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# Self-Esteem Accessibility as Attitude Strength: On the Durability and Impactfulness of Accessible Self-Esteem

## Kenneth G. DeMarree[1], Richard E. Petty[2], and Daniel R. Strunk[2]

## Abstract

The present research examines the accessibility of one's self-esteem as a predictor of the "strength" (durability and impactfulness) of that self-esteem. Based on attitude accessibility research, the authors predicted that accessibility of self-esteem (i.e., a self-attitude) would be positively related to self-esteem's ability to resist change and guide information processing. In Study 1, accessibility of self-esteem was positively related to resistance to change in a paradigm where participants listed either positive or negative self-attributes. Self-esteem was also associated with biases in judgments of ambiguous personality feedback (Study 2) and in explanatory style and future event predictions (Study 3), but did so to a greater extent as self-esteem accessibility increased. In addition, these patterns were obtained after controlling for other variables, including general reaction time, evaluative extremity, self-concept clarity, and self-esteem certainty. Results are discussed in relation to past literature, self-strength, and applied implications.

In attitudes research, the accessibility of an attitude (i.e., the degree to which an attitude toward an object is active in memory) is a well-established and important determinant of whether the attitude will guide behavior and thought, resist change, and remain stable over time (e.g., Bassili, 1996; Fabrigar, Priester, Petty, & Wegener, 1998; Fazio & Williams, 1986; for a review, see Fazio, 1995). These characteristics of accessible attitudes are the hallmark features of "strong" attitudes, which Krosnick and Petty (1995) define as attitudes that are durable (stable over time and resistant to change) and impactful (predictive of behavior and biases in thinking). Because attitude accessibility has proven useful for understanding the strength properties of attitudes, we expected that it would similarly be useful for understanding self-esteem. Specifically, we argue that as the accessibility of self-esteem increases, the durability and impactfulness of self-esteem will likewise be greater.

Self-esteem is typically defined as an attitude or summary evaluation of the self (Baumeister, Campbell, Krueger, & Vohs, 2003; Rosenberg, 1965). Borrowing from contemporary definitions of attitudes (e.g., Petty, Wheeler, & Tormala, 2003), self-esteem can be defined as the degree to which people evaluate the self in a favorable or unfavorable manner.

This evaluation's chronic accessibility is the primary construct of interest in this article. Our major hypothesis is that as self-esteem accessibility increases, self-esteem will be more likely to evince the qualities of "self-strength" (DeMarree, Petty, & Briñol, 2007a; also see Krosnick & Petty, 1995). Thus, a consideration of self-esteem accessibility will help to determine when self-esteem is consequential or not. Failure to consider self-esteem accessibility might account, in part, for the heterogeneity of self-esteem effects and why self-esteem level by itself has sometimes been viewed as a nonconsequential construct (Baumeister et al., 2003; but see Swann, Chang-Schneider, & McClarty, 2007). Furthermore, if correct, an important implication is that self-esteem researchers should typically assess not only the level of this construct but also its accessibility.

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## Basis of Predictions

There are several reasons to believe that as self-esteem accessibility increases, it will be more likely to demonstrate the qualities of strength. First, accessible self-esteem should be more impactful because as self-esteem accessibility increases, self-esteem is more likely to be used as an input or guide to judgment and behavior (e.g., because accessible constructs bias the interpretation of ambiguous construct-relevant information or provide a clear basis for action; Fazio, 1995; also see Higgins, 1996). Consistent with this, existing research on self-accessibility, although not examining self-esteem, has shown accessible self-elements to be more impactful than inaccessible self-elements (DeMarree et al., 2007a). In one study, for example, Mellema and Bassili (1995) examined how self-monitoring (Snyder, 1974) moderated value–attitude congruence. In general, low self-monitors show greater congruence between their reported values and attitudes than high self-monitors. Mellema and Bassili observed this effect, but only among individuals whose self-monitoring was highly accessible, as indicated by response times to self-monitoring scale questions. Similarly, Norman and Aron (2003) found that as the accessibility of participants' desired and undesired possible selves increased, so did their motivation and behavioral intentions to attain or avoid these possible selves (also see Higgins, Shah, & Friedman, 1997). Thus, at least for a person's traits and goals, accessible self-representations are more predictive of thought and behavior than less accessible self-representations. Although none of this research has examined global self-esteem accessibility, similar predictions are plausible.

No research has explicitly examined the *durability* of accessible self-elements. However, there are reasons to believe that when self-esteem is more accessible, it will also be more stable over time and resistant to change. One reason people may answer self-esteem questions quickly (i.e., their self-esteem responses are highly accessible) is that their stored summary self-evaluations are available. When individuals take longer to respond to such inquiries, this could be because a *summary* self-evaluation is not as readily available. When self-esteem accessibility is low, contextual factors (e.g., current mood, recent successes or failures) are more likely to be relied on when considering one's self-worth. Such external factors are less likely to influence individuals who have a stored summary evaluation available, resulting in the resistance of accessible self-views to change.[1] In addition, the presumed cognitive biases created by accessible self-esteem would provide people with a seemingly endless supply of self-evaluation-congruent information, reinforcing their existing self-evaluation, resulting in temporal stability over time.

Thus, we believe there is reason to expect accessible self-esteem to be both more durable and more impactful than less accessible self-esteem. However, despite these predictions from existing literature, there are also reasons to believe that this might not be the case with respect to self-esteem or that more complex patterns could be expected, as we discuss shortly. Although we focus on accessibility in our studies, we also note that there are other potential ways to index the "strength" of an evaluation (see DeMarree et al., 2007a; Petty & Krosnick, 1995; Visser, Bizer, & Krosnick, 2006). Because of this, we include other potential strength indicators taken from the literature on the self and attitudes to see if accessibility accounts for the outcomes we propose, independent of these other factors.

## Alternative Predictions

In attitudes research, the importance of an attitude or an attitude object is defined in terms of its relation to the self, with more self-relevance leading to greater perceived importance (Boninger, Krosnick, & Berent, 1995; Petty & Cacioppo, 1990). Accordingly, the self potentially represents the most important attitude object. If so, self-esteem could be the most important attitude. Interestingly, the importance of an object or attitude is associated with the accessibility of that attitude (Krosnick, 1988). If, for everyone, the self represents the most important attitude object and importance is a key factor predicting attitude accessibility, then there might not be sufficient variation in self-esteem accessibility to find meaningful differences. Furthermore, even if there is variation in accessibility, the high importance associated with self-esteem might ensure that self-esteem is always durable and impactful (see Boninger et al., 1995; Holbrook, Berent, Krosnick, Visser, & Boninger, 2005). From this perspective, it would be difficult to find any situation where self-esteem was *not* resistant to change or predictive of cognitive biases. Finding such situations would be especially difficult for self-esteem as compared to other self-elements (e.g., a person's traits) because although some self-elements vary in importance (Pelham & Swann, 1989), possessing a positive global self-evaluation is generally seen as of high importance (e.g., Tesser, 2000).

Research on self-activation in social comparison processes provides additional plausible predictions to those discussed above. In this research, participants are generally asked questions designed to make either general, positive, or negative self-conceptions accessible, and they are then asked to indicate their interest in social comparison information or to actually engage in a comparison with a target. In studies looking at simple self-concept activation, which would be expected to increase the accessibility of the self-evaluation, participants show increased interest in social comparison information (Stapel & Tesser, 2001). Although it is certainly not the case that engaging in a comparison ensures that a change in the self would result, seeking out comparison information increases the likelihood that change-inducing information could be encountered. Thus, from this perspective, one might predict that self-esteem accessibility could actually

reduce durability. With such a general self-activation proce-dure, we assume that a person's chronic self-esteem level would be activated by this procedure. Although it is unclear whether chronic and situational sources of self-activation are always equivalent, existing research indicates that at least in some domains they can be (Carver & Scheier, 1978).

The picture is more complicated than this, however, as sub-sequent self-activation studies have examined the activation of valenced self-information. In one study (Schwinghammer & Stapel, 2006) using similar procedures, participants' positive, negative, or neutral self-conceptions were made salient. The increased interest in comparison information was more likely to occur when negative rather than positive self-conceptions were activated. Although the attitude strength perspective predicts decreased self-change among participants with highly accessible self-esteem (regardless of self-esteem level), the self-activation perspective might predict that change would be more likely to occur if a person with *low* self-esteem has par-ticularly accessible self-views.

Self-activation research also has implications for infor-mation processing. When positive self-conceptions are acti-vated, biases in the judgment and use of comparison standards appear to be reduced (Schwinghammer, Stapel, & Blanton, 2006). In contrast, the activation of negative self-conceptions increases biases in a manner that would facilitate the attain-ment of a positive self-evaluation (Schwinghammer et al., 2006). Thus, although the accessibility as strength prediction is that accessible low self-esteem will be associated with negative biases in thought, self-activation research might instead predict positive biases among such participants. It is important to note that studies of attitude strength and self-activation have typically examined different types of bias. The bias studied by Schwinghammer and colleagues (2006) might be considered a motivational bias—a bias in which participants might engage to achieve a positive self-view. Most participants in this study were likely to have high self-esteem, so making their negative self-views accessible could serve as a threat, leading them to engage in self-protective thought. This is quite different from paradigms used in the lit-erature on attitude accessibility (see Fazio, 1995) and the present studies in that there is generally no threat from atti-tude accessibility. Accessibility as we operationalize it might be more associated with cognitive biases (e.g., in how infor-mation is interpreted or categorized). We return to this point in the general discussion.

## Predictions

As should be clear, there are persuasive reasons derived from research on attitudes and the self to believe that accessibility should be associated with the durability and impactfulness of self-esteem. Nonetheless, there are compelling reasons, also derived from relevant literature, to question this prediction and in some cases make opposing predictions. Because the

consequences of self-esteem accessibility have never been examined, our goal was to see whether the attitude strength perspective would be useful in understanding self-esteem. Our primary hypothesis is that increased accessibility will increase the strength of self-esteem. First, as self-esteem accessibility increases, self-esteem will be more resistant to change manipulations (i.e., accessibility will increase the durability of self-esteem). Second, as self-esteem accessibil-ity increases, self-esteem will exert a greater bias (e.g., biased interpretation or perception) in thought and judgment (i.e., accessibility will enhance the impactfulness of self-esteem).

We tested these predictions across three studies. In Study 1, we explored durability by examining the ability of accessible self-esteem to resist change in response to a self-presentation task. In Study 2, we explored impactfulness by examining biases in judgments of self-relevant information as a func-tion of self-esteem and its accessibility. Finally, in Study 3, we tested our predictions regarding impactfulness as applied to understanding biases associated with depressive symp-toms. In each study, we pit our predictions against those out-lined above. In addition, we control for self-concept clarity (Study 1) and self-esteem certainty (Study 2), two constructs that previous research has associated with strength conse-quences, to determine whether self-esteem accessibility has utility above and beyond these constructs. Demonstrating a unique effect of accessibility is important because strength variables are often correlated with each other and produce similar consequences (Krosnick & Petty, 1995).

## Study 1

In this study, we explored the resistance of self-views to change as a function of self-esteem accessibility. As noted earlier, research on attitudes has demonstrated that as the accessibility of an attitude increases, so does its durability. For example, Bassili (1996) found that attitude accessibility predicted the stability of attitudes over a 10-day span as well as the resistance of those attitudes to a brief counterargu-ment. In the present paradigm, we attempted to change par-ticipants' self-views by having them list their own either strengths or weakness with respect to their future careers. This paradigm has been successfully used in past research to change self-attitudes (Briñol & Petty, 2003). We predicted that participants with an accessible self-evaluation, regard-less of the valence of that self-evaluation, would be less affected by this manipulation than would participants with a less accessible self-evaluation.

### Method

*Participants.* A total of 100 Ohio State University under-graduates (53 female) who participated in partial fulfillment of a course requirement engaged in two ostensibly separate studies. Sessions were conducted in a computer lab with

**Table 1.** Correlations Among Predictor Variables in Study 1

| | | α | M | SD | Correlation | | | |
| | | | | | A | B | C | D |
|---|---|---|---|---|---|---|---|---|
| A | Self-esteem | .90 | 48.58 | 8.65 | | | | |
| B | Self-esteem accessibility | .86 | 3.81 | 1.10[a] | −.14 | | | |
| C | SCC | .88 | 56.06 | 13.61 | .65** | −.18† | | |
| D | SCC accessibility | .90 | 4.98 | 1.48[a] | .04 | .77** | .02 | |
| E | Access residual | | 0.00 | 0.21 | −.27** | .63** | −.31** | .00 |

[a.]For ease of interpretation, accessibility mean and standard deviation are the average raw reaction time (RT; in seconds) to Rosenberg Self-Esteem Scale and Self-Concept Clarity (SCC) scale items. Alpha and correlations are based on natural log-transformed RTs.

†$p < .10$. **$p < .01$.

divided workstations. Participants were informed that the first study examined students' self-views and that they would be answering questions about themselves. This was to be followed by an additional study, ostensibly examining determinants of professional performance.

### Predictor Variables

See Table 1 for descriptive statistics and correlations among predictors.

*Self-esteem*. Participants completed the Rosenberg (1965) Self-Esteem Scale (RSE), a 10-item measure of global self-esteem (e.g., "On the whole, I am satisfied with myself"). We used a 6-point Likert-type scale anchored at *strongly disagree* and *strongly agree*.

*Self-esteem accessibility*. The computer recorded the amount of time it took participants to respond to each question on the RSE inventory. Because the distribution of reaction times (RTs) is often skewed, accessibility was computed as the average of the log-transformed response times to the RSE scale questions. Analyses conducted using raw response latencies produced nearly identical results in all studies.

*Self-concept clarity*. To demonstrate that the effects of accessibility occurred even after controlling for other strength-related variables, we included the Self-Concept Clarity (SCC) scale (Campbell et al., 1996), a 12-item scale designed to measure the confidence, consistency, and stability of self-concept and self-evaluation (e.g., "My beliefs about myself seem to change very frequently"). This scale has been associated with the stability of self-descriptions over a 4-month period (Campbell et al., 1996), although no research we are aware of has examined resistance as a function of SCC. Participants completed the SCC scale on a 7-point Likert-type scale anchored at *strongly disagree* and *strongly agree*.

*Thought direction*. After completing additional personality questions to separate the RSE measurement and dependent measures, participants began the "professional performance" study. Participants were told that we wanted to know their thoughts about themselves as potential job candidates. Depending on their condition, participants were then asked to list either three positive or three negative characteristics that they possess with respect to their planned careers. This paradigm is based on the classic argument generation (role-playing) effect, wherein people's attitudes change in the direction of the arguments they are requested to list (Janis & King, 1954) and is also analogous to research on self-presentation carryover effects (Jones, Rhodewalt, Berglas, & Skelton, 1981).

### Dependent Variables

*Self-attitudes*. The dependent measures in this study were completed just after the thought direction manipulation. This questionnaire included participants' attitudes toward themselves as potential job candidates (anchored at *favorable–unfavorable, positive–negative,* and *in favor–against*) as well as questions about their likely job performance, job satisfaction, and likelihood of obtaining a job following graduation, all on 9-point scales. These items were highly correlated (α = .90) and were averaged to create an overall index of positivity toward oneself as a job candidate.

Of course, participants' evaluation of themselves as a job candidate is not identical to global self-esteem. However, because we asked participants to complete the RSE earlier in the study, we wanted to avoid asking the exact same questions for fear that participants would try to report the exact same responses, masking any impact of our manipulation. Because first-year college students are unlikely to have a well-established evaluation of themselves with respect to their potential careers, we predicted that participants would rely heavily on their global self-evaluation when answering these questions. Consistent with this notion, initial self-esteem was the strongest predictor of the self-as-job-candidate evaluation in the analyses below.

*Manipulation check*. An independent coder, blind to condition, self-esteem, and accessibility, rated each thought on a 9-point scale (*extremely positive* to *extremely negative*) to see if the thoughts differed as a function of self-esteem or its accessibility. These ratings were averaged (α = .93) to form an index of thought favorability.

## Results

Analyses in each study followed the regression procedures outlined by Aiken and West (1991). Accordingly, continuous variables were centered by subtracting the mean of the variable from all observations. Initial analyses were conducted with these mean-centered variables, and the relevant cross products (e.g., Accessibility × Condition) provided the interaction terms for the model. Analyses were conducted in a hierarchical manner, and terms were interpreted in the first model in which they appear (Cohen & Cohen, 1983). If a significant interaction was found, it was decomposed using simple slopes analysis.

*Manipulation check*. We submitted the thought valence ratings to a Condition (positive vs. negative thoughts) × Log RT (accessibility) × Self-esteem regression analysis. The only significant effect to emerge was a main effect of thought direction ($B = 2.92$, $SE = 0.14$), $t(96) = 20.64$, $p < .001$, such that participants' thoughts were more positive when they were asked to list positive thoughts than when they were asked to list negative thoughts. Thus, thought extremity did not vary as a function of self-esteem or accessibility, and as such, the manipulation was equivalent across all participants.

*Attitudes*. The index of positivity toward oneself as a job candidate was submitted to the three-way regression analysis described above. There were main effects of self-esteem ($B = 0.040$, $SE = 0.011$), $t(96) = 3.67$, $p < .001$, condition ($B = 0.55$, $SE = 0.19$), $t(96) = 2.95$, $p = .004$, and accessibility ($B = -0.89$, $SE = 0.29$), $t(96) = 3.11$, $p = .003$, such that participants in the positive thought condition and participants whose self-views were most positive or accessible reported the most positive self-as-job-candidate evaluations. Importantly, these effects were qualified by the predicted Condition × Accessibility interaction ($B = 1.37$, $SE = 0.60$), $t(93) = 2.29$, $p < .03$ (see Figure 1). Consistent with predictions, decomposition of the interaction one standard deviation above and below the mean revealed a significant effect of condition among people with low accessibility (high RTs; $B = 0.99$, $SE = 0.27$), $t(93) = 3.73$, $p < .001$, but not among those with high accessibility ($B = 0.093$, $SE = 0.27$), $t(93) = 0.35$, *ns*. No other two-way or three-way interactions emerged (all *t*s < 1). Thus, people with more accessible self-esteem showed greater resistance to change in their self-attitudes as a function of experimental condition.

*Additional analyses*. By controlling for SCC and its interaction with condition in the above analyses, we can begin to determine whether accessibility is uniquely associated with resistance in this paradigm. Although both SCC and self-esteem accessibility might be conceptualized as strength variables, they were only weakly related in this sample (see Table 1). When the primary analyses were conducted with the addition of SCC and its interaction with condition, the SCC main effect ($B = 0.014$, $SE = 0.0090$), $t(95) = 1.52$, $p > .13$ and its interaction with condition ($B = 0.010$, $SE = 0.018$), $t(92) = 0.54$, *ns*,
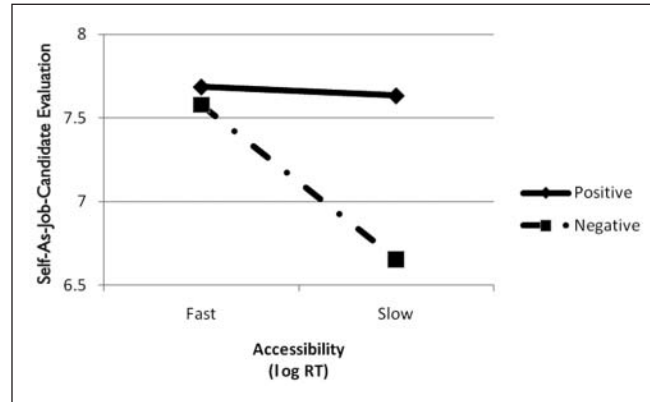


**Figure 1.** Study 1: Attitudes toward self as job candidate as a function of thought direction and self-esteem accessibility, controlling for baseline self-esteem (Rosenberg Self-Esteem Scale) RT = response time.

did not attain significance, whereas the Accessibility × Condition interaction remained significant ($B = 1.36$, $SE = 0.61$), $t(92) = 2.24$, $p < .03$. These results, although not eliminating the possibility that other strength variables might also moderate resistance to change in this paradigm, do demonstrate that accessibility can provide unique prediction of resistance, even after controlling for SCC.[2]

## Discussion

Results from Study 1 support our prediction that as accessibility of self-esteem increases, so does resistance of one's self-evaluation to change. Specifically, for participants whose response times to the RSE were quickest (most accessible), their specific self-evaluations were not affected by thinking about their strengths or weaknesses, whereas participants with less accessible self-esteem did demonstrate self-evaluation change. To our knowledge, this is the first study to demonstrate the differential resistance of self-esteem (or any other self-element) based on accessibility. As described above, this effect is likely because of participants high in accessibility relying on their (well-represented) chronic self-evaluation to complete the dependent measure, whereas participants low in accessibility relied on their level of self-esteem to a lesser extent (and on other accessible information to a greater extent). Although the dependent measure was not global self-esteem, making strong inferences about resistance of self-esteem difficult, we believe that the proposed process applies to participants' self-as-job-candidate evaluations as well as they would to more global self-evaluation measures. This is supported by the strong relationship between the RSE and the dependent measure.

In addition, our results held after controlling for SCC, another indicator of strength. Although SCC has been associated with durability in the form of stability of traits over time (Campbell et al., 1996), to our knowledge previous research has not found SCC to predict resistance to change.

One potential concern with the results of this study involves our measure of accessibility. Typically, attitude accessibility is measured as the latency to simple good–bad judgments regarding the attitude object (Fazio, 1995). Our use of response times to a Likert-type scale with lengthy questions certainly taps into accessibility but might also capture general differences in reading speed, interest, or cognitive ability (e.g., thought required to map one's self-judgment onto the response scale). If people who are responding quickly are less interested (e.g., they are responding as quickly as possible to get out of the study early) than those taking longer, the quality of data among fast responders (i.e., high accessibility) should be lower because these participants would be "satisficing" (Krosnick, 1991). Thus, if less interested participants were the only people responding quickly, we would expect them to evince less change because they would also satisfice on the dependent measures.

To control for individual differences in general response time and any factors that might be associated with it, we performed supplementary analyses using response times to the SCC scale, which was asked using a similar format, scale length, and scale anchors to the RSE. Specifically, we used the average log response time to the SCC scale to predict average log response time to the RSE scale ($B = 0.69$, $SE = 0.057$), $t(98) = 12.12$, $p < .001$, and saved the residuals. These residuals represent the variance in RSE response time remaining after accounting for the linear relationship of these response times with the response times to the SCC scale. After entering this residual value in place of accessibility into the primary regression analysis above, we found identical effects. This helps to rule out potential confounds of our accessibility measure with factors such as reading speed and participant interest. Although this approach helps establish our effect, utilizing other approaches might further reduce the plausibility of alternative accounts. In Study 2, we used an approach to control for general RT that has been used in previous research on attitude accessibility (Fazio & Powell, 1997).

The findings of Study 1 are inconsistent with some of the perspectives outlined earlier. Again, because self-esteem is perhaps the most important attitude, and because attitude importance is generally associated with the durability of attitudes (e.g., Krosnick, 1988), it might be surprising that the self-evaluations of individuals low in accessibility were malleable in response to the manipulation. Furthermore, research on self-activation would predict interactions of condition, accessibility, and self-esteem, with the greatest change among low self-esteem people with highly accessible self-views, a pattern that was not obtained in this study. As we discussed earlier, however, differences in the conceptualization of both predictor and outcome variables might account for any discrepancies between the current findings and those based on self-activation research.

Another possible concern with this study is that the effects appear to be driven by the negative thought condition (see

Figure 1), and thus, the resistance to change does not appear to generalize in a positive direction. One potential explanation for this is that there could have been a ceiling effect. In this sample, participants were not recruited to represent a broad range of self-esteem and thus were generally high in self-esteem. Indeed, even our "low" self-esteem participants (1 *SD* below the sample mean) were above the theoretical midpoint of the RSE scale. This is a common problem in social psychological research on self-esteem and in our case might mean that there was little room for movement in the positive direction.

## Study 2

In Study 2, we examined whether accessibility moderates the impactfulness of self-esteem using a paradigm that is particularly likely to be open to cognitive biases. Specifically, we presented participants with ambiguous bogus personality feedback and examined biases in their judgments of this information. This is analogous to procedures in the attitudes literature that examine biased judgments of ambiguous information (e.g., a candidate's debate performance) as a function of attitudes (toward the candidates) and their accessibility (Fazio & Williams, 1986). As will be explained shortly, Study 2 used an idiographic approach to control for individual differences in response time.

In addition, we also controlled for self-esteem certainty. Previous research on attitude certainty has found that attitudes held with certainty also possess strength characteristics (e.g., Fazio & Zanna, 1978; Tormala & Petty, 2002), and some studies have even found certainty to be superior to accessibility in predicting these outcomes (D. Peterson, 2004). Existing research on self-certainty has indicated that it too is associated with strength outcomes (for a review, see DeMarree, Petty, & Briñol, 2007b). For example, people high in self-certainty are more likely to behave in line with their self-conceptions than are people low in certainty (Swann & Ely, 1984). As such, it is important to demonstrate the ability of accessibility to predict strength-related outcomes above any potential impact of certainty. Because certainty requires higher levels of thought than accessibility to exert its impact (Petty, Briñol, Tormala, & Wegener, 2007), and because the bias examined in this study was not expected to be a very thoughtful bias (i.e., because the bias was expected to be because of the participants' initial interpretation of information rather than the subsequent evaluation and thoughtful validation of their reactions), we expected that accessibility would be the key predictor. Specifically, our hypothesis was that as accessibility of self-esteem increased, participants would be more likely to evaluate the ambiguous personality profile in a self-esteem consistent manner.

It is important to note the change in predictions from Study 1 to Study 2. In Study 1, the prediction for high accessibility was reduced change, so the strength "effect" was a

**Table 2.** Correlations Among Variables in Study 2

| | | α | M | SD | Correlation | | | |
| | | | | | A | B | C | D |
|---|---|---|---|---|---|---|---|---|
| A | Self-attitude | .89 | 6.61 | 1.18 | | | | |
| B | Relative accessibility | .71[a] | −0.24 | 0.45 | −.35** | | | |
| C | Self-certainty | .85 | 6.38 | 1.50 | .65** | −.31** | | |
| D | Profile accuracy | | 7.10 | 1.89 | −.02 | −.16 | −.03 | |
| E | Profile valence | .61 | 6.90 | 1.01 | .26** | −.16 | .11 | .25* |

[a] Reported alpha is for natural log reaction times (RTs). The idiographically computed RTs had a negative average covariance, and thus alpha could not be computed. Critically, however, analyses with raw, log, or relative RTs revealed identical effects.
*$p < .05$. **$p < .01$.

reduction of an effect as accessibility increased. However, in Study 2, the prediction for high accessibility was greater self-esteem congruent bias, so the predicted strength "effect" was an increase of the impact of self-esteem as accessibility increased. As noted earlier, strong attitudes should show reduced change but have a greater biasing impact on judgments.

## Method

*Participants*. A total of 101 Ohio State University introductory psychology students (81 female) who had completed prescreening self-esteem measures were invited to participate in a study on personality. We oversampled participants from the lower half of the self-esteem distribution to obtain a wider range of self-esteem scores for this study. If the range of self-esteem scores were severely restricted at the high (or low) end of the scale, only a main effect of accessibility (predicting a more positive (negative) bias as accessibility increased) would be predicted. However, with a broad range of self-esteem scores, the theoretically meaningful prediction was for the main effect of self-esteem to be magnified as accessibility increased. Ostensibly, we were testing new personality assessment software that could generate personality profiles based on minimal information. Participants received credit toward fulfillment of a course requirement.

## Predictor Variables

See Table 2 for descriptive statistics and correlations among measured variables.

*Self-attitude*. For our measure of self-esteem, we asked participants to report their attitude toward themselves on a series of 9-point semantic differential scales commonly used in attitudes research (e.g., *positive–negative, favorable–unfavorable*; Crites, Fabrigar, & Petty, 1994).[3] We also asked participants to report their attitudes toward 10 different self-irrelevant attitude objects, also using 9-point semantic differential scales. These attitude objects varied in their likely valence

and strength (e.g., George Bush, paper plates, affirmative action).

*Self-attitude accessibility*. Using a procedure adapted from Fazio and Powell (1997), for each participant (i.e., defining accessibility in a more idiographic manner) we standardized all RTs of their evaluative responses (self-attitudes and self-irrelevant attitudes). We then averaged the *z* scores of self-evaluative items to serve as our measure of (relative) self-esteem accessibility. This idiographic approach provides us with a measure of how accessible a participant's self-evaluation is relative to the other attitude objects we included. Thus, lower scores on this measure indicated a self-evaluation that is more accessible than the other attitude objects sampled.

*Personality feedback*. All participants received identical personality feedback, ostensibly based on the prescreening materials they completed. The personality profile was adapted from previous research using "Barnum statements" (e.g., Forer, 1949). These statements are intentionally ambiguous and are generally accepted as true by most people (see the appendix).

*Self-esteem certainty*. In this study we also included a measure of self-esteem certainty (DeMarree et al., 2007b). Participants completed a three-item measure of certainty (α = .85) on a 9-point scale. Because certainty is the metacognitive assessment of the validity or accuracy of a belief (Petty et al., 2007), items included both certainty and confidence in participants' self-evaluation as well as the perception that their self-evaluation was accurate.

## Dependent Variables

*Profile accuracy*. Ostensibly to help us evaluate the quality of our profiling software, participants were asked to indicate how accurate the personality profile was of them on a 9-point scale (anchored at *extremely accurate* and *completely inaccurate*).

*Profile valence*. As our key dependent measure, participants indicated the positivity of the personality profile on two 9-point scales ("How positive or negative do you feel this personality profile was?" [*extremely positive* to *extremely*

*negative*] and "To what extent do you think this personality profile portrays you as a good person or as a bad person?" [*very good person* to *very bad person*]). These items were combined to form an index of profile valence.

## Results

*Profile accuracy.* The profile accuracy item was submitted to a Self-Attitude × Relative Accessibility regression analysis. The only significant effect to emerge was a main effect of accessibility ($B = -0.88$, $SE = 0.44$), $t(98) = 1.99$, $p = .05$, such that people whose self-evaluation was relatively more accessible saw the profile as more self-descriptive. Overall, the mean accuracy score was high, 7.10 on the 9-point scale. As we show below, people with highly accessible self-esteem tended to judge this information in a more self-evaluation-congruent manner, which could increase perceptions of profile accuracy.

*Profile valence.* The profile valence index was submitted to a Self-Attitude × Accessibility regression analysis. There was a main effect of self-attitude ($B = 0.21$, $SE = 0.088$), $t(98) = 2.33$, $p < .03$, with participants with more positive self-evaluations reporting more positive profile evaluations. Importantly, this effect was qualified by the predicted Self-Evaluation × Accessibility interaction ($B = -0.59$, $SE = 0.20$), $t(97) = 2.99$, $p < .01$ (see Figure 2). Decomposing this interaction one standard deviation above and below the mean of the accessibility index, we found a significant effect of self-attitude among people with high accessibility (fast response time relative to other attitudes; $B = 0.45$, $SE = 0.12$), $t(97) = 3.82$, $p < .001$, but not among those with low accessibility ($B = -0.072$, $SE = 0.13$), $t(97) = 0.57$, *ns*.

*Additional analyses.* To control for any effects of certainty, another strength indicator, we performed the above analyses with the addition of self-esteem certainty and its interaction with self-esteem. Results for accessibility were unchanged on both profile accuracy and profile valence, and no main effects or interactions involving certainty emerged (*t*s < 0.8).[4]

## Discussion

Results from Study 2 supported our prediction that accessible self-views would be more impactful than less accessible self-views. Specifically, participants whose self-evaluation was highly accessible rated ambiguous personality feedback in a self-evaluation consistent manner, whereas those whose self-evaluation was less accessible did not. Furthermore, this bias in information processing held using an improved measure of accessibility and after controlling for self-esteem certainty. To our knowledge, this is the first study examining impactfulness outcomes of self-esteem accessibility.

The findings of this study support the notion that accessible self-esteem biases judgments of self-relevant information in a self-view consistent manner more than inaccessible self-esteem. The feedback we gave participants was intentionally
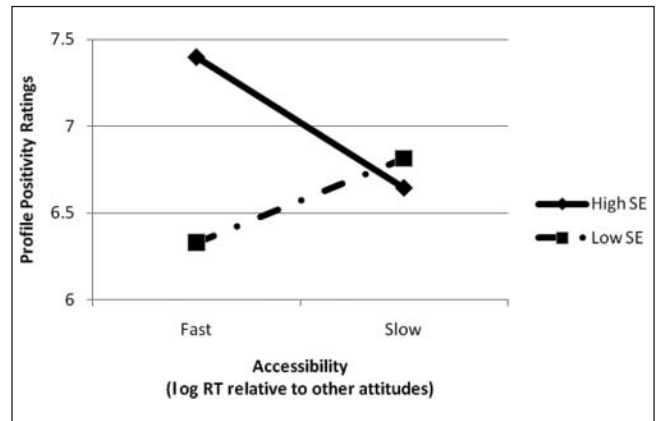


**Figure 2.** Study 2: Ratings of personality feedback valence as a function of self-evaluation and relative self-evaluation accessibility RT = response time; SE = standard error.

ambiguous but is not unlike the information people receive on a daily basis. For example, if a person smiles at us, does it mean he or she like us, or that he or she is just being polite, or perhaps even sneering? Our self-evaluation, if accessible, may be one determinant of how we explain this smile.

These results also raise doubts about the alternative perspectives outlined in the introduction. First, it is impressive that we failed to find an impact of self-esteem among low accessibility participants. This finding is somewhat counterintuitive insofar as self-esteem is perhaps the most important attitude and attitude importance is associated with impactfulness (e.g., Holbrook et al., 2005). However, it should be noted that although importance is a key strength variable and a critical antecedent of accessibility, it is not the only antecedent of accessibility (Fazio, 1995) and might impart its strength properties via different mechanisms than accessibility (e.g., via energization of rather than reliance on the attitude; Visser et al., 2006).

It is interesting to note that we failed to find moderation as a function of self-esteem certainty in this study, given that previous research has found that more certain self-elements exhibit greater predictive utility (for a review, see DeMarree et al., 2007b). One potentially critical aspect of this study is that the bias examined was largely a perceptual bias (e.g., how ambiguous information was categorized or interpreted). Although past research has documented these sorts of biases as a function of accessibility, biases such as these have not generally been found to vary as a function of certainty—perhaps because certainty tends to exert its impact most in situations requiring relatively higher level processing (e.g., when people evaluate the validity of their initial reactions; Petty et al., 2007).

## Study 3

The goal of Study 3 was to extend the results from Study 2 to a more applied context to offer further support for the moderating role of self-esteem accessibility on consequential

**Table 3.** Correlations Among Variables in Study 3

| | | α | M | SD | Correlation A | B | C | D |
|---|---|---|---|---|---|---|---|---|
| A | Self-esteem | .94 | 38.38 | 12.60 | | | | |
| B | Self-esteem accessibility | .75 | 4.42 | 1.26[a] | −.10 | | | |
| C | BDI-II | .94 | 12.32 | 11.36 | −.81** | −.02 | | |
| D | ASQ | .65/.80[b] | 0.34 | 1.06 | .58** | −.01 | −.54** | |
| E | LE bias | .72/.76[b] | −0.01 | 0.09 | .28* | −.03 | −.36** | .25* |

BDI-II = Beck Depression Inventory–II (Beck et al., 1996); ASQ = Attributional Style Questionnaire (C. Peterson et al., 1982); LE bias = measure of optimistic or pessimistic bias in predicting life events (Strunk, Lopez, & DeRubeis, 2006).
[a.] For ease of interpretation, accessibility mean and standard deviation are the average raw reaction time (RT; in seconds) to Rosenberg Self-Esteem Scale items. Alpha and correlations are based on natural log-transformed RTs.
[b.] Alpha reported separately for positive and negative items, respectively (see C. Peterson et al., 1982).
*$p < .05$. **$p < .01$.

outcomes. Perhaps more so than any other condition, depression is a common condition characterized by markedly low self-esteem (e.g., Tennen & Herzberger, 1987). Therefore, we examined biases that have been associated with depressive symptoms to show that the implications of self-esteem accessibility extend beyond the theoretical considerations outlined thus far. Specifically, we examined self-esteem accessibility as a potential moderator of the relationship between self-esteem and both attributional style and optimistic–pessimistic biases in future event predictions. Attributional style refers to the tendency to explain positive (vs. negative) events as being because of internal, stable, and global factors. Pessimistic biases in attributional style (i.e., when negative events are viewed as more because of internal, stable, and global factors) have been associated with depression (e.g., C. Peterson & Seligman, 1984) and low self-esteem (e.g., Tennen & Herzberger, 1987). Prospective studies have demonstrated that negative attributional patterns are predictive of future depressive episodes (Alloy, Abramson, Safford, & Gibb, 2006). Biases in predictions of future events were selected as these biases have been shown to be related to depressive symptoms (Strunk, Lopez, & DeRubeis, 2006) and are thought to play an important role in maintaining these symptoms (Hollon & Garber, 1980). Our key hypothesis in this study was that these biases (in attributional style and life event [LE] predictions) would be associated with participants' level of self-esteem, but this relationship would be stronger for those with more accessible self-esteem.

## Method

*Participants.* A total of 78 Ohio State University undergraduates (48 female) participated in partial fulfillment of a course requirement. Because most individuals in the participant population had completed the Beck Depression Inventory (Beck, Ward, Mendelson, Mock, & Erbaugh, 1961) during prescreening, and because measures of depression are strongly related to measures of self-esteem (e.g., Tennen & Herzberger, 1987),

we used this measure to recruit participants representing the full range of available scores (for the same reasons outlined in Study 2).[5] This recruitment strategy has the added advantage of ensuring wide variation on depressive symptomatology in our sample. Participants were invited to participate in a study on judgment and self-view accessibility.

*Procedure.* Participants arrived at the lab and completed an interview for another study (i.e., Strunk & Adler, 2009). Participants were then seated at computers in individual testing rooms where they completed a series of measures. Critical to the present investigation, participants completed the RSE and our two measures of bias, which are described below.

### Predictor Variables

See Table 3 for descriptive statistics and correlations among variables.

*Self-esteem.* To assess self-esteem, participants completed the RSE. The mean for this sample was very near the theoretical midpoint of the RSE distribution (i.e., 35) and is noteworthy because it validates the selection criterion used to recruit participants and also shows that this sample better represents the theoretical range of self-esteem than is commonly found in social-psychological research.

*Self-esteem accessibility.* Accessibility measurement and computation were identical to those in Study 1.

### Dependent Variables

*Attributional style.* Participants completed the Attributional Style Questionnaire (ASQ; C. Peterson et al., 1982). The ASQ is a self-report measure of explanatory style, which assesses participants' causal interpretations of 12 hypothetical situations (6 positive and 6 negative). Higher scores reflect more internal, stable, and global attributions, whereas lower scores reflect more external, unstable, and specific attributions (responses were on 7-point scales). Scores are averaged separately for positive and negative events. An overall score

is calculated as the difference between the score for positive situations minus the score for negative situations. Positive scores are thus associated with an optimistic attributional style, whereas negative scores are associated with a pessimistic attributional style.

*LE prediction.* The LE prediction task involves predicting the probability (0%–100%) that 20 desirable (e.g., "will be invited to a party") and 20 undesirable (e.g., "will get sick or suffer a physical illness") events would occur over the next month. This measure of optimism–pessimism, successfully used in previous research, assesses everyday judgments comparable to those participants are likely to make in their own lives, with events relevant to the general population, with a range of base rates and controllability (Strunk et al., 2006).

To serve as a criterion against which to compare the event predictions, 7, 14, 21, and 30 days after the predictions were made, participants completed a survey where they indicated which of the 40 events had occurred since the previous assessment.

To compute the bias in LE predictions measure, a score was first calculated for each event. For desirable events, this score was calculated as the probability judgment (recoded in a 0 to 1 format) for the event minus a score indicating whether the event occurred at any point during the month (1) or not (0). For undesirable events, the score was calculated as a score indicating whether the event occurred (1) or not (0) minus the probability judgment for the event. The average of these scores was then taken, resulting in an LE bias score for each participant. Theoretically, scores could range from –1 to +1, with positive numbers representing an optimistic bias and negative numbers representing a pessimistic bias (Strunk et al., 2006).



**Figure 3.** Study 3: Attributional Style Questionnaire (ASQ; top panel) and Bias in Life-Event Predictions (LE; bottom panel) as a function of self-esteem and self-esteem accessibility
RT = response time.; SE = standard error.

## Results

*Attributional style.* Scores on the ASQ were submitted to a Self-Esteem (RSE) × Accessibility regression analysis. There was a main effect of self-esteem ($B = 0.049$, $SE = 0.008$), $t(75) = 6.09$, $p < .001$, with decreases in self-esteem associated with more negative ASQ bias. Importantly, this effect was qualified by the predicted Self-Esteem × Accessibility interaction ($B = –0.088$, $SE = 0.031$), $t(74) = 2.84$, $p < .01$ (see Figure 3, top panel). Decomposing this interaction one standard deviation above and below the mean of accessibility, we found a significant effect of self-esteem among people with high accessibility (low RTs; $B = 0.065$, $SE = 0.0095$), $t(74) = 6.83$, $p < .001$, but not among those with low accessibility ($B = 0.019$, $SE = 0.013$), $t(74) = 1.43$, $p > .15$.

*LE predictions.* Bias scores on the LE Bias measure were submitted to a Self-Esteem (RSE) × Accessibility regression analysis. There was a main effect of self-esteem ($B = 0.0019$, $SE = 0.00079$), $t(74) = 2.40$, $p < .02$, with decreases in self-esteem associated with more negative LE bias. Importantly, this effect was qualified by the predicted
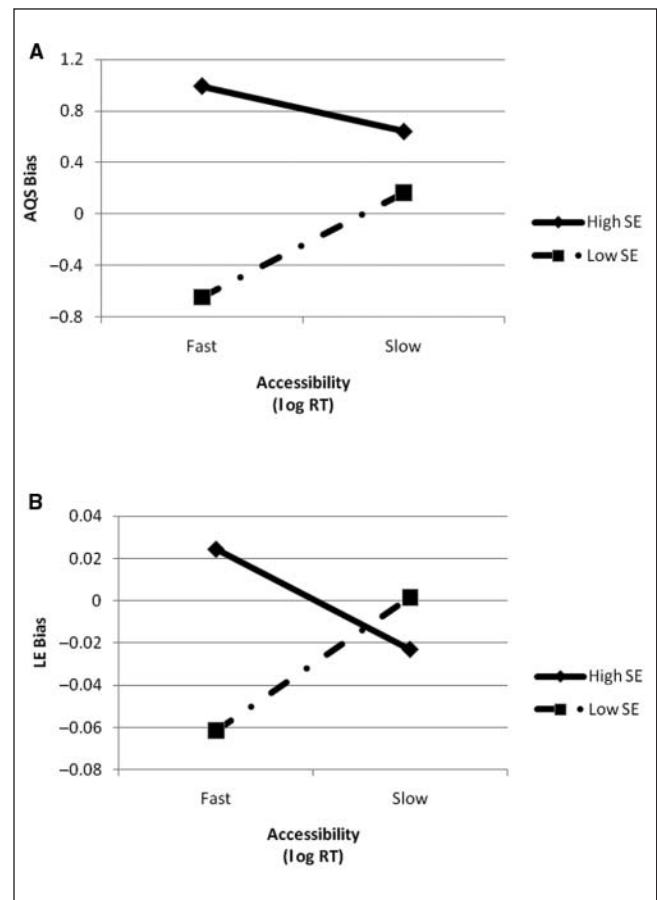
Self-Esteem × Accessibility interaction ($B = –0.0084$, $SE = 0.0030$), $t(73) = 2.75$, $p < .01$ (see Figure 3, bottom panel). Decomposing this interaction one standard deviation above and below the mean of accessibility, we found a significant effect of self-esteem among people with high accessibility (i.e., those with low RTs; $B = –0.0034$, $SE = 0.00094$), $t(73) = 3.65$, $p < .001$, but not among those with low accessibility ($B = –0.00097$, $SE = 0.0012$), $t(73) = 0.75$, *ns*.

## Discussion

Results from this study support our key hypothesis that increased accessibility would render self-esteem more consequential. Specifically, the relationship between self-esteem and cognitive biases (as measure by the ASQ and LE bias measures) was stronger among participants who had greater self-esteem accessibility. Given the relationship of the dependent variables examined in this study with important mental health outcomes, we hope this study highlights the potential merit of research on self-esteem accessibility.

Readers might be concerned about the accessibility measure employed in this study. Although we were not able to employ the controls that Studies 1 and 2 used (e.g., controlling for RT to other traits, idiographic approach to self-esteem accessibility), the use of these approaches in those studies did not alter the results in any way. Thus, although the assessment of accessibility in this study is not ideal, we would not expect the results to change with other measures of accessibility. Instead, this study's findings point to the potential importance of self-esteem accessibility for understanding self-relevant biases that are meaningful in an applied context.

## General Discussion

Across three studies, we demonstrated the durability and impactfulness of accessible self-esteem. Specifically, in Study 1, self-esteem became more resistant to change in response to a directed argument generation task as self-esteem increased in accessibility. In Study 2, self-esteem congruent biases in judgments of self-relevant information increased as self-esteem became more accessible. In Study 3, in a sample varying widely on self-esteem, self-esteem predicted biases in future event expectancies and attributional style to the extent that it was accessible. Furthermore, the results obtained held after controlling for potentially related or confounding variables. Studies 1 and 2 used different methods to control for individual differences in RTs because of factors such as reading speed, participant interest, and cognitive ability and found identical results to those obtained without such controls. We also controlled for SCC (Study 1) and self-esteem certainty (Study 2), two variables that in the past have been associated with strength outcomes, and in both cases the effects of self-esteem accessibility remained unchanged.

### Causal Role of Accessibility?

In our studies, we measured rather than manipulated self-esteem accessibility as is the tradition within much research on attitude accessibility (see Fazio, 1995). However, this makes it difficult to determine whether accessibility plays a causal role in producing the effects observed. Given the lifetime of history that might produce a person's self-evaluation and its associated accessibility, an effective manipulation of self-esteem accessibility might prove difficult to accomplish. Specifically, although it should be possible to increase the accessibility of those with low chronic accessibility, it would be difficult to decrease the accessibility of those with high chronic accessibility. We attempted to control for some of the most likely confounds with accessibility (e.g., extremity) to help establish the causal role of this variable. Because the manipulation of self-strength variables might be difficult and/or unethical in many cases (e.g., making people more certain of their low self-esteem), we have previously argued that investigations that measure self-strength variables might

be improved if conceptually parallel studies are conducted on other objects where manipulation is more feasible (DeMarree et al., 2007a). In the case of attitude accessibility, such analog studies are already available, at least with respect to the impactfulness predictions (see Fazio, 1995), providing converging evidence for a potential causal role of accessibility.

### Differences From Past Research

In our introduction, we discussed several perspectives that might lead to opposing predictions regarding the impact of self-esteem accessibility on self-strength outcomes. First, we discussed research on attitude importance, a well-studied strength variable in its own right and a documented antecedent of accessibility. Because the self is likely the most important attitude object, it seems unlikely that an attitude (self-esteem) that possesses the highest degree of a variable associated with strength (i.e., importance) should ever *not* show strength consequences. However, as we mentioned earlier, not all variables associated with an attitude's strength are the same. They can operate via different mechanisms and in different situations, and as such, none can account for all strength effects. We believe accessibility is particularly important, however, because the variability that exists with respect to this construct does seem to be associated with strength consequences and outcomes that are likely to be consequential in day-to-day life (e.g., future event predictions).

Earlier, we made a distinction between cognitive and motivational biases in explaining the reason why our findings might diverge from those predicted by research on self-activation (e.g., Schwinghammer et al., 2006). It is likely that *both* motivational and cognitive factors play some role in many of the biases studied by psychologists (e.g., Balcetis, 2008), but the distinction between them might be useful as a heuristic. This distinction can help us to make sense of why participants in whom specific (e.g., trait) positive self-aspects are made accessible show a decrease in enhancing (i.e., self-evaluation congruent in most undergraduate samples) biases whereas participants in whom a general positive self-esteem is chronically accessible show higher levels of enhancing biases. These two constructs, both of which represent the activation of positive self-evaluative information, plausibly have opposing effects for one clear reason: Most of the motivational biases studied are biases that are used to *restore* or *protect* a sense of self-worth (e.g., derogating out-groups, counterarguing self-threatening messages), and when positive self-evaluative information is accessible, these needs are not as salient. However, because accessible constructs can also provide the lens through which we view the world (Bruner, 1957; Higgins, 1996), biases in interpretation, perception, and the like should be more likely as accessibility increases, as demonstrated by Studies 2 and 3. Based on this distinction, and the results of our studies, one could predict that positive self-activation, while reducing motivated enhancing biases, might increase positive cognitive biases.

## Related Constructs

Accessibility is considered one of many potential indicators of self-strength (DeMarree et al., 2007a). Emerging research suggests that indicators of strength are related to each other in complex ways (e.g., Holbrook et al., 2005; Visser et al., 2006). Furthermore, different indicators of strength can have different antecedents, can predict different outcomes, or can predict the same outcomes in different situations or via different processes (e.g., D. Peterson, 2004). Researchers should take care, as we did in Studies 1 and 2, to measure multiple indicators of strength so that a better understanding of these relationships can be developed.

We should also note the possible relationship of self-esteem accessibility to "implicit" (automatically activated) self-esteem. Research has demonstrated that as self-esteem accessibility increases, the relationship between self-esteem as measured by implicit and explicit measures is stronger (Koole, Dijksterhuis, & van Knippenberg, 2001). Congruence between implicit and explicit measures of self-esteem has also been associated with strength consequences (e.g., Briñol, Petty, & Wheeler, 2006). Thus, one reason our high accessibility participants showed the characteristics of attitude strength might be because these participants have a more coherent representation of their self-evaluation (see Petty, 2006). Alternatively, one reason people with smaller implicit–explicit discrepancies tend to show strength consequences might be because their explicitly reported self-evaluation is more accessible. These questions represent important directions for future research.

## Implications and Conclusions

The results from these studies have implications for research on self-esteem more broadly. Although the utility of a unitary global self-esteem construct has been called into question in recent years (Baumeister et al., 2003), based on our findings self-esteem appears to be durable and impactful to the extent that it is accessible. Of course, there are certainly factors other than the accessibility of self-esteem to consider in determining whether it will be impactful and durable (Baumeister et al., 2003; DeMarree et al., 2007a; Swann et al., 2007). However, we believe that accessibility is likely to be an important factor, and we view these studies as offering support for this idea. We hope that the present results provide insight into when, or at least for whom, self-esteem might be predictive of important outcomes.

Finally, our Studies 2 and 3 are particularly noteworthy with respect to their implications for understanding depression. Among depressed individuals, the accessibility of their low self-esteem might be one contributor to the "depressive self-schema" that is hypothesized to bias information processing in a similar fashion to that observed in our studies (Clark, Beck, & Alford, 1999). Furthermore, by providing people with a seemingly endless stream of self-esteem congruent information, changes in self-esteem among high accessible individuals are unlikely, which may have important implications for improving mental health.

## Appendix

### Personality Feedback for Study 2

You are an independent thinker who does not blindly accept what others say without satisfactory proof. Nonetheless, at times you have serious doubts whether you have made the right decision or have done the right thing. You have a great deal of unused capacity that you have not turned to your advantage.

Socially, you have a great need for other people to like and admire you. You have found it unwise to be too revealing to others, though you have still developed some close friendships. You have a very generous and giving nature, and can be very unselfish, although if you're honest about it, there have been times when you've acted in perhaps quite a selfish way. There are times when you are rather extroverted and sociable while other times you are introverted, shy, and reserved.

Your mood may occasionally impact your ability to function, though this is a relatively rare occurrence. While you may feel down at times, you shouldn't be characterized as moody or depressed because you generally have a cheerful and optimistic outlook on life. Despite your optimism, some of your aspirations tend to be pretty unrealistic.

### Declaration of Conflicts of Interest

### Funding

### Notes

1. This issue relates to a debate in the attitudes literature between construction (Wilson & Hodges, 1992) and retrieval (Fazio, 2000; Petty, Wheeler, & Tormala, 2003) as the processes underlying attitude reports. Several contemporary perspectives argue that the strength of an attitude is one key determinant of the extent to which each of these processes operates, with strong (e.g., accessible) attitudes more prone to retrieval and weak attitudes more prone to construction (Holland, Verplanken, & van Knippenberg, 2002).

2. The extremity of responses (deviation from the scale midpoint) is another indicator of attitude strength (Abelson, 1995). Because accessibility is often associated with extremity, we examined whether extremity of self-esteem, and not accessibility, is the key variable related to resistance. Supplementary analyses controlling for extremity and any relevant interaction terms revealed no interactions with extremity and did not change the primary findings of any study.

3. We also measured the Rosenberg Self-Esteem Scale (RSE) and its log response time, but those results directly paralleled the results reported below. The mean RSE score in this sample was 45.99 ($SD$ = 9.88) and the correlation of RSE with self-attitude was .82, $p$ < .001.
4. We also tested the alternative hypothesis that, when it is accessible, self-esteem level might be related to positivity generally, and not just self-relevant outcomes such as ratings of the personality profile, by looking at participants' attitudes toward the 10 self-irrelevant items. We averaged the self-irrelevant attitude items and submitted this index to the primary analysis reported above. No significant effects emerged (all $t$s < 1), suggesting that the bias produced by accessible self-esteem is specific to the self.
5. All analyses reported below remained significant after controlling for the Beck Depression Inventory–II (Beck et al., 1996).

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