^2$	.14	.49	.50	.51

Note.  $N = 292$  observations nested within 51 individuals. Work engagement in the afternoon is the dependent variable. The values are unstandardized parameter estimates for the regression weights ( $\gamma$ ). Standard errors are indicated in parentheses.  $R^2 =$  variance explained in work engagement by within-person predictors.

\*  $p \leq .05$ . \*\*  $p \leq .01$ .

change in mood was reverse: There was an increase in negative mood from morning ( $M = 1.71$ ) to afternoon ( $M = 1.96$ ) and a decrease in positive mood from morning ( $M = 2.36$ ) to afternoon ( $M = 1.94$ ). These analyses support the proposition that the

affective shift that is related to work engagement comprises down-regulation of negative affect and up-regulation of positive affect.

As an additional test of the affective shift model, we examined whether a shift from negative mood in the afternoon to positive mood each subsequent morning was related to work engagement. The theoretical rationale suggests the same effect of a shift in affect on work engagement for this time frame. As mood and work engagement that occurred after 3 p.m. each day and in the evening outside of the work setting were not assessed, we only briefly report results: In line with the affective shift model, the interaction term between negative mood in the afternoon and positive mood the next morning significantly predicted work engagement the next morning (interaction term:  $\gamma = 0.25$ ;  $p = .03$ ;  $\Delta R^2 = .02$ ). Negative mood reported at 3 p.m. of a day was positively related to work engagement measured at 11 a.m. of the next day if positive mood in the morning was high.

Hypothesis 2 states that high work engagement results if people shift to positive mood after the occurrence of negative events. In Model 4 of Table 2, the interaction term of negative events in the morning and positive mood measured in the afternoon explained significant variance in work engagement in the afternoon after controlling for the main effects of mood and negative events ( $\gamma = 0.19$ ,  $p < .01$ ,  $\Delta R^2 = .02$ ). Figure 2b illustrates this interaction effect: Negative events in the morning were positively related to work engagement in the afternoon if positive mood was high. If positive mood was low, negative events in the morning were negatively related to work engagement in the afternoon. Region-of-significance tests for simple slopes indicated that the relationship between negative events in the morning and work engagement was significantly positive for values  $\geq 0.24$  above the mean of the moderator positive mood. Simple slopes were significantly negative for values  $\leq -1.01$  below the mean of the moderator (Preacher et al., 2006). Results for Hypothesis 2 remained significant if predictors were person-mean centered and if work engagement in the morning was controlled for. If the interaction term of negative mood and positive mood was added in Model 4, only the interaction between negative events and positive mood remained

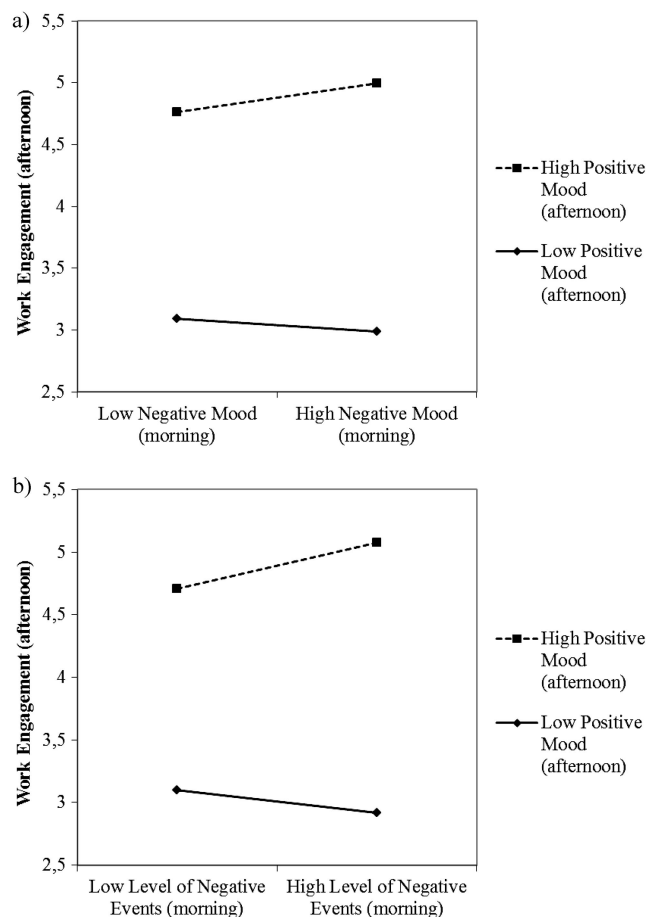


Figure 2. Affective shift and work engagement.

significant, indicating that both interactions explained shared variance in work engagement.

Hypotheses 3 and 4 predicted cross-level moderation of within-person relationships between affective events, mood, and work engagement by positive affectivity. To test these hypotheses, the data set with two daily observations of the independent and the dependent variables was used. For these analyses, predictors on the within-person level were centered around the mean of each person so that within-person relationships were unconfounded by between-person variance (Enders & Tofighi, 2007; Hofmann, Griffin, & Gavin, 2000).

In support of Hypothesis 3a, positive affectivity moderated the relationship between negative mood and work engagement ( $\gamma = 0.28, p = .02$ ; Model 2 in Table 3). Only for people low in positive affectivity was there a negative relationship between negative mood and work engagement (see Figure 3a). Region-of-significance tests for simple slopes indicated that the relationship between negative mood and work engagement was significantly negative for values  $\leq -.02$  below the mean of the moderator positive affectivity. Model 1 and Model 2 in Table 3 show that Hypothesis 3b did not receive support. Positive affectivity did not moderate the relationship between negative events with work engagement independent of whether only events were included in the model (Model 1) or after controlling for mood (Model 2).

Affective events theory suggests that events influence work engagement through their effect on people's mood. Model 1 in Table 3 shows that positive and negative events explained incremental variance in work engagement. Consistent with the mediation assumption of affective events theory, positive and negative events were no longer significant if positive and negative mood were controlled for (Model 2). We applied the procedures proposed by Bauer, Preacher, and Gil (2006) to directly test for mediation separately for negative and positive events. The total effect of negative events on work engagement was  $-0.16$  (95% CI  $[-0.27$  to  $-0.05]$ ). The significant indirect effect that was mediated by negative mood was  $-0.19$  (95% CI  $[-0.25$  to  $-0.14]$ ). The relationship of negative events with work engagement was

thus fully mediated by negative mood. Moderated mediation analyses yielded results consistent with the test of Hypotheses 3a and 3b. Positive affectivity moderated only the relationship between negative mood and work engagement. Thereby, positive affectivity also moderated the indirect effect of negative events on work engagement via negative mood.

According to Hypothesis 4, positive affectivity moderates the relationship between positive events and work engagement. Model 3 in Table 3 shows that the moderating effect was significant ( $\gamma = -0.28, p < .01$ ): For people low in positive affectivity, the relationship between positive events and work engagement was more positive than for those high in positive affectivity (see Figure 3b). We performed moderated mediation analyses to examine the moderation of positive affectivity on the mediated relationship between positive events, positive mood, and work engagement in more detail (Bauer et al., 2006). First, results showed that the indirect effect of positive events on work engagement via positive mood was significant (indirect effect:  $0.34$ , 95% CI  $[0.22, 0.46]$ ). Second, moderated mediation analysis showed that the indirect effect of positive events on work engagement via positive mood was not moderated by positive affectivity. Rather, the direct effect of positive events on work engagement that was independent of the mediator positive mood was moderated by positive affectivity such that the relationship was only significant for people low in positive affectivity ( $\gamma = -0.21, p = .01$ ). These results suggest that positive events are more important for work engagement of people low in positive affectivity because positive events have a direct influence on work engagement that is not transmitted through positive mood.

Although we did not formulate hypotheses concerning dispositional negative affectivity, we included it to comprehensively model between-person differences in affective dispositions. Negative affectivity reflects individual differences in the overall tendency to experience negative emotions and moods across domains of life (Watson & Clark, 1984). Whereas negative affectivity was unrelated to work engagement by itself (see Table 1), it was positively related to work engagement if the shared variance with

Table 3  
*Cross-Level Moderation of Positive Affectivity*

Predictor	Model 1	Model 2	Model 3
Level 1 (within-person)			
Intercept	4.05 (0.10)**	4.05 (0.10)**	4.05 (0.10)**
Positive events	0.24 (0.05)**	0.07 (0.04)	0.05 (0.04)
Negative events	-0.15 (0.05)**	0.04 (0.04)	0.02 (0.04)
Positive mood		1.02 (0.06)**	1.13 (0.06)**
Negative mood		-0.10 (0.07)	-0.02 (0.06)
Level 2 (between-person)			
Positive affectivity	1.37 (0.20)**	1.38 (0.20)**	1.38 (0.20)**
Negative affectivity	0.42 (0.19)*	0.43 (0.19)*	0.42 (0.19)*
Cross-level moderation			
Negative Events $\times$ Positive Affectivity	0.09 (0.11)	-0.04 (0.09)	-0.04 (0.08)
Negative Mood $\times$ Positive Affectivity		0.28 (0.12)*	0.25 (0.12)*
Positive Events $\times$ Positive Affectivity			-0.28 (0.07)**
Model $R^2$	.26	.43	.44

Note.  $N = 706$  observations nested within 55 individuals. Work engagement is the dependent variable. The values are unstandardized parameter estimates for the regression weights ( $\gamma$ ). Standard errors are indicated in parentheses.  $R^2 =$  variance explained in work engagement by within- and between-person predictors.

\*  $p \leq .05$ . \*\*  $p \leq .01$ .



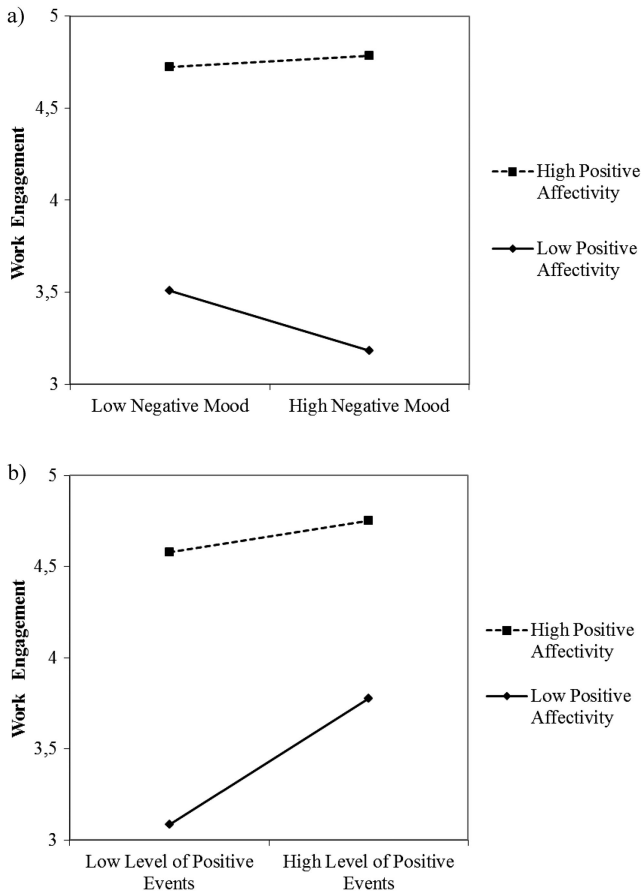


Figure 3. Cross-level moderation of positive affectivity.

positive affectivity was controlled for ( $\gamma = 0.42$ ;  $p < .05$ , see Table 3). Thus, when keeping the level of positive affectivity statistically constant, negative affectivity was positively related to work engagement. In line with our overall rationale, we interpret this suppression effect as indicating that negative affectivity can be positively related to work engagement. It is the absence of positive affectivity rather than negative affectivity per se that is associated with low work engagement.

## Discussion

According to the affective shift model, work engagement is tied to the presence of positive affect but emerges from a dynamic interplay of positive and negative affect. We inferred from self-regulation theories that negative affect can have a motivating potential that unfolds if a subsequent shift to positive affect takes place (Carver & Scheier, 1990; Kuhl, 2000). In line with this proposition, we found that moving from a situation in which negative events occur and negative mood is present to a situation in which high-positive mood is experienced was associated with high work engagement.

The present article adds to the literature on affect by applying a dynamic perspective and demonstrating that an affective shift produces positive motivational effects. It is not only the level of positive and negative affect that matters for motivation and behavior

but also the temporal sequence and regulation of positive and negative affect. For work engagement, a shift from negative to positive affect is essential because work engagement implies the presence of positive affect. Our focus on a shift from negative to positive affect is consistent with evidence that a higher proportion of positive affect relative to negative affect is characteristic of adaptive humane functioning (Seligman & Csikszentmihalyi, 2000). If this proportion falls below a certain threshold or if negative affect prevails, well-being is impaired (Fredrickson & Losada, 2005). In contrast to past research, we highlight that not only the proportion of positive to negative affect matters but also their dynamic interplay.

The affective shift model points to the importance of affect regulation. According to PSI theory, affect regulation is closely tied to the activity of a central executive system termed the *self-system* (Kuhl, 2000). The self-system becomes activated by affective experiences and in turn regulates affective experiences. Individuals differ in the strengths of the association between the self-system and affect-generating systems (Kuhl, 1994). If there is a strong association, a person can quickly and autonomously down-regulate negative affect in the face of difficulties (Kooze & Jostmann, 2004) and can up-regulate positive affect when attempting to implement a difficult goal (Baumann, Kaschel, & Kuhl, 2007). We argue that it is the balance of being able to endure phases of negative affect and to then engage in a shift to positive affect that is adaptive. Minimization of negative experiences and suppression of negative affect are functional neither for work motivation nor for personal development (Gross & John, 2003; Kuhl, 2001).

Consistent with our predictions, we found a pattern of affect regulation superior for work engagement among employees high rather than low in dispositional positive affectivity. People high in positive affectivity can quickly shift to positive mood after negative experiences (Bowling et al., 2005; Diener & Lucas, 1999). In the present study, positive affectivity buffered against short-term detrimental consequences of negative mood for work engagement. Moreover, results confirmed that the lower individuals were in positive affectivity, the more they depended on positively stimulating external events in order to become engaged. Results suggest that positive events have an additional direct influence on work engagement for people low on positive affectivity that is not transmitted through consciously experienced positive mood.

**Limitations and future research.** The affective shift model suggests a causal effect of events and mood on work engagement. However, experience sampling studies do not provide the degree of control present in experimental studies that allows for clear causal inferences (Judge, Scott, & Ilies, 2006). Nevertheless, the research design controlled for the temporal sequence of independent and dependent variables, thereby ruling out alternative explanations of the direction of causality. Participants were asked to report events and mood they had experienced in the hours before responding. For work engagement, participants were asked to refer to their level of work engagement just before responding. Thus, the explanatory variables events and mood refer to phenomena that occurred before the level of work engagement that was to be explained. Additional analyses showed that results did not change if work engagement in the morning was controlled for. Moreover, work engagement in the morning was unrelated to subsequent change in mood or to the occurrence of events.

Although we examined mood only as an antecedent of work engagement in the present study, reciprocal linkages are to be expected from the theoretical perspective we have outlined. Mood is not only a feedback signal that influences subsequent engagement in pursuing a goal. A person's mood should also be a consequence of—among other factors—previous engagement and goal pursuit. Actively engaging at work and thereby approaching a goal can reduce negative mood that has arisen because a person has fallen behind in pursuing the goal (Carver & Scheier, 1990, 2009). Moreover, by focusing on and engaging in work tasks, individuals can escape negative mood because attention shifts away from negative mood (Johnson, Chang, & Lord, 2006). Future research needs to unpack these reciprocal and dynamic linkages between mood, work engagement, and goal-directed behavior.

A further avenue for research is to examine the process of an affective shift in more detail. PSI theory specifies up-regulation of positive affect and down-regulation of negative affect as separate but intertwined processes (Kuhl, 2000). In the present study, we differentiated these two processes only descriptively and examined the sequence of negative mood and negative events followed by positive mood. Future research may contribute to a more precise understanding by measuring an affective shift directly, by experimentally manipulating mood, and by studying individual differences in affect regulation. As an affective shift can occur in different time frames, it is important to understand whether it has similar consequences for work engagement and other outcomes in different time frames. Moreover, an affective shift can also occur in the opposite direction such that negative affect follows positive affect. The consequences of such an affective shift need research attention.

Attention also needs to be paid to the antecedents of an affective shift. The present research suggests that it can be prompted by both external events and internal processes of affect regulation. It is unknown, however, whether an affective shift that is caused externally, for instance, through emotional contagion or by a joke a colleague tells, has the same consequences as an affective shift that is internally induced (Neumann & Strack, 2000; Sy, Côte, & Saavedra, 2005). Concerning events, a more detailed analysis of different kinds of events and their impact on work engagement is needed. One anonymous reviewer rightly suggested that not all negative events may have equal motivating potential. Negative events in the work context, such as needless and time-consuming meetings or broken equipment, may be detrimental for work engagement in general; in contrast, events that have informational value about task progress can have motivating potential (Basch & Fisher, 2000). Concerning internal affect regulation, it is important to examine deliberate and implicit forms of affect regulation. Besides deliberate forms of affect regulation, such as reappraisal strategies (Gross & John, 2003), affect regulation occurs implicitly such that affect is tuned to serve the demands of goal pursuit without taxing people's cognitive resources (Koole & Jostmann, 2004; Quirin, Kazén, & Kuhl, 2009).

**Practical implications.** Because of its relevance for performance and well-being, the concept of work engagement attracts increasing attention in practice (Macey & Schneider, 2008; Sonnentag et al., 2010). What does this study add to our knowledge on how work engagement can be fostered in organizations? Besides emphasizing the importance of individual differences in positive affectivity for work engagement, this study suggests that work engagement varies significantly within individuals over time and

that a driver of these variations is the day-to-day events employees encounter. Events can be actively shaped by organizations, supervisors, and individual employees (Weiss & Cropanzano, 1996). By building a culture that promotes positive events and that strengthens the beneficial rather than the detrimental consequence of negative events, organizations can increase employee engagement. Organizations should attend to the typical events their employees face in their daily work and how these events are interpreted and managed. For instance, employees may not react with a decrease in work engagement after making an error in an organizational culture that treats errors as learning opportunities (Van Dyck, Frese, Baer, & Sonnentag, 2005). Supervisors play a decisive role in creating positive events and in providing support when negative events occur (Abramis, 1987). Research on personal initiative and proactive behavior stresses that employees not only react to events that occur at work but also actively influence their work environment (Bindl & Parker, 2010). This implies that employees can self-start to create events that in turn positively affect their level of engagement.

Whereas most readers may agree with the importance of positive events and positive mood for work engagement, we expect our proposition about a motivating potential of negative events and negative mood to be more controversial. What implications follow from this proposition? We think it is of benefit to understand and accept that negative mood and negative events, such as crises, conflicts, and errors, are integral and unavoidable aspects of human action at work. In the absence of negative experiences, people will perceive less necessity to act and show lower levels of work engagement. Suppression and avoidance of negative events and negative mood are thus ineffective strategies (Carver & Scheier, 1990; Gross & John, 2003). However, negative events and negative mood are by definition undesirable and have unwanted long-term consequences such as adverse health outcomes, job withdrawal and dissatisfaction as long as affect-regulation abilities are low (Fisher, 2002; Taylor, 1991). The ability to shift to positive mood after negative experiences is thus essential (Bolte, Goschke, & Kuhl, 2003; Fredrickson et al., 2003). For organizations, this implies that investing in systematic assessment and development of affect regulation skills is a promising strategy for human resource management. Improved affect regulation should contribute to both employee well-being and performance.

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