RESEARCH REPORT

Negative Core Affect and Employee Silence: How Differences in Activation, Cognitive Rumination, and Problem-Solving Demands Matter

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Employees can help to improve organizational performance by sharing ideas, suggestions, or concerns about practices, but sometimes they keep silent because of the experience of negative affect. Drawing and expanding on this stream of research, this article builds a theoretical rationale based on core affect and cognitive appraisal theories to describe how differences in affect activation and boundary conditions associated with cognitive rumination and cognitive problem-solving demands can explain employee silence. Results of a diary study conducted with professionals from diverse organizations indicated that within-person low-activated negative core affect increased employee silence when, as an invariant factor, cognitive rumination was high. Furthermore, within-person high-activated negative core affect decreased employee silence when, as an invariant factor, cognitive problem-solving demand was high. Thus, organizations should manage conditions to reduce experiences of low-activated negative core affect because these feelings increase silence in individuals high in rumination. In turn, effective management of experiences of high-activated negative core affect can reduce silence for individuals working under high problem-solving demand situations.

Keywords: employee silence, core affect, cognitive appraisal, rumination, cognitive problem-solving demands

In today's dynamic organizational environment, many organizations encourage their employees to come forward with ideas and proposals that may help realize performance improvements. Employees in diverse roles often confront problems armed with information and ideas that promote better decision making and facilitate solutions to problems before they escalate (Detert & Edmondson, 2011; Morrison, 2011). However, organizational members sometimes keep silent, withholding concerns about practices that hamper performance or ideas that might improve procedures and outcomes. This behavioral process, labeled *employee silence* (Brinsfield, Edwards, & Greenberg, 2009; Pinder & Harlos, 2001), has become a central topic of study in organizational behavior research (Morrison, 2014; Morrison & Milliken, 2000; Van Dyne, Ang, & Botero, 2003).

Previous research suggests contextual factors like unsupportive leadership and adverse group climate, as well as individual vari-

ables such as limited self-efficacy and the experience of negative affect play an important role in predicting employee silence (Edwards, Ashkanasy, & Gardner, 2009; Harvey, Martinko, & Douglas, 2009; Morrison, 2011, 2014). With a focus on affect, studies on fear, shame and regret have improved our understanding of affective processes underlying employee silence, showing that these discrete emotions can directly inhibit speaking up with ideas (Edwards et al., 2009; Harvey et al., 2009; Kish-Gephart, Detert, Trevino, & Edmondson, 2009). For example, research on fear has proposed that feeling afraid about supervisor reactions might increase upward silence from employees (Detert & Edmondson, 2011; Kish-Gephart et al., 2009; Morrison, 2014). The discrete emotions described in preceding text primarily represent high-activated negative affective states involving greater energy expenditure (Yik, Russell & Steiger, 2011) than low-activated affective states. Thus, a challenge of research on affect and silence is to address the possible function of differences in affective activation for negative affect, considering also negative feelings low in activation (e.g., despondency, dejection and depression).

Furthermore, because the experience of discrete emotions necessarily involves an affective reaction toward a specific object (e.g., fear toward a supervisor) explaining primarily behavior toward the same object, an important question is whether more generalized, rather than discrete, negative affective states also play a role in explaining silence behavior, not only toward one individ-

ual, but also in relation to the workplace as a whole. This approach acknowledges that generalized negative affective states are frequently experienced at work and can be triggered by job characteristics/demands, such as workload, time pressures, and role ambiguity (Pejtersen, Kristensen, Borg et al., 2010). It also acknowledges that communicating ideas and concerns is not limited to an upward process of communication from employees to supervisors. Employee silence also can be a behavior oriented to the workplace as a whole, as sharing ideas and information is also part of interpersonal actions underlying the development of, for example, citizenship and innovation behavior (Axtell et al., 2000; Kanter, 1988; Podsakoff, MacKenzie, Paine, et al., 2000).

Finally, affect and silence research has concentrated on direct influences of negative affect on silence (cf. Morrison, 2014) and important moderators have not yet been detected. Researchers need to identify possible moderators, such as individual differences and contextual conditions, to enhance our understanding of the boundary conditions for the effects of negative affect on withholding of ideas and information at work.

To broaden knowledge about affective experience and silence at work, we build a theoretical rationale based on core affect and cognitive appraisal theories (Lazarus, 2001; Russell, 2003), arguing that negative affect has the potential of both decreasing and increasing silence in relation to any relevant person in the workplace, depending on affect activation, cognitive rumination, and cognitive problem-solving demands. This was tested and supported using a diary study and multilevel analysis (Bolger, Davis, & Rafaeli, 2003) in which silence was understood as a dynamic behavioral process.

Low-Activated Negative Core Affect and Employee Silence

Core affect is "that neurophysiological state consciously accessible as the simplest raw (nonreflective) feelings evident in moods and emotions," being "primitive, universal, and simple (irreducible on the mental plane)" (Russell, 2003; p. 148). Differences in affective valence and activation describe core affect (Russell, 2003; Russell & Barrett, 1999). Valence denotes variation in the pleasure–displeasure continuum (positive–negative), whereas activation implies differences in energy expenditure and action readiness (activated–deactivated). The combination of these dimensions describes four main types of core affect: (1) high-activated positive, (2) low-activated positive, (3) high-activated negative, and (4) low-activated negative (Bindl, Parker, Totterdell, & Hagger-Johnson, 2012; Warr, Bindl, Parker, & Inceoglu, 2014; Yik, Russell & Steiger, 2011). As such, core affect theory has come to help deal with the relevant and frequently asked question of what is affect (Russell, 2003), highlighting that most affective experiences can be meaningfully understood in terms of valence and activation. Moreover, core affect represents the basic component for the construction of more complex psychological processes, such as reasoning, memory, attitudes, and action (Forgas, 1995; Russell, 2003; Watson, 2000). Thus, core affect is also valuable in understanding job-related cognition and behavior (Seo et al., 2010; Warr et al., 2014).

With a focus on unpleasant experiences, low-activated negative core affect denotes unpleasant feelings with limited energy expenditure, such as dejection, disappointment, and depression (Warr,

2007). This affective state has the informative function of signaling to individuals that something is wrong in their lives (cf. Martin & Stoner, 1996). For example, low-activated negative core affect is experienced when it is not possible for individuals to achieve goals or satisfy relevant desires (Gable & Harmon-Jones, 2010; Treynor, Gonzalez, & Nolen-Hoeksema, 2003). As a result, low-activated negative core affect leads to introspection on the "internal world" and broadened cognition denoting reflection about sources of disappointment. Furthermore, in behavioral terms, it implies a lack of vitality, apathy, disengagement with the environment and acquiescent behavior (Frijda, 1986; Verhaeghen et al., 2005) that, after failing to achieve a desired outcome, helps the recovery of psychological resources (Gable & Harmon-Jones, 2010; Klinger, 1975; von Hecker & Meiser, 2005). Accordingly, previous research has shown that employees in low-activated negative affect are more prone to withdrawal, dissatisfaction, and increased turnover intentions (Warr, 1999, 2007; Warr et al., 2014). So, a positive relationship should be expected between low-activated negative core affect and silence. Communicating ideas or information relating to enhancing working conditions requires thinking about improvement opportunities and engaging in interpersonal behavior. Yet, these cognitive and behavioral processes would be dampened by high reflection around the sources of displeasure and lack of energy for interpersonal engagement associated with low-activated negative feelings.

Hypothesis 1: Low-activated negative core affect will be positively related to employee silence.

We now turn to consider the boundary conditions that might influence the strength of the relationship between low-activated core affect and employee silence. From the self-regulation literature in general and cognitive appraisal perspective in particular, influences of core affect on silence might depend on evaluations that individuals make about what can be done with the feelings experienced (Lazarus & Folkman, 1984). According to cognitive appraisal theory (Lazarus, 2001), the elicitation of an affective experience depends on *primary appraisals*, which denotes the relevance that an affective event has for the individual, expressed in questions such as, "Are any of my core beliefs involved in this event?" Then, once the affective experience has emerged, a *secondary appraisal process* unfolds in which individuals develop expectations about the possible outcomes of the affective situation, facing questions such as, "Do I need to act? What might be the consequences of acting or not acting?" Resolution of these appraisal processes is dependent on individual dispositions and situational constraints or opportunities (Lazarus, 2001).

A series of individual variables has been identified in the literature as participating in self-regulation once affect has been experienced (Carver & Connor-Smith, 2010; Carver, Scheier, & Weintraub, 1989; Gross & Thompson, 2007). One that emerges as relevant to understanding the consequences of low-activated negative affect is cognitive rumination. This is a style of coping characterized by repetitively thinking about low-activated negative feelings, and involves excessive worrying about the meaning of negative affect and behavioral passiveness, making individuals focused on their internal world (Nolen-Hoeksema, Parker, & Larson, 1994; Nolen-Hoeksema, 2000). As such, cognitive rumination denotes an individual difference in the propensity to ruminate over

time (Nolen-Hoeksema, Parker, & Larson, 1994), although rumination has also been understood as a psychological state (Verhaeghen, Joorman, & Khan, 2005). We adopted the former conceptualization to focus on whether coping styles are involved in the association of negative affect with silence.

Cognitive rumination is highly relevant for understanding the possible consequences of low-activated negative feelings, because it represents a response style that sustains the experience of this kind of affect over longer periods of time (Nolen-Hoeksema, Parker, & Larson, 1994). Furthermore, when low-activated negative is experienced, rumination leads to negative thoughts, such as limited self-efficacy and beliefs that support from others is unavailable to help cope with negative feelings (Abramson, Alloy, & Metalsky, 1989; Lyubomirsky, Caldwell, & Nolen-Hoeksema, 1998; Lyubomirsky & Nolen-Hoeksema, 1993, 1995; Pyszczynski, Holt, & Greenberg, 1987). Rumination also involves poor concentration, a sense of uncertainty, hesitation and little control of events, leading therefore to poor problem solving actions (Nolen-Hoeksema, 2000; Nolen-Hoeksema, Larson, & Grayson, 1999; Nolen-Hoeksema, Parker, & Larson, 1994). As such, from a cognitive appraisal approach, rumination would facilitate a dysfunctional secondary appraisal process when experiencing low-activated negative core affect increasing employee silence. This synergetic process would lead individuals to concentrate on their negative affect and thoughts rather than on active behavior. Contrariwise, the association between low-activated negative core affect and silence would be weaker when employees are low in rumination, because they are less affected by dysfunctional repetitive and passive reflection.

Hypothesis 2: The positive relationship between low-activated negative core affect and employee silence will be moderated by rumination, such that this relationship will be stronger when rumination is high than when rumination is low.

High-Activated Negative Core Affect and Employee Silence

High-activated negative core affect denotes unpleasant feelings involving great energy expenditure (e.g., tension, anxiety, distress; Warr, 2007). This affective state also signals that something is problematic in an individual's life. But, instead of being triggered by a lack of opportunities for achieving goals, high-activated negative core affect is associated with the presence of threats in the environment (Watson, 2000). In this scenario, individuals are more focused on the "external world," experiencing high sensitivity to potential hazards. Thus, high-activated negative core affect is associated with narrow cognitive processes so that individuals manage options to cope with risks (Clore, Schwartz, & Conway, 1994; Schwarz & Clore, 2003). Attentional focus increases, while convergent information processing is carried out so as to avoid undesirable outcomes (Gable & Harmon-Jones, 2010; Watson, Wiese, Vaidya, & Tellegen, 1999). In behavioral terms, energy provided by this affective state increases action readiness, which generally leads to active behavioral withdrawal to protect well-being (Carver & White, 1994). Thus, a positive relationship is expected between high-activated negative core affect and silence. Sharing ideas and information is often experienced as a risky behavior because it might "rock the boat" in the workplace by

challenging the status quo (Yuan & Woodman, 2010). Accordingly, when employees experience high-activated negative affect this sense of risk and its cognitive correlates are heightened, so increasing the likelihood of silence.

Hypothesis 3: High-activated negative core affect will be positively related to employee silence.

Despite this proposed direct effect, there are diverse theoretical reasons to argue that the relationship between high-activated negative core affect and silence is more complex. Increased attentional focus, convergent information processing and high energy expenditure associated with this sort of affect leads to flight when facing conditions seen as very adverse and unmanageable, but the same psychological processes might motivate individuals to persevere in reaching an effective solution when contextual conditions are seen as tough but controllable (Gable & Harmon-Jones, 2008, 2010; Russell, 2003). This is congruent with cognitive appraisal theory which proposes that sense of control is relevant to understanding evaluations that individuals make about their feelings and the actions they take (Lazarus & Folkman, 1984), and that this sense of control is explained in part by the context in which individuals are performing (Lazarus, 2001). In a similar way, recent psychological research has supported the idea that contextual factors might be relevant in regulating affect, after years of research concentrating on individual skills as drivers of self-regulation (Troy, Shallcross, & Mauss, 2013).

In the workplace, sense of control is frequently conceptualized as opportunities for job autonomy (Hackman & Oldham, 1980; Karasek, 1979). Yet, cognitive problem-solving demands is another job characteristic that might be relevant for sense of control. This denotes a job situation requiring individuals to diagnose and solve difficult problems and to prevent and recover errors (Wall et al., 1990). It involves active cognitive processing (Perrow, 1967; Wall, Jackson, & Mullarkey, 1995; Zhou, Hirst, & Shipton, 2012), together with the expression of a proactive role orientation and decision latitude to deal with challenge at work (Frese, Garst & Fay, 2007; Grant & Parker, 2009). Thus, depending on its level, problem-solving demands might act as situational opportunity or constraint when experiencing high-activated negative affect, because this job feature can be associated with a sense of challenge, control and responsibility (Cavanaugh, Boswell, Roehling, & Boudreau, 2000).

More specifically, we draw on cognitive appraisal theory proposing that employee silence would be explained as a joint function between high-activated negative core affect and cognitive problem-solving demands. High-activated negative core affect would decrease employee silence when problem-solving demands are high, because in this scenario a challenge appraisal would emerge increasing an individual's willingness to act on obstacles faced at work (Lazarus, 2001). This appraisal would be associated with a heightening concern about effectiveness and a sense of control and responsibility for work performance, together with increasing attentional focus, convergent thinking, and active tendencies to share and discuss performance concerns with others at work (Cavanaugh et al., 2000; Grant & Parker, 2009). Conversely, high-activated negative core affect would increase silence when problem-solving demands is low, since an appraisal of challenge, responsibility and control is limited in this case, stifling active

suggestion of ideas and information sharing even when employees have identified issues that might hamper performance.

Hypothesis 4: The relationship between high-activated negative core affect and employee silence will be moderated by problem-solving demands, such that this relationship will be negative for individuals working under high problem-solving demands but positive for individuals working under low problem-solving demands.

Method

To test our hypotheses, we conducted a diary study, where core affect and silence were operationalized as constructs varying daily, whereas rumination and problem-solving demands were time-invariant constructs. Participants were 44 professionals employed in different companies in Chile, who attended a part-time MBA program offered by one of the major universities in this country, and they were told that the study addressed the relationship between job-related attitudes and behavior. Participants provided 342 observations of core affect and silent behavior nested in 9 waves. Participants were 81.8% male, the average age was 35.09 years ($SD = 5.56$) and the average organizational tenure was 5.71 years ($SD = 5.26$). The occupations of participants were as follows: business/management (36%), civil engineer (46%), and other occupation (18%). At the time of the Study 29% of participants worked as professional staff with no supervisory roles, 32% were supervisors or team leaders, and 39% worked as executive managers. Finally, participants were members of organizations within the services (77%), manufacturing (16%) and other (7%) economic sectors.

Measures

Employee silence was measured with four items from Detert and Edmondson's (2011) silence scale, but the boss was not specified as a target to operationalize silence in relation to the workplace as a whole. Low-activated negative and high-activated negative affect were measured with eight items developed by Warr et al. (2014). Rumination was measured with the ruminative reflection scale developed by Treynor, Gonzalez and Nolen-Hoeksema (2003), and problem-solving demands was measured with the scale developed by Wall, Jackson, Mullarkey, and Parker (1996). The full list of items is available in the appendix. Consistent with previous research on voice and silence at work (Morrison, 2011) we considered gender, age and organizational tenure of the participants as possible control variables to account for potential confounding effects. Finally, to control for potential time serial dependence and monotonic time trend of employee silence over waves of data, -1 lagged factor of silence measures and the linear time index variable were included in all analyses (Singer & Willett, 2003).

Procedure

In a first step, participants responded to a paper-based questionnaire about demographics, rumination and problem-solving demands. Starting the following week, participants responded to a daily Internet-based questionnaire about their core affect and silence every afternoon at work, on Monday, Wednesday, and Fri-

day over a period of three weeks. Previous research has supported the validity of affect measured on a daily basis (Ohly, Sonnentag, Niessen, & Zapf, 2010); but, to the best of out knowledge, the rate of fluctuation in employee silence has not been examined in the literature. We propose that silence also varies on a daily basis, because individuals could identify issues and opportunities for improvement throughout their everyday activities. Data were collected only three times a week following the advice of the MBA Program Administration, in terms of disturbing the regular work activities of participants as little as possible.

Analytical Strategy

We tested the robustness of the measurement model described by within-person measures of silence and negative affect with multilevel confirmatory analyses. The three-factor solution defined by silence, low-activated negative affect, and high-activated negative affect showed appropriate goodness-of-fit, $\chi^2 = 122.28$, $df = 51$, $p = .00$ (RMSEA = .06; SRMR = .04; CFI = .94; TLI = .93). Then, we tested a two-factor model described by silence and a general factor of negative affect where items of negative valence with both low and high activation were loaded together. This strategy allowed us to examine whether low-activated and high-activated negative core affect represent distinct constructs or the same construct. Results showed poor goodness-of-fit, $\chi^2 = 343.63$, $df = 53$, $p = .00$ (RMSEA = .13; SRMR = .08; CFI = .76; TLI = .71), which was also very limited compared with the three-factor model originally proposed, $\Delta\chi^2(2) = 221.35$, $p < .01$. Next, because this study relied on self-reported measures of employee silence, we conducted the Harman's test to examine common-method variance threats (Podsakoff et al., 2003). The single-factor model loading all the measures of silence and negative affect showed very poor goodness-of-fit, $\chi^2 = 800.78$, $df = 54$, $p = .00$ (RMSEA = .20; SRMR = .17; CFI = .39; TLI = .26). Thus, common method variance did not represent a major threat in data modeling.

We tested our hypotheses using a two-level hierarchical linear model through HLM7 (Raudenbush, Bryk, & Congdon, 2011). At Level 1, we defined silence and core affect (time-variant constructs), whereas rumination and problem-solving demand (time-invariant constructs) were defined at level-2. Analyses of the within and between variance components from the null models (Hox, 2010) indicated that silence varied 57% over time. Similar results were observed for low-activated negative core affect (58%) and high-activated negative core affect (54%). These findings supported the nested structure of the data, as well as silence and core affect as substantively fluctuating over days. Thus, the multilevel approach was fully justified. We tested all hypotheses using random intercept and slope models. Core affect was person-mean centered, whereas Level-2 predictors grand-mean centered with the aim to interpret each effect in their respective level (Hox, 2010).

Results

Means, standard deviations, correlations and reliabilities of the variables are summarized in Table 1. Participants' demographics variables were not included as control variables in the subsequent analyses, because they were not substantially related to the core variables of the tested models.

Table 1
Means, Standard Deviations, and Correlations

Variable	M	SD	1	2	3	4	5	6	7	8	9
1. Gender	1.18	0.39	—								
2. Age	35.09	5.56	−.12*	—							
3. Organizational tenure	5.71	5.26	−.14**	.57**	—						
4. Rumination	2.93	0.74	−.10	−.10*	−.18**	(.80)					
5. Problem-solving demands	4.02	0.78	−.12*	.18**	−.10	.30**	(.87)				
6. Low-activated negative core affect	1.94	0.93	.13*	.05	.09	.29**	.06	(.87)		.18**	.06
7. High-activated negative core affect	2.44	0.85	.00	−.01	−.03	.24**	.14*	.34**	(.85)		.02
8. Silence	2.34	1.01	.13*	.10	.01	.09	−.05	.50**	.16**	(.93)	−.14*
9. Voice	3.18	0.84	−.04	−.04	.00	−.01	.07	−.31**	−.04	−.42**	(.79)

Note. Within–subjects correlations are shown over the diagonal, and between-subjects correlations are presented below the diagonal. Reliabilities are parenthesized and in bold in the diagonal.
* $p < .05$. ** $p < .01$.

Results in Table 2 showed a nonsignificant relationship between low-activated negative core affect and silence ($b = .18$, $SE = .10$, $p = .08$); thus, Hypothesis 1 was not supported. However, the random slope between within-subjects low-activated negative core affect and silence showed significant residual variance, supporting the possibility of a cross-level moderation ($\sigma^2 = .16$, $p < .01$). Thus, we introduced between-subjects rumination as a predictor of this random slope, observing a positive effect ($b = .25$, $SE = .11$, $p < .05$). Figure 1 plots this interaction indicating, as expected, a positive and strong link between low-activated negative core affect and silence when rumination is high, but a weak link when rumination is low. The simple slope test corroborated these results, indicating that the relationship between low-activated negative core affect and silence is positive and significant when rumination is high ($+1$ SD, $b = .36$, $p < .01$), but close to zero and nonsignificant when rumination is low (-1 SD, $b = -.02$, $p > .05$). Therefore, Hypothesis 2 was supported.

Results also showed a nonsignificant relationship between high-activated negative core affect and silence ($b = -.05$, $SE = .09$, $p = .54$); thus, Hypothesis 3 was not supported. Nevertheless, the random slope between within-subjects low-activated negative core affect and silence had significant residual variance ($\sigma^2 = .06$, $p < .01$), indicating a likelihood of a cross-level moderation. Thus, we introduced between-subjects problem-solving demand as a predictor of this random slope, and observed a negative and significant effect ($b = -.18$, $SE = .07$, $p < .01$). As expected, Figure 2 showed a negative association between high-activated negative core affect and silence when problem-solving demand is high, and a slightly positive relationship when problem-solving demand is low. The simple slope test showed that the relationship between high-activated negative core affect and silence is negative and significant when problem-solving demand is high ($+1$ SD, $b = -.23$, $p = .07$)[1], but positive and nonsignificant when problem-solving demand is low (-1 SD, $b = .05$, $p > .05$). Therefore, Hypothesis 4 was partially supported because the negative effect expected between high-activated negative core affect and silence was observed, whereas the positive effect for the same variables was not observed under conditions of high and low demands respectively.

Post Hoc Analyses

Additional analyses (see Table 3) were conducted to contribute to the debate on whether silence and voice are the end points of the

same continuum (Morrison, 2011), and therefore we also tested the interaction effects in relation to employee voice. The latter was measured with three items adapted from Van Dyne & LePine & (1998). Results did not support the interaction effect between low-activated negative core affect and rumination on voice ($b = -.11$, $SE = .12$, $p > .05$), nor the interaction effect between high-activated negative core affect and problem-solving demand on voice ($b = .24$, $SE = .13$, $p = .07$).

Two additional models (final columns of Tables 2 and 3) that included the two-way interaction terms between all the variables involved in predicting silence and voice were conducted, to determine the robustness of the results previously observed. Results remained substantially the same, supporting the interaction between low-activated negative affect and rumination on silence ($b = .30$, $SE = .14$, $p < .05$) and the interaction between high-activated negative affect and problem-solving demands on silence ($b = -.13$, $SE = .07$, $p = .07$). Furthermore, the interactions between low-activated negative affect and rumination on voice ($b = -.11$, $SE = .13$, $p > .05$) and the interaction between high-activated negative affect and problem-solving demands on the same outcome ($b = .23$, $SE = .17$, $p > .05$) were not supported.

Discussion

In this article, we discussed and found support for negative core affect as a relevant antecedent for both increasing or decreasing employee silence, depending on affective activation, as well as rumination and problem-solving demands as boundary conditions. Accordingly, low-activated negative core affect has the potential to increase withholding information and ideas at work, as they enhance reflection over behavior, consuming psychological resources needed for task performance and participating in social interaction with others at work (cf. Hobfoll, 1989). Yet, this effect was only found for individuals high in rumination. These findings highlight that processes of appraisal would be highly relevant to understanding the implications of affective influences on behavior, because rumination can engender self-regulation expressed in exacerbated concern with, and focus on, negative feelings. Going further, the dynamics unfold-

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[1] The statistical significance was slightly higher than $p = .05$ for this slope, but was significant at .10, which was most likely due to statistical power issues caused by the limited number of observation at the Level-2 analysis.

Table 2

Multilevel Modeling for Employee Silence, Low-Activated Negative Core Affect, High-Activated Negative Core Affect, Rumination, and Problem-Solving Demands

Estimate	Model 1	Model 2	Model 3	Model 4	Model 5
Intercept	2.28 (.13)**	2.28 (.13)**	2.28 (.13)**	2.28 (.13)**	2.28 (.13)**
Level-1 variable					
Time index	−.02 (.02)	−.03 (.02)†	−.03 (.02)†	−.03 (.02)†	−.03 (.02)†
Lagged silence $(t − 1)$	−.17 (.06)**	−.14 (.05)*	−.14 (.05)*	−.15 (.06)*	−.15 (.06)*
Low-activated negative core affect		.18 (.10)†	.18 (.10)†	.17 (.10)†	.16 (.10)
High-activated negative core affect		−.05 (.09)	−.05 (.09)	−.09 (.09)	−.06 (.08)
Residual variance Level 1	.36	.27	.27	.27	.27
Level-2 variable					
Rumination			.01 (.16)	.02 (.16)	.04 (.16)
Problem-solving demands			.01 (.12)	.07 (.12)	.04 (.12)
Residual variance Level 2	.70	.72	.72	.73	.72
Interaction Terms					
Low-activated negative core affect × Rumination				.25 (.11)*	.30 (.14)*
High-activated negative core affect × Problem-solving demands				−.18 (.07)**	−.13 (.07)†
Low-activated negative core affect × Problem-solving demands					−.05 (.06)
High-activated negative core affect × Rumination					−.13 (.14)
Residual variance slope low-activated negative core affect and silence			.16**	.15**	.13**
Residual variance slope high-activated negative core affect and silence			.06**	.05*	.05*
Simple slope tests					
Low-activated negative core affect and silence [−/+1 *SD*]				[−.02, .36*]	
Low-activated negative core affect and silence [−/+1 *SD*]				[.05, −.23†]	
Deviance	594.31	566.81	566.79	561.71	560.65

Note. Unstandardized estimates. Standard errors are parenthesized.
† *p* < .10. * *p* < .05. ** *p* < .01.

ing between low-activated negative core affect, rumination and silence seems to essentially pertain to the internal realm of individuals. Whatever are the causes of low-activated negative core affect (e.g., receiving bad news), when employees experience feelings of depression, dejection, despondency and hopelessness and they are highly ruminative, a deep process of introspective reflection and behavioral disengagement could happen, reducing active behavior such as sharing ideas and information.

High-activated negative core affect has the potential to reduce silence; although, this effect was conditional on high levels of job complexity. When problem-solving demands are increased, a challenge appraisal would unfold highlighting a sense of responsibility and control, which together with narrow cognition increases awareness about possible obstacles to developing improved performance. Furthermore, activation offers readiness to actively in-

teract with others and share ideas to deal with problems that might hamper effectiveness. However, when problem-solving demands are low, even when employees have identified some issues psychological processes embedded in high-activated negative core affect may lie dormant in reducing silence, since individuals feel less liable to share and communicate their ideas. Overall, in contrast to low-activated negative core affect, negative feelings high in activation seem to be displayed in the external domain of individuals, because they dispose employees to action, reducing silence, instead of increasing introversion and passiveness.

It is interesting to note that post hoc analyses indicated that neither rumination nor problem-solving demands interact with negative affect in predicting employee voice. This contributes to the organizational behavior literature by suggesting that silence and voice are not necessarily the ends of the same continuum
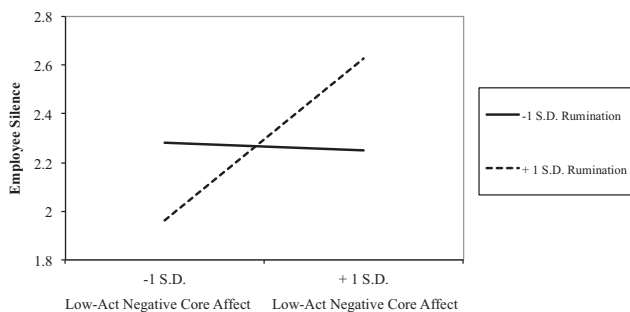

Figure 1. Interactive effect between low-activated negative core affect and rumination on employee silence.
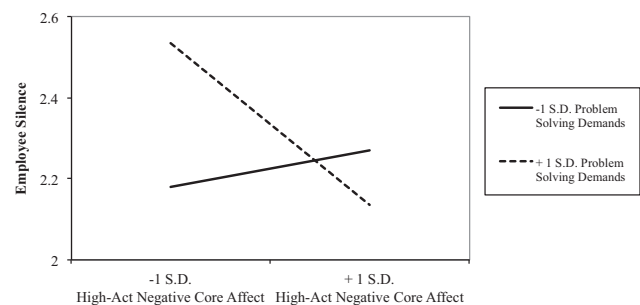

Figure 2. Interactive effect between high-activated negative core affect and problem-solving demand on employee silence.

Table 3

Multilevel Modeling for Employee Voice, Low-Activated Negative Core Affect, High-Activated Negative Core Affect, Rumination, and Problem-Solving Demands

Estimate	Model 6	Model 7	Model 8	Model 9	Model 10
Intercept	3.14 (.10)**	3.14 (.10)**	3.14 (.10)**	3.14 (.10)**	3.14 (.10)**
Level-1 variable					
Time index	−.02 (.02)	−.02 (.02)	−.02 (.02)	−.01 (.02)	−.02 (.02)
Lagged voice ($t − 1$)	−.09 (.05)†	−.09 (.06)†	−.09 (.05)†	−.09 (.06)	−.09 (.06)
Low-activated negative core affect		−.11 (.07)	−.11 (.07)	−.13 (.07)†	−.13 (.07)†
High-activated negative core affect		−.05 (.11)	−.05 (.11)	−.01 (.10)	−.02 (.09)
Residual variance Level 1	.30	.22	.22	.22	.22
Level 2 variable					
Rumination			−.19 (.11)†	−.18 (.11)	−.18 (.11)
Problem-solving demands			.15 (.12)	.14 (.12)	.15 (.12)
Residual variance Level 2	.35	.36	.37	.36	.36
Interaction terms					
Low-activated negative core affect × Rumination				−.11 (.12)	−.11 (.13)
High-activated negative core affect × Problem-solving demands				.24 (.13)†	.23 (.17)
Low-activated negative core affect × Problem-solving demands					−.04 (.07)
High-activated negative core affect × Rumination					.11 (.14)
Residual variance slope low-activated negative core affect and voice			.02	.01	.01
Residual variance slope high-activated negative core affect and voice			.25**	.17*	.17*
Deviance	540.01	513.40	510.81	506.40	505.64

Note. Unstandardized estimates. Standard errors are in parentheses.
† $p < .10$. * $p < .05$. ** $p < .01$.

(Morrison, 2011), which is also supported by the small within-subjects correlation of −.14 between these constructs. We believe this is feasible because some individuals could voice some ideas in an acquiescent fashion that appear to be relevant on the surface while, at the same time, they could silence ideas considered as challenging or confrontational. Moreover, since voice is widely acknowledged as a kind of proactive behavior (Parker & Collins, 2010), it is relevant to discuss whether silence represents a form of proactivity as well. Even when individuals might develop an active silence based on their self-initiative due to, for example, pursuing a political agenda, we believe that silence is a process of disengagement substantially explained by the experience of limited energy and disinterest about the past and the present at work. The latter is incompatible with the idea of proactivity, since proactivity involves greater levels of high-activated positive affect and future envisioning to realize changes at work (Bindl et al., 2012).

An important issue is the integration of our findings with previous research on negative affect and silence. Theory and empirical evidence from this study highlight the relevance of accounting for differences in activation of affect. To date, most studies in organizational behavior in general and employee silence in particular have been mainly limited to negative feelings high in activation (Morrison, 2014; Seo, Barrett, & Sirkwoo, 2008). This approach has proved useful, but is incomplete, because it does not consider the processes embedded in low-activated feelings (Ekkekakis, 2013; Russell & Carroll, 1999). Therefore, as Russell (2003) suggests and we tested, the adoption of core affect theory provides a comprehensive approach to the consequences of affect of the same valence but with different degrees of activation on cognition and behavior at work.

Furthermore, previous studies have proposed that discrete emotions denoting high-activated negative core affect, such as fear,

shame and regret, tend to increase silence directly (Morrison, 2014). Discrete emotions represent complex affective phenomena, compared with core affect, involving psychological construction around a specific target and situation, which increases the specificity of discrete emotions effects. For example, feeling afraid about supervisor reactions has the potential of increasing upward silence from employees (Detert & Edmondson, 2011; Kish-Gephart et al., 2009; Morrison, 2014). Consistent with the emerging interest and effort to deal with bandwidth-fidelity issues in organizational behavior research (Judge & Kammeyer-Mueller, 2012), we argue the above approach as denoting an effort to describe narrower constructs stressing greater specificity in their associations, in other words, dealing with fidelity in the relationship between negative affect and silence. Even though this approach is very valuable in capturing specificity, it might be incomplete, neglecting complexities in the relationship between affect and silence. So, we provide a contribution to dealing with these issues by adopting a broader bandwidth approach by conceptualizing broader constructs covering wide-ranging characteristics. Specifically, we operationalize silence as oriented toward the work environment as a whole but not limiting this process to singular relationships between employees and their bosses, together with operationalizing affect as generalized states.

The approach that we propose takes into account that silence should not be only conceived as a upward communication-related process, because withholding ideas and information can be also part of the broader context (cf. Judge & Kammeyer-Mueller, 2012), for instance, when individuals face opportunities to promote and cross-fertilize ideas with colleagues or teammates as part of creativity and innovation endeavors (Axtell et al., 2000; Janssen, 2000; Kanter, 1988; West & Anderson, 1996; Zhou & George, 2001). In terms of the adoption of generalized negative affective states, this allowed us to

deal with differences in affective activation which can frequently be sparked by broader job demands such as workload, work pace and ambiguity (Pejtersen et al., 2010). The latter highlights that just as specific events are relevant to understanding discrete emotions (Weiss & Cropanzano, 1996), general characteristics of the workplace are relevant to generalized affect (Warr, 2007).

Consistent with our argumentation, adopting a broader bandwidth approach stresses that the association of negative affect with silence can be more complex than previous research has shown. The results of this study suggest that generalized low-activated negative affect can strongly increase silence when cognitive rumination is exacerbated. But perhaps the more notable result is that generalized high-activated negative affect can reduce silence when jobs are cognitively complex. The notion that high-activated negative discrete emotions (e.g., fear) increase pervasively employee silence is widely agreed in the relevant literature (Morrison, 2014). So, our finding that the opposite is true in conditions of high cognitive demand opens opportunities to talk about a consensus shift (Hollenbeck, 2008) when explaining how and when negative affect increases or reduces silence in organizations.

Another contribution of this article relates to the integration of core affect theory with cognitive appraisal theory to explain the proposed interaction effects. Traditionally, cognitive appraisal processes have been adopted to understand stress in general and discrete emotions in particular. Nevertheless, Lazarus (1994) highlighted that similar to acute emotions, generalized affective states "are brought about the way one appraises ongoing relationships with the environment" (p. 84), in particular in relation to issues that have major implications for one's life (e.g., occupational roles) rather than specific and contingent events. Thus, the theoretical integration offered here provides some basics for understanding the link between negative affect and silence as a "stress process," dealing with generalized negative affective states typically elicited by job demands (Pejtersen, Kristensen, Borg, & Bjorner, 2010). This is a valuable contribution taking in account that research on negative affect and silence has concentrated on a "conflict management approach" where relationships between employees and their supervisors are experienced with turmoil. However, in many cases employees might silence their ideas by way of experiencing low-activated negative affect explained by depletion of resources after coping with heavy demands. In other cases, as we showed, employees might reduce their silence by way of experiencing high-activated negative affect under challenging stressor conditions. Further research aimed at obtaining a deeper understanding of silence as resulting from stress processes will be very valuable.

Practical Implications

The findings of this study have important practical implications. First, to protect ruminative employees from experiencing low-activated negative core affect seems to be particularly important to reduce their silence. According to Warr (2007), the reduction of this kind of core affect is linked with the provision of stimulating work characteristics, such as opportunities for personal control, skill use and task variety. Furthermore, social support, and organizational factors such as justice, positive work climate and opportunities for career development also prevent the experience of low-activated negative core affect (Warr, 1999).

Second, even though the results of this study suggest that experiencing high-activated negative core affect is not necessarily detrimen-

tal for performance, we would not promote the active stimulation of this kind of affect. The continuous experience of negative feelings high in activation could have severe consequences for health and well-being (Quick & Tetrick, 2011). Despite this, high-activated negative core affect is part of reality for many people at work; thus, assuring certain level of job complexity at work seems to have a boosting effect when high-activated negative core affect is unavoidable. Nevertheless in addition to moderating the relationship of these feelings with job performance, problem-solving demands can trigger high-activated negative core affect (Karasek, 1979; Wall et al., 1996), so organizations should be careful when increasing job complexity at work. Another stream of action should be training employees to help them "read" and identify issues that sparked their affect at work. If actions adopted under high-activated negative core affect are based on information provided by these feelings, and are problem-focused and characterized by information interchange, then developed solutions have the potential to be more successful and may relieve negative feelings high in activation (Carver, Scheier, & Weintraub, 1989; Martin & Stoner, 1996). Finally, organizations should provide practical help (e.g., access to health programs) in dealing with potential harm for employee well-being, linked to the excessive exposure to feelings of tension, anxiety, worry and nervousness in complex jobs.

Limitations, Future Research, and Conclusion

In this study, we concentrated on low-activated and high-activated negative core affect operationalizing these variables in terms of depressive-related and anxious-related feelings respectively. However, other feelings with similar core affect, such as guilt, anger, unhappiness and boredom, could be related to understanding silence too. Further research should be helpful in providing a more complete picture of whether these different expressions of negative affect have incremental validity in predicting silence. Moreover, we focused on the relationship of negative core affect with employee silence, but we were unable to consider the factors that may cause these affective states. Therefore, the next step in this stream of research is exploring possible etiological factors of negative core affect in the context of silence, to build strategies to reduce withholding of ideas in organizations.

Furthermore, the hypotheses proposed here suggested a casual effect of negative core affect on silence; yet, this causality can only be theoretically inferred because of the survey design used. Future research should test the alternative causal relationship. Silencing ideas would represent an event at work that makes ruminative employees feel depressed, dejected, despondent and hopeless, because silence might denote that employees believe their ideas are not valued in their organizations. Similarly, silence in highly complex jobs might lead to less tension, anxiety, worry and nervousness because withholding ideas may protect employees from potential criticisms or negative evaluations of skeptical coworkers and supervisors.

To sum up, this article offers a broader and interactional approach to uncover the complexities between negative affect and silence at work. We hope that future research continues this endeavor to benefit theory and practice in organizational behavior.

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Appendix

Measures Included in the Study

Measures included in the study: Two independent research team members translated and back-translated between English and Spanish all the measures used in the study.

Employee Silence

Indicate your degree of agreement or disagreement with the following statements, considering the activities that you performed today (1 = *strongly disagree*; 5 = *strongly agree*):

1. I withheld ideas for changing inefficient work policies.

2. I kept ideas for developing new products or services to myself.

3. I did not speak up about difficulties caused by the way managers and subordinates interact.

4. I kept quiet about problems with daily routines that hamper performance.

Employee Voice

1. I made recommendations concerning issues that affect my work.

2. I communicated my opinions about work issues to others at work.

3. I spoke up with ideas for new projects or changes in procedures.

Job-Related Core Affect

Indicate the extent to which have you experienced the following feelings today (1 = *not at all*; 5 = *a great deal*):

Low-Activated Negative

1. Depressed

2. Dejected

3. Despondent

4. Hopeless

High-Activated Negative

1. Anxious

2. Tense

3. Worried

4. Nervous

Rumination

Please, indicate what you generally do when you feel sad, blue or depressed . . . (1 = *never*; 5 = *always*)

1. I analyze recent events to try to understand why I am depressed.

2. I go away by myself and think about why I feel this way.

3. I write down what I am thinking and analyze it.

4. I analyze my personality to try to understand why I am depressed.

5. I go someplace alone to think about my feelings.

(*Appendix continues*)

Job Complexity

Think about your job and indicate a response to the following statements . . . (1 = *not at all*; 5 = *a great deal*)

1. Are you required to deal with problems which are difficult to solve?

2. Do you have to solve problems which have no obvious correct answer?

3. Do you come across problems in your job you have not met before?

4. Do you need to use your knowledge of the work process to help prevent problems arising in your job?

5. Do the problems you deal with require a thorough understanding of the work process in your area?