Article:
Chen, L, Unsworth, K orcid.org/0000-0002-0826-7565, Zhang, L et al. (1 more author) (2023) The curvilinear effect of negative affect on voice behavior from the perspective of activation theory. Current Psychology, 42. pp. 27497-27515. ISSN 1046-1310

https://doi.org/10.1007/s12144-022-03853-x

The Curvilinear Effect of Negative Affect on Voice Behavior from the Perspective of Activation Theory

Abstract

Does negative affect help or hinder voice behavior? Research is increasingly highlighting the more complex effects of negative affect and we propose that its relationship with voice is similarly multifaceted. Drawing from activation theory, this paper argues that the relationship between negative affect and voice behavior is an inverted U-shape. Three studies are designed to test our hypotheses. At the between-person level, Studies 1 and 3 use employee-supervisor matched dyads (N = 209; N = 150; respectively) at two different time points. Study 2 collects 217 daily data points from 58 participants and tests the inverted U-shaped hypothesis at the within-person level. Findings from these studies provide support for our hypotheses that voice behavior is highest when employees experience moderate-level negative affect but that extremely high and low levels of negative affect hinder voice behavior. In study 3 we also found that the inverted U-shaped relationship between negative affect and voice behavior is only prominent when the need for change is higher. Our findings have implications in revealing the complex nature of negative affect in determining voice behavior.

Keywords: negative affect; voice behavior; inverted U-shape; activation theory; need for change

Introduction

The need for employees to voice their opinions, suggestions, and ideas in response to global challenges such as competition, climate change, and technological advancement is well recognized (e.g., Morrison, 2011; Griffin et al., 2007; Tangirala & Ramanujam, 2008). By voice behavior, we refer to a pro-organization behavior that expresses challenging and change-oriented ideas to improve organizational operations (Van Dyne & LePine, 1998). Because of the benefits of voice behavior (e.g., Chen & Hou, 2016; Weiss & Morrison, 2019; Zhou & George, 2001), scholars have worked hard to find contributing factors (e.g., Lebel, 2016; Li & Sun, 2015; Venkataramani et al., 2016). However, within this literature, we still do not fully understand the role of negative affect, which is a general dimension of subjective distress and unpleasurable engagement that subsumes a variety of aversive mood states including anger, fear, shame, nervousness, and scaredness (Watson et al., 1988, p. 1063). Although a meta-analysis identified a weak negative relationship between negative affect and voice behavior (Chamberlin et al., 2017) there are theoretical and empirical arguments for the opposing relationship (e.g., Tenhi¨al¨a & Lount, 2013) and, more troublingly, the majority of the research has found no significant relationship between negative affect and voice behavior (e.g., Detert & Edmondson, 2011; Liu et al., 2017; Madrid et al., 2015; Starzyk et al., 2018; Tangirala & Ramanujam, 2012; Venkataramani & Tangirala, 2010; Wang et al., 2018; Wayne et al., 2014).

Even the explanations for the empirical inconsistency regarding the relationship between negative affect and voice behavior have been inconsistent. Although they are all based on different discrete emotions creating different levels of voice behavior, one suggests that activated negative affect (e.g., frustration and anger) increases voice behavior (Hsiung & Tsai, 2017), one indicated that this same activated negative affect should narrow cognitive processes so that employees reduce voice (Madrid et al., 2015), and the third relies on differential associations with certain discrete negative emotions (Morrison, 2011; Peng et al., 2019; Liu et al., 2017). The first two approaches have had little empirical support (see Madrid et al., 2015) and while there is some empirical support for the last explanation (e.g., Kish-Gephart et al., 2009; Peng et al., 2019), there are still incongruent findings (e.g., Lebel, 2016; Peng et al., 2019; Wang et al., 2018).

We argue therefore that these previous explanations cannot fully account for the inconsistent findings associated with the relationship between negative affect and voice behavior. Instead, our research puts forward a new theoretical explanation for the relationship between negative affect and voice behavior. We draw on activation theory (Gardner, 1986), a well-tested theory in job design and job stressor research (e.g., Chung-Yan, 2010; Fried et al.,

2013; Baer & Oldham, 2006; Byron et al., 2010), that has received surprisingly little attention in the literature of negative affect and voice behavior. Activation theory shows that the activation level and the efficiency in using cognitive resources is an inverted U-shape (Gardner, 1986; Gardner & Cummings, 1988). Given that negative affect is associated with the activation level of the cerebral cortex (Lindquist et al., 2016) and voice behavior is associated with a cognitive process (Chiaburu et al., 2008), we hypothesize an inverted U-shaped relationship where moderate levels of negative affect are associated with the most frequent voice behavior.

Prior empirical studies which develop hypotheses using activation theory have offered boundary conditions for the relationship they focus on (e.g., Baer & Oldham, 2006, Hochwarter et al., 2010; Hochwarter et al., 2005). Therefore, to provide further depth to our investigation, we also examine a potential moderator of the relationship between negative affect and voice behavior – the need for change or the extent to which employees feel the necessity to take a change for the status quo (Armenakis et al., 1993; Van den Heuvel et al., 2015). Employees who have a strong need to change are aware of why they engage in proactive behavior (Parker et al., 2010). Hence, the need for change might influence the degree to which employees utilize cognitive resources into implementing change-oriented behavior. As negative affect is associated with the efficiency in using cognitive resources (Gardner, 1986; Lindquist et al., 2016) and voice behavior is a change-oriented behavior (Van Dyne & LePine, 1998), the need for change is an appropriate choice as a moderator in the relationship between negative affect and voice behavior.

This research will examine our key hypothesis across three studies that complement and build on each other. In study 1, we will examine the nonlinear relationship using a between-person design of supervisor-subordinate dyads measured across two-time points. In study 2 we recognize that negative affect is not only trait-like but also state-like (e.g., Cohen et al., 1995; Geiger et al., 2019); given that within-person designs have been advocated in research on activation theory (Gardner & Cummings, 1988), our second study uses a daily diary design capturing employees' negative affect every morning and their voice behavior every evening. Study 3 is a between-person design of supervisor-subordinate dyads measured across two-time points that builds on our previous studies by examining the moderating role of the need for change.

By doing so, we make the following two contributions. First, we seek to account for why previous research has obtained mixed findings associated with the relationship between negative affect and voice behavior (e.g., Tenhi¨al¨a & Lount, 2013; Grant et al., 2010; Liu et al., 2017). Although the activation of negative affect (e.g., Hsiung & Tsai, 2017) and discrete negative emotions (e.g., Peng et al., 2019) have been proposed, the findings are still mixed

(Madrid et al., 2015; Wang et al., 2018). We suggest that the inconsistent results may be caused by prior studies not using adequately appropriate theoretical perspectives regarding the impact of negative affect on voice behavior. Hence, by drawing on activation theory, we provide a new explanation of the relationship between negative affect and voice behavior. The second contribution is that our study calls attention to the value of negative affect at work. Although the field of psychology has recognized the functional benefits of negative affect (e.g., Cosmides & Tooby, 2000), many management studies indicated that negative affect inhibits positive work behavior (e.g., Samnani et al., 2014; Spector & Fox, 2003). In contrast to these undesirable impressions of negative affect in management research, we propose that moderate-level negative affect can act positively to drive employees' voice behavior, especially for employees with a strong need for change.

Theory and Hypothesis

Activation Theory

Activation theory proposes that people have a characteristic level of activation, which is the level of activation that allows the central nervous system, especially the cerebral cortex, to function optimally (Gardner, 1986; Gardner & Cummings, 1988). As a result of the central nervous system functioning efficiently, cerebral and behavioral performance is enhanced (Gardner, 1986). When the activation level of a person deviates positively or negatively from this characteristic level of activation, the efficiency of the central nervous system is diminished, resulting in weakened cerebral and behavioral performance (Gardner, 1986). The central concept of activation theory is activation level, which refers to "the degree of neural activity in the reticular activation system, a major part of the central nervous system" (Gardner. 1986: p. 411). The activation level is determined by the stimulation from exteroceptive, interoceptive, and cerebral sources (Scott, 1966) because the reticular activation system connects the sensory receptors to the cerebral cortex (Gardner & Cummings, 1988). Therefore, activation theory argues that both low and high levels of activation restrict the function of the central nervous system and the use of cognitive resources, whereas moderate levels of activation enhance them (Gardner, 1986).

Activation theory has been applied to job design research where a linear relationship between job characteristics (e.g., job complexity, job enrichment, and job autonomy) and activation level has been posited. This research has found a positive association between moderate levels of job characteristics and high levels of behavioral performance and well-being (e.g., Chung-Yan, 2010; Fried et al., 2013; Gardner, 1986; Xie & Johns, 1995). Research in the job stressor literature also supports activation theory, demonstrating an inverted U-shaped relationship between work

stressors (e.g., job demand, workload, and time pressure) and behavioral performance (e.g., Baer & Oldham, 2006; Byron et al., 2010; Haldorai et al., 2022; Janssen, 2001; Montani et al., 2020).

Negative Affect and Voice Behavior

Voice behavior, as used in our study, is defined as a communication behavior that facilitates organizational development (Van Dyne & LePine, 1998). Prior research has indicated that voice behavior can bring both potential benefits and potential risks for employees (Burris, 2012; Detert & Edmondson, 2011; Dutton & Ashford, 1993; Liang & Yeh, 2020; Morrison & Milliken, 2000; Thompson, 2005). In line with the features of voice behavior, it has been documented that employees would calculate both the benefits and risks cognitively before engaging in voice behavior (Liang et al., 2012). As such, voice behavior involves a process of cognitive elaboration (Chiaburu et al., 2008), meaning that voice behavior is influenced by individuals' use of cognitive resources. In support of this premise, considerable evidence has shown that cognitive resources and verbal ability are important for implementing voice behavior (Chiaburu et al., 2008; Van Dyne & LePine, 1998). Speaking out about ideas for improvement is likely to challenge and upset the status quo (Detert & Burris, 2007), thereby bringing potential personal risks such as disloyalty and workplace bullying (Burris, 2012; Liang & Yeh, 2020). Logically, employees should use more resources to maintain cognitive efficiency and process the information associated with voice behavior (Chiaburu et al., 2008). In addition, voice behavior is a verbal activity that needs the preferable use of cognitive resources (Roxβnagel, 2000). Many studies have offered support for the viewpoint that less cognitive resources lead to less voice behavior (e.g., Lin & Johnson, 2015; Xia et al., 2020). For example, Lin and Johnson (2015) found that employees are less likely to engage in voice behavior when they feel that their mental energy is depleted. Therefore, we believe that voice is a behavior predicated on cognition. Drawing from activation theory (Gardner, 1986; Scott, 1966), we argue that the relationship between negative affect and voice behavior should be inverted U-shaped.

Evidence has documented the association between negative affect and the activation of the cerebral cortex (e.g., Cyders et al., 2015; Dum et al., 2016; He et al., 2021; Lindquist et al., 2016; Northoff et al., 2000; Shackman et al., 2011). In support of our first premise, Cyders' et al. (2015) study showed that the right posterior orbitofrontal cortex and left amygdala would be activated when people experience negative affect from viewing emotional images. Lindquist's et al. (2016) meta-analysis indicated that both ventral and dorsal portions of the left anterior insula were more activated with the increase of negative affect. Moreover, the arousal of the cerebral cortex can directly determine the activation level of the reticular activation system (Scott, 1966). The abovementioned evidence makes it

rational that negative affect and activation level has a linear relation-that is, the greater negative affect employees experience, the higher their activation level. Brudzynski's (2014) study also offered support for the relationship between the reticular activating system and the negative emotional state.

In the case that negative affect is at intermediate levels, employees' activation level is moderate and more likely to match their characteristics levels of activation. As such, they can utilize cognitive resources and control their verbal activities optimally since such activation levels enable the cerebral cortex to function effectively (Gardner & Cummings, 1988). By contrast, low or high levels of negative affect and activation levels deviate from the characteristics level of activation, the suboptimal function of the cerebral cortex results in cognitive interference and poor verbal activities. As mentioned above, cognitive function is crucial for speaking up (Chiaburu et al., 2008; Van Dyne & LePine, 1998). Therefore, in accordance with activation theory (Gardner, 1986; Gardner & Cummings, 1988), low and high levels of negative affect will lead to lower voice behavior and moderate levels of negative affect will lead to higher voice behavior. Although the conceptualization of negative affect is known to have both trait-like and state-like properties (e.g., Cohen et al., 1995; Geiger et al., 2019), we argue that there is no theoretical reason for our theory to be different across these two conceptualizations. Compared with low levels and high levels, moderate levels of trait-like negative affect enable employees to make better use of cognitive resources, leading these employees to engage in voice behavior more frequently. By the same logic, employees who experience moderate levels of state-like negative affect will also use cognitive resources efficiently in a short period of time, promoting the engagement of voice behavior within a short time. Hence, we suggest that the hypothesized nonlinear relationship can be applied to both trait-like and state-like negative affect. Accordingly, we make the following hypotheses:

> *Hypothesis 1: The relationship between negative affect and voice behavior is an inverted-U relationship, such that low and high levels of negative affect are associated with low levels of voice behavior and moderate levels of negative affect are associated with high levels of voice behavior.*

The Moderating Role of Need for Change

Voice behavior is a kind of change-oriented proactive behavior (Parker & Collins, 2010). Parker and colleagues (Parker et al., 2010) suggest that there are multiple motivational mechanisms to illustrate why employees engage in proactive behavior. The first is the "can do" pathway which assumed that employees are more likely to conduct proactive behaviors when they believe that they can change their work environment, control potential risks of action,

and perceive a high success ratio in carrying out proactive behaviors (Parker et al., 2010) and has been robustly tested in the literature of voice behavior (e.g., Duan et al., 2014; Liang et al., 2012; Long et al., 2015). The second is the "reason to" pathway which argues that employees would engage in proactive behaviors when they have realized why they choose to conduct these behaviors (Parker et al., 2010). This "reason to" pathway is also well-recognized in existing voice research (e.g., Liang et al., 2012; Liu et al., 2010; Ng & Feldman, 2015).

Parker et al. (2010) argue that the "reason to" motivation is more important than the "can do" motivation in the pursuit of proactive goals. Specifically, the "can do" pathway deals with whether employees have enough ability and resources to improve the work environment, whereas the "reason to" pathway explains why employees pursue any one of a range of particular proactive goals (Parker et al., 2010). In other words, "reason to" provides impetus and direction while "can do" provides efficacy. Moreover, many have suggested that people tend to think about the "how" of action only after they determine "why" they should undertake the action (Eyal et al., 2004; Liberman & Trope, 1998; Lu et al., 2013). Hence, the "can do" motivation is subordinate to and dependent on the "reason to" motivation.

Applying Parker's et al. (2010) motivational process of proactive behavior to the present research, we can see that activation theory is part of the "can do" pathway in that it enables employees to optimally control their cognitive resources and verbal activities when they experience negative affect. However, it does not provide an explanation for why employees should engage in voice behavior rather than other behaviors. Thus, we argue that a perceived need for change will moderate the inverted U-shaped relationship between negative affect and voice behavior.

A perceived need for change refers to an employee's perception of the necessity of improving the current work environment (Van den Heuvel et al., 2015) caused by the perceived discrepancy between a present state and the desired end-state (Armenakis et al., 1993). Motivated by the need for change, employees will generate proactive goals and reduce the difference between the perceived state and desired state by improving the current work environment (Lord & Hanges, 1987; Parker et al., 2010). As voice behavior is a constructive way of improving employees' working conditions (Rusbult et al., 1988), employees who perceive a high need for change have a high tendency to select voice behavior as a way of changing, thus indicating that the need for change is indeed a "reason to" factor of engaging in voice behavior.

Therefore, based on Parker's et al. (2010) motivational pathway of proactive behavior, we propose a boundary condition for the application of activation theory in voice behavior, namely that the inverted U-shape

relationship between negative affect and voice behavior ("can do") will only be significant when the employee has a high need for change ("reason to"). More specifically, for employees with a strong need to change, the intermediate levels of negative affect are associated with adequate cognitive resources and they also have reasons to direct these resources into voice behavior. By contrast, employees without a need to change have no compelling reason to engage their cognitive resources, which are increased by the moderate levels of negative affect, into voice behavior. Therefore, the association between moderate levels of negative affect and high levels of voice behavior is stronger and the inverted-U shaped relationship between these two variables is more prominent with the increase of the need for change. Abovementioned arguments lead us to make the following hypothesis:

Hypothesis 2: The need for change moderates the relationship between negative affect and voice behavior, such that the inverted-U shape is more likely to emerge when the need for change is higher.

Study 1

Participants and Procedures

In study 1, we accessed matched employee-supervisor participants with the help of Credamo, a Chinese panel survey organization with access to different people, such as enterprise staff, teachers, and students. Through the Credamo platform, researchers can send their questionnaires to specific groups of people according to their research purpose. As the Credamo platform can record the company in which participants are working, we can ensure that the participants are private-sector employees. Many esteemed scholars are now using Credamo and the method has been published in high-quality outlets such as Psychological Science (e.g., Gong et al., 2020; Huang & Sengupta, 2020; Li et al., 2020). We, therefore, published the study on Credamo's website and it was made available to the potential pool of participants. At the first time point, 188 participants completed items measuring negative affect, positive affect, and personal information. One month later, the staff of Credamo sent reminders to the participants' supervisors to rate voice behavior. Each participant and his/her supervisor received 5 RMB after completing the questionnaire. In this way, we obtained complete data from 150 supervisor-subordinate dyads.

Using the software of SPSS 19, we tested for differences between participants whose supervisor completed their survey and those who did not. Results of the independent-sample t-test showed that only participant gender was significant (the supervisors of female participants ($M=0.53$, $S.E.=0.50$) were more likely to complete the survey than those of male participants ($M=0.29$, $S.E.=0.46$), *gender: $t(61.25)=-2.79$, $p=0.01$, 95% CI [-0.41, -0.07]; age: $t(186)=-0.88$, $p=0.38$, 95% CI [-2.82, 1.08]; education: $t(48.29)=-1.50$, $p=0.14$, 95% CI [-0.35, 0.05];*

organizational tenure: t(186)=-0.59, p=0.56, 95% CI [-1.94, 1.05]; marriage: t(186)=-0.51, p=0.61, 95% CI [-0.22, 0.13])[1]. However, the proportion of females in the overall 188 participants was not significantly different from that of the final 150 participants (*t(336)=0.87, p=0.38, 95% CI [-0.06, 0.16]*). We also examined whether our findings were influenced by gender by conducting a regression with gender as a moderation variable (see Part 1 in the supplementary material). The results showed that gender did not significantly influence the hypothesized inverted-U shape (*B = 0.35, S.E.= 0.31, p =0.21, 95% CI [-0.31, 0.98]*). Thus, we suggest that the difference in gender ratio is not a serious concern for the results. Besides the demographic characteristics, we also examined the differences in positive and negative affect. Although results of the independent-sample t-test indicated that participants without complete responses had lower positive affect (*M=3.75, S.E.=0.72*) and higher negative affect (*M=2.66, S.E.=1.21*) than participants with complete responses (*positive affect: M=4.02, S.E.=0.69, T(186)=-2.09, p=0.04, 95% CI [-0.51, -0.02]; negative affect: M=1.61, S.E.=0.69, T(42.22)=7.40, p=0.00, 95% CI [0.64, 1.46]*), the small standard deviation of positive and negative affect for participants with complete responses reduces concerns about outliers (Zhang & Shaw, 2012). Among the final 150 employees who had matched immediate supervisors, over half of them were female (52.7%) and unmarried (64.0%). The average age of these employees was 30.63 years (*S.E. = 5.53 years*) and most had a bachelor's (80.7%) degree. The average organizational tenure of these employees was 5.67 years (*S.E. = 4.37 years*) and all the employees had non-managerial positions.

Measures

We translated the original English scale into Chinese based on the principle of translation and back-translation (Brislin, 1980). In the first step, one bilingual professor translated the original scales into Chinese. After the first step, another professor and two Ph.D. students (all bilingual) translated these Chinese scales back into English. In the last step, the four translators compared the translated scales and the original scales and revised all the possible issues.

Negative affect. Negative affect was measured using a short form of the negative affect scale from Mackinnon et al. (1999) comprising five items (afraid, upset, nervous, scared, and distressed). Participants were asked to rate the frequency of experiencing these emotions at work. A five-point Likert scale was used to record subordinates' responses, with "1" representing "never" and "5" representing "extremely often". The scale of negative affect yielded a Cronbach's alpha reliability coefficient of 0.81.

[1] We display the appropriate results of independent-sample T-test according to the test for equality of variances. When the degree of freedom is equal to 186, results of the T-test are based on equal variances assumed and when the degree of freedom is unequal to 186, results of the T test are based on equal variances not assumed.

Voice behavior. Four items from Van Dyne and LePine's (1998) study were used to measure voice behavior. There are six items in Van Dyne and LePine's (1998) original scale. In line with Liu's et al. (2013) suggestions, we excluded two items that only describe broad features of proactivity and do not elaborate on verbal communication ("This employee often keeps well informed about issues where his or her opinion might be useful to this organization" and "This employee often gets involved in issues that affect the quality of work life here in this organization"). The four-item voice behavior scale used in the present study was widely used in other previous studies (e.g., Venkataramani et al., 2016; Liu et al., 2013; Tangirala & Ramanujam, 2012). A sample item is "This employee develops and makes recommendations concerning issues that affect this organization". Supervisors were asked to rate how often their subordinates engaged in these behaviors at work. A five-point Likert scale was used to record participants' responses, with "1" representing "never" and "5" representing "extremely often". This four-item voice behavior in our study yielded a Cronbach's alpha reliability coefficient of 0.86.

Control variables. Previous research suggested that gender, age, education, and organizational tenure might have an impact on voice behavior (e.g., Detert & Burris, 2007; Van Dyne & LePine, 1998). Therefore, we controlled these variables in our model. In study 1, gender was dichotomized into "male" (coded as "0") and "female" (coded as "1"), and education was coded into junior college or blow (coded as "1"), bachelor (coded as "2"), master or above (coded as "3"). Age and organizational tenure were measured in years. For gender, "male" was selected as the reference category. Following Johfre and Freese's (2021) guidelines, we chose the lowest quantity group as the reference category. Therefore, "junior college or blow" was chosen as the reference category of education. Besides, positive affect was controlled in study 1. Positive affect was measured using a short form of the positive affect scale from Mackinnon et al. (1999). Five positive affect (i.e., inspired, alert, excited, enthusiastic, and determined) items were used to measure positive affect. The measurement method was the same as that of negative affect. The scale of negative affect yielded a Cronbach's alpha reliability coefficient of 0.88.

Results and Discussion

The means, standard deviations, and correlation coefficients of negative affect, voice behavior, positive affect, and other potential control variables are shown in Table 1. Using the software of AMOS 20, we conducted a confirmatory factor analysis (CFA) and three measurement models were examined: One-factor measurement model (combining negative affect, voice behavior, and positive affect as a factor), two-factor model (combining negative affect and positive affect as a factor, voice behavior), and three-factor model (negative affect, positive affect, voice

behavior). Following Mackinnon's et al. (1999) suggestions, we allowed the residuals of "scared" and "afraid" to be correlated in all the measurement models. The hypothesized three-factor measurement model had the best fit to the data ($\chi^2 = 130.37$, $df = 73$, $CFI = 0.94$, $SRMR = 0.07$, $RMSEA = 0.07$).

Table 1 near here

Using the software of SPSS 19, we performed regression analysis. We first computed the squared item of negative affect using grand-mean centered negative affect. The results of the regression analysis are shown in Table 2. Model 2 in Table 2 shows that the linear effect of negative affect on voice behavior was not significant ($\beta = -0.07$, $p = 0.47$, 95% CI [-0.26, 0.12]) and the squared item of negative affect was significantly related to voice behavior ($\beta = -0.26$, $p = 0.03$, 95% CI [-0.49, -0.02]) as shown in Model 3. Furthermore, the slope at X_L (lower end of data range) is significantly positive ($B = 0.59$, $S.E. = 0.26$, 95% CI [0.15, 1.01]) and the slope at X_U (upper end of data range) is significantly negative ($B = -2.17$, $S.E. = 1.06$, 95% CI [-3.92, -0.44]). The inflection point occurs at 1.86 and lies within the data range, confirming the inverted U-shaped relationship between negative affect and voice behavior. Thus, hypothesis 1 was supported in study 1. The curvilinear relationship is graphed as shown in Figure 1.

Table 2 near here

Figure 1 near here

As shown in Table 2, the F value of the model 3 is not significant ($F(7, 142) = 1.39$, $p = 0.21$). It may be because there are some impotent control variables (i.e., ones uncorrelated with the dependent variable) in the model. Following Becker's (2005) suggestion, these impotent control variables can reduce power and increase the risk of Type II error. To obtain a reliable finding in study 1, we removed these impotent control variables from the regression model and reexamined the inverted U-shaped hypothesis. The results are shown in part 2 of the supplementary material. We found that the F value of the regression model ($F(2, 147) = 3.56$, $p = 0.03$) is significant and hypothesis 1 was also supported ($\beta = -0.25$, $p = 0.03$, 95% CI [-0.47, -0.02]).

Following the recommendations of Assaf and Tsionas (2019), we conducted several robustness checks to check the quadratic relationship between negative affect and voice behavior. First, we examined if any other alternative specification would give a better fit for our data. Specifically, we tested logarithmic, exponential, and cubic relationships between negative affect and voice behavior. However, none of these specifications improved the model fit. These findings provided additional support for the quadratic relationship. Second, we examined whether or not

the results were motivated by outliers. All of Cook's distance values (range between 0 and 0.11) are below the cut-off value of 1.00 (Cook, 1979). Finally, we believe that the hypothesized nonlinear relationship is unlikely to be caused by methodological artifacts because the absolute value of skewness for voice is 0.54, which is below the recommended threshold of 1.00 (Lei & Lomax, 2005). Many critics argue that the curvilinear relationship may be the result of skewing in the distribution of the criterion variables (Le et al., 2011). The small skewness for voice in study 1 reduces the risk that the inverted U-shaped relationship between negative affect and voice is caused by the skewness. More importantly, the hypothesized nonlinear relationship is theoretically driven by the activation theory.

Studies 1 have offered empirical support for Hypothesis 1 but the temporally-lagged data of these studies cannot detect the within-person process (Molenaar, 2004); that is, whether moderate-level negative affect is associated with high-level voice behavior within a given employee. Findings at the between-person level cannot be transferred to the within-person level without testing (Fisher & To, 2012). Therefore, to test whether our hypothesis is established also at the within-person level, we conducted daily diary research (i.e., study 2) by measuring employees' negative affect in the morning and assessing the relationship that it had with their voice behavior in the afternoon.

Study 2

Participants and Procedure

In study 2, we accessed participants in study 2 through the authors' relationships in the finance and accounting industry in China. Specifically, we contacted former classmates who are working in enterprises and asked them to invite their colleagues to participate in the survey. If they were willing to complete a five-day diary, we asked them to enter into a WeChat group. All the online questionnaires were sent out via this WeChat group. Almost all of these participants were general staff who did not have managerial responsibilities.

There were three sets of questionnaires. The first questionnaire collected employees' personal information (i.e., gender, age, education, and organizational tenure). This questionnaire was sent out on the first workday only. Positive affect and negative affect were included in the second set of questionnaires which was sent out at 11 a.m. for each of five consecutive workdays. We also reminded participants to complete the second set of questionnaires before 1 p.m. of that day. Voice behavior was included in the third set of questionnaires which was sent out at 5 p.m. for each of five consecutive workdays. Participants were required to finish the third set of questionnaires before 7 p.m. on that day. The time each participant filled in the questionnaire was automatically recorded by the survey platform to allow us to check appropriate completions. We asked participants to use a recognizable nickname (not

associated with their family name or given name) in the first questionnaires and reminded them to memorize it. Participants included this nickname in the following questionnaires and thus we were able to match questionnaires that were filled in across different time points and different workdays by each participant.

In total, 101 employees participated in our study. We reserved participants who completed questionnaires within the prescribed period of time for three days or more as three data points and above per participant allows for the appropriate modeling of within-person relationships and capturing the real experiences of working professionals (Bolger & Laurenceau, 2013; McCabe et al., 2012). In this way, we obtained 268 daily data points from 67 employees. We looked for and found some low-quality data based on consecutive invariant responses (Desimone & Harms, 2017; Meade & Craig, 2012). In line with recommendations by Desimone and Harms (2017), we removed the daily data in which the participant invariantly responded to at least nine items in any questionnaire set. Finally, we obtained 217 daily data points from 58 participants. Of these participants, 51.7% were male, and most had a master's (46.5%) or bachelor's degree (41.4%; 12.1% had a college degree or lower). The average age of participants was 35.14 years (*S.E. = 7.23*) and the average organizational tenure was 7.79 years (*S.E.= 6.91*). Using the software of SPSS 19, we conducted independent-sample t-tests. Results indicated that there was no significant difference between participants with valid and invalid responses (*age: t(99)=-0.87, p=0.38, 95% CI [-4.10, 1.59]; gender: t(99)=1.45, p=0.15, 95% CI [-0.54, 0.34]; education: t(99)=0.94, p=0.35, 95% CI [-0.13, 0.37]; organizational tenure: t(99)=-0.32, p=0.75, 95% CI [-3.17, 2.28]*)[2].

Measures

All the scales were translated using the same process as study 1.

Negative affect. Negative affect was measured using the same items and response scale as that used in studies 1 and 2. Participants were asked to rate how they feel this morning on a five-point Likert scale, with "1" representing "never" and "5" representing "extremely often". The Cronbach's alphas of negative affect across days ranged from 0.91 to 0.95 and the average Cronbach's alpha across all days was 0.93. The McDonald's omega of within-person and between-person reliability from the multilevel measurement model is 0.84 and 0.99 respectively.

Voice behavior. Voice behavior was measured using the same items and response scale as that used in studies 1 and 2. In this study, participants were asked to rate how often they had engaged in voice behaviors since they started

[2] We display the appropriate results of independent-sample T-test according to the test for equality of variances. When the degree of freedom is equal to 99, results of the T-test are based on equal variances assumed and when the degree of freedom is unequal to 99, results of the T-test are based on equal variances not assumed.

work today. The Cronbach's alphas of voice behavior across days ranged from 0.85 to 0.88 and the average Cronbach's alpha across all days was 0.86. The McDonald's omega of within-person and between-person reliability from the multilevel measurement model is 0.71 and 0.94 respectively.

Control variables. Same to study 1, we controlled gender, age, education, organizational tenure, and positive affect in our model. In study 2, gender was dichotomized into "male" (coded as "0") and "female" (coded as "1") and, education was coded into junior college or blow (coded as "1"), bachelor (coded as "2"), master or above (coded as "3"). Age and organizational tenure were measured in years. "Male" was selected as the reference category of gender. Following Johfre and Freese's (2021) guidelines, "junior college or blow" was chosen as the reference category of education. The scale of positive affect was the same as in study 1 and the measurement method was the same as that of negative affect in the current study. The Cronbach's alphas of positive affect across days ranged from 0.88 to 0.91 and the average Cronbach's alpha across all days was 0.90. The McDonald's omega of within-person and between-person reliability from the multilevel measurement model is 0.79 and 0.98 respectively.

Results and Discussion

As our data have a nested structure, we used hierarchical linear modeling to examine our hypothesis (Raudenbush & Bryk, 2002). Negative affect, positive affect, and the squared item of negative affect were included in Level 1 and there were no control variables in Level 2. Following Hofmann's et al. (2000) recommendations, we person-mean centered all Level 1 predictors and grand-mean centered all Level 2 predictors. The within-person variances in our Level 1 variables ranged from 28.0% to 38.9% making hierarchical linear modeling the appropriate analytical technique. The means, standard deviations, zero-order correlations, Cronbach's alpha, and McDonald's omega at within-and between-person levels are shown in Table 3.

Table 3 near here

Study 2 focused on the within-person structure of the relationship between negative affect and voice behavior. Using the software of Mplus 7.4, we conducted a two-level CFA to examine the construct validity for negative affect, voice behavior, and positive affect at the within-person level. The results are shown in Table 4. As in study 1, three measurement models were examined. As the estimation of one-factor and two-factor model could not terminate normally, we changed these two models and, following Mackinnon et al. (1999), we allowed the residuals of "scared" and "afraid" to be correlated in both within- and between-person level when conducting the two-level CFA of one-factor and two-factor model. Among all these three measurement models, the hypothesized three-factor

measurement model provided the best fit at within-person level (χ^2 *=257.49, df =148, CFI=0.92,* $SRMR_{within}$*= 0.06,* $SRMR_{between}$*= 0.09, RMSEA = 0.06*).

Using the software of HLM 7, we performed hierarchical linear modeling. Same to study 1, we computed the squared term of negative affect using the grand-mean centered negative affect. The results of the hierarchical linear modeling are shown in Table 4. Model 3 in Table 4 shows that the linear effect of negative affect on voice behavior was not significant (*β = 0.07 , p = 0.31, 95% CI [-0.07, 0.21]*). Model 4 in Table 4 shows that the square of negative affect was significantly related to voice behavior (*β = -0.18, p = 0.01, 95% CI [-0.32, -0.04]*). Furthermore, the slope at X_L (lower end of data range) is significantly positive (*B = 0.30, S.E. = 0.10, 95% CI [0.15, 0.46]*) and the slope at X_U (upper end of data range) is significantly negative (*B = -0.39, S.E. = 0.23, 95% CI [-0.77, -0.02]*). The inflection point occurs at 2.72 and lies within the data range, confirming the inverted U-shaped relationship. Thus, hypothesis 1 was supported in study 2. The curvilinear relationship is graphed as shown in Figure 2.

Table 4 near here

Figure 2 near here

Same to study 1, we removed the impotent control variables (i.e., gender, age, education, and organizational tenure) from the regression model and reexamined hypothesis 1. The results are shown in part 3 of the supplementary material. We found that hypothesis 1 was also supported (*β = -0.18, p = 0.01, 95% CI [-0.32, -0.04]*).

We also conducted several robustness checks. First, none of the other alternative specifications (i.e., logarithmic, exponential, and cubic relationships) gave a better fit for the data in study 2. Second, all of Cook's distance values (range between 0 and 0.11) are below 1.00 (Cook, 1979), indicating that our results were not driven by outliers. Finally, the absolute value of skewness for voice (0.62) is below 1.00 (Lei & Lomax, 2005), confirming that the inverted U-shaped relationship is less likely to be caused by the skewness.

Study 3

Participants and Procedures

In study 1 and study 2, we used two samples, accessed through different approaches, to examine our hypothesis, and the replicability of findings, at the between-person and within-person level. However, both study 1 and study 2 did not examine the moderating effect of the need for change. We will address this in study 3.

In study 3, we used a convenience sample from the authors' network of non-academic, working peers. We contacted 310 participants via email and asked them if they would like to participate in the investigation after an introduction to the research purpose and procedure. At time one, they completed an online survey measuring negative affect and personal information. One month later, we sent them another email asking them to invite their immediate supervisors to rate the participants' voice behavior on an online questionnaire. At the end of the process, we obtained complete data from 209 supervisor-subordinate dyads. Approximately one-third of participants did not have complete responses mainly because their supervisors gave no reply, potentially indicating non-response bias; we, therefore, conducted independent-sample t-tests between participants with complete and incomplete data. The software that we used to conduct independent-sample t-tests is also SPSS 19. The results showed that there were no significant differences in demographic characteristics (*age: t(308)=-1.68, p=0.09, 95% CI [-3.98, 0.31]; gender: t(202.94)=-1.33, p=0.19, 95% CI [-0.20, 0.04]; education: t(308)=-1.71, p=0.09, 95% CI [-0.38, 0.03]; organizational tenure: t(308)=-0.99, p=0.32, 95% CI [-0.28, 0.09]; marriage: t(308)=1.09, p=0.28, 95% CI [-0.05, 0.19]; position: t(204.02)=-1.27, p=0.21, 95% CI [-0.19, 0.04]*), nor in negative affect (*t(236.13)=0.72, p=0.47, 95% CI [-0.12, 0.27]*)[3]. Of the 209 participants with matched supervisor data, most were male (55.5%) and unmarried (52.2%). The average age of these participants was 33.33 years (*S.E. = 8.99 years*) and most had a bachelor's (22.0%) or master's degree or above (33.0%). Most had been with their current organization for less than two years (79.9%) and held non-managerial positions (57.9%).

Measures

All the scales were translated using the same process as study 1.

Negative affect. The scale of negative affect is the same as that in study 1. The scale of negative affect yielded a Cronbach's alpha reliability coefficient of 0.82.

Voice behavior. The scale of voice behavior is the same as that in study 1. The scale of negative affect yielded a Cronbach's alpha reliability coefficient of 0.60.

Need for change. Adapting items from prior scales of felt responsibility regarding the change (Morrison & Phelps, 1999), we measured the need for change using four items: "It is necessary for me to bring about improvement in my workplace"; "I feel necessary to try to introduce new procedures where appropriate";

[3] We display the appropriate results of independent-sample T-test according to the test for equality of variances. When the degree of freedom is equal to 308, results of the T-test are based on equal variances assumed and when the degree of freedom is unequal to 308, results of the T-test are based on equal variances not assumed.

"Correcting problems in the work is what I need to do" and "I feel necessary to challenge or change the status quo". The other item, namely "I feel necessary to bring about change at work", was removed because the Chinese meaning of this item is the same as the Chinese meaning of the item that I feel necessary to challenge or change the status quo. This four-item scale of need for change yielded a Cronbach's alpha reliability coefficient of 0.74.

Control variables. In study 3, we controlled gender, age, education, organizational tenure, and position in the model. Gender was dichotomized into "male" (coded as "0") and "female" (coded as "1"). Education was coded into junior college or blow (coded as "1"), bachelor (coded as "2"), and master or above (coded as "3"). Age was measured in years. Organizational tenure was coded into "less than or equal to 1 year" (coded as "1"), more than 1 year and less than or equal to 2 years (coded as "2"), more than 2 years and less than or equal to 5 years (coded as "3"), more than 5 years (coded as "4"). Position was dichotomized into "non-managers" (coded as "0") and "managers" (coded as "1"). "Male" was selected as the reference category of gender and "non-managers" was chosen as the reference category of position. Following Johfre and Freese's (2021) guidelines, "junior college or blow" was chosen as the reference category of education and "less than or equal to 1 year" was selected as the reference category of organizational tenure.

Results and Discussion

The means, standard deviations, and correlation coefficients of negative affect, voice behavior, need for change, and other potential control variables are shown in Table 5. Using the software of AMOS 20, we conducted a CFA and examined three alternative measurement models: a one-factor measurement model (combining negative affect, voice behavior, and need for change as a factor), a two-factor model (negative affect and combining voice behavior and need for change as a factor), and a three-factor model (negative affect, voice behavior and need for change). Following Mackinnon's et al. (1999) suggestions, we allowed the residuals of "scared" and "afraid" to be correlated as well as the residuals of "upset" and "distressed" in all the measurement models. Further, we also allowed the residuals of "It is necessary for me to bring about improvement in my workplace" and "feel necessary to try to introduce new procedures where appropriate" to be correlated because the Chinese meanings of these two items are partially overlapped. The hypothesized three-factor measurement model had the best fit to the data ($\chi^2 = 134.97$, $df = 59$, $CFI = 0.90$, $SRMR = 0.06$, $RMSEA = 0.08$) than any other two measurement model.

Table 5 near here

To test our hypothesis, we performed several regression models using the software of SPSS 19. We first computed the squared item of negative affect using grand-mean centered negative affect. Results of the regression analysis are shown in Table 6. Model 2 in Table 6 shows that the linear effect of negative affect on voice behavior was not significant (*β = -0.04, p=0.57, 95% CI [-0.18, 0.10]*) and the squared item of negative affect was significantly related to voice behavior (*β = -0.18, p=0.02, 95% CI [-0.33, -0.04]*) as shown in Model 3. Furthermore, the slope at X_L (lower end of data range) is significantly positive (*B = 0.35, S.E.= 0.18, 95% CI [0.05, 0.64]*) and the slope at X_U (upper end of data range) is significantly negative (*B = -0.56, S.E.= 0.21, 95% CI [-0.91, -0.21]*). The inflection point occurs at 2.53 and lies within the data range, confirming the inverted U-shaped relationship between negative affect and voice behavior. Thus, hypothesis 1 was supported in study 3. The curvilinear relationship is graphed as shown in Figure 3 (see the line of moderate need for change). Model 6 in Table 6 shows that the need for change can moderate the non-linear relationship between negative affect on voice behavior (*β = -0.34, p=0.01, 95% CI [-0.60, -0.08]*). Figure 3 shows the curvilinear relationship between negative affect and voice behavior when moderated by the need for change. When the need for change was high (Mean + 1SD), the inverted U-shaped relationship between negative affect and voice behavior was stronger (*β = -0.47, 95% CI [-0.73,-0.20]*). At low levels of need for change (Mean - 1SD), the nonlinear relationship was not significant (*β = 0.11, 95% CI [-0.15, 0.38]*). Therefore, hypothesis 2 was supported.

Table 6 near here

Figure 3 near here

Same to study 1, we removed the impotent control variables (i.e., gender, age, education, organizational tenure, and position) from the regression model and reexamined our hypotheses. The results are shown in part 4 of the supplementary material. We found that hypothesis 1 (*β = -0.19, p =0.01, 95% CI [-0.33, -0.04]*) and hypothesis 2 (*β = -0.32, p = 0.01, 95% CI [-0.57, -0.07]*) were both supported.

We also conducted several robustness checks. First, none of the other alternative specifications (i.e., logarithmic, exponential, and cubic relationships) gave a better fit for the data in study 3. Second, all of Cook's distance values (range between 0 and 0.05) are below 1.00 (Cook, 1979), indicating that our results were not driven by outliers. Finally, the absolute value of skewness for voice (0.59) is below 1.00 (Lei & Lomax, 2005), confirming that the inverted U-shaped relationship is less likely to be caused by the skewness.

Discussion

Across three different research designs, we found that negative affect had an inverted U-shaped relationship with voice behavior. Specifically, levels of voice behavior were highest at a moderate level of negative affect while extremely low or high levels of negative affect were associated with low levels of voice behavior at both the within- and between-person level. The need for change acted as a moderator, thus this inverted U-shaped relationship emerged only for employees with a strong need for change. Our findings have important implications for the mixed results regarding the impact of negative affect on voice behavior and provide within-person evidence for activation theory.

Theoretical Implications

We redirect the current understanding of the relationship between negative affect and voice behavior which was previously suggested to depend on the type of negative affect (e.g., Madrid et al., 2015; Peng et al., 2019) – whether that be the activated negative affect (Hsiung & Tsai, 2017) or the discrete negative emotion involved (Liu et al., 2017). We challenge these studies by demonstrating that the size rather than the type of negative affect is the reason accounting for the mixed findings associated with the relationship between negative affect and voice behavior. Our finding is a more parsimonious explanation than the previous approach as it does not require reconciliation across multiple interpretations of "type". Moreover, it is underpinned by a robust foundational theory, namely the activation theory (Gardner, 1986). By recognizing that neural activation level is associated with the level of negative affect (just as it is associated with levels of job design and stressors), we showed theoretically and empirically that a parabolic function should fit the data better than a linear one. The inverted U-shaped results indicated that the impact of negative affect on voice behavior was positive when negative affect ranges from low levels to moderate levels whereas the impact was negative when negative affect ranges from moderate levels to high levels. It means that the degree of negative affect is a key factor that determines the relationship between negative affect and voice behavior.

Furthermore, our study highlights the activating role of negative affect in the central nervous system by revealing the non-linear function of negative affect in voice behavior. Our logic is that moderate levels of negative affect enable the central nervous system to function most efficiently, leading to the optimal use of cognitive resources and verbal skills. Hence, both low levels and high levels of negative affect act as a brake of voice behavior, and only moderate levels of negative affect provide an accelerator for voice behavior. This finding offers further support for the application of activation theory. Although many studies have been done using activation theory (e.g.,

Chung-Yan, 2010; Fried et al., 2013; Baer & Oldham, 2006; Byron et al., 2010), most of them adopted between-person research design which offers little information about the main assumption of activation theory (Gardner & Cummings, 1988). The daily diary research design in our study 2 captured the within-person relationship and thus provides more detailed evidence for activation theory.

Our findings of the moderating role of the need for change offer a boundary condition for the inverted U-shaped impact of negative affect, providing nuanced empirical evidence for the mixed findings regarding the function of negative affect in voice behavior (e.g., Lebel, 2016; Peng et al., 2019; Wang et al., 2018). More importantly, our study might identify the limitation of activation theory when applying it in explaining the relationship between the activation level and specific behaviors. We find that the inverted U-shaped association between negative affect and voice behavior as predicted by the activation theory is not supported when the need for change is at low levels presumably because neural efficiency is not required for those who cannot see a reason to engage in voice behavior. Following Parker et al. (2010), we suggest that, like other change-oriented behaviors, voice behavior does not just need the "can do" provided by optimum levels of activation but also a "reason to"; and that without this reason, the requirement for neural efficiency is lessened.

Finally, the inverted U-shaped relationship between negative affect and voice behavior suggests that negative affect can have positive consequences, as long as it is not too extreme. It must be emphasized that we are not advocating negative management practices which are associated with negative affect (Sullivan & Bhagat, 1992; Tepper et al., 2004) as our findings show that moderate to high levels of negative affect are harmful to voice (as well as other aspects of employee well-being). Nonetheless, these positive consequences that emerge from the nonlinear effect of negative affect add to the large literature on broader change-oriented behaviors at work such as job crafting and other proactive behavior (e.g., Grant & Ashford, 2008; Wrzesniewski & Dutton, 2001). To date, most have considered only the harmful consequences of negative affect (for exceptions see e.g., Bindl, Unsworth, Gibson & Stride, 2018; Sonnentag & Starzyk, 2015), therefore an awareness of the positive ramifications of moderate levels of negative affect may strengthen and broaden the theorizing.

Limitations and Future Study

This study examined the inverted U-shaped relationship between negative affect and voice behavior using three studies. The two supervisor-subordinate matched longitudinal data sets (study 1, study 3) and the daily data (study 2) provided support for the hypothesis at the between-person level and within-person level respectively. Study 3 also

gave support for the moderating role of the need for change. Our findings offer implications for the literature on negative affect and voice behavior. However, five limitations should be noted for future studies. First, one of the missing parts in our study, of course, is a direct measure of neural activation level, meaning that our assumption about the cerebral mediation process remains speculative. We encourage multidisciplinary research that includes neurological experts to measure activation levels using fMRI or EEG, alongside workplace measurements of negative affect and voice behavior to confirm the application of this theory to voice behavior.

Second, the standardized regression coefficients for the squared item of negative affect were all less than 0.4 (Study 1: -0.26; Study 2: -0.18; Study 3: -0.18), showing a small effect size. The small adjusted R^2 and Pseudo R^2 also indicate that the effect sizes of negative affect on voice behavior at both between- and within-person levels were weak. All these results suggest that there are unmeasured moderating factors at play. Moreover, there were two drawbacks in study 3 that might have increased error variance and thus reduced the effect size. First, most of the previous studies have documented that Van Dyne and LePine's scale of voice behavior has high reliability (e.g., Liu et al., 2013; Tangirala & Ramanujam, 2012; Venkataramani et al., 2016) but the Cronbach's alpha reliability coefficient of voice behavior in study 3 was only 0.60. Second, there are some high correlations in our demographic data (namely between education and position ($r=0.87, p=0.00$) and gender and organizational tenure ($r=-0.64, p=0.00$) which, although they can be explained through human capital (Ng et al., 2005; Veld et al., 2016) and gender differences in the industries included (e.g., Gardiner & Tiggemann, 1999; Ramamoorthy & Flood, 2004; Tuttle, 1986; Zhang et al., 2014; Zhou et al., 2019), might indicate that the sample selection in study 3 might be biased in some way. Further research should be done to address these concerns and re-examine our hypotheses by considering moderators at both the within-person and between-person levels. In addition, the inflection points of the inverted U-shape were different as found in our studies (Study 1: 1.86; Study 2: 2.72; Study 3: 2.53). Based on these results, there are two unsolved questions that need to be addressed. First, what are the factors that can moderate the inflection point of the nonlinear relationship between negative affect and voice behavior? Second, what is the accurate inflection point of this nonlinear effect? Accordingly, future studies should identify other moderators and estimate this inflection point using a larger sample.

Third, according to previous literature that negative affect is positively related to the activation of the cerebral cortex (e.g., Cyders et al., 2015; Dum et al., 2016; He et al., 2021), we used activation theory to assume an inverted U-shaped relationship between negative affect and voice behavior. However, Russel (2003) proposes that the

activation level is determined by the type of negative affect and negative affect can be classified as low (e.g., sadness, helplessness) and high activated negative affect (e.g., frustration and anger). Unfortunately, our research did not distinguish these two kinds of negative affect. Future studies can examine the nonlinear effects of low and high activated negative affect on voice behavior respectively.

Fourth, although we attempt to examine the impact of negative affect on the broad construct of voice behavior, our findings may be more applicable for promotive voice because the items of voice behavior in the present study focus more on expressing ideas of improving organizational performance (Liang et al., 2012). Future studies should explore whether the between-person and within-person relationships can be extended to prohibitive voice which points out practices or behaviors that are damaging the interests of the organization (Liang et al., 2012). As prohibitive voice directly targets the problems in the current organization, employees may be more conscious of the value of prohibitive voice in changing adverse states (Zhang et al., 2020); at the same time, prohibitive voice brings far more potential risks than promotive voice (Liang et al., 2012). Therefore, we suggest that the inverted U-shaped relationship assumed in our study may be more prominent for prohibitive voice but future research should test any difference.

Fifth, employees' voice behavior was rated by their supervisors in studies 1 and 3. This supervisor-rated behavior might be insufficient to represent employees' voice behavior because supervisors cannot capture all employee behavior. However, supervisors are generally the targets of voice (Detert & Burris, 2007) because they have more power in an organization (Brown et al., 2005) and employees are more likely to make a change when speaking out their ideas to supervisors. As such, we believe that supervisor-rated voice behavior can reflect employees' voice behavior at work. However, to confirm the between-person relationship between negative affect and voice behavior comprehensively, a future study can collect self-reported voice behavior and replicate our hypothesis. On the other hand, all the daily data in study 2 were from employees which might cause common method bias (Podsakoff et al., 2003). However, the independent and dependent variables were temporally separated and the CFA showed the hypothesized three-factor measurement model was significantly better than any other measurement models, suggesting that the common method bias was not a serious concern in this study (Podsakoff et al., 2003).

Sixth, in study 2, we instructed participants to report their negative affect in the morning and record their voice behavior throughout the day. This research design can help capture the causal effect of negative affect on voice behavior at the within-person level. However, our measurement of daily voice behavior also includes participants'

voice behavior in the morning, indicating that we can hardly rule out the possibility that employees' voice behavior in the morning will influence their subsequent negative affect. Future research can address this limitation by guiding participants to rate their negative affect in the morning and report their voice behavior in the afternoon.

Finally, the data in our study were all collected in China which may narrow the generalizability of our findings. Previous studies have identified the Chinese as having a higher power distance than many Western cultures which makes them more unwilling to challenge authority (Hofstede, 1993). As a result, the negative consequences of voice behavior may be stronger than in other cultural contexts with lower power distance. It would be interesting to examine this potential moderator in future studies. Furthermore, though comparable to other research (e.g., Lam et al., 2022; Peng et al., 2019; Zhang et al., 2020), our sample size is relatively small. We conducted a post-hoc power analysis to gauge the statistical power of our studies (Bliese & Wang, 2020). Results showed that the observed power for the effect of the squared item of negative affect in study 1 was 0.56. In study 2, this observed power was 0.69. In study 3, this observed power was 0.67, and the observed power for the interaction effect between the squared item of negative affect and the need for change was 0.73. Considering that the small sample may be the reason why the observed power was relatively low, future research may cross-validate our findings with a larger sample.

Practical Implications and Conclusion

Our findings also have important practical implications. First, unlike other research illustrating the damaging effect of negative affect (e.g., Brown et al., 2005; Bruck & Allen, 2003; Penney & Spector, 2005), our research advocates that negative affect has adaptive benefits for the organization when managers act on employees' voice behavior. We demonstrate that temperate negative feelings enable employees to have enough cognitive resources to express their ideas about improving the organizational environment. Moreover, we also found that the beneficial function of moderate negative affect in voice behavior only emerged for employees who perceive a need to change. Therefore, managers should support employees with moderate levels of negative affect by directing it towards the voice and diverting their attention to the necessity of improving the work environment. Second, although we have shown that negative affect is not all bad, our study also indicates that high negative affect is harmful to voice behavior. Therefore, it is reasonable for managers to minimize high levels of negative affect by providing organizational support and organizational justice as indicated in previous research (e.g., Chebat & Slusarczyk, 2005; Stamper & Johlke, 2003).

In conclusion, our study clarifies the relationship between negative affect and voice behavior by capturing both between-person and within-person variance. We find that the relationship is an inverted U-shape such that moderate levels of negative affect can promote voice behavior, especially when the need for change is at high levels. Organizations can acquire benefits from guiding employees with moderate negative affect towards voice behavior and cultivating the need for change.

References

Armenakis, A. A., Harris, S. G., & Mossholder, K. W. (1993). Creating readiness for organizational change. *Human Relations*, 46(6), 681-703. https://doi.org/10.1177/001872679304600601

Assaf, A. G., & Tsionas, M. G. (2019). Revisiting shape and moderation effects in curvilinear models. *Tourism Management*, 75, 216-230. https://doi.org/10.1016/j.tourman.2019.05.007

Baer, M., & Oldham, G. R. (2006). The curvilinear relation between experienced creative time pressure and creativity: Moderating effects of openness to experience and support for creativity. *Journal of Applied psychology*, 91(4), 963-960. https://doi.org/10.1037/0021-9010.91.4.963

Becker, T. E. (2005). Potential problems in the statistical control of variables in organizational research: A qualitative analysis with recommendations. *Organizational Research Methods*, 8(3), 274-289. https://doi.org/10.1177/1094428105278021

Bliese, P. D., & Wang, M. (2020). Results provide information about cumulative probabilities of finding significance: Let's report this information. *Journal of Management*, 46(7), 1275–1288. https://doi.org/10.1177/0149206319886909

Bolger, N., & Laurenceau, J.-P. (2013). *Intensive Longitudinal Methods: An Introduction to Diary and Experience Sampling Research*. New York, NY: Guilford Press.

Brislin, R. W. (1980). *Translation and content analysis of oral and written material*. In H. C. Triandis (Ed.), Handbook of cross-cultural psychology (pp. 349-444). Boston: Allyn and Bacon.

Brown, M. E., Treviño, L. K., & Harrison, D. A. (2005). Ethical leadership: A social learning perspective for construct development and testing. *Organizational Behavior & Human Decision Processes*, 97(2), 117-134. DOI:10.1016/j.obhdp.2005.03.002

Brown, S. P., Westbrook, R. A., & Challagalla, G. (2005). Good cope, bad cope: Adaptive and maladaptive coping strategies following a critical negative work event. *Journal of Applied Psychology*, 90(4), 792-798. https://doi.org/10.1037/0021-9010.90.4.792

Bruck, C. S., & Allen, T. D. (2003). The relationship between big five personality traits, negative affectivity, type A behavior, and work–family conflict. *Journal of Vocational Behavior*, 63(3), 457-472. https://doi.org/10.1016/S0001-8791(02)00040-4

Brudzynski, S. M. (2014). The ascending mesolimbic cholinergic system-a specific division of the reticular activating system involved in the initiation of negative emotional states. *Journal of Molecular Neuroscience*, 53(3), 436-445. https://doi.org/10.1007/s12031-013-0179-1

Burris, E. R. (2012). The risks and rewards of speaking up: Managerial responses to employee voice. *Academy of Management Journal*, 55(4), 851-875. https://doi.org/10.5465/amj.2010.0562

Byron, K., Khazanchi, S., & Nazarian, D. (2010). The relationship between stressors and creativity: A meta-analysis examining competing theoretical models. *Journal of Applied Psychology*, 95(1), 201-212. https://doi.org/10.1037/a0017868

Chamberlin, M. , Newton, D. W. , & Lepine, J. A. (2017). A meta-analysis of voice and its promotive and prohibitive forms: Identification of key associations, distinctions, and future research directions. *Personnel Psychology*, 70(1), 11-71. https://doi.org/10.1111/peps.12185

Chebat, J. C., & Slusarczyk, W. (2005). How emotions mediate the effects of perceived justice on loyalty in service recovery situations: An empirical study. *Journal of Business Research*, 58(5), 664-673. https://doi.org/10.1016/j.jbusres.2003.09.005

Chen, A. S. Y., & Hou, Y. H. (2016). The effects of ethical leadership, voice behavior and climates for innovation on creativity: A moderated mediation examination. *The Leadership Quarterly*, 27(1), 1-13. https://doi.org/10.1016/j.leaqua.2015.10.007

Chiaburu, D. S., Marinova, S. V., & Van Dyne, L. (2008, August). Should I do it or not? An initial model of cognitive processes predicting voice behaviors. In Academy of Management Proceedings (Vol. 2008, No. 1, pp. 1-6). Briarcliff Manor, NY 10510: Academy of Management.

Chung-Yan, G. A. (2010). The nonlinear effects of job complexity and autonomy on job satisfaction, turnover, and psychological well-being. *Journal of Occupational Health Psychology*, 15(3), 237-251. https://doi.org/10.1037/a0019823

Cohen, S., Doyle, W. J., Skoner, D. P., Gwaltney Jr, J. M., & Newsom, J. T. (1995). State and trait negative affect as predictors of objective and subjective symptoms of respiratory viral infections. *Journal of Personality & Social Psychology*, 68(1): 159-169. https://doi.org/10.1037/0022-3514.68.1.159

Cook, R. D. (1979). Influential observations in linear regression. *Journal of the American Statistical Association*, 74, 169-17. https://doi.org/10.1080/01621459.1979.10481634

Cosmides, L., & Tooby, J. (2000). *Evolutionary psychology and the emotions*. In M. Lewis, & J. Haviland Jones (Eds.). Handbook of emotions, 2nd Ed. New York: Guilford.

Cyders, M. A., Mario, D., Eiler, W. J., Ayca, C., Karyadi, K. A., & Kareken, D. A. (2015). Negative urgency mediates the relationship between amygdala and orbitofrontal cortex activation to negative emotional stimuli and general risk-taking. *Cerebral Cortex*, 25, 4094-4102. https://doi.org/10.1093/cercor/bhu123

Desimone, J. A., & Harms, P. D. (2017). Dirty data: The effects of screening respondents who provide low-quality data in survey research. *Journal of Business and Psychology*, 33(5), 1-19. https://doi.org/10.1007/s10869-017-9514-9

Detert, J. R., & Burris, E. R. (2007). Leadership behavior and employee voice: Is the door really open?. *Academy of Management Journal*, 50(4), 869-884. https://doi.org/10.5465/AMJ.2007.26279183

Detert, J. R., & Edmondson, A. C. (2011). Implicit voice theories: Taken-for-granted rules of self-censorship at work. *Academy of Management Journal*, 54(3), 461-488. https://doi.org/10.5465/AMJ.2011.61967925

Duan, J., Kwan, H. K., & Ling, B. (2014). The role of voice efficacy in the formation of voice behavior: A cross-level examination. *Journal of Management & Organization*, 20(4), 526-543. https://doi.org/10.1017/jmo.2014.40

Dum, R. P., Levinthal, D. J., & Strick, P. L. (2016). Motor, cognitive, and affective areas of the cerebral cortex influence the adrenal medulla. *Proceedings of the National Academy of Sciences*, 113(35), 9922-9927. https://doi.org/10.1073/pnas.1605044113

Dutton, J. E., & Ashford, S. J. (1993). Selling issues to top management. *Academy of Management Review*, 18(3), 397-428. https://doi.org/10.2307/258903

Eyal, T., Liberman, N., Trope, Y., & Walther, E. (2004). The pros and cons of temporally near and distant action. *Journal of Personality and Social Psychology*, 86(6), 781-764. https://doi.org/10.1037/0022-3514.86.6.781

Fisher, C. D., & To, M. L. (2012). Using experience sampling methodology in organizational behavior. *Journal of Organizational Behavior*, 33, 865-877. https://doi.org/10.1002/job.1803

Fried, Y., Laurence, G. A., Shirom, A., Melamed, S., Toker, S., Berliner, S., & Shapira, I. (2013). The relationship between job enrichment and abdominal obesity: A longitudinal field study of apparently healthy individuals. *Journal of Occupational Health Psychology*, 18(4), 458-468. https://doi.org/10.1037/a0033730

Gardiner, M., & Tiggemann, M. (1999). Gender differences in leadership style, job stress and mental health in male- and female-dominated industries. *Journal of Occupational and Organizational Psychology*, 72(3), 301-315. https://doi.org/10.1348/096317999166699

Gardner, D. G. (1986). Activation theory and task design: An empirical test of several new predictions. *Journal of Applied Psychology*, 71(3), 411-418. https://doi.org/10.1037/0021-9010.71.3.411

Gardner, D. G., & Cummings, L. L. (1988). Activation theory and job design: Review and reconceptualization. *Research in Organizational Behavior*, 10, 81-122.

Geiger, M., Lee, J. Y., & Geiger, M. K. (2019). The power of negative disposition: An examination of trait and state negative affect with OCBI and OCBO. *Group & Organization Management*, 44(6), 1136-1172. https://doi.org/10.1177/1059601118819893

Gong, S., Lu, J. G., Schaubroeck, J. M., Li, Q., & Qian, X. (2020). Polluted psyche: Is the effect of air pollution on unethical behavior more physiological or psychological?. *Psychological Science,* 31(8), 1040-1047. https://doi.org/10.1177/0956797620943835

Grant, A. M., & Ashford, S. J. (2008). The dynamics of proactivity at work. *Research in Organizational Behavior*, 28, 3-34. https://doi.org/10.1016/j.riob.2008.04.002

Grant, A. M., Parker, S., & Collins, C. (2010). Getting credit for proactive behavior: Supervisor reactions depend on what you value and how you feel. *Personnel Psychology*, 62(1), 31-55. https://doi.org/10.1111/j.1744-6570.2008.01128.x

Griffin, M. A., Neal, A., & Parker, S. K. (2007). A new model of work role performance: Positive behavior in uncertain and interdependent contexts. *Academy of Management Journal*, 50(2), 327-347. https://doi.org/10.5465/amj.2007.24634438

Haldorai, K., Kim, W. G., & Phetvaroon, K. (2022). Beyond the bend: The curvilinear effect of challenge stressors on work attitudes and behaviors. *Tourism Management*, 90, 104482. https://doi.org/10.1016/j.tourman.2021.104482

He, Z., Yang, K., Zhuang, N., & Zeng, Y. (2021). Processing of Affective Pictures: A Study Based on Functional Connectivity Network in the Cerebral Cortex. Computational Intelligence and Neuroscience, 2021, 1-11. https://doi.org/10.1155/2021/5582666

Hochwarter, W. A., Ferris, G. R., Laird, M. D., Treadway, D. C., & Coleman Gallagher, V. (2010). Nonlinear politics perceptions-work outcomes relationships: A three-study, five-sample investigation. *Journal of Management*, 36(3), 740-763. https://doi.org/10.1177/0149206308324065

Hochwarter, W. A., Perrewé, P. L., Hall, A. T., & Ferris, G. R. (2005). Negative affectivity as a moderator of the form and magnitude of the relationship between felt accountability and job tension. *Journal of Organizational Behavior*, 26(5), 517-534. https://doi.org/10.1002/job.324

Hofmann, S. A., Griffin, M. A., & Gavin, M. B. (2000). The application of hierarchical linear modeling to organizational research. In K. Klein & S. Kozlowski (Eds.), *Multilevel theory, research, and methods in organizations: Foundations, extensions, and new directions* (pp. 467–511). San Francisco, CA: Jossey-Bass.

Hofstede, G. (1993). Cultural constraints in management theories. *The Academy of Management Executive*, 7(1), 81-94. https://doi.org/10.2307/4165110

Hsiung, H. H., & Tsai, W. C. (2017). The joint moderating effects of activated negative moods and group voice climate on the relationship between power distance orientation and employee voice behavior. *Applied Psychology*, 66(3), 487–514. https://doi.org/10.1111/apps.12096

Huang, Y., & Sengupta, J. (2020). The influence of disease cues on preference for typical versus atypical products. *Journal of Consumer Research*, 47(3), 393-411. https://doi.org/10.1093/jcr/ucaa029

Janssen, O. (2001). Fairness perceptions as a moderator in the curvilinear relationships between job demands, and job performance and job satisfaction. *Academy of Management Journal*, 44(5), 1039-1050. https://doi.org/10.5465/3069447

Johfre, S. S., & Freese, J. (2021). Reconsidering the reference category. *Sociological Methodology*, 51(2), 253-269. https://doi.org/10.1177/0081175020982632

Kish-Gephart, J. J., Detert, J. R., Treviño, L. K., & Edmondson, A. C. (2009). Silenced by fear: The nature, sources, and consequences of fear at work. *Research in Organizational Behavior*, 29, 163-193. https://doi.org/10.1016/j.riob.2009.07.002

Lam, C. F., Johnson, H. H., Song, L. J., Wu, W., Lee, C., & Chen, Z. (2022). More depleted, speak up more? A daily examination of the benefit and cost of depletion for voice behavior and voice endorsement. *Journal of Organizational Behavior*. https://doi.org/10.1002/job.2620

Le, H., Oh, I. S., Robbins, S. B., Ilies, R., Holland, E., & Westrick, P. (2011). Too much of a good thing: Curvilinear relationships between personality traits and job performance. *Journal of Applied Psychology*, 96(1), 113–133. https://doi.org/10.1037/a0021016

Lebel, R. D. (2016). Overcoming the fear factor: How perceptions of supervisor openness lead employees to speak up when fearing external threat. *Organizational Behavior and Human Decision Processes*, 135, 10-21. https://doi.org/10.1016/j.obhdp.2016.05.001

Lei, M., & Lomax, R. G. (2005). The effect of varying degrees of nonnormality in structural equation modeling. *Structural Equation Modeling*, 12(1), 1-27. https://doi.org/10.1207/s15328007sem1201_1

Li, M., Zhao, T., Huang, E., & Li, J. (2020). How does a public health emergency motivate people's impulsive consumption? An empirical study during the COVID-19 outbreak in China. *International Journal of Environmental Research and Public Health*, 17(14), 1-13. https://doi.org/10.3390/ijerph17145019

Li, Y., & Sun, J. M. (2015). Traditional Chinese leadership and employee voice behavior: A cross-level examination. *The Leadership Quarterly*, 26(2), 172-189. https://doi.org/10.1016/j.leaqua.2014.08.001

Liang, H. L., & Yeh, T. K. (2020). The effects of employee voice on workplace bullying and job satisfaction: The mediating role of leader–member exchange. *Management Decision*, 58(3), 569-582. https://doi.org/10.1108/MD-01-2019-0112

Liang, J., Farh, C. I. C., & Farh, J. L. (2012). Psychological antecedents of promotive and prohibitive voice: A two-wave examination. *Academy of Management Journal*, 55(1), 71-92. https://doi.org/10.5465/amj.2010.0176

Liberman, N., & Trope, Y. (1998). The role of feasibility and desirability considerations in near and distant future decisions: A test of temporal construal theory. *Journal of Personality and Social Psychology*, 75(1), 5-18. https://doi.org/10.1037/0022-3514.75.1.5

Lin, S. H. J., & Johnson, R. E. (2015). A suggestion to improve a day keeps your depletion away: Examining promotive and prohibitive voice behaviors within a regulatory focus and ego depletion framework. *Journal of Applied Psychology*, 100(5), 1381-1397. https://doi.org/10.1037/apl0000018.

Lindquist, K. A., Satpute, A. B., Wager, T. D., Weber, J., & Barrett, L. F. (2016). The brain basis of positive and negative affect: Evidence from a meta-analysis of the human neuroimaging literature. *Cerebral Cortex*, 26(5), 1910-1922. https://doi.org/10.1093/cercor/bhv001

Lin, S. H. J., & Johnson, R. E. (2015). A suggestion to improve a day keeps your depletion away: Examining promotive and prohibitive voice behaviors within a regulatory focus and ego depletion framework. *Journal of Applied Psychology*, 100(5), 1381-1397. https://doi.org/10.1037/apl0000018.

Liu, W., Song, Z., Li, X., & Liao, Z. (2017). Why and when leaders' affective states influence employee upward voice. *Academy of Management Journal*, 60(1), 238-263. https://doi.org/10.5465/amj.2013.1082

Liu, W., Tangirala, S., & Ramanujam, R. (2013). The relational antecedents of voice targeted at different leaders. *Journal of Applied Psychology*, 98(5), 841-851. https://doi.org/10.1037/a0032913

Liu, W., Zhu, R., & Yang, Y. (2010). I warn you because I like you: Voice behavior, employee identifications, and transformational leadership. *The Leadership Quarterly*, 21(1), 189-202. https://doi.org/10.1016/j.leaqua.2009.10.014

Long, C., Li, Z., & Ning, Z. (2015). Exploring the nonlinear relationship between challenge stressors and employee voice: The effects of leader–member exchange and organisation-based self-esteem. *Personality and Individual Differences*, 83, 24-30. https://doi.org/10.1016/j.paid.2015.03.043

Lord, R. G., & Hanges, P. J. (1987). A control system model of organizational motivation: Theoretical development and applied implications. *Behavioral Science*, 32(3), 161-178. https://doi.org/10.1002/bs.3830320302

Lu, J., Xie, X., & Xu, J. (2013). Desirability or feasibility self-other decision-making differences. *Personality and Social Psychology Bulletin*, 39(2), 144-155. https://doi.org/10.1177/0146167212470146

Mackinnon, A., Jorm, A. F., Christensen, H., Korten, A. E., Jacomb, P. A., & Rodgers, B. (1999). A short form of the positive and negative affect schedule: Evaluation of factorial validity and invariance across demographic variables in a community sample. *Personality and Individual differences*, 27(3), 405-416. https://doi.org/10.1016/S0191-8869(98)00251-7

Madrid, H. P., Patterson, M. G., & Leiva, P. I., (2015). Negative core affect and employee silence: How differences in activation, cognitive rumination, and problem-solving demands matter. *Journal of Applied Psychology*, 2015, 100(6), 1887-1898. https://doi.org/10.1037/a0039380

McCabe, K. O., Mack, L., & Fleeson, W. (2012). A guide for data cleaning in experience sampling studies. In M. R. Mehl & T. S. Connor. *Handbook of Research Methods for Studying Daily Life*. Guilford Press: New York.

Meade, A. W., & Craig, S. B. (2012). Identifying careless responses in survey data. *Psychological Methods*, 17(3), 437-55. https://doi.org/10.1037/a0028085

Molenaar, P. C. M. (2004). A manifesto on psychology as idiographic science: Bringing the person back into scientific psychology, this time forever. *Measurement Interdiplinary Research & Perspectives*, 2(4), 201-218. https://doi.org/10.1207/s15366359mea0204_1

Montani, F., Vandenberghe, C., Khedhaouria, A., & Courcy, F. (2020). Examining the inverted U-shaped relationship between workload and innovative work behavior: The role of work engagement and mindfulness. *Human Relations*, 73(1), 59-93. https://doi.org/10.1177/0018726718819055

Morrison, E. W. (2011). Employee voice behavior: Integration and directions for future research. *Academy of Management Annals*, 5(1), 373-412. https://doi.org/10.1080/19416520.2011.574506

Morrison, E. W., & Milliken, F. J. (2000). Organizational silence: A barrier to change and development in a pluralistic world. *Academy of Management Review*, 25(4), 706-725. https://doi.org/10.2307/259200

Morrison, E. W., & Phelps, C. C. (1999). Taking charge at work: Extrarole efforts to initiate workplace change. *Academy of Management Journal*, 42(4), 403-419. https://doi.org/10.5465/257011

Ng, T. W., & Feldman, D. C. (2015). Felt obligations to reciprocate to an employer, preferences for mobility across employers, and gender: Three-way interaction effects on subsequent voice behavior. *Journal of Vocational Behavior*, 90, 36-45. https://doi.org/10.1016/j.jvb.2015.07.005

Northoff, G., Richter, A., Gessner, M., Schlagenhauf, F., Fell, J., Baumgart, F., & Heinze, H. J. (2000). Functional dissociation between medial and lateral prefrontal cortical spatiotemporal activation in negative and positive emotions: A combined fMRI/MEG study. *Cerebral Cortex*, 10(1), 93-107. https://doi.org/10.1093/cercor/10.1.93

Parker, S. K., Bindl, U. K., & Strauss, K. (2010). Making things happen: A model of proactive motivation. *Journal of Management*, 36(4), 827-856. https://doi.org/10.1177/0149206310363732

Parker, S. K., & Collins, C. G. (2010). Taking stock: Integrating and differentiating multiple proactive behaviors. *Journal of Management*, 36(3), 633-662. https://doi.org/10.1177/0149206308321554

Peng, A. C., Schaubroeck, J. M., Chong, S., & Li, Y. (2019). Discrete emotions linking abusive supervision to employee intention and behavior. *Personnel Psychology*, 72, 393-419. https://doi.org/10.1111/peps.12310

Penney, L. M., & Spector, P. E. (2005). Job stress, incivility, and counterproductive work behavior (CWB): The moderating role of negative affectivity. *Journal of Organizational Behavior*, 26(7), 777-796. https://doi.org/10.1002/job.336

Podsakoff, P. M., MacKenzie, S. B., Lee, J. Y., and Podsakoff, N. P. (2003). Common method biases in behavioral research: A critical review of the literature and recommended remedies. *Journal of Applied Psychology*, 88(5), 879-903. https://doi.org/10.1037/0021-9010.88.5.879

Ramamoorthy, N., & Flood, P. C. (2004). Gender and employee attitudes: The role of organizational justice perceptions. *British Journal of Management*, 15(3), 247-258. https://doi.org/10.1111/j.1467-8551.2004.00417.x

Raudenbush, S. W., & Bryk, A. S. (2002). *Hierarchical linear models: Applications and data analysis methods*. Thousand Oaks, CA: Sage.

Roxβnagel, C. (2000). Cognitive load and perspective-taking: Applying the automatic-controlled distinction to verbal communication. *European Journal of Social Psychology*, 30(3), 429-445. https://doi.org/10.1002/(SICI)1099-0992(200005/06)30:3<429::AID-EJSP3>3.0.CO;2-V.

Rusbult, C. E., Farrell, D., Rogers, G., & Mainous, A. G. (1988). Impact of exchange variables on exit, voice, loyalty, and neglect: An integrative model of responses to declining job satisfaction. *Academy of Management Journal,* 31(3), 599-627. https://doi.org/10.2307/256461

Russell, J. A. (2003). Core affect and the psychological construction of emotion. *Psychological Review*, 110(1), 145-172. https://doi.org/10.1037/0033-295X.110.1.145

Samnani, A. K., Salamon, S. D., & Singh, P. (2014). Negative affect and counterproductive workplace behavior: The moderating role of moral disengagement and gender. *Journal of Business Ethics*, 119(2), 235-244. https://doi.org/10.1007/s10551-013-1635-0

Scott, W. E. (1966). Activation theory and task design. *Organizational Behavior and Human Performance*, 1(1), 3-30. https://doi.org/10.1016/0030-5073(66)90003-1

Shackman, A. J., Salomons, T. V., Slagter, H. A., Fox, A. S., Winter, J. J., & Davidson, R. J. (2011). The integration of negative affect, pain and cognitive control in the cingulate cortex. *Nature Reviews Neuroscience*, 12(3), 154-167. https://doi.org/10.1038/nrn2994

Snijders, T., & Bosker, R. (1999). *An Introduction to Basic and Advanced Multilevel Modeling*. Thousand Oaks, CA: Sage.

Spector, P. E., & Fox, S. (2003). An emotion-centered model of voluntary work behavior: Some parallels between counterproductive work behavior and organizational citizenship behavior. *Human Resource Management Review*, 12(2), 269-292. https://doi.org/10.1016/S1053-4822(02)00049-9

Stamper, C. L., & Johlke, M. C. (2003). The impact of perceived organizational support on the relationship between boundary spanner role stress and work outcomes. *Journal of Management*, 29(4), 569-588. https://doi.org/10.1016/S0149-2063_03_00025-4

Starzyk, A., Sonnentag, S., & Albrecht, A. G. (2018). The affective relevance of suggestion-focused and problem-focused voice: A diary study on voice in meetings. *Journal of Occupational and Organizational Psychology*, 91, 340–361. https://doi.org/10.1111/joop.12199

Sullivan, S. E., & Bhagat, R. S. (1992). Organizational stress, job satisfaction and job performance: Where do we go from here?. *Journal of Management*, 18(2), 353-374. https://doi.org/10.1177/014920639201800207

Tangirala, S., & Ramanujam, R. (2008). Exploring nonlinearity in employee voice: The effects of personal control and organizational identification. *Academy of Management Journal*, 51(6), 1189-1203. https://doi.org/10.5465/AMJ.2008.35732719

Tangirala, S., & Ramanujam, R. (2012). Ask and you shall hear (but not always): Examining the relationship between manager consultation and employee voice. Personnel Psychology, 65(2), 251-282. https://doi.org/10.1111/j.1744-6570.2012.01248.x

Tenhi¨al¨a, A., Lount, R. B. (2013). Affective reactions to a pay system reform and their impact on employee behavior. *Journal of Occupational and Organizational Psychology*, 86(1), 100-118. https://doi.org/10.1111/joop.12002

Tepper, B. J., Duffy, M. K., Hoobler, J., & Ensley, M. D. (2004). Moderators of the relationships between coworkers' organizational citizenship behavior and fellow employees' attitudes. *Journal of Applied Psychology*, 89(3), 455-465. https://doi.org/10.1037/0021-9010.89.3.455

Thompson, J. A. (2005). Proactive personality and job performance: A social capital perspective. *Journal of Applied Psychology*, 90(5), 1011-1017. https://doi.org/10.1037/0021-9010.90.5.1011

Tuttle, C. J. M. (1986). Employee turnover: a meta-analysis and review with implications for research. *Academy of Management Review*, 11(1), 55-70. https://doi.org/10.5465/AMR.1986.4282625

Van Dyne, L., & LePine, J. A. (1998). Helping and voice extra-role behaviors: Evidence of construct and predictive validity. *Academy of Management Journal*, 41(1), 108–119. https://doi.org/10.2307/256902

Venkataramani, V., & Tangirala, S. (2010). When and why do central employees speak up? An examination of mediating and moderating variables. *Journal of Applied Psychology*, 95(3), 582-591. https://doi.org/10.1037/a0018315

Venkataramani, V., Zhou, L., Wang, M., Liao, H., & Shi, J. (2016). Social networks and employee voice: The influence of team members' and team leaders' social network positions on employee voice. *Organizational Behavior and Human Decision Processes*, 132, 37-48. https://doi.org/10.1016/j.obhdp.2015.12.001

Van den Heuvel, S., Schalk, R., & van Assen, M. A. (2015). Does a well-informed employee have a more positive attitude toward change? The mediating role of psychological contract fulfillment, trust, and perceived need for change. *Journal of Applied Behavioral Science*, 51(3), 401-422.

Veld, M., Semeijn, J. H., & Vuuren, T. V. (2016). Career control, career dialogue and managerial position: how do these matter for perceived employability? *Career Development International*, 21(7), 697-712. https://doi.org/10.1108/CDI-04-2016-0047

Wang, Y., Peng, K. Z., Mao, Y., & Lan, J. (2018). Development of a Chinese measure on twelve basic emotions and a preliminary test on a two-dimensional model on emotions-job outcome relationship. *Asia Pacific Journal of Management*, 35, 529–564. https://doi.org/10.1007/s10490-017-9533-0.

Watson, D., Clark, L. A., & Tellegen, A. (1988). Development and validation of brief measures of positive and negative affect: The PANAS scales. *Journal of Personality and Social Psychology*, 54(6), 1063-1070. https://doi.org/10.1037/0022-3514.54.6.1063.

Wayne, A., Hochwarter, B., Parker, E. III, & Gerald R. F. (2014). Examining the interactive effects of accountability, politics, and voice. *Career Development International*, 19(4), 358-380. https://doi.org/10.1108/CDI-01-2014-0012

Weiss, M., & Morrison, E. W. (2019). Speaking up and moving up: How voice can enhance employees' social status. *Journal of Organizational Behavior*, 40, 5-19. https://doi.org/10.1002/job.2262

Wrzesniewski, A., & Dutton, J. E. (2001). Crafting a job: Revisioning employees as active crafters of their work. *Academy of Management Review*, 26(2), 179-201. https://doi.org/10.5465/amr.2001.4378011

Xia, Y., Schyns, B., & Zhang, L. (2020). Why and when job stressors impact voice behavior: An ego depletion perspective. *Journal of Business Research*, 109, 200-209. https://doi.org/10.1016/j.jbusres.2019.11.053.

Xie, J. L., & Johns, G. (1995). Job scope and stress: Can job scope be too high?. *Academy of Management Journal*, 38(5), 1288-1309. https://doi.org/10.5465/256858

Zhang, Q., Hu, H., & Wang, C. (2020). Negative mood and employee voice: The moderating role of leadership. *Social Behavior and Personality: An International Journal*, 48(1), 1-10. https://doi.org/10.2224/sbp.8514.

Zhang, Y., Lepine, J. A., Buckman, B. R., & Wei, F. (2014). It's not fair … or is it? The role of justice and leadership in explaining work stressor-job performance relationships. *Academy of Management Journal*, 57(3), 675-697. https://doi.org/10.5465/amj.2011.1110

Zhang, Y., & Shaw, J. D. (2012). Publishing in AMJ-part 5: Crafting the methods and results. *Academy of Management Journal*, 55(1), 8-12. https://doi.org/10.5465/amj.2012.4001

Zhou, J., & George, J. M. (2001). When job dissatisfaction leads to creativity: Encouraging the expression of voice. *Academy of Management Journal*, 44(4), 682-696. https://doi.org/10.2307/3069

Zhou, L., Yang, K., Wang, Z., & Luo, Z. (2019). When do employees speak up under job stressors? Exploring the potential U-shaped relationship between hindrance stressors and voice behavior. *Frontiers in Psychology*, 10, 2336. https://doi.org/10.3389/fpsyg.2019.02336

Figure Captions

Figure 1 The curvilinear effects of negative affect on voice behavior in study 1

Figure 2 The curvilinear effects of negative affect on voice behavior in study 2

Figure 3 The moderating effect of need for change in study 3

Table 1 The correlations between the variables in study 1

Variables	1	2	3	4	5	6	7
1. Negative affect	(0.81)						
2. Voice behavior	-0.13	(0.86)					
3. Positive affect	-0.48***	0.10	(0.88)				
4. [a]Gender	-0.07	0.09	-0.00	-			
5. Age in year	-0.25**	0.06	0.18*	0.04	-		
6. [b]Education	-0.16	0.09	0.08	0.05	-0.02	-	
7. Organizational tenure in year	-0.11	-0.02	0.14	0.01	0.63***	-0.05	-
Mean	1.61	3.55	4.02	0.53	30.63	1.94	5.67
S.D.	0.63	0.84	0.69	0.50	5.53	0.44	4.37

Note: N=150, **p < 0.01, ***p < 0.001. Values in the parentheses are the Cronbach's alpha coefficient. [a]Gender ("0" male; "1" female). [b]Education ("1" junior college or blow;"2" bachelor;"3" master or above).

Table 2 The results of regression in study 1

Variables	Model 1	Model 2	Model 3
[a]Gender	0.09	0.08	0.07
Age in year	0.09	0.08	0.10
[b]Education	0.07	0.06	0.04
Organizational tenure in year	-0.09	-0.08	-0.08
Positive affect	0.09	0.06	0.09
Negative affect		-0.07	0.13
Negative affect^2			-0.26*
F	0.9	0.84	1.39
Adjusted R^2	-0.00	-0.01	0.02
ΔR^2	-	0.00	0.03*

Note: N=150, *p < 0.05. [a]Gender (“0” male; “1” female). [b]Education (“1” junior college or blow;”2” bachelor;”3” master or above). All data are standardized estimates.

Table 3 Descriptive statistics and correlations in study 2

Variables	1	2	3	4	5	6	7
1. Positive affect	-	-0.20**	0.06	-	-	-	-
2. Negative affect	0.08	-	0.07	-	-	-	-
3. Voice Behavior	0.42**	-0.03	-	-	-	-	-
4. [a]Gender	-0.17	-0.36**	-0.03	-	-	-	-
5. Age	0.05	-0.07	0.14	0.03	-	-	-
6. [b]Education	-0.24	0.04	0.00	0.02	-0.26	-	-
7. Organizational tenure in year	0.14	-0.10	0.13	0.10	0.65***	-0.29*	-
α	0.90	0.93	0.86	-	-	-	-
ω_{within}	0.79	0.84	0.71	-	-	-	-
$\omega_{between}$	0.98	0.99	0.94	-	-	-	-
Mean	3.13	1.92	3.57	0.48	35.14	2.34	7.79
S.D.	0.76	0.81	0.67	0.50	7.23	0.69	6.91

Note: $N_{within\text{-}person}$=217, $N_{between\text{-}person}$=58,*p < 0.05, **p < 0.01, ***p < 0.001. The above diagonal data are at within-person level and the below diagonal data are at between-person level. The within-person variables were centered at the individual level before the within-person correlations were computed. Before computing between-person correlations, Variables 1, variable 2 and variable 3 were aggregated to the person level. "α" is the average Cronbach's alpha coefficient across all days. "ω_{within}" is the McDonald's omega coefficient of within-person reliability from multilevel measurement models. "$\omega_{between}$" is the McDonald's omega coefficient of between-person reliability from multilevel measurement models. [a]Gender ("0" male; "1" female). [b]Education ("1" junior college or blow;"2" bachelor;"3" master or above). The means and standard deviations are based on between-person scores.

Table 4 The results of hierarchical linear model in study 2

Variables	Model 1	Model 2	Model 3	Model 4
Level 2 predictors				
[a]Gender		-0.04	-0.04	-0.04
Age in year		0.10	0.10	0.10
[b]Education		0.04	0.04	0.04
Organizational tenure in year		0.07	0.07	0.07
Level 1 predictors				
Positive affect		0.05	0.06	0.07
Negative affect			0.07	0.18*
Negative affect^2				-0.18*
σ^2	0.16	0.16	0.16	0.16
τ (intercept)	0.41	0.44	0.44	0.44
N (level 1)	217	217	217	217
N (level 2)	58	58	58	58
Pseudo R^2	-	-0.044	0.000	0.001
-2 log likelihood	358.02	374.97	379.78	378.57

Note: Level 1 N=217, Level 2 N=58, *p < 0.05. [a]Gender ("0" male; "1" female). [b]Education ("1" junior college or blow;"2" bachelor;"3" master or above). All data are standardized estimates. We computed Pseudo R^2 using Snijders and Bosker's (1999) formula.

Table 5 The correlations between the variables in study 3

Variables	1	2	3	4	5	6	7	8
1. Negative affect	(0.82)							
2. Voice behavior	-0.04	(0.60)						
3. Need for change	0.21**	0.03	(0.74)					
4. [a]Gender	0.03	-0.06	-0.08	-				
5. Age in year	0.04	-0.04	0.01	-0.19**	-			
6. [b]Education	0.04	-0.01	-0.01	-0.07	0.11	-		
7. [c]Organizational tenure in year	-0.04	-0.05	0.07	-0.64***	0.46***	0.13	-	
8. [d]Position	0.03	0.02	-0.04	-0.14*	0.08	0.87***	0.14*	-
Mean	2.83	4.10	3.39	0.44	33.33	1.88	1.76	0.42
S.D.	0.93	0.59	0.84	0.50	8.99	0.88	0.80	0.49

Note: N=209, **p < 0.01, ***p < 0.001. Values in the parentheses are the Cronbach's alpha coefficient. [a]Gender ("0" male; "1" female). [b]Education ("1" junior college or blow;"2" bachelor;"3" master or above). [c]Organizational tenure in year ("1"≤1 year, "2" >1 year and ≤2 years, "3" >2 years and ≤5 years, "4" > 5years), [d]Position ("0" non-managers;"1" managers).

Table 6 The results of regression in study 3

Variables	Model 1	Model 2	Model 3	Model 4	Model 5	Model 6
[a]Gender	-0.14	-0.14	-0.14	-0.14	-0.14	-0.16
Age in year	-0.00	0.00	-0.00	-0.00	0.01	0.01
[b]Education	-0.10	-0.09	-0.04	-0.05	-0.08	-0.06
[c]Organizational tenure in year	-0.14	-0.14	-0.15	-0.16	-0.16	-0.18
[d]Position	0.10	0.10	0.05	0.06	0.08	0.03
Negative affect		-0.04	-0.11	-0.13	-0.14	-0.11
Negative affect^2			-0.18*	-0.20*	-0.20**	-0.18*
Need for taking change				0.07	0.06	0.34**
Need for change × Negative affect					0.08	0.00
Need for change × Negative affect^2						-0.34*
F	0.76	0.68	1.45	1.38	1.35	1.93*
Adjusted R^2	-0.01	-0.01	0.02	0.01	0.02	0.04
ΔR^2	-	0.00	0.03*	0.00	0.01	0.03*

Note: N=209, *p < 0.05; **p < 0.01. [a]Gender (“0” male; “1” female). [b]Education (“1” junior college or blow;”2” bachelor;”3” master or above). [c]Organizational tenure in year (“1”≤1 year, “2” >1 year and ≤2 years, “3” >2 years and ≤5 years, “4” > 5years), [d]Position (“0” non-managers;”1” managers). All data are standardized estimates.

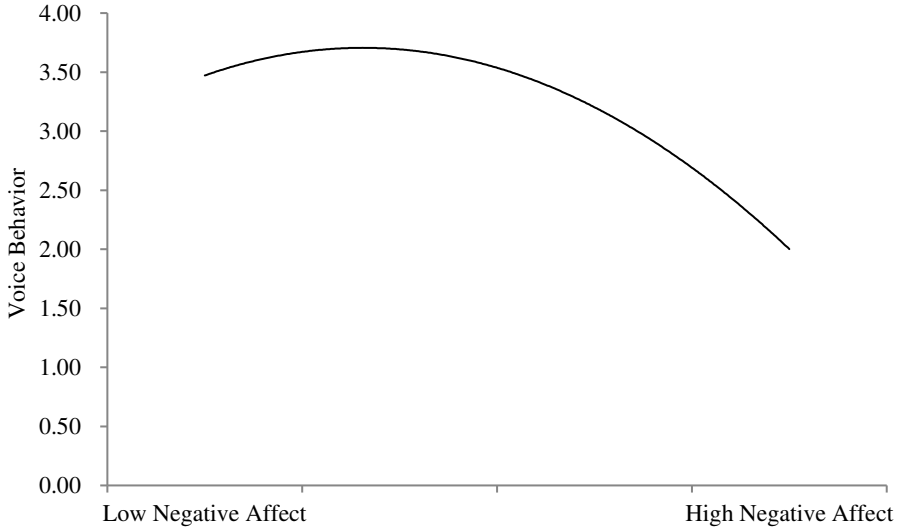

Figure 1 The curvilinear effects of negative affect on voice behavior in study 1

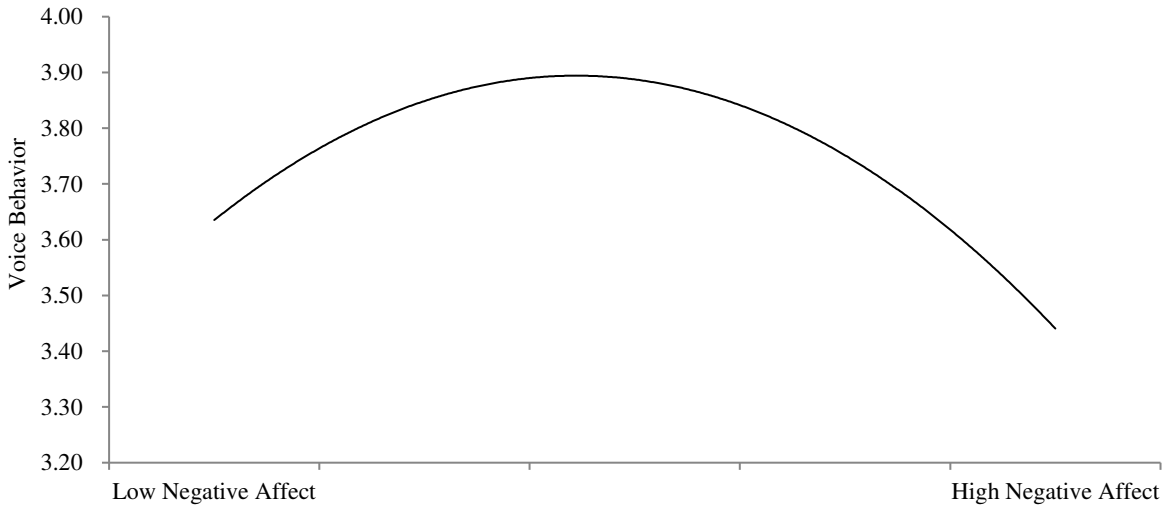

Figure 2 The curvilinear effects of negative affect on voice behavior in study 2

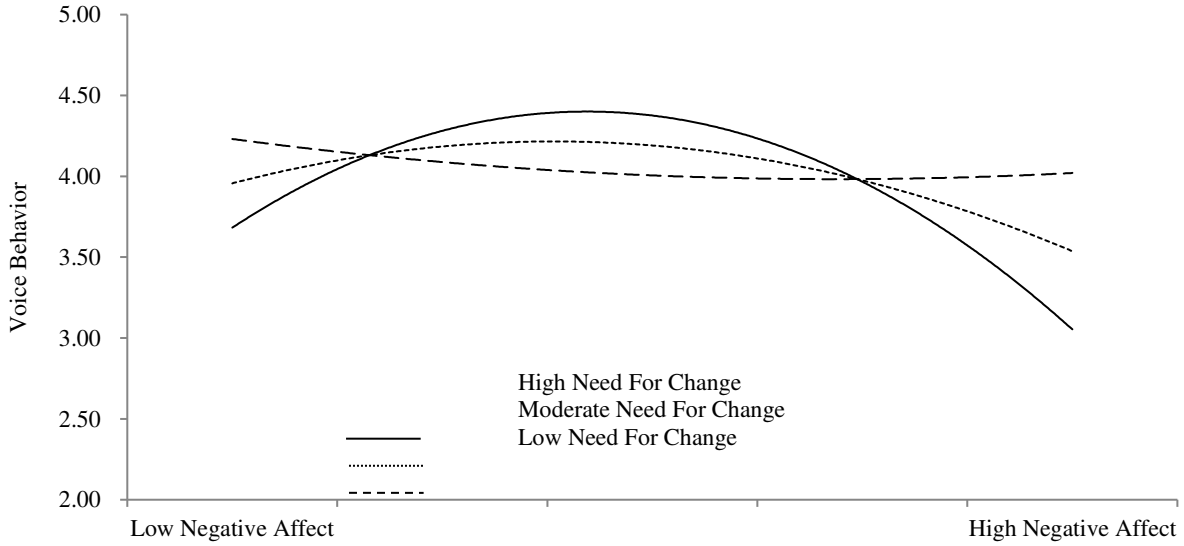

Figure 3 The moderating effect of need for change in study 3