Resilience in the face of romantic rejection: The automatic impulse to trust

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A R T I C L E   I N F O

Article history:
Received 23 March 2011
Revised 15 February 2012
Available online 23 February 2012

Keywords:
Trust
Rejection
Automatic attitude
IAT
Working memory capacity

A B S T R A C T

Can heeding the automatic impulse to trust one’s romantic partner increase physical and psychological resilience in the face of doubts about a partner’s responsiveness? Experimental participants were led to believe that their partner perceived a long list of faults in them. All participants then gave a speech about their future career goals while their partner watched. The results revealed impulsive trust (i.e., evaluative associations to the partner on the Implicit Associations Test) increased resilience to partner-criticism for people who heed their automatic impulses (i.e., low in working memory capacity). Specifically, for people low in working memory capacity and high in impulsive trust, partner-criticism increased resilience relative to control participants (i.e., expecting a more approving partner reaction to their speech, cardiovascular reactivity consistent with a positive challenge response). In contrast, for people low in working memory capacity and low in impulsive trust, partner-criticism decreased resilience relative to control participants (i.e., expecting a more disapproving partner reaction, cardiovascular reactivity consistent with a negative threat response).

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Introduction

It is a youthful failing to be unable to control one’s impulses. Seneca (5 BC—65 AD)

Being unable to control one’s impulses is not just a failing of the young (Strack & Deutsch, 2004). It is also thought to be a failing of the romantically attached. Decades of psychological wisdom suggest that succumbing to one’s impulses sets relationships on the path to discord. For instance, angry words that are voiced rather than silenced trigger destructive cycles of negativity (Gottman, 1994; Rusbult, Verette, Whitney, Slovak, & Lipkus, 1991), office flirtations that are reciprocated rather than ignored threaten commitment (Lydon, Menzies-Toman, Burton, & Bell, 2008), and sacrifices that are refused rather than offered weaken trust (Wieselquist, Rusbult, Foster, & Agnew, 1999). Nonetheless, there is still a case to be made for the benefits of succumbing to one’s impulses on occasion. This paper focuses on the role that the automatic impulse to trust plays in fostering physical and psychological resilience (vs. vulnerability) in the face of a romantic partner’s criticism or rejecting behavior.

The pain of interpersonal rejection

Because the need to belong is a fundamental motivation, the experience of doubting one’s value to others is both aversive and motivating (Baumeister & Leary, 1995; MacDonald & Leary, 2005). For instance, being rejected by players in a virtual ball-toss game activates brain regions associated with the physical pain response (Eisenberger, Lieberman, & Williams, 2003). Being rejected by a potential romantic suitor also heightens salivary cortisol production, a marker of the stress response (Ford & Collins, 2010). In relationships, feeling rejected by one’s spouse diminishes self-esteem in daily interactions (Murray, Griffin, Rose, & Bellavia, 2003).

In romantic relationships, people often try to soothe doubts about their partner’s caring and responsiveness in ways that put short-term pain relief ahead of the relationship’s long-term welfare (Murray, Holmes, & Collins, 2006). For instance, people who question their spouse’s acceptance react to their partner’s imagined slights on a daily basis by treating their partner with hostility (Murray, Bellavia, Rose, & Grif

Impulsive trust: a source of vulnerability (or resilience)

According to the risk regulation model, trust in a partner’s responsiveness functions to signal the safety of approach (Murray & Holmes, 2009; Murray et al., 2006). Trust is experienced as a state of comfort (or unease) in the partner’s presence, as a basic anticipation of gain
(or loss) through dependence on the partner (Deutsch, 1973; Holmes & Rempel, 1989). Being more trusting signals the possibility of gain and allows people to seek stronger connections. In contrast, being less trusting signals the possibility of loss and motivates behavioral efforts to reduce closeness and avoid the partner (Wieselquist et al., 1999).

Close relationship scholars typically conceptualize and operationalize trust in terms of conscious, readily articulated, expectations about the partner’s responsiveness (Murray et al., 2006). However, the unconscious mind sometimes knows things that escape the notice of the conscious mind (Bargh & Morsella, 2008). In a dual process model of trust, Murray et al. (2011) argued that trust has an impulsive form in addition to a reflective form.

Impulsive trust corresponds to one’s automatic attitude toward the partner (Murray et al., 2011; Murray, Holmes, & Pinkus, 2010). In simple terms, being in the partner’s presence activates an immediately evaluative association that signals the possibility of good or bad things to come. Defining impulsive trust as an automatic evaluative response to the partner has long intellectual roots in attitudes theory (Fazio, 1986; Olson & Fazio, 2008). Attitude theorists argue that automatic evaluative associations orient people to their social worlds, signaling what is good and to be approached or bad and to be avoided (Alexopoulos & Ric, 2007; Banaji & Heiphetz, 2010; Baumeister, Vohs, De Wall, & Zhang, 2007; Chen & Bargh, 1999; Olson & Fazio, 2008). Automatic evaluative associations to the partner play a similar orienting function: signaling whether the partner is generally good and to be approached or bad and to be avoided. The more impulsively trusting Gayle is, the more positive her automatic association to Ron. Conversely, the less impulsively trusting she is, the less positive her automatic association.

Reflective trust refers to conscious expectations about the strength of the partner’s positive regard and caring, now and in the future (Holtmes & Cameron, 2005; Holmes & Rempel, 1989; Murray & Holmes, 2009). This definition departs from early definitions that located trust in dispositional judgments of the partner’s dependability and predictability (Rempel, Holmes, & Zanna, 1985). The dual process model instead locates reflective trust in a dyadic judgment about the partner’s specific regard for oneself and the relationship, a definition shared by recent models of attachment and interdependence (Mikulincer & Shaver, 2001; Murray, Holmes, & Sgriffin, 2000; Murray et al., 2006; Murray & Holmes, 2009; Reis, Clark, & Holmes, 2004; Wieselquist et al., 1999). The more reflectively trusting Gayle is, the more she believes Ron values her qualities and feels close and committed to her. In contrast, the less reflectively trusting Gayle is, the less valuing, close, and committed she perceives Ron to be.

Doubling a partner’s responsiveness brings concerns about safety into central focus in relationships (Murray et al., 2006; Murray & Holmes, 2011). Therefore, the dual process model predicts that the safety-signaling properties of impulsive trust should be most evident in the face of reflective trust concerns. Specifically, being more or less impulsively trusting should principally qualify the effects of being less reflectively trusting. Because ongoing experience is assimilated to one’s automatic attitudes (Banaji & Heiphetz, 2010), being more or less impulsively trusting should change how Gayle experiences conscious doubts about Ron’s responsiveness. Such doubts could arise in specific situations (e.g., Ron berating her qualities) or be relatively chronic (Murray et al., 2006). In either case, being relatively high in impulsive trust might transform her experience of doubt in ways that highlight the anticipation of something good rather than bad to come. In contrast, being relatively low in impulsive trust might transform such doubts in ways that highlight apprehensions of something even worse to come because less positive automatic evaluative associations to the partner echo conscious suspicions that approach might not be safe.

**Heeding evaluative impulses**

We draw on assumptions basic to social cognitive theory to quantify exactly how being more or less impulsively trusting changes people’s actual experience of being uncertain about their partner’s caring (Gawronski & Bodenhausen, 2006; Hofmann, Friese, & Strack, 2009; Strack & Deutsch, 2004; Olson & Fazio, 2008). The MODE (Motivation and Opportunity as Determinants) model states that automatically activated attitudes control behavior unless people are able and motivated to correct for their influence (Olson & Fazio, 2008). Building on this kind of multiplicative logic, the dual process model of trust assumes that people will be swayed by impulsively trusting sentiments — unless they have both the opportunity and the motivation to correct for the behavioral impetus supplied by their automatic evaluative associations to their partner (Murray et al., 2011).

Available executive resources limit the opportunity to correct for one’s evaluative impulses (Gawronski & Bodenhausen, 2006; Hofmann et al., 2009; Strack & Deutsch, 2004). For instance, people who are low in working memory capacity have trouble regulating attention and inhibiting automatic behavioral inclinations (Baddeley & Hitch, 1974; Hofmann et al., 2009). When tempted, people low in working memory capacity eat as many M & M candies as their automatic evaluative associations to chocolate dictate. However, people high in working memory capacity ignore such impulses and eat few candies as their diet-intentions dictate (Hofmann, Gschwendner, Friese, Wiers, & Schmitt, 2008). Because overriding evaluative impulses requires executive capacity, the dual process model of trust assumes that people are more likely to heed the safety signal supplied by impulsively trust when executive resources are limited (Murray et al., 2011).

However, when executive resources are plentiful, people have the necessary capacity to override the impulsive trust signal if they are motivated to do so. Being in a situation that provokes reflective uncertainty about the partner’s caring could supply exactly that motivation. Situations that provoke such uncertainty — like being criticized, unsupported, or ignored by one’s partner — activate the goal to be prudent or cautious and not act on one’s impulses (Cavallo, Fitzsimons, & Holmes, 2010; Murray, Derrick, Leder, & Holmes, 2008). When executive resources are ample, people might utilize such resources to check on the validity of their automatic evaluative associations to their partner (Murray et al., 2006). For most people, an automatic impulse to avoid one’s partner is likely to fail such a validity check given easy access to a wealth of positive beliefs and memories (Zayas & Shoda, 2012; Murray, 1999). Therefore, people who are high in executive resources and low in impulsive trust might actually experience partner–criticism relatively positively precisely because questioning the impulse to be less trusting involves accentuating reasons to instead trust and approach one’s partner (Murray et al., 2008).

Existing research on the dual process model of trust provides preliminary support for its basic propositions. This research suggests that automatic evaluative associations to the partner supply a specific impulse to be more or less trusting (as opposed to a simple impulse to like or dislike the partner). It also suggests that people who are low in working memory capacity are more likely to heed the safety signal supplied by impulsive trust. This evidence has emerged in studies utilizing subliminal conditioning procedures to create positive automatic attitudes towards the partner and in studies assessing pre-existing attitudes toward the partner on the Implicit Associations Test (as revealed in an IAT pairing “partner/not partner” and “pleasant/unpleasant” words, Murray et al., 2011)

First, people who are subliminally conditioned to make more positive evaluative associations to the partner (by pairing the partner’s name with positive, but non-trust-related words, such as warm,
sweet, nice, cheerful, strong, and happy) report greater trust in their partner's responsiveness. However, such conditioning does not affect evaluations of the partner's likability or desirability (Murray et al., 2011). Second, when executive resources are limited, people who exhibit more positive pre-existing automatic attitudes toward their partner on the IAT also behave more trustingly (Murray et al., 2011). For instance, people who are chronically low in working memory capacity and high in impulsive trust are more willing to depend on their partner when their partner has a reason to be selfish — behavior that is diagnostic of trust, not simply liking (Simpson, 2007). Similarly, when experimentally depleted of working memory capacity, people who are high in impulsive trust actually draw closer to their partner when reminded of a time when their partner violated their trust — a forgiving behavior that diagnoses greater trust in the partner (Wieselquist et al., 1999). In contrast, when experimentally depleted of working memory capacity, people who are low in impulsive trust actively distance from their partner when reminded of a time when their partner violated their trust — an unforgiving behavior that diagnoses greater distrust.

### A paradigm for indexing resilience (vs. vulnerability)

The present study is the first to examine whether heeding the automatic impulse to trust a partner can transform one's physical and psychological experience of doubting a partner's responsiveness, thereby conferring resilience versus vulnerability. As in prior research, we indexed impulsive trust through automatic evaluative associations to the partner on the IAT (Murray et al., 2011). We indexed executive strength through working memory capacity (Hofmann et al., 2008). To threaten beliefs about the partner's responsiveness (i.e., reflective trust), we led experimental participants to believe that their partner (who was physically present) perceived a long list of faults in them. This experience of partner-criticism induces reflective uncertainty — raising state concerns that the partner's caring and responsiveness are in jeopardy (Murray, Rose, Bellavia, Holmes, & Kusche, 2002). We then asked all participants to give a speech about goals for their professional futures while their partner watched via video camera.

To assess resilience (vs. vulnerability), we indexed conceptually parallel, but potentially distinct, aspects of experience. To index relatively conscious anticipation of good versus bad things to come, we asked participants to predict how positively versus negatively their partner would react to their speech. In this situation, expecting a critical (i.e., fault-finding) partner to be approving and accepting of one's speech nonetheless conveys resilience, whereas expecting a critical partner to be judgmental and disapproving of one's speech conveys vulnerability.

To index relatively unconscious anticipation of good versus bad things to come, we turned to the biopsychosocial model of challenge/threat (BPS; Blascovich, 2008; Blascovich & Tomaka, 1996). The BPS explains people's psychological experience of situations in which they are motivated to achieve a particular goal (e.g., taking a test, giving a speech). In such contexts, evaluations of personal resources and situational demands determine the extent to which people experience the psychological state of challenge, that is, the anticipation of good things to come, versus threat, that is, the anticipation of bad things to come (see Seery, Weisbuch, & Blascovich, 2009, and Seery, 2011, for a detailed conceptualization of challenge/threat). Relative challenge occurs when resources are relatively high and demands are low, whereas relative threat occurs when demands are relatively high and resources are low. Importantly, challenge/threat has been shown to be sensitive to unconscious influences (Weisbuch-Remington, Mendes, Seery, & Blascovich, 2005), suggesting that it can capture aspects of experience that people cannot articulate. It can also capture aspects of experience that people would rather deny or hide because challenge/threat is less subject to conscious dissembling (e.g., denying relationship problems to alleviate doubts) than other more easily compilable responses (e.g., Blascovich, Mendes, & Seery, 2002; Weisbuch, Seery, Ambady, & Blascovich, 2009). During motivated performance situations, four cardiovascular measures index challenge/threat: heart rate (HR); ventricular contractility (VC), a measure of the left ventricle's contractile force; cardiac output (CO), the amount of blood pumped by the heart in liters/min; and total peripheral resistance (TPR), a measure of net constriction/dilation in the arterial system. Increases in HR and VC from baseline (i.e., reflecting a psychological state of task engagement) are common across the challenge/threat continuum. Given this reactivity, challenge is marked by higher CO and lower TPR than threat, such that relatively higher CO and lower TPR reflect relatively greater challenge or lesser threat. These cardiovascular markers have been validated and applied in dozens of studies (for a review, see Blascovich, 2008; for a critique of the BPS and a response, see Wright & Kirby, 2003; and Blascovich, Mendes, Tomaka, Salomon, & Seery, 2003). Importantly, cardiovascular responses are viewed as measures of psychological challenge/threat states; they are not equivalent to challenge/threat.

In our procedures, we measured challenge/threat with cardiovascular responses as participants completed the fault-listing task (i.e., the manipulation of partner-criticism) and as they delivered a speech to their partner. This allowed us to see whether people experienced partner-criticism, and the doubts about a partner's caring and responsiveness it can create, as psychologically threatening, reflecting vulnerability, or psychologically challenging, reflecting resilience (Seery, 2011).

### Hypotheses and significance

We expected people who were low in working memory capacity to heed the impulsive trust signal when they had reason to doubt their partner's responsiveness. However, we expected people who were high in working memory capacity to override the impulsive trust signal when they had reason to doubt their partner's responsiveness. Thus, we expected to find a three-way interaction between working memory capacity, impulsive trust, and partner-criticism predicting resilience. This three-way interaction can be decomposed into two theoretically informative sets of simple effects: (1) those for partner-criticism and (2) those for impulsive trust.

### Differences in the experience of partner-criticism

We expected being more or less impulsively trusting, and more or less likely to heed this automatic impulse, to change one's experience of partner-criticism (Murray et al., 2011). When people were low in impulsive trust and low in working memory capacity, we expected them to heed the impulsive trust signal. Consequently, we expected them to experience partner-criticism relatively negatively. That is, we expected people who were low in impulsive trust and low in working memory capacity to be vulnerable to their partner's criticism relative to participants in the control condition (i.e., anticipating their partner's disapproving reaction to their speech, lower CO, and higher TPR during the fault-listing and speech tasks). When people were high in impulsive trust and low in working memory capacity, we also expected them to heed the impulsive trust signal. However, we expected them to experience partner-criticism relatively positively. That is, we expected people who were high in impulsive trust and low in working memory capacity to be resilient against their partner's criticism relative to participants in the control condition (i.e., anticipating a more approving reaction to their speech, higher CO, and lower TPR). In contrast, when people were high in working memory capacity, and thus able to override automatic impulses to heed the competing goal to be prudent or cautious, we reasoned that being low in impulsive trust might actually result in people experiencing partner-criticism relatively positively.
Differences in the effects of impulsive trust

We also expected the experience of being criticized by one’s partner, and being more or less high in working memory capacity, to change the effects of being more or less impulsively trusting. When people were criticized by their partner, and likely to heed the impulsive trust signal (i.e., low working memory capacity), we expected being more impulsively trusting to predict increased resilience. But, when people were criticized by their partner, and able to override the impulsive trust signal (i.e., high working memory capacity), we reasoned that being less impulsively trusting might predict greater resilience. In contrast, when participants were not criticized, we did not expect interactive effects of working memory capacity and impulsive trust in predicting resilience. This paper is the first to advance such hypotheses. Despite a plethora of research on automatic attitudes (Greenwald, Poehlman, Uhlmann, & Banaji, 2009), no work has examined whether such attitudes can actually confer physical and psychological resilience against social threats.

Method

Participants

Fifty-eight couples involved in exclusive relationships participated in exchange for course credit or $10. Relationships averaged 18.9 (SD = 16.9) months in length.

Measures

Impulsive trust

The IAT measure tapping automatic evaluative associations toward the partner contained 7 blocks (Murray et al., 2011). Participants categorized words belonging to four categories: (1) evaluatively positive or pleasant words (e.g., vacation, pleasure), (2) evaluatively negative or unpleasant words (e.g., bomb, poison), (3) words associated with the partner (e.g., partner’s first name), and (4) words not associated with the partner (e.g., name not associated with partner). The words in categories (3) and (4) were generated ideographically (Zayas & Shoda, 2005). The critical blocks consisted of the compatible pairing blocks, in which participants used the same response key to respond to pleasant words and partner words, and the incompatible pairing blocks, in which participants used the same response key to respond to unpleasant words and partner words. We computed IAT scores following the improved scoring algorithm procedure recommended by Greenwald, Nosek, and Banaji (2003). Higher scores reflect more positive automatic evaluative associations to the partner (i.e., higher impulsive trust); lower scores, less positive automatic evaluative associations (i.e., lower impulsive trust).

Working memory capacity

A computation span task used by Hofmann et al. (2008, p. 966) to assess susceptibility to automatic impulses indexed individual differences in working memory capacity. A set of equations (ranging from 4 to 8 equations, and involving a mixture of addition and subtraction; e.g., 3 + 5 = 8, 11 – 7 = 5) was presented sequentially on the computer screen for 3 s, followed by a 1-s inter-stimulus interval. The participant had to remember the result of each equation and enter the correct sequence of results (e.g., 8, 5) on the keyboard at the end of the set. While engaged in this task, participants also had to judge each equation as true or false within the 3-second window of stimulus presentation by pressing the appropriate key. Thus, participants had to memorize the sequence of results while being engaged in a distracting secondary task. Participants completed two practice and 10 test trials. The index of working memory capacity was the sum of correctly entered sequences weighted by the number of equations in each set.

Challenge/threat

Cardiovascular measures were recorded noninvasively, following accepted guidelines (Sherwood et al., 1990). We used the following equipment manufactured and/or distributed by Biopac Systems, Inc (Goleta, CA): NIC0100C impedance cardiography (ICG) noninvasive cardiac output module, ECG100C electrocardiogram (ECC) amplifier, and NIBP100A noninvasive blood pressure module. ICG signals were detected with a tetrapolar aluminum/mylar tape electrode system, recording basal transthoracic impedance (Z0) and the first derivative of impedance change (dZ/dt), sampled at 1 kHz. ECG signals were detected using a Standard Lead II electrode configuration (additional spot electrodes on the right arm and left leg, with ground provided by the ICG system), sampled at 1 kHz. The blood pressure monitor was wrist-mounted, collecting continual readings – every 10–15 s – from the radial artery of participants’ nondominant arm. In combination, ICG and ECG recordings allowed computation of HR, VC (for presentational purposes, pre-ejection period reactivity × –1), and CO; the addition of blood pressure monitoring allowed computation of TPR (mean arterial pressure × 80/CO; Sherwood et al., 1990). Recorded measurements of cardiovascular function were stored on a computer and analyzed offline with Biopac AcqKnowledge 3.9.2 for Macintosh software, using techniques comparable to those from previously published challenge/threat research (e.g., Seery, Blascovich, Weisbuch, & Vick, 2004; Shimizu, Seery, Weisbuch, & Lupien, 2011), including ensemble averaging in 60 s intervals (Kelsey & Guethlein, 1990). Scoring of cardiovascular data was performed blind to condition and other participant data.

For cardiovascular measures, reactivity was calculated by subtracting the value of the last minute of the first baseline from the mean of the minutes for each task (see Llabre, Spitzer, Saab, & Ironson, 1991, for psychometric justification for the use of change scores in psychophysiology). Extreme values greater than 3.3 SDs from the mean (p = .001 in a normal distribution; Tabachnick & Fidell, 1996) were winsorized by changing their values to 1% above the next-highest non-extreme value. This maintained the rank order in the distribution while decreasing the influence of extreme values.

Partner’s expected response to speech

This 9-item measure (α = 80) tapped how approvingly versus disapprovingly participants expected their partner to react to their speech (e.g., “How proud will your partner be of how you performed during your speech?”; “How upset will your partner be with the content of what you said during your speech?”), reversed). Responses were averaged and standardized, such that higher scores reflect more positive expectations.

Number of faults listed

Participants were asked to guess how many faults their partner identified in the faults-listing task as a manipulation check.

Procedure

The experimenter directed the participant into the recording room (separately from his/her partner) and attached cardiovascular sensors. After a 5-min baseline (participants rested quietly), the participant completed the impulsive trust and working memory capacity measures. After another 5-min resting baseline, the participant’s partner entered the room and sat in front of the participant (with his/her back to the participant). The partners were instructed not to speak to each other. Each participant in the experimental (partner-criticism) condition was led to believe that his/her partner was spending a
long time listing qualities in the participant that the partner disliked (Murray et al., 2002, Experiment 3). Participants received a one-page questionnaire that asked them to list at least one important aspect of their partner’s character that they disliked. Although the participant was led to believe that his/her partner received an identical questionnaire, partners actually received a one-page questionnaire that asked them to list at least 25 items in their residence. In the control condition, the participant and partner both received the one-page questionnaire that asked them to list important aspects of the other’s character that they disliked. Through this subterfuge, experimental participants spent longer waiting for their partner to finish listing their faults than control participants. (The experimenter stopped partners 5 min after the participant finished if the partner was still writing.) After the partner left the room, all participants then gave a 2-minute speech about their academic goals while in college and professional goals after college (while their partner watched via video-relay; participants could neither see nor hear their partner). Participants then completed the measure tapping expectations about their partner’s reaction to their speech, fillers, and the manipulation check.

Results

In testing our hypotheses, we examined three indices of resilience: C/T responses during the manipulation of partner-criticism, C/T responses during the speech task, and the partner’s expected reaction to the speech. As the first step in our analyses, we computed indices of challenge/threat during the fault-listing task (i.e., the manipulation of partner-criticism) and the speech task. The BPS model assumes that changes in CO and TPR reactivity reveal relative differences in challenge/threat, and that CO and TPR reactivity reflect the same underlying physiological activation. We thus combined CO and TPR (fault-listing r(47) = −.80; speech task r(43) = −.70) into a single index separately for each task by converting CO and TPR reactivity values into z-scores, summing them, and standardizing the total (M = 0, SD = 1; see Seery, Weisbuch, Hetenyi, & Blascovich, 2010). We assigned CO a weight of +1 and TPR a weight of −1 (i.e., TPR was reverse scored), such that a larger value corresponded to reactivity consistent with greater challenge. Doing so allowed us to maximize reliability of the cardiovascular measures, consistent with past research (e.g., Blascovich, Seery, Mugridge, Norris, & Weisbuch, 2004; Seery et al., 2009, 2010; Shimizu et al., 2011; Townsend, Major, Sawyer, & Mendes, 2010).

Because these measures all index aspects of resilience (Seery, 2011), we also created a composite index of resilience by summing the standardized scores for each individual measure (Diamantopoulos & Winklhofer, 2001). We then conducted hierarchical regression analyses to test our hypotheses. On Step 1, we entered an index of HR and VC reactivity as a covariate (HR and VC reactivity values were standardized and summed). Reactivity in HR and VC – which according to the BPS reflects psychological engagement in the task – is common to the cardiovascular patterns of both challenge and threat (see Seery, 2011). Controlling for this reactivity can thus increase power to differentiate challenge from threat (e.g., Seery et al., 2004; Vick, Seery, Blascovich, & Weisbuch, 2008). On subsequent steps, we entered main effects (Step 2) of partner-criticism condition, impulsive trust (centered), and working memory capacity (centered), all two-way interactions (Step 3), and the three-way interaction (Step 4). Fig. 1 contains the predicted scores for the composite and Table 1 contains the predicted scores for the individual indices. Table 2 contains the results of the regression analyses. We found the expected and significant three-way interaction between impulsive trust, working memory capacity, and partner-criticism predicting the composite and each of its components. Given this consistency, we focus our text discussion on the composite index of resilience and then briefly summarize the results for the individual indices.6,7

Resilience composite

In interpreting Fig. 1, we first decomposed the 3-way interaction into its three component two-way interactions using the procedures outlined by Aiken and West (1991). As expected, the partner-criticism by working memory capacity interactions were significant and opposite in nature for participants low, β = −.74, t(49) = −2.79, p < .01, and high, β = −.57, t(49) = −2.23, p < .05, on impulsive trust (defined as one standard deviation above and below the mean). The expected impulsive trust by partner-criticism interaction was also significant for people low in working memory capacity, β = −.89, t(49) = 3.63, p < .01, but the opposite interaction missed significance for people high in working memory capacity, β = −.30, t(49) = −1.39, p = .17. Finally, as expected, the impulsive trust by working memory capacity interaction was significant in the partner-criticism condition, β = −.63, t(49) = −3.84, p < .001. Unexpectedly, an opposite, but marginally significant 2-way interaction emerged in the control condition, β = −.41, t(49) = 1.87, p = .07. Next, we further decomposed the interaction into the two most theoretically informative sets of simple effects: (1) the effects of partner-criticism, because heeding (vs. overriding) the impulsive trust signal changes one’s experience of partner-criticism (i.e., reflective trust concerns), and (2) the effects of impulsive trust, because partner-criticism potentiates the effects of heeding (vs. overriding) the impulsive trust signal.

Differences in the experience of partner-criticism

When participants were low in impulsive trust and low in working memory capacity, they were less resilient in the partner-criticism than control condition, β = −.84, t(49) = −2.74, p < .01, as expected. But, when participants were high in impulsive trust and low in working memory capacity, they were more resilient in the partner-criticism than control condition, β = −.52, t(49) = 2.27, p < .05, as expected. In contrast, when participants were low in impulsive trust and high in working memory capacity, they tended to be more resilient in the partner-criticism than control condition, although this effect was not significant, β = −.19, t(49) = 1. In contrast, when participants were high in impulsive trust and high in working memory capacity, they

6 In psychophysiology studies, speech tasks tend to yield both particularly high reactivity values and participant fidgeting, which in combination, results in a higher incidence of poor signal quality and disrupted blood pressure readings. In the present study, blood pressure readings were not available for 10 participants. To minimize participant loss, we utilized CO as the sole indicator of challenge/threat for participants with missing blood pressure readings, given that CO and TPR were strongly negatively correlated. We also conducted a supplementary set of analyses utilizing only C/T scores for participants with both CO and TPR scores. These analyses yielded 3-way interactions parallel to those reported here for the composite index of resilience, β = −.89, t(39) = −3.24, p < .001, C/T during the fault-listing procedure, β = −.66, t(38) = −2.21, p < .05, the partner’s expected reaction to the speech, β = −.61, t(39) = −3.04, p < .05, and C/T during the speech task, but this interaction did not reach statistical significance, β = −.70, t(34) = −1.32, p = .20.

7 For each participant, we utilized all available time to calculate C/T responses. By design, experimental participants spent longer waiting than control participants during the fault-listing task; thus, C/T responses for this task were typically based on more time for experimental than control participants. However, this difference cannot explain the 3-way interaction predicting C/T during the fault-listing task. Moreover, all participants provided C/T responses for at least 60 s of the fault-listing task; analyzing only these data also yielded a 3-way impulsive trust by working memory capacity by partner-criticism interaction, β = −.57, t(49) = −2.24, p < .05.
tended to be less resilient in the partner-criticism than control condition, although this effect was not significant, $\beta = -0.27, t(49) < 1$.

**Differences in the effects of impulsive trust**

When participants were criticized by their partner and low in working memory capacity, being more impulsively trusting predicted greater resilience, $\beta = 0.75, t(49) = 3.03, p < .01$, as expected. But, when they were criticized and high in working memory capacity, being less impulsively trusting tended to predict greater resilience, $\beta = -0.35, t(49) = -1.58, p = .12$, as we suggested. Unexpectedly, for control participants low in working memory capacity, being less impulsively trusting predicted greater resilience, $\beta = -0.61, t(49) = -2.18, p < .05$. The simple effect of impulsive trust was not significant for control participants high in working memory capacity, $\beta = 0.12, t(49) < 1$.8,9

**Individual indices**

The 3-way interactions were significant for each individual indicator (Table 2) and the predicted scores generally paralleled the pattern for the composite index of resilience (Fig. 1). Given this overall consistency, and to simplify exposition, we describe only the simple effects for partner-criticism and impulsive trust for the individual indices next.

**Differences in the experience of partner-criticism**

When participants were low in impulsive trust and low in working memory capacity, participants in the partner-criticism condition exhibited greater threat during the fault-listing task, $\beta = -0.51, t(49) = -1.49, p = .14$, greater threat during the speech-task, $\beta = -0.51, t(46) = -1.81, p = .08$, and also expected their partner to be less approving of their speech, $\beta = -0.61, t(49) = -1.85, p = .07$, as compared to control participants, as expected. But, when participants were high in impulsive trust and low in working memory capacity, participants in the partner-criticism condition evidenced greater challenge in the speech task, $\beta = 0.51, t(46) = 2.51, p < .05$, as expected. Although also in the direction of greater resilience, the comparable simple effects of partner-criticism were not significant for C/T during the fault-listing task, $\beta = 0.23, t(49) < 1$, and the partner’s expected reaction to the speech, $\beta = 0.13, t(49) < 1$.10

In contrast, when participants were low in impulsive trust and high in working memory capacity, participants in the partner-criticism condition tended to evidence greater challenge during the fault-listing task, $\beta = 0.39, t(49) = 1.71, p = .09$. The comparable simple effects for C/T during the speech, $\beta = -0.06, t(46) < 1$, and the partner’s expected approval of the speech, $\beta = 0.04, t(49) < 1$, were not significant. But, when participants were high in impulsive trust and high in working memory capacity, participants in the partner-criticism condition tended to be less resilient than controls. The simple effect for partner-criticism approached significance for the partner's expected approval of the speech, $\beta = 0.46, t(49) = -1.56, p = .13$, and a weaker decrease in resilience emerged for C/T during the speech task, $\beta = -0.20, t(46) < 1$. However, no comparable effect emerged for C/T during the fault-listing task, $\beta = -0.00, t(49) < 1$.

**Differences in the effects of impulsive trust**

When participants were criticized by their partner and low in working memory capacity, being more impulsively trusting predicted greater challenge during the fault-listing task, $\beta = 0.43, t(49) = 1.56, p = .13$, greater challenge during the speech-task, $\beta = 0.42, t(46) = 1.88, p = .07$, and expecting a more approving partner reaction to the speech, $\beta = 0.51, t(49) = 1.90, p = .06$, as expected. But, when participants were criticized by their partner and high in working memory capacity, being less impulsively trusting predicted greater

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8 When we omitted the engagement covariate, we found parallel 3-way interactions predicting the composite index of resilience, $\beta = -0.81, t(50) = -3.65, p < .01$, C/T during the fault-listing task, $\beta = -0.42, t(50) = -1.65, p = .11$, and C/T during the speech task, $\beta = -0.52, t(47) = -2.11, p < .05$.

9 We expect that people high in working memory capacity were generally low in resilience because giving a speech to one’s partner about one’s own current and future goals is likely a stressful task, one that people high in working memory capacity have considerable executive resources available to contemplate.

10 The analyses for the speech task are based on fewer participants because the EKG sensors became detached for 2 participants and 1 participant could not complete the speech.
resilience during the speech task, $\beta = -3.5$, $t(46) = -1.75$, $p = .09$, as we suggested. Although in the same direction, impulsive trust did not significantly predict C/T during the fault-listing task, $\beta = -.03$, $t(49) < 1$, or the partner’s expected reaction to the speech, $\beta = -.31$, $t(49) = -1.30$. In contrast, when participants in the control condition were low in working memory capacity, being less impulsively trusting unexpectedly predicted greater resilience during the speech task, $\beta = -6.1$, $t(46) = -2.36$, $p < .05$; although in the same direction, it did not significantly predict C/T during the fault-listing task, $\beta = -3.2$, $t(49) = -1.02$, or the partner’s expected evaluation of the speech, $\beta = -.24$, $t(49) < 1$. When control participants were high in working memory capacity, no simple effects of impulsive trust approached significance.

**Manipulation check**

A hierarchical regression analysis (see Table 2) revealed that participants in the partner-criticism condition believed their partner identified more faults in them than participants who were lower in impulsive trust.

**Discussion**

Heeding the automatic impulse to trust one’s romantic partner turned partner-criticism into a positive, challenging experience. When people were high in impulsive trust and low in working memory capacity, they were actually more resilient when their partner had a long versus short list of complaints about them (i.e., expecting greater partner approval of the speech, exhibiting higher CO, and lower TPR). In contrast, heeding the automatic impulse to distrust one’s partner turned partner-criticism into a negative, threatening experience. When people were low in impulsive trust and low in working memory capacity, they were less resilient when their partner had a long versus short list of complaints (i.e., expecting less partner approval, exhibiting lower CO, and higher TPR). However, when people were high in working memory capacity, they seemed to override the impulse to trust supplied by their automatic evaluative associations. In fact, being less impulsively trusting tended to predict greater resilience when people were criticized and high in working memory capacity. Thus, in the face of reflective trust concerns, being more or less impulsively trusting can confer either resilience or vulnerability depending on people's capacity to override this automatic safety signal.

We chose to index resilience through a composite of psychophysiological and self-report measures because people might exhibit resilience in different ways. For instance, Gayle might respond to criticism with challenge, whereas Ron might experience greater threat, but nonetheless, compensate and consciously conclude that Gayle did not really mean to be critical. In fact, the correlations between self-reported expectations and C/T responses during the fault-listing and speech tasks were near zero, although CT responses were moderately positively correlated across tasks (see Footnote 4). Of course, minimal correlations across measures are typically used as a justification for treating measures separately, not as part of a composite.

**Table 2**

Summary of regression analyses.

<table>
<thead>
<tr>
<th>Predictor</th>
<th>Resilience composite</th>
<th>C/T fault-listing</th>
<th>C/T speech</th>
<th>Expected acceptance of speech</th>
<th>Manipulation check</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>$\beta$</td>
<td>$t$</td>
<td>$\beta$</td>
<td>$t$</td>
<td>$\beta$</td>
</tr>
<tr>
<td>Step 1</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Engagement (HR and VC reactivity)</td>
<td>.16</td>
<td>1.21</td>
<td>.31</td>
<td>2.44*</td>
<td>.54</td>
</tr>
<tr>
<td>Step 2</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Condition (1 = partner-criticism, 0 = control)</td>
<td>.02</td>
<td>&lt;1</td>
<td>.13</td>
<td>&lt;1</td>
<td>-0.0</td>
</tr>
<tr>
<td>Impulsive trust</td>
<td>-0.04</td>
<td>&lt;1</td>
<td>-0.12</td>
<td>&lt;1</td>
<td>-21</td>
</tr>
<tr>
<td>Working memory capacity</td>
<td>-26</td>
<td>-1.90*</td>
<td>-0.01</td>
<td>&lt;1</td>
<td>-26</td>
</tr>
<tr>
<td>Step 3</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Impulsive trust by condition</td>
<td>.22</td>
<td>1.15</td>
<td>.07</td>
<td>&lt;1</td>
<td>.24</td>
</tr>
<tr>
<td>Working memory capacity by condition</td>
<td>.06</td>
<td>&lt;1</td>
<td>.22</td>
<td>&lt;1</td>
<td>-16</td>
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<tr>
<td>Step 4</td>
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<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Impulsive trust by working memory capacity by condition</td>
<td>-26</td>
<td>-1.76*</td>
<td>-0.03</td>
<td>&lt;1</td>
<td>-22</td>
</tr>
</tbody>
</table>

* Degrees of freedom: Step 1 (56), Step 2 (53), Step 3 (50), Step 4 (49).
* Degrees of freedom: Step 1 (53), Step 2 (50), Step 3 (47), Step 4 (46).
* Degrees of freedom: Step 1 (51), Step 2 (48), Step 3 (47).
* $p < .05$.
* $p < .01$.
* $p < .001$.

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Table 1

Predicted scores for the components of the resilience composite.

<table>
<thead>
<tr>
<th>Dependent variable</th>
<th>Low working memory capacity</th>
<th>High working memory capacity</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Low impulsive trust</td>
<td>High impulsive trust</td>
</tr>
<tr>
<td></td>
<td>Partner-criticism Control</td>
<td>Partner-criticism Control</td>
</tr>
<tr>
<td>C/T during fault-listing task</td>
<td>-.42</td>
<td>.55</td>
</tr>
<tr>
<td>C/T during speech-task</td>
<td>.04</td>
<td>1.02</td>
</tr>
<tr>
<td>Expected evaluation of speech</td>
<td>4.9</td>
<td>6.0</td>
</tr>
</tbody>
</table>
In reflective measurement models, the underlying construct (e.g., self-esteem) causes the indicators (e.g., responses to self-esteem items), and therefore, the indicators should correlate (i.e., internal consistency). However, in formative measurement models, the indicators cause the construct, and therefore, correlations among the indicators are not required. For instance, socioeconomic status is considered a formative index because people can display higher status through prestigious occupations, posh residences, or high incomes— but someone with a prestigious job and high income could still be considered high in SES if they eschewed visible signs of material wealth (Diamantopoulos, Riefler, & Roth, 2008; Diamantopoulos & Winklhofer, 2001). Psychological resilience functions similarly: Gayle could evidence resilience through her physiology, through her self-reports, or both. Given its idiosyncratic quality, indexing resilience through any one individual indicator (i.e., the partner’s expected evaluation of the speech, C/T during the fault-listing task, or C/T during the speech task) could miss the signature way in which a particular person evidenced resilience. A composite index allows people to score similarly on resilience, while still displaying resilience in their own way. For this reason, we treated the composite measure as our main criterion. This rationale notwithstanding, the data testify to the appropriateness of the composite; the 3-way interactions were generally parallel and statistically significant for each of the indices constituting it.

There are limitations to these results. First, the simple effects were statistically more robust for the composite index than its components (which we attribute to greater sensitivity of the composite). Second, we did not manipulate impulsive trust, so a third variable could account for its effects. For instance, people who are high in impulsive trust might also express more positive explicit sentiments (e.g., higher satisfaction, more confidence in the partner’s caring, or perceiving the partner’s traits as more desirable). If that were the case, these associated positive sentiments might actually be conferring resilience (vs. vulnerability). Supplementary measures allowed us to rule out this possibility. Prior to coming to the laboratory, participants completed explicit measures of trust in the partner’s regard (assessed twice-daily over four days, Murray et al., 2000) and perceptions of the partner’s traits (assessed once, Murray, Holmes, & Griffin, 1996). In the experiment itself, participants also completed a pre-measure of satisfaction. This allowed us to test whether any of these explicit sentiments mimicked the effects of impulsive trust. None did: No explicit measure significantly interacted with both partner-criticism and working memory capacity to predict resilience.

Third, we did not manipulate working memory capacity, so it is also possible that a third variable might account for its effects. However, prior research has validated the computation span task we utilized as an appropriate measure of working memory capacity. For instance, cognitive load manipulations, which are thought to deplete working memory capacity, decrease scores on this computation-span task (Schmeichel, 2007). Such working memory capacity-depleting manipulations of cognitive load also increase people’s susceptibility to automatic impulses (Hofmann et al., 2009), including the automatic impulse to trust (Murray et al., 2011). Given such prior research, it seems reasonable to conclude that the computation-span task we utilized captured working memory capacity, not an alternate construct. Nonetheless, future research might examine whether other indicators of executive strength, such as self-control, function similarly. Recent research has linked resting respiratory sinus arrhythmia (RSA; a measure of cardiovascular function) to self-regulatory capacity and, for example, relationship quality in marriage (e.g., Smith et al., 2011). Substituting baseline RSA for working memory capacity in our analyses failed to yield any significant effects; although it merits additional investigation, it may be the case that the two measures reflect different types of capacity.

Fourth, we manipulated reflective trust concerns through partner criticism because perceiving one’s partner as finding numerous faults in oneself provokes generalized doubts about the partner’s caring and responsiveness (Murray et al., 2002). But, partner criticism provides only one possible barometer of responsiveness (Murray & Holmes, 2009). Future research might examine how heeding (vs. overriding) the impulsive trust signal could change the experience of other forms of partner rejection, such as ostracism or betrayal (Williams & Zadro, 2005).

Finally, one finding was unexpected. In the control condition, people who were low in working memory capacity evidenced greater resilience when they were lower in impulsive trust. This effect primarily emerged for C/T during the speech task. Perhaps, for people high in impulsive trust, describing their personal future plans without incorporating their partner is uncomfortable, thus resulting in threat. This effect awaits replication, given prior evidence that impulsive trust has its effects in the presence of reflective trust concerns (Murray et al., 2011).1

In summary, depending on one’s susceptibility to automatic influences, being more or less impulsively trusting can confer either vulnerability or resilience. When people were low in working memory capacity, and likely to heed the impulsive trust signal, being less impulsively trusting predicted succumbing to the negative impact of partner-criticism. However, when people were low in working memory capacity, being more impulsively trusting mitigated this criticism. In fact, people who were high in impulsive trust and low in working memory capacity thrived in the face of this potential reason to doubt their partner. For them, heeding the automatic impulse to trust turned their partner’s perception of faults in them into a positive, and thereby a possible impetus for constructive action. We did not find any benefits of impulsive trust for people high in working memory capacity. Instead, we found tentative evidence that being less impulsively trusting might increase resilience in the face of reflective trust concerns.

Because it changes the inherent threat posed by doubts about a partner’s responsiveness, heeding (vs. overriding) the approach signal conveyed by impulsive trust could have significant implications for every-day behavior in relationships. Destructive interaction cycles typically develop when people are overly sensitive to perceiving rejection and react to feeling rejected by behaving coldly and hostilely toward their partner (Downey et al., 1998; Murray, Bellavia et al., 2003). The present findings suggest that when executive resources are limited, people who are low in impulsive trust might be more prone to such cycles developing than people who are high in impulsive trust. However, when executive resources are ample, people who are low in impulsive trust might be less vulnerable to such cycles developing because overturning the impulse to avoid the partner involves amplifying compensatory reasons to approach. A daily diary study conducted by Murray et al. (2011) supports these hypotheses. Greater approach behaviors occurred on days after partners felt more rejected if they were high in impulsive trust and low in working memory capacity, and, in contrast, if they were low in impulsive trust and high in working memory capacity.

Conclusion

Although not controlling one’s impulses can sometimes spell trouble in relationships, the current findings suggest that romantic partners might sometimes benefit from heeding the automatic impulse to trust. When heeded, this impulse softens the pain of criticism or rejection in ways that might help people to rise to this particular relationship difficulty rather than being defeated by it.

1 The comparative resilience of control participants who were low in working memory capacity and low in impulsive trust might be exaggerating the significant and expected contrast with the partner-criticism condition. However, inspecting the simple effects of impulsive trust within the partner-criticism condition also yielded strong support for our hypotheses.


