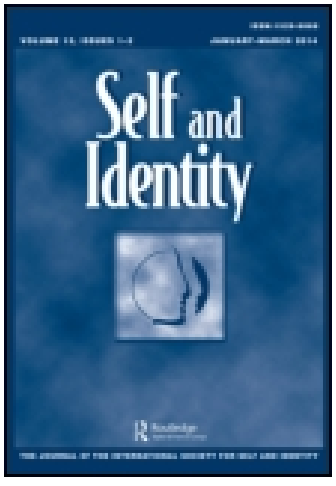

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Rational Versus Experiential Processing of Negative Feedback Reduces Defensiveness but Induces Ego Depletion

Brandon J. Schmeichel[a], Ryan Caskey[a] & Joshua A. Hicks[a]
[a] Department of Psychology, Texas A&M University, College Station, TX, USA
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Rational Versus Experiential Processing of Negative Feedback Reduces Defensiveness but Induces Ego Depletion

Brandon J. Schmeichel, Ryan Caskey, and Joshua A. Hicks

Department of Psychology, Texas A&M University, College Station, TX, USA

Three experiments compared the effects of engaging a more rational versus more experiential processing mode following self-relevant negative feedback. Participants in each experiment were encouraged to process negative feedback about their social skills in a more rational versus more experiential mode before completing a mood measure (Experiment 1), a disguised measure of self-enhancement tendencies (Experiment 2), and a behavioral test of self-control (Experiment 3), respectively. Compared to experiential processing, more rational processing of negative feedback reduced negative mood and self-enhancement tendencies but increased the likelihood of self-control failure. Together, these findings suggest that processing negative feedback in a more rational processing mode helps to dispel threats to self-regard but exacts a cost in the form of a temporary depletion of self-control strength.

Keywords: Ego threat; Negative feedback; Ego depletion; Self-control; Emotion regulation.

Cognitive-experiential self-theory (CEST; Epstein, 1973, 1994) was one of the first dual-process theories in social psychology. According to CEST, people process information in two distinct but interacting processing systems. The experiential system is the older, relatively nonconscious system that is closely tied to emotion and relies on automatic, associative, heuristic-based processing. The rational system is the evolutionarily newer, more conscious system that is relatively affect-free and relies on effortful, deliberative, rule-based processing (for similar dual-systems views, see Kahneman, 2011; Smith & DeCoster, 2000; Strack & Deutsch, 2004).

The present research examined the consequences of processing negative feedback about the self in a more rational versus a more experiential processing mode. We developed and tested three interrelated hypotheses. The first hypothesis is that more rational (versus more experiential) processing helps to regulate mood in response to negative feedback. The second hypothesis, which follows from the first, is that more rational processing reduces defensive self-enhancement in response to negative feedback. The third hypothesis is that more rational processing of negative feedback exacts a cost in the form of ego depletion. Put together, these ideas begin to integrate CEST and the strength model of self-control.

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Correspondence should be addressed to: Brandon J. Schmeichel, Department of Psychology, Texas A&M University, College Station, TX 77843-4235, USA. E-mail: schmeichel@tamu.edu

Cognitive-Experiential Self Theory

CEST began as a theory of personality (Epstein, 1973) and has since developed into a dual-process view of the theories persons construct about themselves and the world (Epstein, 1994, 2006). CEST assumes that persons construct theories of themselves and the world that help to maximize emotional satisfaction without sacrificing the capacity to behave effectively in the world. Two interacting but fundamentally different processing systems are posited to help manage emotional well-being and personal efficacy. The experiential system is presumed to be an evolutionarily old system that humans share with nonhuman animals. It is a relatively crude, effortless, and efficient processing system. It relies on associative learning and is closely related to emotion. According to Epstein (1994, 2003), emotionally significant events trigger the experiential system and automatically prime associated affective content in memory.

The rational system is the more deliberative, effortful, and resource-intensive system and is based primarily on language rather than emotion. It is the evolutionarily newer system and is more fully developed among humans relative to other animals. It is rule-based and capable of abstraction and delay of gratification. Emotionally significant events also trigger activity in the rational system, particularly by promoting the search for emotionally satisfying explanations for negative events. According to CEST, "... such rationalization is a routine process that occurs far more often than is generally recognized ..." (Epstein, 2003, p. 162; e.g., Mehlman & Snyder, 1985). The consequences that stem from the rationalization (or rational-mode processing) of negative emotional events are central to the current investigation.

Several experiments have lent empirical support to CEST by differentiating rational-mode processing from experiential-mode processing (e.g., Epstein, Lipson, Holstein, & Huh, 1992; King, Burton, Hicks, & Drigotas, 2007; Morling & Epstein, 1997; Pacini, Muir, & Epstein, 1998). Most relevant to the current investigation is evidence that compared to a more experiential mode of processing, a more rational mode of processing changes how persons respond to a potent self-threat—death. A series of experiments by Simon et al. (1997) found that thinking and writing about one's own death (i.e., mortality salience) caused an increase in worldview defense (i.e., increased support for worldview-consistent authors and ideas but reduced support for worldview-inconsistent ones), but only among participants who pondered mortality in a more experiential mode of processing. Among participants who pondered death in a more rational processing mode, mortality salience had no effect on worldview defense. Simon et al. proposed that rational-mode processing helps to defuse the anxiety-provoking implications of death and thereby mitigates defensive responses to mortality salience.

The current investigation undertook a conceptual replication and extension of the findings of Simon et al. (1997) by testing the hypothesis that more rational (versus more experiential) processing helps to regulate responding to a seemingly different self-threat—negative feedback about the self. We examined responding to negative feedback for two reasons. First, we wanted to verify the assumption that rational-mode processing regulates responding to self-threats generally rather than to mortality salience specifically. Theorists have debated the extent to which mortality salience is a unique psychological threat versus one of a broader class of self-threats that also includes negative self-evaluation, personal uncertainty, social rejection, and behavioral inconsistency (e.g., Proulx, 2012; Tritt, Inzlicht, & Harmon-Jones, 2012). Evidence can be marshalled in support of both viewpoints, though the inevitability

of death and its absolute finality appear to distinguish it conceptually from other threats (e.g., Becker, 1973). For present purposes, the relevant point is that empirical evidence in favor of the uniqueness of mortality salience as a threat raises the question of whether rational-mode processing protects against other self-threats or is specific to the psychological threat of death.

Second, negative personality feedback has routinely been observed to increase negative mood states (e.g., Swann, Griffin, Predmore, & Gaines, 1987; see Nummenmaa & Niemi, 2004), whereas mortality salience has not (e.g., DeWall & Baumeister, 2007; Rosenblatt, Greenberg, Solomon, Pyszczynski, & Lyon, 1989; Simon et al., 1997; *cf.* Routledge et al., 2010; Routledge, Juhl, & Vess, 2012). This is important because CEST assumes that negative emotional events can trigger rational-mode processing (e.g., rationalizations; Epstein, 2003) intended to regulate or reduce unpleasant mood states. If that is correct, then individuals who process negative feedback in a more rational mode should subsequently experience less negative mood than those who process it in a more experiential mode.

In addition to testing the presumed mood-regulatory function of rational-mode processing, we also developed and tested a second, related hypothesis pertaining to the broader self-regulatory consequences of rationalizing negative feedback. Specifically, we tested the extent to which processing negative feedback in a more rational mode depletes the capacity for self-control.

Self-Control Strength

According to the strength model of self-control (Muraven & Baumeister, 2000), exercising self-control (e.g., in the form of mood regulation) consumes and temporarily depletes a limited inner resource or strength. In this state of depletion, further efforts at self-control are prone to failure. Numerous studies have observed that overriding or altering a predominant response tendency on one task temporarily undermines performance on a second, seemingly unrelated self-control task, thereby lending support to the central prediction of the strength model of self-control (for a meta-analysis, see Hagger, Wood, Stiff, & Chatzisarantis, 2010).

Most relevant for the current investigation is evidence that mood regulation can undermine subsequent, unrelated efforts at self-control. For example, one study of restrained eaters found that suppressing (versus expressing) reactions to a negative emotional stimulus subsequently loosened eating restraints and increased ice cream consumption (Vohs & Heatherton, 2000; see also Hagger et al., 2013). Insofar as mood regulation depletes self-control strength, engaging more rational-mode processing following negative feedback—which is also presumed to regulate mood—may deplete self-control strength and thus temporarily undermine success at self-control.

By contrast, more experiential-mode processing of negative feedback should be less costly for self-control. Research and theory suggest that only those challenges or tasks that require controlled cognitive processing deplete self-control strength. Other tasks or performances appear to rely on more practiced or automatic processes that do not consume the same resource (Muraven & Baumeister, 2000). Here, the potential overlap between the strength model and CEST begins to emerge. CEST assumes that the rational system is the more effortful and controlled processing system, whereas the experiential system is the less effortful, more automatic processing system. According to the strength model of self-control, then, compared to experiential-mode processing, rational-mode processing should deplete resources and temporarily undermine self-control.

The Current Experiments

Based on the reasoning outlined earlier, we conducted three experiments testing three related hypotheses. The first hypothesis was that processing negative feedback about the self in a more rational mode reduces negative mood. This hypothesis follows directly from CEST, which proposes that negative events trigger rational-mode processing intended to minimize negative mood. By contrast, experiential processing of negative events should prime associated affective content in memory and temporarily sustain negative mood. The second hypothesis builds on prior research by Simon et al. (1997) and predicts that rational-mode (versus experiential-mode) processing reduces defensive self-enhancement tendencies following negative feedback. The first two experiments thus test the potential self-regulatory benefits of rational-mode processing. The third experiment examines a potential cost of processing negative feedback in a more rational mode. Based on the strength model of self-control, we predicted that rational-mode processing of negative feedback causes a temporary reduction in the capacity for self-control.

Experiment 1

Participants in Experiment 1 completed a test purporting to measure their social abilities. Shortly after completing the test, participants were informed that their responses revealed a lack of maturity, a tendency toward selfishness or egotism, and a poor outlook for future relationships. This negative feedback was intended to threaten self-esteem, consistent with past research using similar negative feedback about social-emotional competencies (see Nummenmaa & Niemi, 2004). By virtue of random assignment, participants were encouraged to process the feedback in a more rational mode (by expressing their thoughts) or a more experiential mode (by expressing their feelings) (see Simon et al., 1997, Study 2) before reporting their mood state on the Brief Mood Inspection Scale (BMIS; Mayer & Gaschke, 1988).

We predicted that encouraging participants to express their thoughts in response to the negative feedback would trigger a more rational processing mode, which would help participants dispel the threat posed by the feedback and reduce negative mood. By contrast, we expected that encouraging participants to express their emotions would trigger a more experiential processing mode and sustain the negative emotions elicited by the negative feedback. Given that trait self-esteem has contributes to responses to self-threats (e.g., Heimpel, Wood, Marshall, & Brown, 2002; Park & Crocker, 2008; Schmeichel et al., 2009; see vanDellen, Campbell, Hoyle, & Bradfield, 2011), we controlled for trait self-esteem in all three experiments to ascertain the effects of the processing mode manipulation above and beyond the contributions of trait self-esteem.

Method

Participants and design. Eighty undergraduate students (30 men, 50 women) participated in exchange for credit toward a course requirement. One additional participant completed the study but was a statistical outlier (>3 SD) on the dependent measure and was therefore excluded from all analyses. Participants reported individually to a laboratory experiment and were randomly assigned between the rational processing and experiential processing conditions.

Procedure. Upon arrival to the laboratory, participants learned that the experiment concerned the relationship between personal interests, emotional intelligence, and social

skills. As part of the cover story, participants completed a computer-based measure of lifestyle interests and personal preferences purported to be an accurate predictor of social skills in young adults (borrowed from Schmeichel & Demaree, 2010). The so-called "MacMillan Lifestyles Questionnaire" asked participants 20 multiple-choice questions about their interest in a variety of topics. For example, one question asked "What would you rather do on a Friday night? A) Go to the movie theater; B) Go to a party; C) Relax at home; D) Go on a date," and another asked "Which of these characteristics do you find most important in a friendship? A) Understanding; B) Loyalty; C) Similarity; D) Compassion." Upon completing this bogus questionnaire, participants were given the opportunity to view the results of a computerized analysis of their responses. (All chose to view the results.)

After receiving negative evaluative feedback (described below) about their responses, participants in the *rational processing condition* were instructed to "spend a few minutes writing down your *thoughts* about the test evaluation." Participants assigned to the *experiential processing condition* were asked to "spend a few minutes writing down your *feelings* about the test evaluation."

All participants received identical negative feedback based on research on the Barnum effect (e.g., Forer, 1949). The feedback read, in part,

> Your responses indicate that you lack important social and emotional abilities for someone your age. You probably have a few close friends at this stage in your life, but if you fail to change your lifestyle preferences, you are likely to have difficulty maintaining those friendships and forming new relationships in the future. The lack of maturity shown in your responses indicates that you are likely to experience emotional distress and even depression when you encounter failure or other hardships that are inevitable in life.

Immediately after processing the feedback in the assigned mode, participants rated their emotional state using the BMIS (Mayer & Gaschke, 1988; see Watson & Tellegen, 1985). The BMIS asks participants to rate their mood state in terms of 16 adjectives using scales from 1 = *definitely do not feel* to 7 = *definitely do feel*. Sample adjectives include *grouchy*, *active*, *calm*, *happy*, and *nervous*. The BMIS assesses two related two-dimensional models of mood, one that characterizes mood in terms of pleasantness and arousal (i.e., pleasant–unpleasant and arousal–calm) and one that characterizes mood in terms of positive versus negative activation (i.e., positive—tired and negative—relaxed). To control for individual differences in self-esteem, participants also completed the 10-item Rosenberg Self-Esteem Scale (Rosenberg, 1965) ("I take a positive attitude toward myself") using scales from 1 = *strongly disagree* to 4 = *strongly agree* ($M = 31.92$, $SD = 4.47$, $\alpha = .89$).[1] Last, participants were debriefed regarding the true purpose of the experiment, assured that the negative feedback they had received was bogus, thanked, and dismissed.

Results

The primary hypothesis was that processing negative feedback in a more rational mode would reduce negative mood compared to processing negative feedback in a more experiential mode. We tested this hypothesis using a one-tailed criterion of significance because the prediction was directional, derived from theory, and specified in advance. The main dependent variables were scores on the two negative mood scales of the BMIS. Please refer to Table 1. ANCOVAs with self-esteem as the covariate revealed that participants in the more experiential processing condition scored higher on the BMIS measures of arousal, $F(1, 77) = 3.95$, $p < .05$, $d = .46$, and negative activation,

TABLE 1 Self-Reported Mood as a Function of Experimental Condition (Experiment 1)

	Rational-mode condition	Experiential-mode condition
Pleasant–unpleasant	12.05 (11.92)	10.73 (14.38)
Arousal–calm	20.26_a (7.18)	23.81_b (8.36)
Positive—tired	10.41 (7.05)	11.46 (6.91)
Negative—relaxed	5.77_a (4.63)	8.10_b (7.12)

Notes: Means in the same row with different subscripts differ at $p < .05$. Numbers in parentheses are standard deviations.

$F(1, 77) = 3.16, p < .05, d = .39$, compared to participants in the more rational processing condition. The two groups did not differ in terms of pleasant mood or positive activation, Fs < 1, ps $> .39$, ds $< .16$.

Discussion

The results of Experiment 1 provide initial support for the idea that rational thought processing mollifies negative affective responses following negative feedback. Participants who processed negative feedback in a more rational mode reported less negative affect following the feedback manipulation compared to people who processed the same information more experientially. These results are in line with a basic tenet of CEST (see Epstein, 1994, 2003) suggesting that activating the rational system helps individuals find emotionally satisfying explanations for negative events, thereby reducing the emotional impact of such events.

The results of Experiment 1 provide encouraging support for our first hypothesis but replication is necessary to instill greater confidence in the effect. Experiment 2 aimed to achieve this goal. Another aim of Experiment 2 was to test a second hypothesis: that rational-mode processing reduces defensive self-enhancement tendencies following negative feedback. If rational-mode processing helps individuals find emotionally satisfying explanations for negative feedback, then these individuals should be less likely to engage defensive self-enhancement strategies following rational (versus experiential) processing of negative feedback.

Experiment 2

As in Experiment 1, participants in Experiment 2 received negative feedback about their social skills and then were encouraged to process the feedback in a more rational versus a more experiential processing mode. Participants then completed a disguised measure of self-enhancement tendencies known as the Over-Claiming Questionnaire (OCQ; Paulhus, Harms, Bruce, & Lysy, 2003) and reported their mood state using the BMIS.

We predicted that encouraging participants to express their thoughts in response to the negative feedback would trigger a more rational processing mode, which would help participants dispel the threat posed by the feedback and minimize negative mood. By contrast, we expected that encouraging participants to express their emotions would trigger a more experiential processing mode and sustain the negative emotions elicited by the negative feedback. When then given the opportunity to self-enhance, participants who processed the negative feedback in the more rational mode should self-enhance less (i.e., over-claim less) compared to participants who processed the feedback in a more experiential mode.

Method

Participants and design. Seventy-nine undergraduate students (23 males) participated in exchange for credit toward a course requirement. They were randomly assigned between the rational and experiential processing mode conditions.

Procedure. The procedure for Experiment 2 was identical to the procedure for Experiment 1, with the exception of the dependent measure. After processing (bogus) negative feedback about their social skills in either a more rational or more experiential processing mode, participants completed the OCQ (Paulhus et al., 2003). The OCQ, which was described as a popular measure of crystallized intelligence, asked participants to rate their familiarity with various names and events. The list included 72 real items (e.g., Jackie Robinson, pork-barreling) as well as 18 "foil" or fake items that do not actually exist (e.g., Bulldog Graziano, cholarine). Claiming familiarity with non-existent people, places, and things is associated with narcissistic self-enhancement (Paulhus et al., 2003) and is presumed to be motivated by the desire to see oneself (and be seen) as knowledgeable and intelligent.

Upon completing the OCQ, participants rated their mood state using the BMIS. Participants also completed the 10-item Rosenberg Self-Esteem Scale ($M = 31.92$, $SD = 4.47$, $\alpha = .89$). Last, participants were debriefed regarding the true purpose of the experiment, assured that the negative feedback they had received was bogus, thanked, and dismissed.

Results

The primary hypothesis was that self-enhancement would be reduced by processing negative feedback about the self in a rational, thought-based mode compared to a more experiential, emotion-based mode. It was. The main dependent variable was self-enhancing response bias on the OCQ. We computed response bias by summing the proportion of actual items (hit rate) plus foil items (false alarm rate) with which participants claimed familiarity (see Paulhus & Harms, 2004). An analysis of covariance (ANCOVA) with self-esteem as the covariate revealed a more pronounced self-enhancement bias among participants in the experiential processing condition ($M = .98$, $SD = .44$) compared to participants in the rational processing condition ($M = .79$, $SD = .27$), $F(1, 76) = 5.29$, $p = .02$, $d = .52$.

The OCQ also furnishes an accuracy score, computed by subtracting the proportion of familiar actual items minus familiar foil items. Here, the experiential and rational processing mode groups were equivalent, $F < 1$. Thus, expressing one's thoughts in response to negative feedback reduced the tendency to claim knowledge of non-existent people, concepts, and events relative to expressing one's emotions in response to negative feedback, but the processing mode manipulation did not influence accuracy in recognizing real people, concepts, and events.

Last, we tested for group-wide differences in mood assessed at the end of the experiment. These results are displayed in Table 2. ANCOVAs with self-esteem as the covariate found that participants in the more experiential processing condition scored higher on the BMIS measures of arousal, $F(1, 76) = 4.79$, $p = .03$, $d = .50$, and negative activation, $F(1, 76) = 5.25$, $p = .03$, $d = .50$, respectively, compared to participants in the more rational processing condition. The two groups did not differ in terms of pleasant mood or positive activation, $Fs < 1.40$, $ps > .25$, $ds < .30$.

TABLE 2 Self-Reported Mood as a Function of Experimental Condition (Experiment 2)

	Rational-mode condition	Experiential-mode condition
Pleasant–unpleasant	15.54 (9.84)	12.00 (14.73)
Arousal–calm	21.00_{a} (8.15)	24.95_{b} (7.54)
Positive—tired	11.85 (5.85)	12.82 (5.80)
Negative—relaxed	5.00^{a} (5.60)	8.45^{b} (7.95)

Notes: Means in the same row with different subscripts differ at $p < .05$. Numbers in parentheses are standard deviations.

Discussion

The results from Experiment 2 provided evidence that more rational or thought-focused (versus more experiential or feeling-focused) processing of negative feedback reduces subsequent defensiveness. Presumably, participants who processed the negative feedback in a more rational mode found an emotionally satisfying explanation for the negative event (i.e., they engaged in rationalization; see Epstein, 1994, 2003) and thus were not strongly motivated to self-enhance further by feigning knowledge on the OCQ. These participants also reported relatively lower levels of negative mood at the end of the experiment. By contrast, participants who processed the negative feedback in experiential, emotion-based mode appear to have been prevented from explaining away the threat and stayed mired in their negative mood. These participants subsequently took the opportunity to self-enhance by over-claiming knowledge on the OCQ, but they also reported a more negative emotional state at the end of the experiment. This pattern suggests that self-enhancement attempts did not fully alleviate the discomfort of processing negative feedback in a more experiential mode.

According to CEST, information processing in the rational system requires more effort and more cognitive resources relative to processing in the experiential system. The results of Experiments 1 and 2 suggest that the more resource-intensive rational processing mode yields the benefits of less negative mood and less self-enhancement in response to negative feedback. We reasoned that, despite its hedonic benefits, the resource-intensive nature of processing in the rational system may also carry a cost. The third experiment was designed to test the hypothesis that more rational (versus experiential) processing of negative feedback temporarily undermines self-control.

Experiment 3

According to CEST, the rational processing system is the more controlled, effortful processing system, whereas the experiential system is the more automatic and effortless system. According to the strength model of self-control, more rational, controlled processing consumes and depletes limited resources for self-control relative to less rational, more automatic processing. Therefore, in Experiment 3 we assessed self-control after participants had processed negative feedback in a more rational versus more experiential mode.

Participants again received negative feedback about their social skills and were encouraged to process the feedback in a more rational versus a more experiential processing mode. Then, to measure the consequences for self-control, we had participants play a computer game in which they had to choose between short delays paired with small rewards versus longer delays paired with larger rewards (*cf.* delay of gratification; Mischel & Ebbesen, 1970). The best tactic for achieving the most rewards (points) is to wait for the larger rewards. But the wait is boring, which requires participants to override the

temptation to choose the more stimulating but less rewarding option (i.e., shorter delays that yield fewer points). Consistent with this reasoning, impulsive individuals earn fewer rewards than do non-impulsive individuals on the two-choice impulsivity task (e.g., Dougherty, Bjork, Huckabee, Moeller, & Swan, 1999; Mason, O'Sullivan, Blackburn, Bentall, & El-Deredy, 2012). Further, and of particular relevance to the current experiment, participants who have recently exercised self-control on a different task choose more immediate rewards and earn fewer points than do other participants, presumably because prior acts of self-control deplete the inner capacity or strength to delay gratification (Schmeichel & Vohs, 2009). We therefore interpreted higher point totals on the computer game to reflect better self-control.

We predicted that processing negative feedback in a more rational, thought-based mode would consume self-control strength, relative to processing negative feedback in a more experiential, feeling-based mode. Based onCEST, we presumed that negative feedback would trigger the experiential system and prime emotion-related contents in memory. Thus, activating the more rational system following negative feedback would entail the countering of a predominant response tendency (i.e., experiential processing). If that is correct, then the rational processing group should score fewer points on the delay of gratification game. Such a result would suggest that more rational processing of negative feedback temporarily consumes and depletes self-control strength.

Method

Participants and design. One hundred undergraduate students (41 men, 59 women) participated in exchange for credit toward a course requirement. One additional student participated in the study but did not complete all of the measures and was therefore excluded from analyses. Participants reported individually to a laboratory experiment described as a study of personal interests and intellectual ability, and they were randomly assigned between the rational processing and experiential processing conditions.

Procedure. The procedure for Experiment 3 was identical to the procedures for Experiments 1 and 2, with the exception of the dependent measure. After processing (bogus) negative feedback about their social skills in either a more rational or more experiential processing mode, participants played a computer game known as the two-choice impulsivity paradigm (TCIP; Dougherty, Mathias, Marsh, & Jagar, 2005). Two shapes (a circle and a square) appeared on screen. The participants' task was to select (click) the shapes to accumulate points. If participants selected the circle, the computer screen froze (i.e., neither shape could be selected) for 3 seconds, after which time three points were added to a counter displayed at the top of the screen. This represented the smaller, more immediate reward option. If participants selected the square, the screen froze for 15 seconds before 15 points were added to the counter. This option represented the larger but delayed reward. Hence, on each trial of the game, participants had to choose either the shape that delivered a few points fairly quickly or the shape that delivered several points after a delay. Research has found that people desire to obtain points even if the points are of little or no value (Hsee, Fang, Zhang, & Zhang, 2003), but to earn points on the two-choice impulsivity task required a boring delay, which could lead to impatience.

Participants learned the reward structure of the game by completing four practice trials and then played 20 official (scored) trials. The number of points earned over 20 trials was the dependent variable, with higher scores reflecting better self-control. After completing

TABLE 3 Self-Reported Mood as a Function of Experimental Condition (Experiment 3)

	Rational-mode condition	Experiential-mode condition
Pleasant–unpleasant	6.85 (11.21)	10.08 (13.19)
Arousal–calm	20.77 (7.84)	21.46 (6.75)
Positive—tired	8.35 (6.60)	10.02 (7.14)
Negative—relaxed	7.85 (5.51)	7.29 (5.65)

Note: Numbers in parentheses are standard deviations.

the computer game, participants reported their mood on the BMIS and then completed the Rosenberg Self-Esteem Scale ($M = 32.01$, SD $= 4.32$, $\alpha = .86$).

Results

Our primary hypothesis was that processing negative feedback in a more rational mode would reduce the number of points participants earned on a computer-based measure of delay of gratification, compared to processing negative feedback in a more experiential mode. It did. An ANCOVA with self-esteem as the covariate indicated that participants in the rational processing group scored fewer points ($M = 204.92$, SD $= 57.42$) on the TCIP compared to participants in the experiential processing group ($M = 226.96$, SD $= 54.20$), $F(1, 97) = 4.94$, $p = .03$, $d = .39$.

As in Experiment 2, we tested for group-wide differences in mood assessed at the end of the experiment. ANCOVAs with self-esteem as the covariate revealed no main effects of condition on the four mood scores furnished by the BMIS, Fs < 1.10, ps $> .30$, ds $< .27$. Means and standard deviations are displayed in Table 3.

General Discussion

Three experiments examined the relative effects of more rational versus more experiential processing of negative feedback about the self. There were three major conclusions. First, rational processing of self-threat enhances emotion regulation relative to more experiential processing of self-threat. In Experiments 1 and 2, participants who expressed their thoughts (rational mode) about the negative feedback reported less negative mood than did participants who expressed their feelings (experiential mode) about the negative feedback. Second, more rational (versus more experiential) processing of self-threat reduces defensive self-enhancement. In Experiment 2, participants who processed negative feedback in a more rational processing mode subsequently were less prone to claim familiarity with bogus information compared to participants who processed negative feedback in a more experiential processing mode. Third, Experiment 3 found that more rational (versus more experiential) processing of self-threat temporarily depletes self-regulatory resources. These conclusions bear on several issues in the literatures on psychological self-defense and self-regulation, respectively.

CEST and Psychological Self-Defense

The present investigation represents a conceptual replication and extension of past research on CEST and responses to self-threats. Specifically, a previous series of studies examined the consequences of pondering personal mortality in a more rational or more experiential processing mode. Participants who processed the threat of death in a more rational mode subsequently engaged in less defensive responding (i.e., less worldview

defense; Simon et al., 1997). This finding supported the hypothesis that more rational processing reduces defensive responses to self-threats. The current Experiment 2 conceptually replicated the results of Simon et al. by finding less defensive responding (i.e., less over-claiming) among participants who processed a self-threat in a more rational (versus more experiential) mode.

Unlike the studies by Simon et al. (1997), the current experiments induced self-threat by informing participants that they lacked social skills that contribute to emotional well-being. This sort of feedback has reliably been observed to increase negative mood states (Nummenmaa & Niemi, 2004). We capitalized on the mood-inducing nature of negative feedback to test the assumption, derived from CEST, that rational-mode processing of negative events confers emotional benefits. We found that it does. The current results, in combination with past research, thus indicate that rational-mode processing diminishes both defensive responses and negative mood following self-threats.

The apparent benefits of more rational processing appear to mimic the benefits of another well-known salve for threats to self-regard—self-affirmation (Steele, 1988). Self-affirmation, like rational-mode processing in the current studies, has been found to reduce defensive responding to self-threats. For example, affirming a core personal value increases openness to counter-attitudinal perspectives (e.g., Cohen, Aronson, & Steele, 2000) and acceptance of threatening health information (e.g., Howell & Shepperd, 2012; van Koningsbruggen, Das, & Roskos-Ewoldsen, 2009; see Sherman & Cohen, 2006, for a review). Evidence that both rational-mode processing and self-affirmation reduce defensiveness raises the possibility that the two processes operate in a similar fashion. For example, self-affirmation may engage the rational system, which helps to mitigate negative emotional responding.

In conjunction with previous research on self-affirmation and ego depletion, however, the findings of Experiment 3 suggest that rational-mode processing and self-affirmation operate via different processes. More specifically, Schmeichel and Vohs (2009) found that self-affirmation counteracts the ego depletion effect (see also Huynh, Stefanucci, & Aspinwall, 2014). In contrast, the current Experiment 3 found evidence of ego depletion after participants processed negative feedback in a more rational (versus more experiential) mode. Thus, rational mode processing appears to deplete self-regulatory resources where self-affirmation restores them.

The evidence that rational-mode processing of negative feedback depletes self-regulatory resources is consistent with CEST, which ascribes controlled processing to the rational system and more automatic processing to the experiential system, and begins to integrate the original dual process theory in social psychology with the resource model of self-control. Insofar as engaging the more controlled, rational processing system depletes self-regulatory resources, the evidence that self-affirmation restores (rather than depletes) resources would appear to suggest that self-affirmation does not engage the rational system. Evidence that self-affirmation boosts other oriented positive emotions (e.g., love, sympathy; Crocker, Niiya, & Mischkowski, 2008) is also consistent with this view and suggests that affirmation may operate via the experiential system.

Alternatively, it may be the case that not all rational-mode processing is depleting. For example, solving multiplication problems is presumed to require rational processing, but previous research has found no evidence that solving multiplication problems draws upon self-regulatory resources (e.g., Muraven, 2010). Similarly, self-affirmation may engage the rational system without depleting self-regulatory resources. Or perhaps rational-mode processing is depleting particularly when it is engaged to regulate responding to negative events, as was the case in the current experiments. Additional research is needed to further the integration of CEST and the strength model of self-regulation, and to better understand how different methods of assuaging threats to self-regard are accomplished.

Limitations and Future Directions

The current experiments did not include a neutral processing mode condition. It is thus unclear whether rational-mode processing tempered negative mood in these experiments or whether experiential-mode processing may have increased negative mood. Based on CEST, we believe that more rational processing of negative information reduces negative mood. Recent research has suggested, however, that experiential processing may amplify the relationship between affect and feelings of significance. For instance, persons prone to experiential-mode processing are more likely to extract meaning out of life events if they are in a positive mood at the time of the judgment (e.g., King et al., 2007; King & Hicks, 2009). These results raise the possibility that emotional events may feel more meaningful or significant when processed experientially and, as a result, experiential processing may exacerbate emotional reactions. In this view, experiential mode processing may have increased negative mood. It should be noted that in previous studies, only positive affect has been found to interact with experiential processing to predict the experience of meaning. Nonetheless, a neutral processing condition may help tease apart the extent to which rational processing reduces and experiential processing increases negative mood in response to self-threats.

Unfortunately, it is difficult to conceive of a neutral processing mode condition, insofar as the two systems posited by CEST are continually interacting and engaged in healthy human adults. We suspect that the current findings are driven mainly by the activity in the rational system, but this conclusion remains tenuous. Future research that integrates individual differences in processing preferences may be illuminating in this regard. Among highly intuitive or experiential individuals, for example, rational-mode processing may be particularly difficult or taxing and unlikely to change negative mood, whereas for persons high in the need for cognition, more rational-mode processing may be more routine or automatic and more useful in changing negative mood.

Although the results of the current experiments lent consistent support to hypotheses derived from CST and the strength model of self-control, respectively, one null finding deserves further mention. In Experiments 1 and 2, participants in the experiential processing conditions reported more negative mood at the end of the study compared to participants in the rational processing condition. In Experiment 3, however, the two groups reported equivalent mood states at the end of the study. A mundane explanation for this difference may apply. The delay period between the processing mode manipulation and the mood measure was longer in Experiment 3 than it was in Experiments 1 and 2. It is likely that the processing mode manipulation produced relatively short-lived differences in mood states that normalized by the time participants completed the mood measure at the end of Experiment 3. More research would be needed to draw a more definitive conclusion on this matter.

Conclusion

Failure, awareness of death, negative feedback about the self, and other threats to self-regard have long been observed to trigger defensive responses aimed at bolstering the self (vanDellen et al., 2011). The current investigation revealed anew that how people process self-threatening information matters. Processing self-threats in a more experiential mode appears to sustain the threat, maintains negative mood, and is associated with more defensive responding. By contrast, rationalizations help to dispel self-threats and maintain emotional equanimity. However, the hedonic benefits of rational-mode processing come with a cost. Processing negative emotional events rationally appears to consume and deplete self-regulatory resources, leaving persons temporarily prone to self-control failure.

Note

1. The self-esteem measure, which was always completed at the end of the experiment, did not differ as a function of condition in any of these experiments.

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