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Contents:		
	567	The International Society for the Study of Individual Differences (ISSID)
<i>General Articles</i>	569	Another perspective on trait aggressiveness: Overlap with early maladaptive schemas
P.F. Tremblay and D.J.A. Dozois	575	Effect of response scale on assessment of emotional intelligence competencies
J.M. Batista-Foguet, W. Saris, R. Boyatzis, L. Guillén and R. Serlavós	581	An in-depth look at scholastic success: Fluid intelligence, personality traits or emotional intelligence?
A. Di Fabio and L. Palazzeschi	586	BIS, BAS, and response conflict: Testing predictions of the revised reinforcement sensitivity theory
E.T. Berkman, M.D. Lieberman and S.L. Gable	592	Right-wing authoritarianism, fundamentalism and prejudice revisited: Removing suppression and statistical artefact
K.I. Mavor, C.J. Macleod, M.J. Boal and W.R. Louis	598	Personality vulnerability to stress-related sleep disruption: Pathways to adverse mental and physical health outcomes
P.G. Williams and T.L. Moroz	604	Predicting romantic relationship satisfaction from life history strategy
S. Olderbak and A.J. Figueredo	611	Peer victimization in adolescence has different effects on the sexual behavior of male and female college students
A.C. Gallup, D.T. O'Brien, D.D. White and D.S. Wilson	616	Mood specific media use and emotion regulation: Patterns and individual differences
D.N. Greenwood and C.R. Long		
<i>[Continued on outside back cover]</i>		
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Implicit self-esteem in the context of trait models of personality

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ABSTRACT

Although the basic dimensions of personality are strongly associated with individual differences in (explicit) self-esteem, the relations between personality and implicit self-esteem have not been systematically researched. In three studies, implicit self-evaluations (measured both with the Name-Letter Test and the self-esteem IAT) were generally independent of personality self-reports (Studies 1–3) and peer-reports (Study 3). Moreover, the implicit measures were also independent of one another. Discussion centers on the problems and promises of implicit measures as indicators of individual differences in self-esteem and their relation to personality.

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1. Introduction

Although trait self-esteem is often treated as a free-standing construct, research has convincingly demonstrated that self-esteem is strongly rooted in basic dimensions of personality, such as the “Big Five” (e.g., Watson, Suls, & Haig, 2002). The recent introduction of “implicit” measures of self-esteem, which are intended to capture people’s global self-evaluations without self-reflection, raises questions about what role personality traits might play in such less intentional self-evaluations. This paper provides an initial exploration of links between implicit self-esteem measures and trait models of personality. To this end, we briefly review what is known about the associations between *explicit* self-esteem (measured via self-report) and core personality traits. Next, we introduce implicit measures of self-esteem. Finally, we discuss what role implicit self-evaluations might play in the context of trait models of personality and present two competing sets of hypotheses.

1.1. Self-esteem within structural models of personality

People differ in a variety of ways with respect to affect, thought, and behavior. However, research consistently reveals the utility of defining personality as a function of five semi-independent broad factors: neuroticism (negative emotionality and instability), extraversion (sociability and assertiveness), conscientiousness (careful-

ness and dependability), agreeableness (kindness and cooperativeness) and openness to experience (curiosity and creativity). This structure, known as the *Big Five*, emerges from both self- and peer ratings (e.g., Costa & McCrae, 1992), in children and adults (e.g., Digman, 1997), and across languages and cultures (e.g., McCrae & Costa, 1997). The five-factor model is conceived as a hierarchical structure such that each of the dimensions can be decomposed into a number of specific facet traits (McCrae & Costa, 2003). For example, the facets of neuroticism are anxiety, angry hostility, depression, self-consciousness, impulsiveness, and vulnerability (Costa & McCrae, 1992). Some empirical and conceptual elements of the Big Five model continue to be the subject of debate and research (Block, 1995), but there appears to be consensus among individual difference researchers that the Big Five are a reasonable approximation of human personality.

1.1.1. Relations between self-esteem and personality

Empirical associations between neuroticism, extraversion and explicit self-esteem are quite robust: self-esteem correlates negatively with neuroticism (often exceeding $-.50$) and positively with extraversion ($.30$ to $.50$, see Watson et al., 2002). Self-esteem is also related to the other three factors of the Big Five, although the associations are weaker—for example, Watson and colleagues (2002) reported correlations of $.28$, $.25$, and $.25$, for agreeableness, conscientiousness, and openness, respectively. Depression (operationalized as a facet of neuroticism) shows the strongest relation to self-esteem, with correlations often exceeding $-.70$ (e.g., Watson et al., 2002). This lead some to propose that explicit self-esteem and depression might be best conceptualized as defining the

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opposite ends of a bipolar dimension (at least for sub-clinical levels of depression, see Judge, Erez, Bono, & Thoresen, 2002).

1.2. Implicit self-esteem and its measures

Following Greenwald and Farnham (2000), implicit self-esteem has been typically conceptualized as a reflection of *self-evaluative associations* which might elude conscious identification or awareness. In this vein, most measures of implicit self-esteem are designed to capture the strength of associative links between the representations of self and particular evaluative content indirectly, that is without requiring intentional self-evaluation. One of the most popular measures is the Name-Letter Test (NLT), which captures the tendency of people to intuitively favor letters of their own names (particularly initials) over other letters (e.g., Koole, Dijksterhuis, & van Knippenberg, 2001). The other is the Self-Esteem Implicit Association Test (IAT, Greenwald & Farnham, 2000), which uses the speed of categorizing pairs of self-related and valenced stimuli across different stimuli-pair combinations as an indicator of self-esteem. Both of these measures have acceptable internal consistencies, although retest reliabilities tend to be lower than those for explicit measures (e.g., Bosson, Swann, & Pennebaker, 2000). Given the malleability of implicit constructs and their sensitivity to context (e.g., Blair, 2002; Dijksterhuis, 2004), lower retest reliabilities are to be expected. The manner and extent to which self-evaluative associations revealed by these measures are actually unconscious is still subject to debate, however (see Gawronski, LeBel, & Peters, 2007; Krizan, 2008). In the least, implicit measures are *indirect* insofar they attempt to capture self-evaluations without requiring intentional self-reflection.

The associations between explicit and implicit self-esteem measures and their relationship to behavior are currently an active area of study (e.g., Koole & DeHart, 2007). Dual-process theories of human cognition are commonly mentioned in discussions of the differences between explicit and implicit self-esteem. These theories view people as processing information about themselves and their environment either in terms of the *rational* system, in which declarative propositional knowledge is used in serial, effortful, usually conscious, processing; or in terms of the *experiential* system, which uses concrete images and narratives in a rapid, holistic manner based on associative structures and involves unconscious processing (see Epstein, 1994; Smith & DeCoster, 2000). Explicit self-esteem is usually thought to reflect operation of the rational, rule-based system, whereas implicit self-esteem is thought to reflect the operation of the experiential, associative system. In the area of self-esteem, scores on implicit and explicit self-esteem measures are only modestly correlated (if at all; see Bosson et al., 2000; Krizan & Suls, 2008), which is consistent with the idea that self-evaluation involves two relatively parallel tracks—one involving controlled and deliberative thought and the other involving relatively automatic and non-reflective processes. Indeed, there is preliminary evidence that implicit (vs. explicit) self-esteem measures are better predictors of automatic, non-conscious behavior (see Spalding & Hardin, 1999).

Such independence, however, does not necessarily imply the existence of multiple attitudinal representations (see Greenwald & Nosek, in press; Tafarodi & Ho, 2006). Independence of explicit and implicit self-esteem measures may stem from the lower retest reliabilities of implicit measures, unique method variance (Kihlstrom, 2004), and/or misrepresentations (deliberate or not) on self-report measures (Olson, Fazio, & Hermann, 2007; Tafarodi & Ho, 2006). For these reasons, the direct mapping of explicit/implicit measures onto outcomes of rational/experiential processes is likely overly simplistic, as both types of measures are reflective of each process to some extent (see Ranganath, Smith, & Nosek, 2008).

1.3. Personality and implicit self-esteem: what to expect?

In this paper, we consider to what degree personality dispositions are associated with implicit self-evaluations. Basic personality dispositions, such as neuroticism and extraversion, rooted in heredity and early developmental experiences, might correspond most closely to the automatic, implicit self-evaluations. For example, Epstein and Morling (1995) have proposed that implicit self-esteem might form early during development based on critical early experiences with caregivers (see also DeHart, Pelham, & Tennen, 2006). Similarly, basic personality dimensions are thought to emerge relatively early as they are rooted in temperament and shaped by childhood interactions (Rothbart & Bates, 2006). This perspective, then, suggests that implicit self-esteem might show links with personality dimensions, perhaps mainly with those that concern how the self is evaluated within the social context (e.g., neuroticism, agreeableness, and extraversion; cf. Robinson & Wilkowski, 2006; Watson et al., 2002). Presumably, the direction of associations with these core traits should mirror those of explicit self-esteem.

Implicit self-esteem, however, might be revealed in behavioral manifestations of personality but not in self-reports. For example, implicit self-esteem might be reflected in less deliberate, non-verbal behaviors relevant to self-evaluation such as posture and facial expressions (see Spalding & Hardin, 1999). These behaviors might be visible to other people, but the individual might be consciously unaware of them. Moreover, even if people were momentarily aware of their behaviors or feelings related to implicit self-evaluative processes, they might discount them due to incongruencies with long-standing conscious beliefs about the self (Jordan, Whitfield, & Zeigler-Hill, 2007; Tafarodi & Ho, 2006). The implication is that a proper examination of links between personality traits and implicit self-evaluations requires assessment of personality based on both self- (Studies 1 through 3) and peer-reports (Study 3).

Alternatively, implicit self-esteem measures might reflect mental processes and contents that are quite distinct from the conscious and deliberate patterns of thought, affect and behavior reflected in reports on personality questionnaires. This idea is consistent with evidence that self-reports of personality often do not correlate with more automatic evaluative response tendencies, although the latter contribute independently to psychological and behavioral outcomes (e.g., Robinson, 2007). In combination with the psychometric idiosyncrasies of explicit and implicit measures mentioned earlier, this perspective suggests that only modest (at best) correlations between implicit measures and personality reports should be expected.

2. Study 1

The first study examined associations between Name-Letter Test of implicit self-evaluation and self-reports of global personality traits.

2.1. Method

Two-hundred and seventy seven students from a large Midwestern university participated in order to satisfy a course requirement (64% female, mean age was 19.6). The order in which the implicit and self-report measures were administered was counter-balanced in all the described studies. Order did not have a consistent effect across the three studies and will not be discussed further.

The NLT was administered according to standard procedures. Respondents were presented with an array of letters and symbols,

and were asked to rate the likeability of each based on quick gut impressions (e.g., Koole et al., 2001). The NLT score was derived by subtracting the baseline liking of letters (average liking by people who do not have the letter in their name) from respondents' evaluations of their initials, and then averaging the two difference scores for each individual (see Kitayama & Karasawa, 1997). The relative liking of first and last initials was correlated at .36. Participants also completed the Rosenberg's Self-Esteem Inventory (1965), the Big Five Inventory (John, Donahue, & Kentle, 1991), and the Center for Epidemiological Studies-Depression scale (Radloff, 1977), all α s > .80.

2.2. Results and discussion

Correlations among self-report personality measures and explicit self-esteem largely replicated previous findings (see Watson et al., 2002), and so will not be discussed in detail. Of note and paralleling previous findings, self-esteem and depression were strongly negatively correlated ($r = -.58$).

Implicit self-esteem was largely independent of personality self-reports, except for a marginal (negative) association with neuroticism and an association with agreeableness. In strong contrast to explicit self-esteem, however, NLT was unrelated to depression (see Table 1). Inspection of scatter plots did not indicate any exponential relations in this or the other studies presented herein.

3. Study 2

The aim of the second study was to replicate the independence observed in Study 1 and to examine whether another frequently used implicit measure of self-esteem, the self-esteem IAT, shows similar patterns.

3.1. Method

Two-hundred and eighty-eight students from a large Midwestern university participated in order to satisfy a course requirement (74% female, mean age was 20).

Respondents completed the NLT measure according to the same procedures used in Study 1 (ratings of first and last initials correlated .32). Participants also completed the self-esteem IAT according to the procedures and stimuli outlined in Greenwald and Farnham (2000). The self-esteem IAT (Greenwald & Farnham, 2000) is a computer-based response mapping procedure that requires respondents to perform combined categorizations of self-relevant and evaluative stimuli. In one critical block of trials, self-related and *positive* stimuli call for the same response, while in the other self-related and *negative* stimuli call for the same response. The final score is usually calculated as the difference in categorization speed between these two blocks of trials. The results

Table 1
Relations between implicit self-esteem and personality self-reports from Study 1 ($N = 277$).

Self-report measure	Zero-order correlation	Partial correlation (controlling for explicit self-esteem)
Explicit Self-Esteem	.03	–
Neuroticism	–.11 ⁺	–.11 ⁺
Extraversion	.08	.07
Agreeableness	.17 ⁺	.17 ⁺
Conscientiousness	.03	.02
Openness	.03	.02
Depression	–.08	–.07

⁺ $p < .10$.

* $p < .05$.

Table 2

Relations between implicit indicators of self-esteem and personality self-reports from Study 2 ($N = 288$).

Self-report measure	Correlations with NLT		Correlations with IAT (D)	
	Zero-order	Partial (controlling for explicit SE)	Zero-order	Partial (controlling for explicit SE)
Explicit Self-Esteem	.19 ⁺	–	.06	–
Neuroticism	–.18 ⁺	–.08	.07	.14 ⁺
Extraversion	.06	–.04	–.03	–.06
Agreeableness	.09 ⁺	.02	–.01	–.03
Conscientiousness	.10 ⁺	.03	.09	.07
Openness	.01	–.03	–.03	–.04
Positive affectivity	.10 ⁺	–.03	–.01	–.05
Negative affectivity	–.06	.07	.04	.09
Depression	–.06	.10	–.02	.03

⁺ $p < .10$.

* $p < .05$.

herein are presented with the improved D measure (see Greenwald, Nosek, & Banaji, 2003), however, which uses untransformed latencies across all critical IAT trials converted to standard deviation units (this measure correlated .66 with the measure based on conventional scoring). Respective internal consistency estimates are typically computed by examining associations between D scores based on subsets of trials—although these routinely exceed .70, they are likely inflated due to method variance confounds and general responding speed (see Greenwald et al., 2003; Mierke & Klauer, 2003, for discussion).

Participants also completed the same self-report measures as in Study 1. One exception was depression, which was assessed with the Beck Depression Inventory-II (Beck, Steer, & Brown, 1996), $M = 7.35$, $SD = 6.24$.

3.2. Results and discussion

Correlations among self-report personality measures and self-esteem basically replicated the findings of Study 1. Again, there was a strong inverse association between self-esteem and depression ($r = -.67$). As observed by others, the NLT and IAT were unrelated, r s < [.05].

Correlations between implicit self-esteem and personality measures are reported in Table 2. As in Study 1, the NLT was generally independent of personality self-reports, except for a small negative correlation with neuroticism and small positive correlation with agreeableness. In contrast to Study 1, the association between the NLT and explicit self-esteem was significant. However, after statistically controlling for explicit self-esteem, the associations between NLT and neuroticism/agreeableness were negligible.

Self-esteem IAT scores were completely independent of explicit self-esteem and personality traits (see Table 2), except for the small association with neuroticism. Virtually identical results were observed when the conventional log-transformed IAT scoring procedure was used (from Greenwald & Farnham, 2000).

4. Study 3

The main purpose of Study 3 was to examine whether the independence between implicit self-esteem measures and personality self-reports observed thus far also holds for peer-reports of personality. Finding no associations between implicit self-evaluations and peer-reports would provide independent evidence that the former are orthogonal to core personality traits, and that the findings of the first two studies were not a result of biases in self-reported per-

Table 3
Relations between implicit indicators of self-esteem and personality self and peer reports from Study 3 ($N = 109$).

Self-report measure	Correlations with NLT		Correlations with IAT (D)	
	Self-report ^a	Peer-report ^b	Self-report ^a	Peer-report ^b
Explicit self-esteem	-.10	-.02	.06	-.19 [*]
Neuroticism	.11 (.13 [*])	-.04 (-.04)	.01 (.12 [*])	-.09 (-.09)
Extraversion	.03 (.04)	.07 (.09)	.27 [*] (.13)	.08 (.09)
Agreeableness	-.18 [*] (-.14 [*])	.03 (.03)	.13 (.04)	.13 (.14)
Conscientiousness	-.03 (.01)	.07 (.07)	.02 (-.02)	.02 (.05)
Openness	-.01 (-.10)	.01 (.01)	.08 (.02)	.01 (.04)

^{*} $p < .10$.

^{*} $p < .05$.

^a Partial Correlations controlling for *self-reported* self-esteem are shown in parentheses.

^b Partial correlations controlling for *peer-reported* self-esteem are shown in parentheses.

sonality (e.g., socially desirable responding, see Paulhus & Trapnell, 2008, for discussion).

4.1. Method

Two-hundred and thirteen students from a large Midwestern university participated in order to satisfy a course requirement (58% female, mean age was 19.8). The measures and procedures were similar to those of Study 2.

To obtain peer-reports of personality, participants were asked to provide an e-mail address of a good friend that we could contact. These peers were then contacted and they completed the Big Five Inventory and Rosenberg's self-esteem inventory about the participant in exchange for \$5. A total of 109 peer-reports were returned.¹ The subsample of participants whose peers participated (72% female) was comparable to the overall sample and samples from previous studies on mean scores for all measures. For the sake of brevity, only data on this subsample are presented (trait inter-correlations were similar for the entire sample).

4.2. Results and discussion

Correlations among self-report personality measures and self-esteem largely replicated the findings of the earlier studies. Of note, the NLT and IAT measures were again unrelated, $r_s < |.05|$. The associations between implicit self-esteem measures and the personality *self-report* measures are presented in Table 3. As before, NLT scores were independent of personality self-reports. However, in contrast to Studies 1 and 2, there was a marginal positive correlation with neuroticism and a negative correlation with agreeableness. These correlations remained largely unchanged after controlling for explicit self-esteem. Similarly, self-esteem IAT scores were independent of explicit self-esteem and personality traits, with the exception of a small positive association with extraversion.

Peer-reports of personality showed the same general pattern of independence; there were no significant relations, except an unexpected negative correlation between participants' IAT scores and peer-reported self-esteem. A potential concern that peers did not know the participants well was contradicted by the Big Five agreement correlations, which were high (.47–.61, cf. Watson et al., 2002).

¹ Due to a computer error, exact sex and age information is not available for participants' peers, although on these dimensions they largely matched all the other samples described in this report.

5. General discussion

Responses to implicit self-esteem measures appear to be largely independent of reports about global personality traits. The NLT had marginal but inconsistent associations with agreeableness and neuroticism across the studies, and the IAT scores were almost uniformly independent of personality scores. Furthermore, peer-reports of the target's personality were also uncorrelated with both implicit self-esteem measures. If implicit self-esteem is reflected in behavioral outcomes inaccessible to self-awareness or consciously discounted, such outcomes might not be reflected in self-reports but might be observable by others (see Spalding & Hardin, 1999). There was no support for this idea; implicit measures did not predict personality reports by participants' friends, even though these friends were able to judge participants' personality very accurately in general (see also Schimmack & Diener, 2003).

5.1. Implicit self-esteem: one or many?

In accord with previous findings (e.g., Bosson et al., 2000), the two most commonly used implicit indicators of self-esteem, the NLT and the self-esteem IAT, appear to be independent. Caution about assuming that both measures capture the same construct is advised; whereas error and unique method variance likely contribute to a lack of strong links, the absence of *any* association is clearly problematic for inferring a unitary construct of implicit self-esteem. Whereas each implicit measure might be of utility for examining less intentional aspects of self-evaluation on its own accord, positing a one-dimensional construct of implicit self-esteem seems without basis given the consistent lack of convergence between implicit measures of self-esteem. Instead of using "implicit self-esteem", researchers might consider referring to findings for indirect measures (such as NLT and IAT) as involving implicit or indirect *self-evaluations*. This usage would still accurately reflect the self-evaluative component of these measures, but would not imply that they all reflect a single construct (i.e., "implicit self-esteem").

5.2. Implicit self-evaluations and traits

As is the case with (explicit) self-esteem (e.g., Bosson et al., 2000), core personality dimensions were independent of implicit self-evaluations (indexed by the NLT and IAT), whether traits were assessed with self or peer report. This basic finding stands in contrast to the idea that implicit self-esteem is based on a similar set of reactions and experiences influential in early personality development (cf. Caspi, Roberts, & Shiner, 2005; DeHart et al., 2006). Rather, regularities in thought, emotion, and behavior captured in personality reports do not determine implicit self-evaluations, at least not those based on a single assessment.

Although associations between implicit self-evaluations and personality were very modest, researchers interested in both personality and implicit self-evaluative processes should not be discouraged. Implicit self-evaluations show meaningful fluctuations (reflected in lower than ideal stabilities), so repeated measurements might be necessary if researchers want to capture stable, trait-like aspects of implicit self-evaluations (which are by necessity measured as state variables). For example, one study found that aggregating implicit self-evaluations (from NLT) over multiple measurements substantially increased the relation between implicit and explicit measures of self-esteem (DeHart et al., 2006). When applied to personality broadly, this suggests that particular dispositions might color implicit self-evaluations repeatedly over time. Thus, it might be worthwhile to test whether personality traits relate to implicit self-evaluations assessed and aggregated over a period of weeks or months.

Alternatively, certain transient states might promote convergence of implicit self-evaluative responses and self-reports on some occasions but not on others. Such states include momentary awareness of the self-evaluative nature of the implicit task (Krizan, 2008), reliance on “gut” feelings relevant to self-evaluation (Jordan et al., 2007), or enhanced accessibility of deliberative self-evaluations (Krizan & Suls, 2008). Taken together, such processes may potentially account for inconsistencies in correlations across the studies reported here. Ironically, fluctuations in implicit self-evaluations over time could be responsible both for (a) the generally low correlations with self-report measures due to lower reliability of implicit measures, and for (b) producing significant associations with self-report measures in some contexts but not in others.

6. Conclusions

In sum, trait reports and implicit self-evaluations seem to capture orthogonal aspects of personality. Although this is consistent with the notion that implicit and explicit measures reflect operations of experiential and rational systems, respectively (e.g., Epstein, 1994), such a conclusion seems premature. Both sets of processes are relevant to both types of measures (e.g., Ranganath et al., 2008), and meta-cognitions regarding responses to implicit self-esteem measures seem important for understanding the concordance of implicit and explicit self-views (Jordan et al., 2007; Krizan, 2008). Even if they end up being of limited use in assessing trait aspects of personality, momentary implicit self-evaluations might shed light on individual differences in self-regulation processes. For example, individuals with high (explicit) self-esteem might respond to ego-threat by boosting implicit positive self-associations (Jones, Pelham, & Mirenberg, 2002), which in turn could serve to reduce anxiety (Rudman, Dohn, & Fairchild, 2007). For now, however, implicit self-esteem is yet to find its place in the pantheon of personality traits.

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