European Journal of Work and Organizational Psychology

ISSN: (Print) (Online) Journal homepage: https://www.tandfonline.com/loi/pewo20

Affect stability and employee creativity: the roles of work-related positive affect and knowledge sharing

In-Jo Park, Jin Nam Choi & Kai Wu

To cite this article: In-Jo Park, Jin Nam Choi & Kai Wu (2022) Affect stability and employee creativity: the roles of work-related positive affect and knowledge sharing, European Journal of Work and Organizational Psychology, 31:3, 331-340, DOI: 10.1080/1359432X.2021.1953990

To link to this article: https://doi.org/10.1080/1359432X.2021.1953990

Published online: 16 Jul 2021.

EUROPEAN JOURNAL OF WORK AND ORGANIZATIONAL PSYCHOLOGY
2022, VOL. 31, NO. 3, 331–340
https://doi.org/10.1080/1359432X.2021.1953990

Affect stability and employee creativity: the roles of work-related positive affect and knowledge sharing

In-Jo Park[a], Jin Nam Choi[b] and Kai Wu[a]

[a]Department of Psychology, Henan University, Kaifeng, China; [b]Graduate School of Business, Seoul National University, Seoul, South Korea

ABSTRACT

In this study, we extend the affect–creativity literature by theorizing and validating the way the variability of affective experiences or lack thereof predicts employee creativity. Departing from the average of typical affective experiences, we introduce affect spin versus stability that reflects the dynamic variability of employee affect over time. Drawing on resource-based accounts of individual behaviour, affect stability is hypothesized to exert a positive indirect effect on employee creativity via work-related positive affect. We collected multilevel, multi-wave data from 149 employees and their supervisors. To calculate affect stability, we used daily data based on the experience sampling method collected over 2 weeks, resulting in 1,747 daily ratings from 149 employees. The analysis shows that work-related positive affect mediates the relationship between affect stability and creativity. Furthermore, knowledge sharing positively moderates the indirect effect of affect stability on employee creativity. We uncover the significance of dynamic affect variability towards creativity with the consideration of internal and external resources for employee creativity.

ARTICLE HISTORY
Received 20 December 2020
Accepted 6 July 2021

KEYWORDS
Workplace affect; affect stability; affect spin; knowledge sharing; creativity

Owing to competitive and dynamic changes in the market and technology, business organizations have increasingly relied on creative ideas from employees for innovation and performance (Anderson et al., 2014). Of the numerous predictors of creativity, "mood stands out as one of the most widely studied and least disputed predictors" (De Dreu et al., 2008, p. 779). Scholars have investigated the roles of trait affect, moods, or discrete emotions towards individual creativity, typically focusing on the valence or the activation of the given affect (Amabile et al., 2005; George & Zhou, 2007; Hwang & Choi, 2020). One critical limitation of this stream of research is the use of the "typical" workplace affect or mid-range affective experiences (e.g., "during the past four weeks"), which represent the average or overall effect level. In an extreme case, if researchers evaluate the typical level of positive and negative affect of a person who suffers from bipolar disorder; then, they cannot obtain an adequate assessment to characterize this person's affective experiences by overlooking the critical dynamism. Accordingly, the consideration of the variability of affective experiences or lack thereof should reveal the distinct function of affect towards creativity. We attend to this issue, which has been neglected and thus unknown in the literature.

In workplaces, employees encounter various affect-inducing events; hence, their affective states may rise and fall many times even in a single day with varying levels of valence and activation (Ashkanasy, 2003; Weiss & Cropanzano, 1996). Accordingly, studies based on the average level of affect may undergo the flaws of averages and fail to capture the dynamic nature of affective experiences (Bledow et al., 2013). Given the short-term changes in daily affecteffect in organizations, studies based on experience sampling method (ESM) investigated the day-level or within-person relationships between daily moods and attitudinal or behavioural outcomes on the same day or the following day (Amabile et al., 2005; To et al., 2015). These ESM studies revealed the daily unfolding processes of the day-level moods and emotions but overlooked the variations or temporal fluctuations of affect over time.

To investigate the role of affect dynamism, we focus on the construct of *affect spin*, which refers to the variability of affect over time on the two dimensions of valence and activation (Kuppens et al., 2007). Although affect spin is associated with poor well-being and distress owing to heightened emotional reactivity (Beal et al., 2013), its behavioural implications are not clear, particularly in organizational settings. In this study, we investigate the effect of affect spin on employee creativity, which is increasingly acknowledged as a critical performance domain (Anderson et al., 2014). Clark et al. (2018) showed a negative day-level effect of affectspin on citizenship behaviour, but suggested the possibility that affect spin exerts a positive effect on creativity. This speculation deserves further research given the diverse and sometimes opposing arguments and findings regarding the role of positive and negative affect or their co-presence for creativity, such as dual-tuning model (George & Zhou, 2007), dual pathway model (De Dreu et al., 2008), and emotional ambivalence (Fong, 2006).

Drawing on the conservation of resource (COR) theory (Hobfoll et al., 2018) and the job demands–resources (JD–R) model (Demerouti et al., 2001), we propose that employee creativity is high under stable affective experiences, that is, when affect spin is low. Affect spin may dissipate self-

CONTACT Jin Nam Choi jnchoi@snu.kr

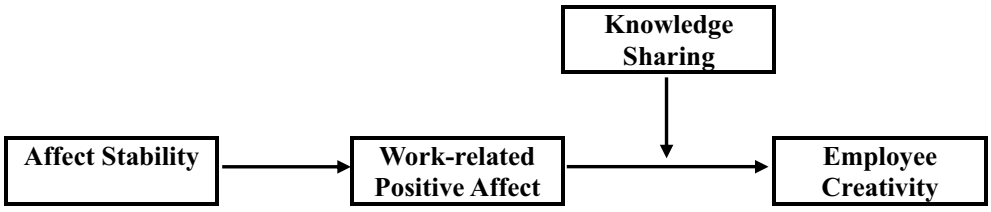

Figure 1. Overall conceptual framework.

regulatory resources of employees by distracting them towards coping with and handling emotional ups and downs, thereby reducing resources needed to match task-related demands (Beal et al., 2013; Jung et al., 2015). Richels et al. (2020) reported that affect spin is negatively related to adaptive performance because of the lack of sustained efforts to learn and acquire new skills.

We propose that employees with high affect stability (i.e., low affect spin) can wield sufficient internal psychological resources and engage in creative idea generation. Specifically, we isolate work-related positive affect as an underlying mechanism of how affect stability secures and generates internal psychological resources, thereby enhancing creativity in workplaces. We further propose that knowledge sharing positively moderates the indirect effect of affect stability on creativity via work-related positive affect, because creative performance requires positive social exchanges in addition to enthusiastic task engagement, particularly in organizational settings (Eden et al., 2010).

The present study develops a framework that specifies theoretically plausible resource-based mechanisms through which affect stability (versus affect spin) predicts employee creativity (see Figure 1 for the overall conceptual framework). The current theoretical propositions offer new insights into *why* and *when* dynamic temporal patterns of affective experiences contribute to creativity in organizations. The current theoretical framework will be empirically validated using multi-wave, multi-source data combined with the ESM data collected from 149 employees and their supervisors.

Theoretical background and hypotheses

Affect spin versus stability

Scholars have debated on the structure, dimensionality, and classifications of affective experiences (Ashkanasy, 2003; Russell & Carroll, 1999). According to the dimension theory of affect (Watson and Tellegen, 1999), affective experiences can be characterized by two key dimensions: valence and activation. Valence denotes the extent to which a particular affect is pleasant or unpleasant, whereas activation denotes the degree to which it is activated or deactivated (for a controversy on the bipolarity versus independence of positive and negative affect, see Watson & Tellegen, 1999). These two dimensions compose the Cartesian coordinates in the emotion circumplex, in which the horizontal axis displays valence and the vertical axis displays activation. Affect spin represents the dynamic change of core affective experiences by examining their variability in the angles of the emotion circumplex (Kuppens et al., 2007). Given that people with high affect spin tend to react strongly to events in their environment (Ram & Gerstorf, 2009), affect spin can be regarded as a manifestation of affective system that is hypersensitive to positive and negative events (Beal & Ghandour, 2011). In this study, we use the reverse function of affect spin, that is, affect stability, to identify a predictor that enhances employee creativity than one that suppresses it.

Affect stability and creativity

The consideration of dynamic temporal fluctuations of affective experiences is particularly important for understanding creativity in the workplace. Individuals with high affect spin undergo high variability in their affective experiences because they are sensitive to various social and environmental events (Ram & Gerstorf, 2009). This tendency of overreaction and volatile affective states introduce unpredictability and the accompanying burden of emotion regulation needed to maintain psychological adaptability and stay within socially accepted emotion norms (Uy et al., 2017). That is, high affect spin redirects psychological resources to emotion regulation and depletes psychological resources (Beal et al., 2013). This situation leads to reduced effort and cognitive withdrawal, which is particularly problematic for creative performance that requires alteration of extant practices and exploration of novel solutions (Richels et al., 2020).

Given such resource deprivation by affect spin that may generate a resource conservation tendency (Hobfoll et al., 2018; Sung et al., 2020), employees can deploy sufficient resources to task performance only when their affective experiences are stable (Thomas & Lankau, 2009). In addition, owing to negative expectations or unpredictability of the future, individuals with affect spin have difficulty in maintaining effort levels particularly in complex performance situations (Richels et al., 2020). Creative performance is a form of discretionary, proactive, and risk-taking endeavour that requires persistent efforts and consumes considerable resources (Li et al., 2020). Accordingly, employees may explore new ideas and experiment with new methods when their affective experiences are stable, which inoculates them from mental fatigue and exhaustion of psychological resources. These arguments lead to the following hypothesis.

Hypothesis 1. Affect stability positively relates to employee creativity.

Work-related positive affect as a mediating mechanism

To further clarify the resource-based account of the relationship between affect stability and creativity, we specify what resources are involved as an intervening mechanism of the

given relationship. Related to this question, we draw on Clark et al. (2018) who found that day-level affect spin is negatively related to citizenship behaviour, and the relationship was mediated by a lower level of daily pleasant mood. Considering that affect spin depletes psychological resources to hinder a person's engagement in creative problem-solving, we focus on work-related positive affect that enables passionate engagement as a mediating psychological mechanism.

On the basis of the COR and JD–R models, we propose that affect stability promotes work-related positive affect because it conserves mental resources needed for developing and maintaining positive energies targeted towards one's task. Affect spin represents unstable and inconsistent experiences that are inherently taxing and distressing because it deters the basic needs for self-consistency and predictability of subjective experiences (Kuppens et al., 2007). Individuals with high affect spin tend to be sensitive to various social and task-related events and thus face constant pressure to deal with resulting emotional turmoil (Clark et al., 2018). Such overreaction tendency may distract employees from their tasks and further diminish mental resources (Beal & Ghandour, 2011). Previous empirical findings are in line with this expectation that affect stability positively relates to psychological wellbeing and positive moods (Clark et al., 2018). In this study, we focus on positive affect targeted at one's task, which promotes passionate and persistent task engagement. Affect stability may prevent the depletion of psychological resources and resulting fatigue, thereby securing positive and proactive energy towards one's task (Uy et al., 2017). Therefore, we expect that affect stability conserves psychological resources for employees to fulfill task demands and exhibit positive affect towards their tasks (Demerouti et al., 2001).

Hypothesis 2. Affect stability positively relates to work-related positive affect.

We further advance that affect stability exerts an indirect effect on creativity by promoting work-related positive affect. Positive affect forms a favourable condition for creativity because it promotes intrinsic motivation and optimistic pursuit of risky ideas (De Dreu et al., 2008; Hwang & Choi, 2020). Work-related positive affect is a crucial element of intrinsic task motivation that is characterized by enjoyment and passion towards a task (Grant & Berry, 2011). Intrinsically motivated employees feel enthusiasm and enjoy complex, challenging, and unfamiliar task situations (Grant & Berry, 2011). Thus, as an internal psychological resource, work-related positive affect promotes employee motivation to actively scan the work environment for opportunities and experiment with new methods spontaneously (Dong et al., 2017).

In addition, positive affect promotes cognitive flexibility that leads to uncommon perspectives, inclusive thinking, and frequent switches among several categories (De Dreu et al., 2008). Positive affect broadens one's focus of attention and expands the repertoires of thought and action (Fredrickson, 2004). Accordingly, work-related positive affect will provide psychological resources, mobilizing further cognitive activities that are directly relevant to creativity (i.e., resource caravan, Hobfoll et al., 2018). In sum, task-focused positive affect such as being interested, enjoyment, and curiosity about one's task incurs cognitive flexibility, openness to complexity, and the will to take risks, thereby facilitating access to and exploration of unconventional ideas (Amabile et al., 2005; Reiter-Palmon & Illies, 2004). Therefore, we propose that work-related positive affect may be a reason that affect stability promotes creativity.

Hypothesis 3. Work-related positive affect mediates the relationship between affect stability and employee creativity.

Knowledge sharing as a moderating contingency

To explore a potential boundary condition, we further elaborate that the indirect effect of affect stability on creativity via work-related positive affect may vary depending on the level of knowledge sharing. Similar to the synergistic interaction between internal self-efficacy and external efficacy based on social support (Eden et al., 2010), we propose that the internal psychological processes driven by affect stability and work-related positive affect towards creativity may necessitate external resources and support from other members (Sung et al., 2020). In organizations, creativity is inherently a social process and employees may encounter difficulties in performing creatively if they fail to obtain social support and resources from their supervisors and colleagues (Perry-Smith & Mannucci, 2017).

The lack of external social resources may repudiate the indirect effect of affect stability on creativity via work-related positive affect. To explore this possibility, we focus on knowledge sharing, which is a critical social exchange process initiated by employees to secure external resources needed for creative idea generation (Dong et al., 2017). Knowledge sharing refers to "the individual behavior of sharing organizationally relevant information, ideas, suggestions, and expertise with one another" (Bartol and Srivastava, 2002, p. 65). Knowledge sharing initiates positive social exchanges such that when individuals share their knowledge, their colleagues may reciprocate, and thus they receive knowledge, information, and ideas from others in return (Rhee & Choi, 2017). Hence, knowledge sharing contributes to creativity by developing and maintaining knowledge flow and social support conducive to creative idea generation (Dong et al., 2017). In addition, the positive social and informational relationships will galvanize the value of work-related positive affect towards creativity. Without such social support and external resources, the benefit of proactive task engagement based on work-related positive affect may be limited (Eden et al., 2010). Thus, we submit that knowledge sharing accentuates the positive indirect effect of affect stability on creativity through its moderation of the relationships between work-related positive affect and creativity (i.e., second-stage moderated mediation).

Hypothesis 4. Knowledge sharing moderates the relationship between affect stability and employee creativity mediated by work-related positive affect, such that the mediated relationship is more positive when knowledge sharing is high than low.

Method

Participants and procedure

We collected data from a company that developed educational materials located in Kaifeng, China. This company encouraged employees to continually develop new approaches and create online and offline content to improve educational experiences and performance of students in various subjects, such as science, language, mathematics, and history. This company underscored the value of generating new content and innovative approaches to lead the education industry. All employees including rank-and-file and managerial ranks were involved actively and directly in developing and refining their products and services. All data collection procedures were consistent with the ethical guidelines of the university where the current study was conducted. All participants were informed of the voluntary nature of their participation and were assured of the confidentiality and anonymity of their participation and responses.

With the agreement and collaboration of the HR director, we created a WeChat (i.e., a social network service) group and invited employees to join the group. We provided information such as the research purpose, survey schedule, and incentives for participation and invited employees to participate. Of the 342 employees who joined the WeChat group, 258 employees responded to the survey at Time 1, in which they were asked to report control variables.

In the ESM-based daily survey at Time 2, the participating employees were invited to respond to short surveys twice a day in consecutive 10 business days over 2 weeks. At 12:00, 17:00 on each day, employees received the following message: "Please open this weblink and complete the survey within 2 hours. It would take 2–3 minutes to finish. This survey link will expire after 2 hours." Of 258 employees who responded to the Time 1 survey, 192 initially participated in the daily survey at Time 2, but 43 of them withdrew during the 10-day ESM-based daily survey procedure. Accordingly, 149 employees reported their emotional experiences, resulting in 1,747 observations that were used to calculate affect stability.

All the 149 employees who completed the baseline survey at Time 1 and the ESM daily surveys at Time 2 also participated in Time 3 data collection (10 days after Time 2), in which they reported work-related positive affect and knowledge sharing. At Time 4 (10 days after Time 3), the supervisors of these 149 employees rated the creativity of the participating employees. We matched data over multiple waves and supervisor ratings using WeChat nicknames of participants and the last four digits of their mobile phone numbers.

The final analysis sample included 149 employee–supervisor dyad data. Of 149 employees, 124 (83.2%) were female with an average age of 29.10 years (SD = 4.15) and an average tenure of 5.15 years (SD = 4.10). Their education levels were two-year college degree (.7%), bachelor's degree (63.1%), and graduate degree (36.2%). The employee sample reported the following hierarchical positions: staff (34.2%), assistant manager (45.6%), manager (16.1%), and general manager (4.1%). The current sample also included 25 supervisors, of which 19 (76.0%) were female with an average age of 38.48 years (SD = 3.84) and an average tenure of 13.20 years (SD = 2.61). The education levels of supervisors were two-year college degree (8.0%), bachelor's degree (84.0%), and graduate degree (8.0%).

Measures

All the scales were originally constructed in English and translated into Chinese following Brislin's (1986) recommended back-translation procedure.

Affect stability (T2)

We used ESM and followed the procedure recommended by previous research to assess and calculate affect spin (Jung et al., 2015). Daily affective states were assessed using the 16 items from the Core Affect Scale (Kuppens et al., 2007), which include positive activating affect (i.e., enthusiastic, happy, excited, and proud), positive deactivating affect (i.e., relaxed, calm, peaceful, and satisfied), negative activating affect (i.e., stressed, nervous, upset, and tense), and negative deactivating affect (i.e., depressed, bored, sad, and disappointed). Participants rated the extent to which they experienced various emotions and feelings "right now" on a 7-point Likert-type scale (1 = *not at all*, 7 = *strongly*). To compute the affected spin, we used the formula that taps into the extent to which participants' affective experiences move around the four quadrants according to the valence and the activation of their affect (Kuppens et al., 2007). Then, we obtained the affect stability score for each participant by reversing the affect spin score to make a high score represents stability rather than variability over time.

Work-related positive affect (T3)

We adopted the four-item scale developed by Guay et al. (2000) to assess work-related positive affect of participants. The items are "I work or engage in my task activities because (1) I think that the activity is interesting, (2) I feel good when doing the activity, (3) I think that the task activity is pleasant, and (4) the activity is fun for me." Although this scale was originally developed to assess intrinsic task motivation on the basis of enjoyment and pleasure of performing a given task, the items mostly evaluate a person's positive affect towards his/her task. The response format was a 7-point Likert scale ranging from 1 (*strongly disagree*) to 7 (*strongly agree*). The Cronbach's alpha for this scale was .95.

Knowledge sharing (T3)

We used the four-item scale developed and validated by Rhee and Choi (2017) to measure knowledge sharing. Before participants report their knowledge sharing behaviour, they read the following instruction: "*Knowledge refers to certain fact, experience, information, and technology that can be earned through education, learning, mastery, and experience. Please think of recent interactions with co-workers who requested your knowledge and how you responded to them*." Participants rated the following items (α = .78) on a 7-point Likert-type scale: (a) "I answered all my coworkers' questions immediately," (b) "I told my coworkers exactly what they needed to know," (c) "I looked into the request to make sure my answers were accurate," and (d) "I explained everything thoroughly to my coworkers."

Creativity (T4)

We measured employee creativity using the five-item scale (α = .92) developed by Sung et al. (2017). Sample items include "This employee suggests new ways of performing work in a proactive manner" and "This employee suggests creative ideas in an independent and proactive manner." Supervisors rated these items on a 7-point Likert-type scale (1 = *strongly disagree*, 7 = *strongly agree*).

Control variables (T1)

In accordance with the recommendation for control variables (Bernerth and Aguinis, 2016), the present analysis included demographic variables, such as gender, education, and hierarchical position, to reduce the possibility of confounding results in the relationships between focal variables and creativity. We also controlled creative self-efficacy because it was identified as a significant individual characteristic relevant to creativity (Malik, Butt and Choi, 2015). Creative self-efficacy was assessed by a five-item scale (α = .92) (Malik et al., 2015). A sample item is "When I am confronted with a problem, I usually find several solutions."

Data analysis

To test current hypotheses involving direct, indirect, and conditional indirect effects of affect stability, we applied a bootstrapping procedure with all control variables as covariates (Preacher et al., 2007). By examining indirect effects composed of a series of direct relationships, researchers recommended bootstrapped resampling method to enhance power and reduce Type I error (MacKinnon et al., 2004). In this procedure, we computed the bias-corrected 95% confidence intervals of indirect and conditional indirect effects on the basis of 2,000 bootstrapped samples. If the 95% confidence interval of the upper and lower limits of the given coefficient do not include 0; then, the effect is ensured at the significance level of .05 (Edwards & Lambert, 2007).

Results

We performed a confirmatory factor analysis to examine the validity of the measures used in this study. The hypothesized three-factor model exhibited a good fit to the data (χ^2 [51] = 88.11, p < .001; CFI = .97, TLI = .96, RMSEA = .05). In addition, the hypothesized measurement model was significantly better (all χ^2 difference tests, p < .01) than alternative models, such as a two-factor model (χ^2[53] = 178.00, p < .001; CFI = .91, TLI = .86, RMSEA = .09) or a single-factor model (χ^2 [54] = 769.46, p < .001; CFI = .46, TLI = .22, RMSEA = .22). These results indicate the discriminant validity of the current measures. We presented the means, standard deviations, and correlations of the study variables in Table 1.

Table 1. Descriptive Statistics and Bivariate Correlations.

	Mean	*SD*	1	2	3	4	5	6	7	8
1. Gender[a]	.83	.38	-							
2. Education[b]	4.36	.49	.11	-						
3. Hierarchical position[c]	2.00	1.17	.05	−.06	-					
4. Creative self-efficacy	5.47	.88	−.07	.07	.04	-				
5. Affect stability	4.48	.38	.05	−.02	−.08	.17*	-			
6. Positive affect	5.25	1.06	.04	.00	−.07	.30**	.22**	-		
7. Knowledge sharing	5.41	.91	−.09	−.13	.10	.20**	.04	.41**	-	
8. Creativity	4.74	1.05	−.07	.05	.02	.02	.09	.22**	.04	-

Note. *p < .05. **p < .01; [a] 0 = male, 1 = female; [b] 1 = below high school, 2 = high school, 3 = two-year college degree, 4 = undergraduate degree, 5 = graduate degree; [c] 1 = staff, 2 = assistant manager, 3 = manager, 4 = deputy general manager, 5 = general manager.

Effect of affect stability and the mediation by work-related positive affect

In Hypothesis 1, we proposed that affect stability is a positive predictor of creativity. We also suggested that affect stability positively relates to work-related positive affect (Hypothesis 2), which mediates the relationship between affect stability and creativity (Hypothesis 3). We conducted bootstrapping analyses with 2,000 iterations including all control variables as covariates to test these direct and indirect effects.

As reported in Table 2, the relationship between affect stability and employee creativity is not significant. Thus, Hypothesis 1 was not supported. The relationship between affect stability and work-related positive affect is significant and positive, thereby supporting Hypothesis 2. In addition, work-related positive affect exerts a significant positive effect on employee creativity.[1]

The analysis results shown in Table 2 confirmed Hypothesis 3: the indirect effect of affect stability on employee creativity via work-related positive affect is statistically significant because the lower and upper limits of the bootstrapped confidence interval did not include 0 (MacKinnon et al., 2004).

Mediation moderated by knowledge sharing

Hypothesis 4 proposed that knowledge sharing moderates the indirect relationship between affect stability and creativity

Table 2. Direct and Indirect Effects of Affect Stability.

Direct effect			Indirect effect			
				Point estimate	95% CI	
	B	*SE*			Lower	Upper
AS → Creativity	.15	.23	AS → PA → Creativity	**.10**	**.01**	**.31**
AS → PA	**.45***	**.22**				
PA → Creativity	**.23***	**.09**				

Note. AS = affect stability; PA = work-related positive affect; bold figures denote statistically significant effects.
*p < .05.

Table 3. Hierarchical Linear Modelling for Testing Moderation by Knowledge Sharing.

	Outcome: Creativity		
	Model 1	Model 2	Model 3
Step 1			
Gender	−.24	−.28	−.25
Education	.18	.18	.17
Hierarchical positions	.04	.05	.06
Creative self-efficacy	.03	−.07	−.11
Step 2			
Work-related positive affect (PA)		.15†	.14*
Knowledge sharing (KS)		−.04	−.05
Step 3			
PA × KS			.17*
Pseudo R^2		.04	.03

Note. †$p < .10$; *$p < .05$.

mediated by work-related positive affect. To test this second-stage moderated mediation hypothesis, we first checked the significance of direct moderation as recommended by Edwards and Lambert (2007). The moderating role of knowledge sharing of the relationship between work-related positive affect and employee creativity was tested by using hierarchical linear modelling analysis. In Step 1, we entered control variables such as creative self-efficacy and demographic variables including gender, education, and hierarchical positions. In Steps 2 and 3, we entered the main effects and the product of the mean-centred work-related positive affect and knowledge sharing, respectively.

As reported in Model 3 of Table 3, the product of work-related positive affect and knowledge sharing is significantly related to employee creativity. We further verified if this significant interaction effect was aligned to the expected pattern by conducting a simple slope analysis (Preacher et al., 2007). As displayed in Figure 2, work-related positive affect has a stronger relationship with creativity when knowledge sharing is high (+1 *SD*) rather than low (−1 *SD*). The simple slope at +1 *SD* of knowledge sharing is stronger and significant ($B = .38$, $SE = .15$, $t = 2.29$, $p < .05$) than that at −1 *SD* of knowledge sharing ($B = -.06$, $SE = .16$, $t = -.39$, $p > .05$). These patterns are consistent with our theoretical expectation of the synergistic interaction between internal psychological and external social resources.

To test the overall moderated mediation relationship, we compared conditional indirect effects of affect stability on employee creativity through work-related positive affect at different levels of knowledge sharing. Table 4 presents the results of the analysis with 2,000 bootstrapped resamples to estimate 95% confidence intervals around the conditional indirect effects (Preacher et al., 2007). The conditional indirect effect of affect stability on creativity is statistically significant when knowledge sharing is at high or medium levels, but it becomes insignificant when knowledge sharing is low (see Table 4). Thus, Hypothesis 4 was supported.

Discussion

Complementing the affect–creativity literature largely focused on the valence of affect (George & Zhou, 2007; Hwang & Choi, 2020; To et al., 2015), the current study highlights the significance of affect variability reflecting fluctuating levels of valence and activation in explaining employee creativity. Drawing on COR and JD–R models, we theorize and empirically validate

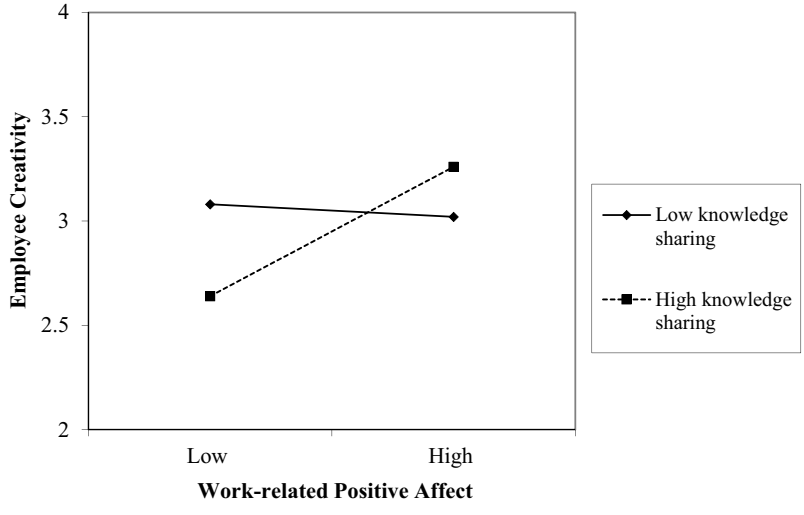

Figure 2. Moderating effect of knowledge sharing on the relationship between work-related positive affect and employee creativity.

Table 4. Conditional Indirect Effects at Different Levels of Knowledge Sharing.

Independent Variable	Mediator	Moderator	Level	Outcome Variable	Indirect effect	Boot-strapped SE	95% CI Lower	Upper
Affect Stability	Work-related Positive Affect	Knowledge Sharing	Low	Employee Creativity	.04	.06	−.03	.24
			Medium		**.11**	**.08**	**.01**	**.32**
			High		**.19**	**.12**	**.02**	**.51**

Note. Bold figures denote statistically significant effects.

that affect stability contributes to employee creativity by enhancing their work-related positive affect. Our analysis further demonstrates that increasing levels of knowledge sharing accentuates the positive indirect effect of affect stability on creativity. In this section, we discuss the theoretical and practical implications of the study along with its limitations and directions for further research.

Temporal variability perspective on affect

Previous attempts to integrate varying affective states tend to resort to average or typical affective experiences and fail to address the dynamic nature of affect (Bledow et al., 2013). The present study addressed this limitation in the affect–creativity literature by drawing on the notion of affect spin, which is known as a representative and comprehensive approach to capture affect variability over time (Kuppens et al., 2007). Affect spin denotes how fast individuals shift from one point to another in the emotion circumplex represented by valence and activation dimensions (Ram & Gerstorf, 2009). The emerging literature on affect spin indicates its costs to psychological functioning and adjustment of individuals, resulting in resource depletion (Jung et al., 2015; Uy et al., 2017). Accordingly, we conceive of affect stability as an asset for employees that enables them to perform creatively by preventing the depletion and distraction of psychological resources. In doing so, the current approach complements the extant literature on affect and creativity.

Resource-based processes of affect stability towards creativity

Confirming our application of COR theory (Hobfoll et al., 2018) and JD–R model (Demerouti et al., 2001), the current analysis demonstrates the significance of stable affective experiences in the workplace for employees to properly channel their mental resources and wield them for proactive task engagement. Consistent with previous studies (Beal et al., 2013; Clark et al., 2018; Jung et al., 2015; Uy et al., 2017), the results affirm detrimental functions of affect spin towards employees' positive affect towards their task and creative performance.

However, the direct effect of affect stability on creativity was not statistically significant. Perhaps, the current resource-based approach missed potential alternative mechanisms that could tap into the disadvantages of affect stability for creativity, thereby cancelling out its resource-related benefits. One such possibility involves potential cognitive disadvantages accompanying (overly) stable affective experiences across time (cf. affective ambivalence, Fong, 2006). Recently, Clark et al. (2018) speculated that affect spin may implicate varying and potentially rich emotions and moods that diversify cognitive processes and thus enhance unconventional combinations of ideas. In this respect, the cognitive implications of affective states and variability over time need to be considered to develop a comprehensive understanding of their effects on creativity. Given that divergent thinking is a significant driver of creativity (Reiter-Palmon & Illies, 2004), creativity can positively relate to affect spin rather than affect stability because the former provides divergent affective experiences. Affect spin may still expose people to diverse affective experiences and stimulate heterogeneous thought processes conducive to creativity (Dong et al., 2017). Further research may explore these alternative possibilities.

Knowledge sharing and social underpinnings of creativity in organizations

The significant indirect effect of affect stability on creativity via work-related positive affect highlights the function of internal, psychological processes towards creativity. The present study further elaborates on the often neglected social component by examining the moderating effect of knowledge sharing (Perry-Smith & Mannucci, 2017). The JD–R model considers social support an important resource that influences one's capacity to meet job demands (Thomas & Lankau, 2009). For example, supervisory support and coaching or support and recognition of colleagues comprise important job resources needed for creativity (Hobfoll et al., 2018). Without the adequate procurement of social resources, internal psychological processes per se may not lead to creative performance (Eden et al., 2010). The present analysis confirmed that the positive indirect effect of affect stability on creativity disappears when knowledge sharing is low, and the effect becomes larger and more significant with the increasing levels of knowledge sharing. The current findings underscore the need for considering both internal psychological resources and external social resources to understand creativity in organizations.

Figure 2 shows an interesting and unexpected pattern in our analysis of the direct moderation. The relationship between work-related positive affect and creativity is significant and positive only when knowledge sharing is high; thus, creativity is at the highest when both positive affect and knowledge sharing are high. However, creativity is at the lowest when knowledge sharing is high and work-related positive affect is low. We speculate that the positive affect of employees towards different elements comprising the workplace underpins this unexpected pattern. When employees feel positive towards others or work in a group with a positive affective tone (i.e., willingly sharing knowledge) but lack interest or passion towards the task itself (i.e., low work-related positive affect), they may be unlikely to generate and present creative ideas that may discomfort others (Hwang & Choi, 2020). When high positive affect towards a group is combined with low positive affect towards a task, employees are eager to maintain social harmony and gain social approval from other members. This condition impairs their willingness to take risks and present novel ideas consistent with their low intrinsic motivation and deficient enthusiasm towards the task. Accordingly, the unexpected interaction pattern observed in our analysis indicates the possibility that positive affect towards different workplace elements may interact and work together to exert an overarching effect of employee behaviour (cf. positive and negative leader affect; Martinko et al., 2018). This speculation presents an intriguing direction for theorizing the interactive functions of positive affect on the basis of various workplace characteristics in predicting employee creativity.[2]

Practical implications

Practical implications can be drawn from the current findings. First, managers may develop organizational settings with stable social–emotional contexts for employees (Weiss & Cropanzano, 1996). To improve employee performance, managers can help employees avoid emotional "rollercoasters" in the workplace, which distract employees and deplete their psychological resources. To this end, managers may buffer their team and employees from severe challenges and shocking events from the environment (boundary buffering, Perry-Smith & Mannucci, 2017). In workplaces with rapid environmental and technological changes, work situations allowing affective stability are becoming increasingly rare, which appears to be a dilemma considering increasing demands for creativity. Oftentimes, managers themselves could be the cause of high affect spin of employees owing to their interpersonal and/or leadership styles. Organizations may recruit and train managers so that they can nurture affectively safe and stable work environments.

Second, organizations may also select and train employees who can stay "cool" and avoid affect spin according to their personal qualities. Organizations may assess emotion–regulation capability, emotional intelligence, and social competence of job applicants and train employees to enhance these emotion management skills (Ashkanasy, 2003). These interpersonal skills and stress-coping skills may buffer employees from extreme ups and downs in their affective experiences (Beal & Ghandour, 2011). Individuals who can avoid such resource depletion make creative contributions through their extra task resources.

Third, organizations should encourage knowledge sharing through communication norms, incentive structure, and leader behaviour. Generating new ideas is often the outcomes of novel synthesizing of different perspectives and approaches, which may result from social interactions (Perry-Smith & Mannucci, 2017). Nevertheless, knowledge sharing represents a paradigmatic social dilemma situation that can undermine the interest of the focal knowledge contributor (Cabrera and Cabrera, 2002). Considering the discretionary nature and associated social risks of being exploited by others (Rhee & Choi, 2017), organizations need to implement interventions that address such risks and urge employees to volunteer their knowledge to supply external social support and resources to one another.

Limitations and future research directions

Like all research, we acknowledge that our study has limitations. In the following we discuss three such instances. First, the present analysis could benefit from including emotional stability (or neuroticism) as a control variable. Kuppens et al. (2007) reported a positive association between neuroticism and affect spin, although the two constructs should be distinguished. Emotional stability (or neuroticism) assessed by personality scales does not reflect the temporal variation of affect, particularly the changing levels of activation. Despite the conceptual difference between the two constructs, future research might control emotional stability or compare disparate effects of the two and further enhance the validity of analysis results (for an alternative recommendation, see Spector et al., 2000). The use of different measurement approaches may also reduce the potential problem of common method variance, which could occur in some of the self-reported variables used in this study.

Second, the current finding that work-related positive affect mediates the relationship between affect stability and creativity can be limiting in that this study did not include other potential mediating mechanisms. As discussed earlier, cognitive processes such as divergent thinking and cognitive flexibility may form a positive path between affect spin and creativity. In this respect, one limitation of affect spin is its non-directional nature based on circular standard deviation in the emotion circumplex (Kuppens et al., 2007). Apparently, the move from neutral to positive affect and the move from neutral to negative affect may have distinct implications for creativity, even though they may represent the same degree of affect spin. In the current ESM data of 20 affect reports over 2 weeks may represent the overall variability of affective experiences that may represent different directions of changes in the valence and activation of affective experiences. To investigate the directional effect of affect change or switch, future research may examine the day-level affect spin such as the change between morning and afternoon, on creativity evaluated for the same day.

Finally, this study calculated affect stability using the 10-day ESM data. This measurement span provides a relatively short period to capture individual differences in the variability of affective experiences. For this reason, the current measure of affect stability reflected the affect-generating situations in the workplace to a certain degree and a focal person's trait-like sensitivity to affective events (Weiss & Cropanzano, 1996). Accordingly, future research may extend the data collection duration to detect the effects of dispositional affect stability or control the influences of the frequent and dynamic affect-laden events by adopting quasi-experimental procedures (Russell & Carroll, 1999).

Despite these limitations, the current analysis provides new insights into the affect and creativity literature by investigating the role of temporal variability of affective experiences. Beyond the present theorizing based on COR and JD–R models, further elaborations on the cognitive implications of affect variability should reveal the function of dynamic affective experiences towards employee creativity. Future research efforts should be directed to elaborate the potential of reinforcing, complementary, or mutually adjusting interactive relationships between internal psychological mechanisms and external social functions to enhance creativity in organizations. Such efforts may specify how affect stability generates internal and external resources that are conducive to employee creativity.

Notes

1. We performed the same hypothesis-testing analysis including the four scales (positive activating, positive deactivating, negative activating, and negative deactivating affect) as covariates along with the other controls. The direct, indirect, and conditional indirect effects of affect stability on creativity became statistically insignificant perhaps owing to statistical suppression in that we computed affect spin based on the four comprising affect scales. Perhaps for this reason, in the extant studies, the four affect scales were not

included as controls or covariates when testing the effects of affect spin (Beal et al., 2013; Clark et al., 2018; Jung et al., 2015; Richels et al., 2020; Uy et al., 2017). We followed this practice and did not include the four affect scales in our analysis.

2. We appreciate the anonymous reviewers and the Editor for their insightful suggestions regarding these theoretical possibilities.

Disclosure statement

No potential conflict of interest was reported by the author(s).

Funding

This work was supported by the Institute of Industrial Relations, Seoul National University.

ORCID

In-Jo Park http://orcid.org/0000-0001-5493-3824
Jin Nam Choi http://orcid.org/0000-0001-7890-3195

References

Amabile, T. M., Barsade, S. G., Mueller, J. S., & Staw, B. M. (2005). Affect and creativity at work. *Administrative Science Quarterly*, *50*(3), 367–403. https://doi.org/10.2189/asqu.2005.50.3.367

Anderson, N., Potočnik, K., & Zhou, J. (2014). Innovation and creativity in organizations: A state-of-the-science review, prospective commentary, and guiding framework. *Journal of Management*, *40*(5), 1297–1333. https://doi.org/10.1177/0149206314527128

Ashkanasy, N. M. (2003). Emotions in organizations: A multilevel perspective. In F. Dansereau & F. J. Yammarino (Eds.), *Research in multi-level issues (Vol. 2): Multi-level issues in organizational behavior and strategy* (pp. 9–54). Emerald.

Bartol, K. M., & Srivastava, A. (2002). Encouraging Knowledge Sharing: The Role of Organizational Reward Systems. Journal of Leadership & Organizational Studies, 9(1), 64–76. https://doi.org/10.1177/107179190200900105

Beal, D. J., & Ghandour, L. (2011). Stability, change, and the stability of change in daily workplace affect. *Journal of Organizational Behavior*, *32* (4), 526–546. https://doi.org/10.1002/job.713

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*(4), 593. https://doi.org/10.1037/a0032559

Bernerth, J. B., & Aguinis, H. (2016). A Critical Review and Best-Practice Recommendations for Control Variable Usage. Personnel Psychology, 69 (1), 229–283. https://doi.org/10.1111/peps.12103

Bledow, R., Rosing, K., & Frese, M. (2013). A dynamic perspective on affect and creativity. *Academy of Management Journal*, *56*(2), 432–450. https://doi.org/10.5465/amj.2010.0894

Brislin, R. W. (1986). The wording and translation of research instruments. In W. J. Lonner & J. W. Berry (Eds.), Field methods in cross-cultural research (pp. 137–164). Sage

Cabrera, A., & Cabrera, E. F. (2002). Knowledge-sharing dilemmas. Organization studies, 23(5), 687–710. https://doi.org/10.1177/0170840602235001

Clark, M. A., Robertson, M. M., & Carter, N. T. (2018). You spin me right round: A within-person examination of affect spin and voluntary work behavior. *Journal of Management*, *44*(8), 3176–3199. https://doi.org/10.1177/0149206316662315

De Dreu, C. K., Baas, M., & Nijstad, B. A. (2008). Hedonic tone and activation level in the mood-creativity link: Toward a dual pathway to creativity model. *Journal of Personality and Social Psychology*, *94*(5), 739. https://doi.org/10.1037/0022-3514.94.5.739

Demerouti, E., Bakker, A. B., Nachreiner, F., & Schaufeli, W. B. (2001). The job demands-resources model of burnout. *Journal of Applied Psychology*, *86* (3), 499. https://doi.org/10.1037/0021-9010.86.3.499

Dong, Y., Bartol, K. M., Zhang, Z. X., & Li, C. (2017). Enhancing employee creativity via individual skill development and team knowledge sharing: Influences of dual-focused transformational leadership. *Journal of Organizational Behavior*, *38*(3), 439–458. https://doi.org/10.1002/job.2134

Eden, D., Ganzach, Y., Flumin-Granat, R., & Zigman, T. (2010). Augmenting means efficacy to boost performance: Two field experiments. *Journal of Management*, *36*(3), 687–713. https://doi.org/10.1177/0149206308321553

Edwards, J. R., & Lambert, L. S. (2007). Methods for integrating moderation and mediation: A general analytical framework using moderated path analysis. *Psychological Methods*, *12*(1), 1–22. https://doi.org/10.1037/1082-989X.12.1.1

Fong, C. T. (2006). The effects of emotional ambivalence on creativity. *Academy of Management Journal*, *49*(5), 1016–1030. https://doi.org/10.5465/amj.2006.22798182

Fredrickson, B. L. (2004). The broaden–and–build theory of positive emotions. *Philosophical Transactions of the Royal Society of London. Series B: Biological Sciences*, *359*(1449), 1367–1377. https://doi.org/10.1098/rstb.2004.1512

George, J. M., & Zhou, J. (2007). Dual tuning in a supportive context: Joint contributions of positive mood, negative mood, and supervisory behaviors to employee creativity. *Academy of Management Journal*, *50*(3), 605–622. https://doi.org/10.5465/amj.2007.25525934

Grant, A. M., & Berry, J. W. (2011). The necessity of others is the mother of invention: Intrinsic and prosocial motivations, perspective taking, and creativity. *Academy of Management Journal*, *54*(1), 73–96. https://doi.org/10.5465/amj.2011.59215085

Guay, F., Vallerand, R. J., & Blanchard, C. (2000). On the assessment of situational intrinsic and extrinsic motivation: The Situational Motivation Scale (SIMS). *Motivation and Emotion*, *24*(3), 175–213. https://doi.org/10.1023/A:1005614228250

Hobfoll, S. E., Halbesleben, J., Neveu, J.-P., & Westman, M. (2018). Conservation of resources in the organizational context: The reality of resources and their consequences. *Annual Review of Organizational Psychology and Organizational Behavior*, *5*(1), 103–128. https://doi.org/10.1146/annurev-orgpsych-032117-104640

Hwang, T. J., & Choi, J. N. (2020). Different moods lead to different creativity: Mediating roles of ambiguity tolerance and team identification. *Creativity Research Journal*, *32*(2), 161–173. https://doi.org/10.1080/10400419.2020.1751542

Jung, H., Park, I. J., & Rie, J. (2015). Future time perspective and career decisions: The moderating effects of affect spin. *Journal of Vocational Behavior*, *89*, 46–55. https://doi.org/10.1016/j.jvb.2015.04.010

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*(2), 262. https://doi.org/10.1037/1528-3542.7.2.262

Li, F., Chen, T., Chen, N. Y.-F., Bai, Y., & Crant, J. M. (2020). Proactive yet reflective? Materializing proactive personality into creativity through job reflective learning and activated positive affective states. Personnel Psychology, 73(3), 459–489. https://doi.org/10.1111/peps.12370

MacKinnon, D. P., Lockwood, C. M., & Williams, J. (2004). Confidence limits for the indirect effect: Distribution of the product and resampling methods. *Multivariate Behavioral Research*, *39*(1), 99–128. https://doi.org/10.1207/s15327906mbr3901_4

Malik, M. A. R., Butt, A. N., & Choi, J. N. (2015). Rewards and employee creative performance: Moderating effects of creative self-efficacy, reward importance, and locus of control. Journal of Organizational Behavior, 36(1), 59–74. https://doi.org/10.1002/job.1943

Martinko, M. J., Mackey, J. D., Moss, S. E., Harvey, P., McAllister, C. P., & Brees, J. R. (2018). An exploration of the role of subordinate affect in leader evaluations. *Journal of Applied Psychology*, *103*(7), 738–752. https://doi.org/10.1037/apl0000302

Perry-Smith, J. E., & Mannucci, P. V. (2017). From creativity to innovation: The social network drivers of the four phases of the idea journal. *Academy of Management Review*, *42*(1), 53–79. https://doi.org/10.5465/amr.2014.0462

Preacher, K. J., Rucker, D. D., & Hayes, A. F. (2007). Addressing moderated mediation hypotheses: Theory, methods, and prescriptions. *Multivariate*

Behavioral Research, *42*(1), 185–227. https://doi.org/10.1080/00273170701341316

Ram, N., & Gerstorf, D. (2009). Time-structured and net intraindividual variability: Tools for examining the development of dynamic characteristics and processes. *Psychology and Aging*, *24*(4), 778. https://doi.org/10.1037/a0017915

Reiter-Palmon, R., & Illies, J. J. (2004). Leadership and creativity: Understanding leadership from a creative problem-solving perspective. *The Leadership Quarterly*, *15*(1), 55–77. https://doi.org/10.1016/j.leaqua.2003.12.005

Rhee, Y. W., & Choi, J. N. (2017). Knowledge management behavior and individual creativity: Goal orientations as antecedents and in-group social status as moderating contingency. *Journal of Organizational Behavior*, *38*(6), 813–832. https://doi.org/10.1002/job.2168

Richels, K. A., Day, E. A., Jorgensen, A. G., & Huck, J. T. (2020). Keeping Calm and Carrying On: Relating Affect Spin and Pulse to Complex Skill Acquisition and Adaptive Performance. *Frontiers in Psychology*, *11*, 377. https://doi.org/10.3389/fpsyg.2020.00377

Russell, J. A., & Carroll, J. M. (1999). On the bipolarity of positive and negative affect. *Psychological Bulletin*, *125*(1), 3–30. https://doi.org/10.1037/0033-2909.125.1.3

Spector, P. E., Zapf, D., Chen, P. Y., & Frese, M. (2000). Why negative affectivity should not be controlled in job stress research: Don't throw out the baby with the bath water. *Journal of Organizational Behavior*, *21*(1), 79–95. http://3.0.CO;2-Ghttps://doi.org/10.1002/(SICI)1099-1379(200002)21:1<79::AID-JOB964>3.0.CO;2-G

Sung, S. Y., Antefelt, A., & Choi, J. N. (2017). Dual effects of job complexity on proactive and responsive creativity: Moderating role of employee ambiguity tolerance. *Group & Organization Management*, *42*(3), 388–418. https://doi.org/10.1177/1059601115619081

Sung, S. Y., Rhee, Y. W., Lee, J. E., & Choi, J. N. (2020). Dual pathways of emotional competence towards incremental and radical creativity: Resource caravans through feedback-seeking frequency and breadth. *European Journal of Work and Organizational Psychology*, *29*(3), 421–433. https://doi.org/10.1080/1359432X.2020.1718654

Thomas, C. H., & Lankau, M. J. (2009). Preventing burnout: The effects of LMX and mentoring on socialization, role stress, and burnout. *Human Resource Management*, *48*(3), 417–432. https://doi.org/10.1002/hrm.20288

To, M. L., Fisher, C. D., & Ashkanasy, N. M. (2015). Unleashing angst: Negative mood, learning goal orientation, psychological empowerment and creative behaviour. *Human Relations*, *68*(10), 1601–1622. https://doi.org/10.1177/0018726714562235

Uy, M. A., Sun, S., & Foo, M. D. (2017). Affect spin, entrepreneurs' well-being, and venture goal progress: The moderating role of goal orientation. *Journal of Business Venturing*, *32*(4), 443–460. https://doi.org/10.1016/j.jbusvent.2016.12.001

Watson, D., & Tellegen, A. (1999). Issues in the dimensional structure of affect-Effects of descriptors, measurement error, and response formats: comment on Russell and Carroll (1999). *Psychological Bulletin*, *125*(5), 601–610. https://doi.org/10.1037/0033-2909.125.5.601

Weiss, H. M., & Cropanzano, R. (1996). Affective events theory: A theoretical discussion of the structure, causes and consequences of affective experiences at work.