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What is This?

Adaptive Disengagement Buffers Self-Esteem From Negative Social Feedback

Jordan B. Leitner[1], Eric Hehman[2], Matthew P. Deegan[1], and James M. Jones[1]

Abstract

The degree to which self-esteem hinges on feedback in a domain is known as a contingency of self-worth, or engagement. Although previous research has conceptualized engagement as stable, it would be advantageous for individuals to dynamically regulate engagement. The current research examined whether the tendency to disengage from negative feedback accounts for variability in self-esteem. We created the Adaptive Disengagement Scale (ADS) to capture individual differences in the tendency to disengage self-esteem from negative outcomes. Results demonstrated that the ADS is reliable and valid (Studies 1 and 2). Furthermore, in response to negative social feedback, higher scores on the ADS predicted greater state self-esteem (Study 3), and this relationship was mediated by disengagement (Study 4). These findings demonstrate that adaptive disengagement protects self-esteem from negative outcomes and that the ADS is a valid measure of individual differences in the implementation of this process.

In our social world, negative feedback is ubiquitous. At one time or another, we will probably receive feedback that our intelligence, strength, or attractiveness falls short of some standard. How do we integrate this feedback into our sense of self? As negative feedback, relative to positive feedback, evokes stronger effects on well-being (Baumeister, Bratslavsky, Finkenauer, & Vohs, 2001), self-protective responses to negative feedback should have important implications for self-esteem. The current research examined whether individuals protect self-esteem by regulating engagement. Specifically, we investigated whether self-esteem is maintained by disengaging from negative feedback, and whether individuals systematically vary in the implementation of this self-esteem maintenance process.

Domain Engagement

Domain engagement (alternatively referred to as "contingencies of self-worth") is the degree to which self-esteem hinges on feedback in a specific domain, (Crocker, Luhtanen, Cooper, & Bouvrette, 2003; Crocker & Wolfe, 2001). A domain is a broad relational or performance category (e.g., family support), comprised of sub-categories (e.g., dad's support) and situations (e.g., dad attending my graduation).

When self-esteem is engaged in, or contingent on, domain outcomes, evaluative feedback affects general feelings of self-worth and well-being. For example, individuals engaged in the academic domain show increased and decreased self-esteem in response to positive and negative test feedbacks, respectively (Crocker, Karpinski, Quinn, & Chase, 2003; Crocker, Sommers, & Luhtanen, 2002).

Previous theoretical frameworks have typically viewed domain engagement as stable, context-independent, and resistant to change. Accordingly, research has examined whether domain engagement predicts chronic health behaviors (Crocker, 2002), attachment styles (Park, Crocker, & Mickelson, 2004), goal orientations (O'Keefe, Ben-Eliyahu, & Linnenbrink-Garcia, 2013), and personality traits (Crocker, Luhtanen, et al., 2003). However, Crocker and Wolfe (2001) theorized that situational cues may influence engagement, and empirical work has elucidated some situational factors

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that modulate engagement. For instance, presenting participants with pictures of thin models increases engagement with attractiveness and approval from others (Strahan et al., 2008), and subliminally priming participants with "father"-related words increases engagement in domains in which participants' fathers want them to excel (Horberg & Chen, 2010). Thus, engagement appears to have both stable and transient properties, although little is known about the dynamics of engagement.

Adaptive Disengagement

Given that engaging in unsuccessful domains can diminish self-esteem, one possibility is that dynamic engagement is an important element of self-esteem maintenance. Specifically, individuals may protect self-esteem by disengaging from isolated instances of negative feedback, a process we refer to as *adaptive disengagement.* This process is adaptive because it involves responding to environmental cues with changes in engagement. Furthermore, we posit that adaptive disengagement may be used across a variety of situations and domains by anyone motivated to maintain self-esteem.

Although previous research supports this possibility, disengagement has primarily been studied as it pertains to coping with negative stereotypes. For example, previous theoretical frameworks suggest that stigmatized individuals maintain self-esteem by "selectively devaluing" domains in which they face discrimination (Crocker & Major, 1989). Similarly, empirical research has shown that individuals stereotypically portrayed as low in intelligence disengage from intellectual domains (Major & Schmader, 1998; Major, Spencer, Schmader, Wolfe, & Crocker, 1998; Schmader, Major, & Gramzow, 2001), and when negative stereotypes are salient, negative feedback elicits domain disengagement (Leitner, Jones, & Hehman, 2013). This focus on negatively stereotyped individuals in the intelligence-testing domain has stemmed from an effort to explain equivalent self-worth between Whites and ethnic/racial minorities despite persistent achievement gaps between the groups (Twenge & Crocker, 2002). Although failure in non-stigmatizing domains can decrease the pursuit of self-presentation goals (Park, Crocker, & Kiefer, 2007), little is known about the degree to which disengagement is a self-protective process that buffers both stigma-related and non-stigma-related threats to self-esteem.

Furthermore, research has shown that situational disengagement is distinct from domain disengagement (Nussbaum & Steele, 2007), yet existing measures only focus on static levels of domain engagement. For instance, established measures index the degree to which a person bases self-esteem on appearance or intelligence test scores, but the domain-specificity of these items makes it impossible to predict patterns of disengagement in situations for which no items were created (e.g., feedback about physical health). Thus, the current research examined individuals' proclivity to disengage

from negative feedback independent of a specific domain and the presence of stigma.

Current Research

A driving hypothesis of the current research is that adaptive disengagement is a broad phenomenon not limited to negatively stereotyped individuals, but rather is a process used by anyone motivated to maintain self-esteem. Furthermore, we hypothesized that the regulation of disengagement from situations is orthogonal to global domain disengagement. Thus, a person who is highly engaged in a domain may still disengage from isolated instances of negative feedback. Finally, we hypothesized that individuals systematically vary in this tendency to adaptively disengage from negative feedback.

Accordingly, we developed a measure that captured individual differences in the proclivity to disengage self-esteem from negative evaluations, the Adaptive Disengagement Scale (ADS; see online supplemental material available at http://pspb.sagepub.com/supplemental). Consistent with research linking patterns of self-protection to stable personality traits (Hepper, Gramzow, & Sedikides, 2010), we conjectured that the tendency to adaptively disengage from negative outcomes would be stable and trait-like over time, even though the specific domains in which individuals disengage will vary. Once the ADS was established, we subsequently tested whether it predicted individual responses to negative feedback. Although both disengaging from negative feedback and engaging to positive feedback may maintain self-esteem, we focus on disengagement from negative feedback for several reasons. First, compared with positive feedback, negative feedback elicits larger changes in self-esteem (Nezlek & Gable, 2001). Second, individuals are more motivated to avoid a negative self-definition than pursue a positive one (Baumeister et al., 2001). Third, there is an upper limit to the level of self-esteem that a person is motivated to attain; individuals try to augment self-esteem whenever it is threatened below a baseline, but this motivation ceases once self-esteem is restored (Tesser, Crepaz, Collins, Cornell, & Beach, 2000). Finally, disengagement protects self-esteem from negative feedback, but greater engagement does not augment the effect of positive feedback on self-esteem (Leitner et al., 2013). Thus, as previous research suggests that self-esteem maintenance is driven by disengaging from negative feedback more than engaging with positive feedback, we focused on capturing variability in the tendency to disengage from negative feedback.

Finally, we examined the degree to which adaptive disengagement is driven by deliberate explicit processes or more automatic implicit processes. Supporting the possibility that adaptive disengagement involves implicit processes that operate outside of conscious awareness, implicit processes contribute to various forms of self-regulation, including self-esteem maintenance (Bongers, Dijksterhuis, & Spears, 2009; Leitner & Forbes, in press) and emotion regulation (Gyurak, Gross, & Etkin, 2011). In addition, individuals who show

explicit patterns of self-esteem maintenance also show decreased physiological responses to stress, as indexed by decreased blood pressure reactivity (Taylor, Lerner, Sherman, Sage, & McDowell, 2003), cortisol reactivity (Taylor et al., 2008), and vagal reactivity (Gramzow, Willard, & Mendes, 2008). Of greatest relevance to the current work, recent research found that within 500 ms of processing negative social feedback, high levels of adaptive disengagement predicted decreased neural activity in brain regions linked to attentional processing (Leitner, Hehman, Jones, & Forbes, 2014). Thus, evidence suggests that although individuals can consciously recognize their tendency to disengage from negative outcomes, they may be unaware of the ongoing disengagement process when it is actually occurring.

Overview of Studies

Building on this framework, we generated items for the ADS and demonstrated its satisfactory psychometric properties (Study 1), before establishing its convergent and discriminant validity (Study 2). Studies 3 and 4 tested whether, in response to negative social feedback, higher scores on the ADS predicted disengagement to protect state self-esteem. Studies 3 and 4 focused on the social domain given the paucity of engagement research in this area, even though individuals have heightened sensitivity to social feedback (Leary et al., 2003). Finally, Study 4 examined whether the link between ADS and disengagement from negative outcomes was driven by more explicit or implicit processes.

Study 1: Scale Development

To begin scale development, we first generated a list of potential items for the ADS. We aimed to develop a brief measure that could be easily administered, yet still capture the tendency to disengage from negative feedback across a variety of contexts. Items were adapted from and inspired by previous measures of engagement (Crocker, Luhtanen, et al., 2003), disengagement (Major & Schmader, 1998), self-esteem (Rosenberg, 1965), and self-regulation (Brown, Miller, & Lawendowski, 1999; Gratz & Roemer, 2004). To be included, items had to (a) describe one's ability to minimize the impact of negative feedback on self-esteem (e.g., "When I perform poorly at something, I do my best to keep a positive sense of self-esteem"), (b) describe one's responsiveness to domain-independent situations (e.g., "When bad things happen to me, I try not to feel bad about myself"), (c) describe one's tendency to respond to negative rather than positive or neutral outcomes (e.g., "I am good at 'shaking off' failures and keeping a positive attitude"), and (d) convey adaptation (e.g., "I can adapt to almost any situation to maintain my self-esteem"). Importantly, we distinguished the current items from other measures of engagement by focusing on one's proclivity to adapt to feedback, rather than one's static level of engagement in the domain.

This item generation process yielded an initial seven-item scale. To determine whether these items captured the same latent construct of adaptive disengagement, we conducted confirmatory factor analyses on two unique samples. We then assessed test–retest reliability of the ADS to determine whether adaptive disengagement was a stable construct that had trait-like properties.

Participants and Method

Participants were 1,559 introductory psychology students from University of Delaware (706 male; M_{age} = 18.82; 82% White, 4% Black not of Hispanic origin, 1% Black of Hispanic origin, 4% Hispanic, 6% Asian, 3% Other). In Phase 1, 460 participants (212 male) completed the initial seven-item ADS scale during a pretesting questionnaire session in exchange for partial course credit. Participants used a 1 (*strongly disagree*) to 7 (*strongly agree*) response scale and were instructed to respond to the items as honestly as possible. In Phase 2, 1,060 participants (485 male) completed the four-item ADS scale established in Phase 1. Phase 3 assessed test–retest reliability by administering the four-item ADS to 39 participants (9 male) at two time points 3 to 4 weeks apart. Participants in all phases were separate.

Results and Discussion

To verify that our proposed items were assessing the same and intended factor, we conducted an initial confirmatory factor analysis on data from Phase 1 using LISREL 9.1. A latent factor was estimated from the seven items. Fit indices were less than ideal, $\chi^2(14) = 226.67$, $p < .001$, root mean square error of approximation (RMSEA) = .182, comparative fit index (CFI) = .845, normed fit index (NFI) = .837, standardized root mean square residual (SRMR) = .128, and factor loadings indicated that three items loaded weakly. These items were removed. Fit indices of the final, four-item scale revealed adequate fit, $\chi^2(2) = 14.21$, $p = .39$, RMSEA < .001, 90% confidence interval (CI) = [<0.001, 0.09], CFI > .999, NFI = .999, and SRMR = .008 (Table 1). In Phase 2, we replicated this factor structure and again showed that the model had moderate fit, $\chi^2(2) = 14.21$, $p < .001$, RMSEA = .076, 90% CI = [0.04, 0.11], CFI = .994, NFI = .993, SRMR = .014, indicating that these four items capture the same latent construct. Although the upper bound of the CI of the RMSEA exceeded .1 in Phase 2, the CFI, NFI, and SRMR in both phases were within the bounds of acceptable models (Sivo, Fan, Witta, & Willse, 2006). Thus, we interpret these findings as evidence that the model fit the data moderately well. Item scores were averaged to create a factor value, where higher values reflect a greater tendency to disengage from negative feedback.

Finally, Phase 3 determined whether adaptive disengagement was stable over time. Indeed, for Phase 3 participants, ADS scores at Times 1 and 2 were strongly related,

Table 1. Factor Loadings of the Adaptive Disengagement Scale in Study 1.

Item	M	SD	Standardized loading
I am good at "shaking off" failures and keeping a positive attitude.	4.58	1.53	.81
When I perform poorly at something, I do my best to keep a positive sense of self-esteem.	4.75	1.36	.77
I can adapt to almost any situation to maintain my self-esteem.	4.62	1.43	.85
When bad things happen to me, I try to not feel bad about myself.	4.74	1.37	.70

$r(38) = .91$, $p < .001$. These results support our hypothesis that the degree to which a person disengages from negative feedback resembles a trait, as it is stable over time.

In sum, results from Study 1 across 3 unique samples and 1,559 participants suggest that the four items of the ADS assess a stable common factor reflecting the tendency to disengage from negative feedback. Should this regulatory process protect self-esteem from negative feedback, it should be related to measures of well-being. In addition, it would be important to distinguish the ADS from measures of stable, domain engagement and other measures related to well-being. Study 2 sought to address these issues.

Study 2: Convergent and Discriminant Validity

The primary goal of Study 2 was to determine the convergent and discriminant validity of the ADS. As high scorers on the ADS should sever the link between negative feedback and self-worth, we expected positive relationships between the ADS and positive mental states. To that end, we indexed four constructs associated with the successful adaptation to negative feedback: self-esteem, environmental mastery, self-acceptance, and personal growth. We also expected negative relationships between the ADS and measures of negative mental states. Accordingly, we indexed three constructs associated with the unsuccessful adaptation to negative feedback: self-consciousness, depression, and anxiety. Furthermore, we anticipated that individuals scoring high on the ADS would show an increased ability to regulate negative emotions in response to negative feedback. Thus, we assessed three dimensions of emotion regulation: accepting emotions, access to emotion regulation strategies, and controlling impulses.

As we expect the ADS to capture a dynamic process, we also examined whether it was distinct from measures of static, chronic engagement. Accordingly, we assessed the degree to which participants chronically engaged self-esteem in six previously studied domains: approval of others, appearance, competition, academic competence, family support, and virtue. As noted above, we expected that the tendency to adaptively disengage would be weakly related to a person's level of chronic engagement in these domains.

Notably, adaptive disengagement shares theoretical similarities with several other constructs related to self-regulation and well-being, and Study 2 aimed to disentangle the ADS from other measures. Specifically, the ADS shares similarities with the Goal Disengagement Scale, which measures a person's tendency to disengage effort and commitment from unattainable goals (Wrosch, Amir, & Miller, 2011; Wrosch, Scheier, Carver, & Schulz, 2003; Wrosch, Scheier, Miller, Schulz, & Carver, 2003). However, the Goal Disengagement Scale concerns one's ability to disengage from goal pursuit, rather than disengage self-esteem from negative feedback, and these forms of disengagement may be independent. In addition, adaptive disengagement shares similarities with ego-resiliency (Block & Kremen, 1996), positive reinterpretation of stressful situations (Carver, Scheier, & Weintraub, 1989), and optimism (Scheier, Carver, & Bridges, 1994), as these measures are all associated with self-regulation and positive mental states. However, ADS is distinct from these other constructs, as only the ADS is designed to capture a process that directly supports self-esteem.

Finally, it is important to note that trait self-esteem is related to people's motivation to self-protect in the face of negative feedback. For instance, in response to negative experiences, higher trait self-esteem predicts increased coping (Pearlin & Schooler, 1978), ego-resiliency (Cramer, 2000), and optimism (Scheier et al., 1994). As such, trait self-esteem scales might already capture elements of adaptive disengagement tendencies, making the ADS a redundant measure. However, we hypothesize that the conceptual breadth of trait self-esteem measures render them ineffective at capturing the specific processes through which people maintain self-esteem. In contrast, we expect the ADS to assess the specific tendency to adaptively disengage, above and beyond its shared variance with trait self-esteem. Thus, trait self-esteem is a useful covariate in examining whether the ADS has unique predictive validity.

Accordingly, we evaluated the predictive validity of the ADS by examining relationships between the ADS and measures of well-being while controlling for trait self-esteem, ego-resiliency, goal disengagement, optimism, and positive reinterpretation of stressful events.

Participants and Method

A total of 138 introductory psychology students from University of Delaware (73 female; $M_{age} = 18.99$; 82% White, 5% Black not of Hispanic origin, 4% Black of

Table 2. Measurements for Convergent and Discriminant Validity in Study 2.

Category	Measure	Response scale	Sample item	No. of items	α
Well-Being	Self-Esteem (Rosenberg, 1965)	1 (*strongly disagree*) to 4 (*strongly agree*)	I take a positive attitude toward myself.	10	.82
	Environmental Mastery (from the PWBS; Ryff & Keyes, 1995)	1 (*strongly disagree*) to 6 (*strongly agree*)	I am quite good at managing the responsibilities of everyday life.	3	.54
	Self-Acceptance (from the PWBS; Ryff & Keyes, 1995)	1 (*strongly disagree*) to 6 (*strongly agree*)	When I look at the story of my life, I am pleased with how things have turned out.	3	.77
	Personal Growth (from the PWBS; Ryff & Keyes, 1995)	1 (*strongly disagree*) to 6 (*strongly agree*)	For me, life has been a continuous process of learning, changing, and growth.	3	.65
	Self-consciousness (from the RNPI Costa & McCrae, 1992)	1 (*does not describe me at all*) to 9 (*describes me very well*)	I often feel inferior to others.	8	.70
	Depression (from the RNPI; Costa & McCrae, 1992)	1 (*does not describe me at all*) to 9 (*describes me very well*)	I have a low opinion of myself.	8	.80
	Anxiety (from the RNPI; Costa & McCrae, 1992)	1 (*does not describe me at all*) to 9 (*describes me very well*)	I often feel tense and jittery.	8	.79
	Goal Disengagement (Wrosch, Scheier, Miller, et al., 2003)	1 (*almost never true*) to 5 (*almost always true*)	If I have to stop pursuing an important goal in my life, it is easy for me to reduce effort toward the goal.	4	.84
	Ego Resiliency (Block & Kremen, 1996)	1 (*does not apply at all*) to 4 (*applies very strongly*)	I am generous with new friends.	14	.75
	Positive reinterpretation and growth (from the COPE; Carver, Scheier, & Weintraub, 1989)	1 (*I usually don't do this at all*) to 4 (*I usually do this a lot*)	[When in a stressful experience] I look for something good in what is happening	4	.79
	Optimism (Scheier, Carver, & Bridges, 1994)	0 (*strongly disagree*) to 4 (*strongly agree*)	I'm always optimistic about the future.	8	.77
Emotion Regulation	Difficulty controlling impulses (from the DERS; Gratz & Roemer, 2004)	1 (*almost never: 0%-10%*) to 5 (*almost always: 91%-100%*)	When I'm upset, I feel out of control.	6	.85
	Limited access to emotion regulation strategies (from the DERS; Gratz & Roemer, 2004)	1 (*almost never: 0%-10%*) to -5 (*almost always: 91%-100%*)	When I'm upset, it takes me a long time to feel better.	8	.88
	Non-acceptance of Emotions (from the DERS; Gratz & Roemer, 2004)	1 (*almost never: 0%-10%*) to 5 (*almost always: 91%-100%*)	When I'm upset, I feel guilty for feeling that way.	6	.90
Static Engagement to Specific Domains	Approval of others (from the CSWS; Crocker, Luhtanen, et al., 2003)	1 (*strongly disagree*) to 7 (*strongly agree*)	My self-esteem depends on the opinions others hold of me.	5	.83
	Appearance (from the CSWS; Crocker, Luhtanen, et al., 2003)	1 (*strongly disagree*) to 7 (*strongly agree*)	My sense of self-worth suffers whenever I think I don't look good.	5	.85
	Competition (from the CSWS; Crocker, Luhtanen, et al., 2003)	1 (*strongly disagree*) to 7 (*strongly agree*)	Doing better than others gives me a sense of self-respect.	5	.91
	Academic Competence (from the CSWS; Crocker, Luhtanen, et al., 2003)	1 (*strongly disagree*) to 7 (*strongly agree*)	My self-esteem is influenced by my academic performance.	5	.77
	Family Support (from the CSWS; Crocker, Luhtanen, et al., 2003)	1 (*strongly disagree*) to 7 (*strongly agree*)	It is important to my self-respect that I have a family that cares about me.	5	.77
	Virtue (from the CSWS; Crocker, Luhtanen, et al., 2003)	1 (*strongly disagree*) to 7 (*strongly agree*)	My self-esteem would suffer if I did something unethical.	5	.85

Note. Responses for each scale were averaged. PWBS = Psychological Well-Being Scale; RNPI = Revised NEO Personality Inventory; DERS = Difficulty in Emotion Regulation Scale; CSWS = Contingencies of Self-Worth Scale.

Hispanic origin, 1% Hispanic, 2% Asian, 6% Other) completed measures for partial course credit. Participants completed the four-item ADS scale, α = .85, and 20 other measures. Table 2 presents these measures, response scales, sample items, number of items, and Cronbach's alphas.

Results and Discussion

As hypothesized, results indicated that the ADS corresponded with increased positive mental states and decreased negative mental states (Table 3). Participants scoring higher on the ADS reported greater levels of self-esteem, environmental mastery, self-acceptance, and personal growth. Greater adaptive disengagement also predicted decreased self-consciousness, depression, and anxiety. Furthermore, greater ADS scores corresponded with greater ability to regulate emotions, suggesting that adaptive disengagement may contribute to reduced negative affect in the face of negative events.

Although the ADS shares theoretical similarities with self-esteem, optimism, goal disengagement, and ego-resiliency, results indicated that these measures were not redundant.

Table 3. Zero-Order and Partial Correlations Between Adaptive Disengagement Scale and Other Measures in Study 2.

		r with ADS while controlling for					
Measure	r with ADS	Self-esteem	Ego-resiliency	Goal disengage	Optimism	Positive reinterpret	All controls
Well-being							
Self-esteem	.57***		.43***	.56***	.21*	.44***	
Ego-resiliency	.47***	.24**		.47***	.11	.26**	
Goal disengagement	.01	−.01	−.01		−.02	.01	
Optimism	.67***	.47***	.55***	.66***		.54***	
Positive reinterpret	.52***	.40***	.40***	.54***	.32***		
Environmental mastery	.58***	.39***	.50***	.58***	.31***	.47***	.24**
Self-acceptance	.51***	.21*	.39***	.50***	.18*	.41***	.11
Personal growth	.23**	.16†	.13	.22**	.12	.02	.02
Self-consciousness	−.50***	−.30***	−.39***	−.50***	−.24**	−.44***	−.22*
Depression	−.65***	−.42***	−.56***	−.64***	−.34***	−.56***	−.28**
Anxiety	−.57***	−.42***	−.49***	−.57***	−.30***	−.55***	−.34***
Emotion-regulation							
Difficulty controlling impulses	−.55***	−.36***	−.51***	−.54***	−.30***	−.50***	−.29**
Limited emotion regulation strategies	−.58***	−.42***	−.54***	−.59***	−.30***	−.49***	−.27**
Non-acceptance of emotions	−.45***	−.32***	−.38***	−.43***	−.24**	−.41***	−.25**
Static engagement							
Approval of others	−.25**	−.21*	−.21*	−.26**	−.22**	−.21*	−.20*
Appearance	−.35***	−.20*	−.24**	−.36***	−.19*	−.27**	−.15†
Competition	−.09	−.21*	−.11	−.09	−.17*	−.07	−.18*
Academic competence	−.19*	−.23**	−.26**	−.20*	−.25**	−.19*	−.26***
Family support	−.03	−.07	−.11	−.04	−.19*	−.11	−.20*
Virtue	.05	−.05	.03	.03	−.03	−.08	−.12

Note. ADS = Adaptive Disengagement Scale.
†*p* < .10. *p* < .05. **p* < .01. ***p* < .001.

Specifically, the ADS predicted important indicators of well-being and emotion regulation above and beyond trait self-esteem, optimism, goal disengagement, and ego-resiliency. Notably, the predictive power of the ADS became weaker when these other constructs were partialled out, suggesting that existing measures might tap into elements of the adaptive disengagement construct, but the ADS may capture adaptive disengagement tendencies with greater sensitivity than existing measures.

Furthermore, results indicated that the ADS is a stronger predictor of negative than positive mental states. Specifically, when we controlled for a set of variables related to well-being, the ADS remained a significant predictor of decreased self-consciousness, depression, anxiety, and difficulty regulating emotions, whereas the positive correlations between the ADS and self-acceptance and personal growth became non-significant. These findings suggest that adaptive disengagement uniquely contributes to well-being by creating a buffer from negative outcomes. However, a limitation of Study 2 is that we did not directly test whether the ADS predicts how a person responds to negative and positive outcomes. Indeed, an ideal test of our hypotheses would be if ADS predicted self-esteem more strongly in the face of negative than positive feedback. Accordingly, Studies 3 and 4

aimed to manipulate feedback valence, and test whether the ADS is especially predictive of self-protection from negative feedback.

Finally, we obtained support for the hypothesis that the ADS is distinct from measures of static domain-specific engagement. More specifically, the ADS was uncorrelated with static engagement in three domains, and only moderately correlated with static engagement in three domains (mean absolute value of significant *r*s = .26). We expected this finding, as previous measures of engagement capture static domain engagement, whereas the ADS captures a person's tendency to disengage from negative situations. ADS most strongly predicted domain engagement in the appearance domain. One possible explanation for this finding is that participants receive more negative feedback in the appearance domain than other domains. Indeed, body dissatisfaction has remained pervasive among college-aged individuals (Grabe & Hyde, 2006), and repeated negative feedback might eventually elicit more global domain disengagement.

In sum, Study 2 demonstrated that the ADS converges with other measures of subjective well-being, has unique predictive power above and beyond related constructs, and diverges from measures of static domain engagement.

However, whether the ADS actually predicts a person's response to feedback remained unknown. Accordingly, Studies 3 and 4 tested whether greater ADS scores predict greater self-esteem by evoking disengagement from negative feedback.

Study 3: Adaptive Disengagement Buffers Self-Esteem

While Studies 1 and 2 established the viability of measuring adaptive disengagement tendencies, the primary goal of Study 3 was to test our original hypothesis that adaptive disengagement (as measured by the ADS) protects state self-esteem from negative feedback. In a computerized ball-tossing game, participants experienced social inclusion, overinclusion, or ostracism prior to state self-esteem measurement. Based on our hypothesis that adaptive disengagement protects self-esteem from negative feedback, we predicted that greater ADS scores would mitigate the influence of ostracism on state self-esteem. In addition, to isolate the effects of adaptive disengagement from other constructs that support self-esteem, we examined the relationships between ADS and state self-esteem while controlling for trait self-esteem.

Method

Participants and design. A total of 61 introductory psychology students from University of Delaware (28 male; M_{age} = 18.73; 87% White, 10% non-White, 3% chose to not indicate race) participated in a three-level (Inclusionary Status: Inclusion, Overinclusion, Ostracism) between-subject design for partial course credit. This sample size is consistent with previous research that has examined individual differences in response to the current manipulation (Zadro, Boland, & Richardson, 2006).

Procedures. During a pretesting session, participants responded to a measure of trait self-esteem (Rosenberg, 1965), α = .90. Several weeks later, participants reported to the lab and played Cyberball, an online ball-tossing game with two other players (actually computerized confederates, see Williams, Cheung, & Choi, 2000). Participants were free to toss the ball to either confederate, after which the confederate would toss the ball to the other confederate, or back to the participant. Each confederate tossed the ball to the participant twice, after which the participant was randomly assigned to the Inclusion, Overinclusion, or Ostracism condition. Across 30 trials, participants received the ball 50% of the time in the Inclusion condition, 100% of the time in the Overinclusion condition, and 0% of the time in the Ostracism condition.

To determine the effectiveness of the manipulation, participants used a 1 (*not at all*) to 5 (*very much so*) scale to respond to three items that measure belongingness in the experimental context, with greater values representing

greater perceptions of belongingness (Zadro, Williams, & Richardson, 2004; for example, "I felt poorly accepted by the other participants"), α = .89. Participants then responded to a measure of state self-esteem by using a 1 (*not at all*) to 5 (*very much so*) scale to respond to a three-item measure previously used to index state self-esteem in the current context (Zadro et al., 2004; for example, "During the Cyberball game, I felt good about myself"), α = .86. Finally, participants responded to the ADS, α = .80. We included the ADS at the end of the study to minimize demand characteristics and determine whether feedback influences responses to the ADS.

Results

Responses to the ADS were equivalent in the Inclusion (*M* = 5.17, *SD* = 1.23), Ostracism (*M* = 5.11, *SD* = 1.02), and Overinclusion (*M* = 4.94, *SD* = 1.11) conditions, *p* > .78, suggesting that the tendency to adaptively disengage was stable across feedback contexts. This finding provides further evidence that adaptive disengagement is stable and should be considered a trait.

Manipulation check. To confirm the efficacy of the ostracism manipulation, we conducted a one-way between-subjects ANOVA (Inclusion vs. Ostracism vs. Overinclusion) predicting belongingness. Consistent with previous research (e.g., Williams et al., 2000), a main effect emerged, $F(2, 58)$ = 27.95, *p* < .001, η^2 = .49. Participants in the Inclusion (*M* = 3.04, *SD* = .61) and Overinclusion (*M* = 3.24, *SD* = .69) conditions reported equivalent levels of belongingness (*p*s > .4). However, ostracized participants (*M* = 1.49, *SD* = 1.09), relative to included and overincluded participants, reported lower levels of belongingness, $t(58)$ = −7.36, *p* < .001, *d* = 1.84. Thus, our manipulation of social ostracism was effective.

State self-esteem. To examine whether adaptive disengagement (as measured by the ADS) buffered state self-esteem from negative social feedback, we regressed state self-esteem on centered ADS score, two dummy codes representing the three conditions (Ostracism: Inclusion = 0, Ostracism = 1; Overinclusion: Inclusion = 0, Overinclusion = 1), and the ADS × Condition interaction terms. Consistent with previous research (e.g., Williams et al., 2000), ostracized participants reported lower state self-esteem than included participants *b* = −1.24, *SE* = .25, β = −.60, *p* < .001, 95% CI = [−1.73, −0.74]. Furthermore, a marginally significant ADS × Ostracism interaction emerged, *b* = .38, *SE* = .22, β = .23, *p* < .10, 90% CI = [0.003, 0.75] (see Figure 1). Because of our a priori hypotheses regarding this interaction, we calculated simple slopes. For individuals with low ADS responses (−1 *SD*), ostracism significantly diminished state self-esteem, *b* = −1.65, *SE* = .36, *t* = −4.61, *p* < .001. This negative effect of ostracism was attenuated, however, for
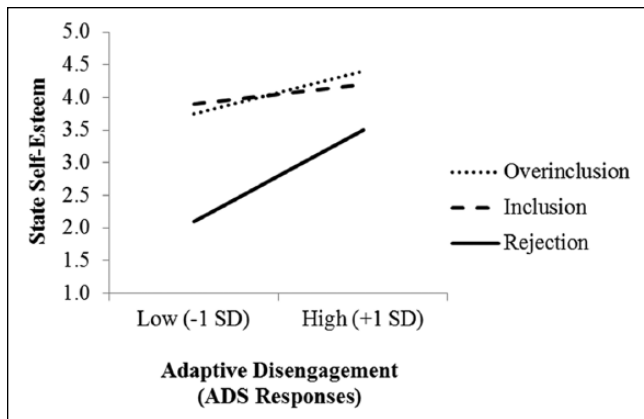
Figure 1. Interactive effect of adaptive disengagement and Cyberball condition on state self-esteem in Study 3.
Note. ADS = Adaptive Disengagement Scale.

participants with higher (+1 *SD*) ADS responses, $b = −.83$, $SE = .33$, $t = −2.49$, $p = .02$. Suggesting that adaptive disengagement is activated by negative feedback, ADS responses were unrelated to state self-esteem in the Inclusion and Overinclusion conditions, $ps > .70$, contexts in which disengagement was unnecessary for protecting one's esteem. In the Ostracism condition, however, lower ADS responses predicted significantly lower state self-esteem, $b = .44$, $SE = .16$, $t = 2.71$, $p < .01$. Finally, when trait self-esteem was modeled as a control variable, the conclusions remain unchanged, as the ADS × Ostracism interaction remained marginally significant, $b = .38$, $SE = .23$, $β = .23$, $p < .10$, 90% CI = [0.001, 0.77]. This pattern of results provides initial support for our hypothesis that adaptive disengagement buffers state self-esteem from negative social outcomes, and that the ADS predicts a person's response to negative feedback above and beyond trait self-esteem. No other effects were evident.

Discussion

The results from Study 3 converge to support our hypotheses that adaptive disengagement protects self-esteem from negative social outcomes. Specifically, higher scores on the ADS appeared to attenuate the negative effects of ostracism on state self-esteem. These results were equivalent when we controlled for trait self-esteem, suggesting that the effects were due to adaptive disengagement rather than a separate construct that covaries with trait self-esteem. These findings provide initial evidence that individual differences in the tendency to adaptively disengage determine whether negative outcomes decrease state self-esteem. Notably, however, adaptive disengagement only marginally moderated the effect of ostracism on state self-esteem, and one goal of Study 4 was to replicate these findings with an alternative manipulation of social rejection.

In addition, a limitation of Study 3 is that the mechanism through which the ADS protected self-esteem from negative feedback was not identified. Given that the ADS is correlated with several indicators of well-being (Study 2), it is possible that responses on the ADS corresponded with a psychological process that is orthogonal to adaptive disengagement. Accordingly, Study 4 directly tested the construct validity of the ADS by examining potential mediators through which ADS predicts greater self-esteem in response to negative feedback.

Study 4: ADS Predicts Disengagement From Negative Feedback

Study 4 aimed to (a) replicate the pattern of findings in Study 3 with a stronger manipulation of social feedback, (b) capture the dynamics of disengagement, and (c) determine whether, in the face of negative feedback, disengagement mediates the link between the ADS and state self-esteem.

Furthermore, as self-regulation involves both explicit and implicit processes (Bongers et al., 2009; Gyurak et al., 2011), Study 4 examined whether the ADS predicted disengagement at more explicit or implicit levels. Explicit disengagement was assessed with a standard self-report measure. To determine whether more implicit processes contribute to adaptive disengagement, we implemented mouse-tracking, a technique that records the complex real-time dynamics underlying response selection. Specifically, we recorded participants' mouse-cursor movements en route to response selection, which provides a window into initial and potentially unconscious commitments to multiple and competing response alternatives (Freeman & Ambady, 2010; Freeman, Dale, & Farmer, 2011). Recent research has utilized mouse-tracking to assess implicit self-esteem (Yu, Wang, Wang, & Bastin, 2012) and self-oriented processing (Freeman et al., 2011), rendering it an ideal tool to examine how more implicit processes contribute to disengagement.

Participants in Study 4 received positive, negative, or no social feedback, after which we measured explicit and implicit engagement, and state self-esteem. We hypothesized that, both in response to positive feedback and in the absence of feedback, ADS responses would be unrelated to disengagement. Following negative feedback, however, greater ADS responses should predict disengagement, in turn insulating self-esteem. Finally, to examine whether adaptive disengagement is orthogonal to goal pursuit, we measured social goals following the task.

Method

Participants and design. A total of 61 introductory psychology students from University of Delaware (19 male; average age = 18.88; 100% White) participated in a three-level (Feedback: Negative, Control, Positive) between-subjects design in exchange for partial course credit. We used an all-White sample so that all participants would receive feedback from same-race confederates (see below).
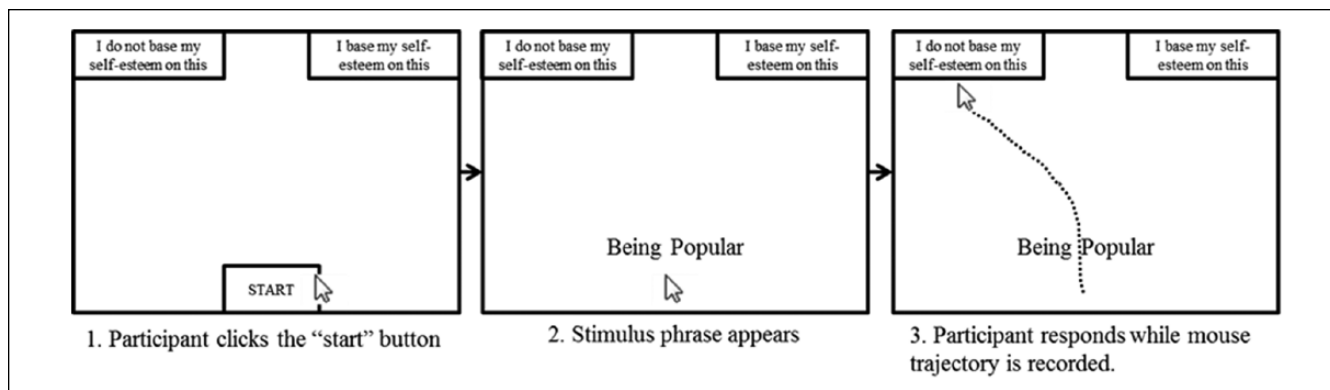
Figure 2. A sample trial on the implicit engagement (mouse-tracking) measure in Study 4.

Procedures. During a pretesting session, participants completed the ADS, α = .80. In addition, participants responded to a measure of trait self-esteem (Rosenberg, 1965), α = .89.

Several weeks later, participants were informed that they would have a video chat session with another individual in a study that examined non-face-to-face communication. The experimenter then connected a video chat between the participant and a confederate in same-sex dyads. The video stream of the confederate was a prerecorded clip of a male or female student sitting at desk looking around the room. To make the interaction appear legitimate, we streamed the clip through a video chat window. After viewing the window for 5 s, the experimenter turned off the monitor and indicated that the participant was assigned to the "speaker condition." As "the speaker," participants would be unable to see their interaction partner, although their partner could ostensibly see and hear the participant. All participants were assigned to the "speaker condition."

Next, we adapted a paradigm that encourages participants to disclose personal information (Aron, Melinat, Aron, Vallone, & Bator, 1997). Specifically, an audio recording prompted participants to verbally answer several personal questions (e.g., "What are your strongest attributes?" "What is your dream job?" "What is unique about your family?"). Participants spoke their responses for the confederate.

Participants then completed a filler task, during which the critical feedback manipulation was administered. In the positive and negative feedback conditions, a prerecorded audio dialogue played over the participant's speakers that acted out a conversation between the experimenter and the confederate. In the recording, the experimenter said "I will now end the video chat between you and your partner," but did not actually end the video chat. The experimenter then asked the confederate a series of questions about the participant, including whether the participant seemed interesting, and whether the confederate could see being friends with the participant. Thus, the participant was made to believe that overhearing the experimenter/confederate conversation was an accident. In the negative condition, the confederate gave

hesitant and ambivalent answers (e.g., "Uh, friends? I don't know if we'd be friends. Maybe I'd talk to her at a party or something."). In the positive condition, the confederate gave positive answers (e.g., "I could definitely see myself being friends with her."). The same confederates recorded positive and negative feedback. The ostensible conversation between the experimenter and confederate lasted for 30 s. In the control condition, participants did not hear any feedback.

Following the feedback manipulation, participants completed a manipulation check as well as measures of explicit and implicit engagement, state self-esteem, and social goals. Finally, participants were carefully debriefed and dismissed.

Dependent measures

Manipulation check. To determine the effectiveness of the social feedback manipulation, participants used a 1 (*strongly disagree*) to 7 (*strongly agree*) scale to respond to the item "I think my interaction partner will want to meet me at the end of this study."

Explicit engagement. To measure explicit engagement, participants used a 1 (*strongly disagree*) to 7 (*strongly agree*) scale to respond to the five-item *approval of others* dimension of Crocker and colleagues' (2003) Contingency of Self-Worth Scale (e.g., "I can't respect myself if others don't respect me."), α = .83. Higher values indicate greater engagement in the domain.

Implicit engagement. To index more implicit engagement, we used a measure that is sensitive to dynamic, and potentially unconscious, decision processes. Specifically, we recorded participants' mouse-trajectories with MouseTracker software (Freeman & Ambady, 2010) during a decision task. Trials began when participants clicked the "start button" at the bottom-center of the screen (see Figure 2), prompting presentation of phrases related to the current social situation (e.g., "being popular"). Participants indicated whether they did, or did not, base their self-esteem on these phrases by clicking the corresponding options in the upper left and

right corners of the screen for each item. Participants completed nine trials in random order. To ensure that response trajectories captured continuous processing, participants were encouraged to begin their movements early, and were instructed to move more quickly when their response was not made within 2,000 ms.

To index the extent to which participants were attracted toward each response, we computed area under the curve (AUC): the area between the observed trajectory and an idealized straight-line from the starting position to the selected response.[1] AUC thus indexes the degree to which a respondent is attracted to each response option, with smaller values indicative of greater attraction to the selected response option (and thus less attraction to the unselected response), just as larger values indicate greater attraction to the unselected response option. The degree of attraction to unselected response categories has now been repeatedly demonstrated to reveal subtle biases in the dynamic decision process inaccessible to more traditional and explicit measures (e.g., Freeman & Ambady, 2010; Freeman et al., 2011; Johnson, Freeman, & Pauker, 2012; Yu et al., 2012). Accordingly, we conceptualized greater situational engagement as more direct trajectories (i.e., less AUC) when selecting the "I base my self-esteem on this" response, and more curved trajectories (i.e., greater AUC) when selecting the "I do not base my self-esteem on this" response. To account for both responses, implicit engagement was computed by subtracting the average AUC to "I base my self-esteem on this" responses from the average AUC to "I do not base my self-esteem on this" responses. Accordingly, smaller values represented lower implicit engagement, and this index was independent from participants' ultimate explicit responses. Identical to previous research (Freeman & Ambady, 2010), we eliminated trials with aberrant looping movements (3.0%), and trials that exceeded 3 *SD* from the mean in AUC (2.0%) from analysis.

Notably, although this mouse-tracking measure may be influenced by both explicit and implicit processes, it should provide greater insight into implicit engagement than the explicit engagement measure described above.

State self-esteem. Participants completed a modified version of Rosenberg's (1965) self-esteem scale, on which each item was preceded by "at this moment." Participants used a 1 (*strongly disagree*) to 4 (*strongly agree*) scale to respond to the 10-item scale (e.g., "At this moment, I feel that I have a number of good qualities"), α = .89.

Social goals. To assess whether the ADS was independent from goal pursuit, participants indicated their agreement to four items that assessed the degree to which they had the goal to be more sociable (e.g., "I would like to attend more social functions") on a 1 (*strongly disagree*) to 7 (*strongly agree*) scale, α = .92.
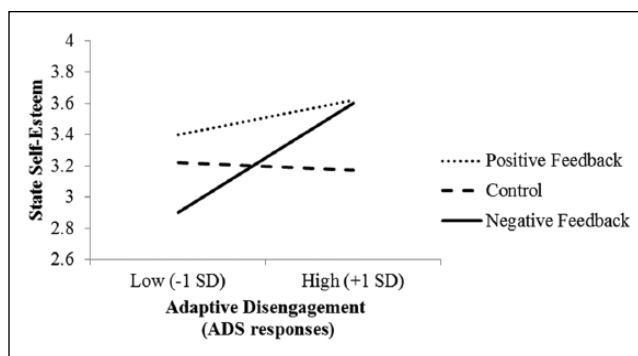

Figure 3. Interactive effect of adaptive disengagement and feedback on state self-esteem in Study 4.
Note. ADS = Adaptive Disengagement Scale.

Results

Manipulation check. To determine the effectiveness of our social feedback manipulation, we conducted a one-way (Feedback: Positive vs. Control vs. Negative) ANOVA predicting participants' perceptions of their partner's desire to meet them. As expected, a main effect emerged, $F(2, 55)^{2} = 9.22$, $p < .001$, $\eta^2 = .27$. Participants' perceptions of their partner's desire for a meeting was greater in the Positive ($M = 5.20$, $SD = 1.16$) than Control condition ($M = 4.43$, $SD = .93$), $t(55) = 2.25$, $p = .03$, $d = .73$, which was greater than the Negative condition ($M = 3.65$, $SD = 1.22$), $t(55) = -2.18$, $p = .03$, $d = .72$. Thus, our social feedback manipulation was effective.

Adaptive disengagement buffers self-esteem. To examine whether adaptive disengagement (as measured by the ADS) buffered self-esteem from negative feedback, we regressed state self-esteem on mean-centered ADS score, two dummy codes representing the three conditions ("Negative": Control = 0, Negative = 1; "Positive": Control = 0, Positive = 1), and the ADS × Condition interaction terms. A main effect for Positive condition indicated that state self-esteem was greater following positive feedback than control, $b = .29$, $SE = .11$, $\beta = .34$, $p = .01$, 95% CI = [0.07, 0.51]. More central to the current hypotheses, ADS interacted with negative feedback, $b = .32$, $SE = .10$, $\beta = .45$, $p < .01$, 95% CI = [0.12, 0.52], replicating the findings from Study 3.[3] As shown in Figure 3, simple slope analyses revealed that ADS responses did not predict state self-esteem in the Control and Positive conditions, ps > .18. Following negative feedback, however, lower ADS responses corresponded with lower state self-esteem, $b = .31$, $SE = .08$, $t = 3.59$, $p < .001$. Thus, once again, participants with greater ADS scores showed buffered state self-esteem from negative feedback. Finally, when trait self-esteem was modeled as a control variable, the ADS × Negative feedback interaction remained significant, $b = .22$, $SE = .09$, $\beta = .30$, $p = .02$, 95% CI = [0.03, 0.40], suggesting
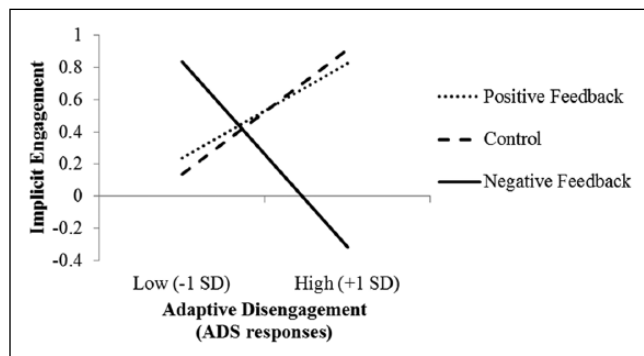
Figure 4. Interactive effects of adaptive disengagement and feedback on implicit engagement in Study 4.
Note. ADS = Adaptive Disengagement Scale.

that the current effects were due to adaptive disengagement, rather than a separate self-protective process that covaries with trait self-esteem. No other effects were evident.

Explicit engagement. To determine the relationships between feedback, ADS, and explicit engagement, we regressed explicit engagement on ADS, two condition dummy codes, and the interaction terms described above. A marginally significant main effect emerged indicating that, overall, higher ADS responses corresponded with somewhat lower explicit engagement, $b = -.26$, $SE = .15$, $\beta = -.31$, $p = .10$, 90% CI $= [-0.51, -0.0001]$. However, no other effects were significant, ps $> .10$, indicating that ADS did not differentially predict explicit engagement across conditions.

Implicit engagement. Regressing the number of "I base my self-esteem on this" responses ($M = 3.61$, $SD = 1.39$) on the same model described revealed a marginally significant main effect for the ADS, $b = -.38$, $SE = .22$, $\beta = -.32$, p $= .10$, 90% CI $= [-0.76, -0.01]$, such that higher scores on the ADS predicted somewhat fewer "I base my self-esteem on this" responses. However, no other effects were significant, ps $> .21$, and we thus turned to the more implicit measure of mouse-trajectories.

Regressing implicit engagement (as measured via mouse-trajectories) on ADS, two condition dummy codes, and the interaction terms predicted the ADS × Negative condition interaction, $b = -.82$, $SE = .31$, $\beta = -.41$, $p = .01$, 95% CI $= [-1.33, -0.31]$ (see Figure 4). Simple slope analyses revealed that following negative feedback, higher ADS responses predicted lower implicit engagement, $b = -.49$, $SE = .25$, $t = -1.97$, $p = .05$, as anticipated (see Figure 5). In contrast, ADS responses did not significantly predict implicit engagement in the control and positive conditions, ps $> .1$. In other words, following positive or no feedback, ADS responses did not predict mouse-trajectories en route to response selection. Thus, only when receiving negative feedback did greater ADS scores correspond with a greater attraction to "I do not base my self-esteem on this" responses, regardless of the

explicit decision of participants. Furthermore, among participants low in ADS responses (-1 *SD*), feedback did not significantly affect implicit engagement, ps $> .1$. For participants high in ADS responses ($+1$ *SD*), however, negative compared with control feedback predicted lower implicit engagement, $b = -1.23$, $SE = .51$, $t = -2.41$, $p = .02$. These findings support our hypothesis that, in response to negative feedback, higher ADS scores correspond with implicit disengagement.

Finally, when trait self-esteem was modeled as a control variable, the ADS × Negative feedback interaction remained significant, $b = -.85$, $SE = .32$, $\beta = -.43$, $p = .01$, 95% CI $= [-1.38, -0.31]$, indicating that adaptive disengagement uniquely moderated the relationship between feedback and implicit engagement.

Mediated moderation. We anticipated that, in response to negative feedback, adaptive disengagement tendencies (as measured by the ADS) elicited disengagement, which, in turn, protected state self-esteem. In the current context, we thus expected the interactive effect of feedback and ADS on state self-esteem to be mediated by implicit disengagement. Accordingly, we tested for mediated moderation, which integrates moderated regression and path analysis to simultaneously test both mediation and moderation (Edwards & Lambert, 2007). This statistical approach tests the significance of simple and indirect effects by using a constrained non-linear regression module to derive unstandardized regression coefficients and 95% bias-corrected CIs from 1,000 bootstrap estimates.

As illustrated in Figure 6, and consistent with the aforementioned analyses, ADS responses predicted neither implicit engagement nor state self-esteem in the control and positive feedback conditions. When feedback was negative, however, greater ADS responses predicted significantly lower implicit engagement, $b = -.47$, 95% CI $= [-0.71, -0.13]$, which, in turn, predicted greater state self-esteem, $b = -.20$, 95% CI $= [-0.46, -0.01]$. Importantly, the indirect path in the negative condition was significant, $b = .09$, 95% CI $= [0.02, 0.26]$, whereas the indirect paths were non-significant in the control, 95% CI $= [-0.02, 0.04]$, and positive, 95% CI $= [-0.16, 0.01]$, conditions. Further suggesting that these effects were due to adaptive disengagement, rather than a separate process that covaries with trait self-esteem, the indirect path in the negative condition remained significant when we controlled for trait self-esteem, $b = .12$, 95% CI $= [0.001, 0.47]$. Thus, supportive of our hypotheses, in response to negative feedback, implicit disengagement partially mediated the relationship between ADS responses and state self-esteem.

Social goals. Finally, to determine whether the link between ADS and self-esteem maintenance was orthogonal to social goal pursuit, we regressed social goals on ADS, the two feedback dummy codes, and the interaction terms. Although positive feedback increased social goals, $b = .71$, $SE = .35$,
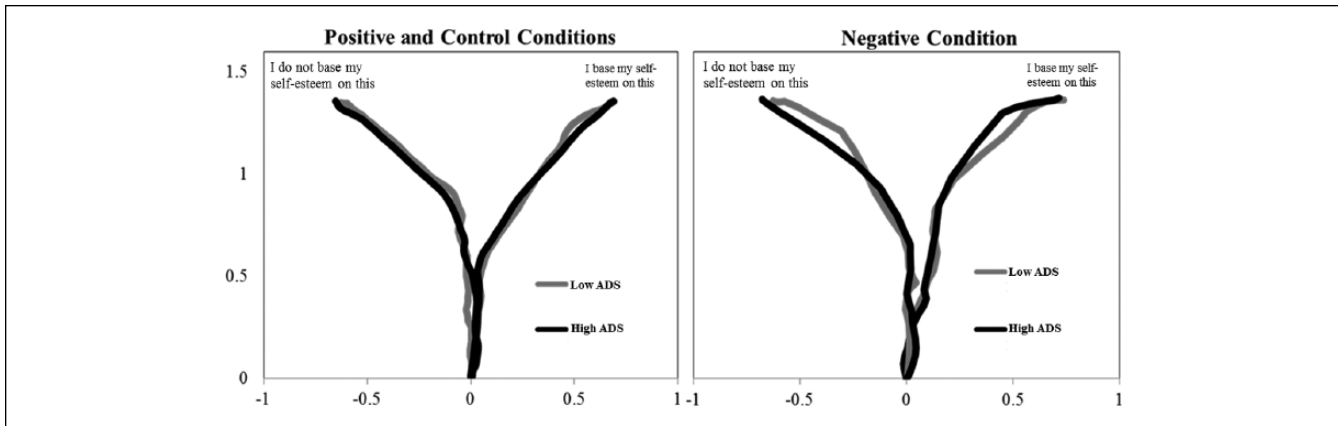
Figure 5. Time-normalized mean mouse-trajectories for participants above or below the median on adaptive disengagement in Study 4.
Note. Positive and control conditions did not differ statistically, and we collapse across them here for visualization purposes. Values on the *x*- and *y*-axes represent mouse movements along the *x*- and *y*-axes of the computer screen. In response to negative feedback, high scores on the ADS corresponded with greater attraction to the "I do not base my self-esteem on this" response. ADS = Adaptive Disengagement Scale.
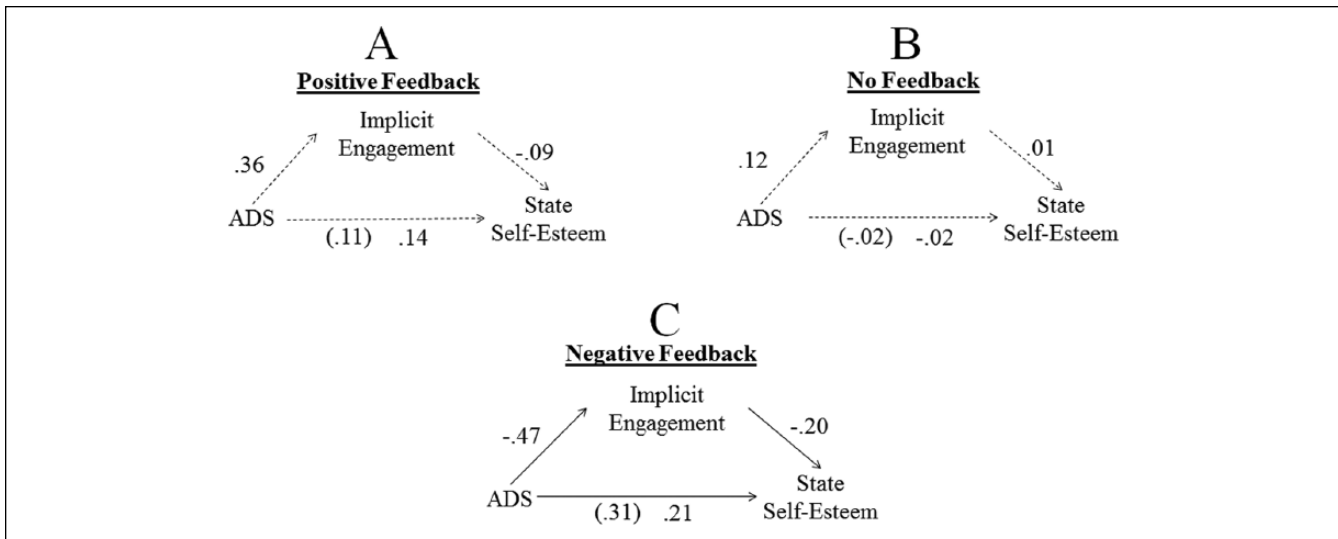

Figure 6. Mediation models showing indirect paths in Study 4.
Note. Values are unstandardized regression coefficients for simple paths. Values in parenthesis indicate the relationship before the mediator was entered in the model. Solid lines indicate significant paths at the 95% confidence interval level. Dashed lines represent non-significant paths. ADS = Adaptive Disengagement Scale.

β = .29, *p* = .05, 95% CI = [0.12, 1.29], neither the main effect of ADS nor the interactions were significant, *p*s > .21. Thus, whereas ADS predicted the implicit disengagement of self-esteem from negative feedback, ADS did not predict a reduction of social goals.

Discussion

In response to positive feedback and no feedback, ADS responses were unrelated to changes in state self-esteem. Following negative feedback, however, greater ADS scores predicted implicit disengagement from the situation, which in turn buffered state self-esteem. These results remained significant when we statistically controlled for trait self-esteem, suggesting that the effects were due to adaptive disengagement, rather than another construct that covaries with trait self-esteem. Importantly, these findings corroborate and further bolster the marginally significant findings from Study 3, which suggested that greater adaptive disengagement protected self-esteem from ostracism in a ball-tossing game. However, Study 4 confirmed the effects using a more realistic manipulation of social feedback (i.e., verbal feedback), and a more general measure of state self-esteem. Thus, these results directly support the construct validity of the ADS and suggest that individuals protect self-esteem by disengaging from negative feedback. In addition, these findings support

the discriminant validity of the ADS, as the link between ADS and self-esteem maintenance was orthogonal to goal pursuit in the social domain.

Notably, feedback and ADS responses interacted to predict more implicit disengagement, but not explicit disengagement. One possible explanation for this discrepancy is that the processes underlying adaptive disengagement are implicit. That is, although the ADS is an explicit measure and predicts explicit outcomes, the processes driving adaptive disengagement may function outside of conscious awareness. As such, a person may be aware of the tendency to disengage self-esteem from negative feedback, and thus score highly on the ADS, but lack cognizance of when disengagement is occurring. Consistent with this idea, previous work suggests that although self-esteem is similarly explicit, self-esteem maintenance relies on automatic processes (Bongers et al., 2009; Fitzsimons & Bargh, 2004), and that the ADS is related to attentional processing in the first few hundred milliseconds after receiving negative feedback (Leitner et al., 2014).

Indeed, from a pragmatic, cognitive-miser perspective, implicit adaptive disengagement processes are ideal, as they would consume fewer executive resources (cf. Muraven & Baumeister, 2000), and could thus be used more easily in a variety of complex situations. Furthermore, implicit adaptive disengagement processes might influence other unconscious processes that mitigate perceived threat. Supportive of this possibility, individuals who explicitly report self-protective strategies respond to stress with decreased autonomic nervous system response (Taylor et al., 2003). Thus, our findings suggest that the ADS responses are linked to implicit disengagement processes, which in turn, predict explicit indices of well-being.

Finally, implicit engagement was negatively related to state self-esteem in the negative feedback condition, but was unrelated to engagement in the positive and neutral feedback conditions. These results are consistent with research showing that negative feedback is more influential than positive feedback (Baumeister et al., 2001), and that disengagement protects self-esteem from negative feedback, but greater engagement does not augment the effect of positive feedback on self-esteem (Leitner et al., 2013). Furthermore, there is an upper limit to the level of self-esteem that a person is motivated to attain (Tesser et al., 2000), and it is possible that the state self-esteem of participants in the positive and neutral feedback conditions was already near this upper limit. This result highlights how the strength of the ADS is its ability to predict patterns of disengagement and state self-esteem in response to negative feedback.

General Discussion

The current research indicates that the ADS is a reliable and valid measure of a person's tendency to disengage self-esteem from negative feedback. This brief and thus easily implementable scale has good psychometric properties and high test–retest reliability (Study 1), as well as convergent and discriminant validity (Study 2). Notably, in response to negative social feedback, higher ADS scores corresponded with buffered state self-esteem (Study 3). Furthermore, Study 4 replicated this finding and demonstrated that, in response to negative social feedback, disengagement mediated the relationship between the ADS and state self-esteem.

Whereas previous research has examined how disengagement helps targets of negative stereotypes cope with the threat of stigma (e.g., Crocker & Major, 1989; Leitner et al., 2013; Major et al., 1998; Nussbaum & Steele, 2007), the current findings indicate that adaptive disengagement is a process not limited to stigmatized populations. Rather, participants in Study 4 who scored higher on the ADS showed disengagement in a negative situation where no stereotypes were salient. Thus, these findings extend previous research by demonstrating that any individual may use adaptive disengagement in the face of negative situations. Indeed, negative stereotypes may be one of many social stressors for which adaptive disengagement is a self-protective mechanism.

Furthermore, these results extend previous research by showing that a person's tendency to disengage from negative feedback transcends domains. Specifically, whereas previous research has measured contingencies of self-worth (Crocker, Luhtanen, et al., 2003) and disengagement (Major & Schmader, 1998) in discrete domains (e.g., academics), the ADS is the first measure to assess a person's tendency to disengage from negative feedback, regardless of the domain. Evidencing the domain-independence of adaptive disengagement, the ADS positively predicted subjective well-being in a variety of contexts: measures of subjective well-being (Study 2), state self-esteem in response to ostracism (Study 3), and state self-esteem in response to negative verbal feedback (Study 4). Studies 3 and 4 targeted the social domain because individuals have heightened sensitivity to social feedback (Leary et al., 2003), although we expect the current results to extend to other domains. Future work might thus explore how adaptive disengagement manifests and influences outcomes in diverse domains.

In response to negative feedback, the relationship between the ADS and disengagement depended on the way in which disengagement was measured (Study 4). Specifically, in response to negative feedback, the ADS predicted disengagement when we measured disengagement with a measure designed to index more implicit processes (mouse-tracking), but not when disengagement was measured with a more explicit measure. These findings are consistent with research suggesting that non-conscious, implicit processes play an important role in regulating positive mental states (for a review, see Leitner & Forbes, in press). For instance, when people are told that a trait is linked to success, autobiographical memory for information related to that trait improves

(Sanitioso & Wlodarski, 2004). In addition, implicit processes are thought to be important for successful emotion regulation (Gyurak et al., 2011), and individuals scoring higher on the ADS show decreased attentional processing of negative feedback, as indexed via neural activity (i.e., alpha oscillations in the medial frontal cortex) in the first 500 ms after viewing the feedback (Leitner et al., in press). Thus, future research should continue to examine how implicit and explicit processes contribute to adaptive disengagement.

Studies 3 and 4 focused on whether ADS predicted state rather than trait self-esteem, as state self-esteem is more responsive to situational feedback (Heatherton & Polivy, 1991). Indeed, both of these studies found that experimental feedback affected state self-esteem, and Study 4 found that the ADS moderated the relationship between feedback and state self-esteem. Moreover, the results in Studies 3 and 4 were identical when we statistically controlled for trait self-esteem. Although the ADS may be a stronger predictor of state than trait self-esteem, higher levels of state self-esteem, over time, may result in higher trait self-esteem (Pelham & Swann, 1989). Future research might thus examine whether adaptive disengagement, when used over time, produces higher trait self-esteem.

In sum, the ADS is the first measure to assess individual differences in the tendency to disengage self-esteem from negative feedback. We extend previous work by demonstrating that adaptive disengagement is not a phenomenon limited to stigmatized individuals. Rather, adaptive disengagement may be used across situations and domains by any person who is motivated to maintain self-esteem in the face of negative feedback. Greater understanding of this self-protective process may shed light on other phenomena related to self-esteem maintenance and well-being.

Declaration of Conflicting Interests

The author(s) declared no potential conflicts of interest with respect to the research, authorship, and/or publication of this article.

Funding

The author(s) received no financial support for the research, authorship, and/or publication of this article.

Notes

1. See Freeman and Ambady (2010) for further details on mouse-trajectory preprocessing and analytic techniques.
2. Three participants neglected to complete the manipulation check.
3. Study 4 included nine additional participants for whom we did not have implicit engagement data. To be consistent, we report analyses that include participants who had data on both self-esteem and implicit engagement measures. We note that the ADS × Negative feedback interaction remains significant when these participants are included in the current analyses: $b = .20$, $SE = .09$, $\beta = .12$, $p = .03$, and that our conclusions would remain the same.

Supplemental Material

The online supplemental material is available at http://pspb .sagepub.com/supplemental.

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