

Self-discrepancies and negative affect: A primer on when to look for specificity, and how to find it

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Abstract

There is substantial evidence that discrepancies within the self-system produce emotional distress. However, whether specific types of discrepancy are related to different types of negative affect remains contentious. At the heart of self-discrepancy theory (SDT; Higgins, 1987, 1989) is the assumption that different types of discrepancies are related to distinctive emotional states, with discrepancies between the actual and ideal selves being uniquely related to dejection-related emotion and discrepancies between the actual and ought selves being uniquely related to agitation-related emotion. Research examining this proposition has demonstrated that the magnitudes of these discrepancies are substantially correlated. As a result, some researchers have questioned whether they are functionally independent (e.g., Tangney, Niedenthal, Covert, & Barlow, 1998). In addition, other researchers have failed to support the hypothesized unique relationships (e.g., Ozgul, Heubeck, Ward, & Wilkinson, 2003). Together these two types of research finding have been interpreted as presenting a challenge to SDT. It is our contention that this interpretation is inaccurate. In this paper, we review the assumptions made when testing for these distinct relationships. Specifically, we examine the necessary conditions under which the functional independence of discrepancies is apparent, and the statistical methods appropriate to test these relationships. We also comment on the measurement of self-discrepancies, and fundamental problems in the interpretation of null findings. We conclude that studies using appropriate methodological and statistical procedures have produced ample evidence that discriminant relationships exist, and we encourage researchers to further investigate the conditions under which these relationships are most apparent.

Keywords: *Self-discrepancies, negative affect, relationship specificity*

The proposition that inconsistencies in self-beliefs lead to psychological discomfort and negative emotions is central to many psychological models. Classic models of psychology, including those of Adler (1964), Freud (1923/1961), James (1890/1948), and Rogers (1961) all assume this relationship. However, this is a general proposition that falls short of suggesting that different types of inconsistent self-beliefs produce different types of negative emotions. The delineation of specific discrepancy-affect relationships in self-discrepancy theory (SDT; Higgins, 1987) was, therefore, a major theoretical development in work designed to understand the antecedents of negative affective states. Without these unique specific relationships between self-discrepancies and emotions, SDT offers nothing new.

According to SDT, self-discrepancies represent negative psychological situations that encompass

specific cognitive, affective, and behavioral characteristics. Discrepancies between how one actually is (the actual self) and how one, or a significant other, would ideally like one to be (the ideal self) represent the *absence of positive outcomes*. Likewise discrepancies between the actual self and how one, or a significant other, believes we should or ought to be (the ought self) represent the *presence of negative outcomes*. It is because these actual:ideal (AI) and actual:ought (AO) self-discrepancies represent these distinct negative psychological situations that they are uniquely related to different types of negative emotional outcomes. AI self-discrepancies are related to the dejection-related emotions (e.g., depression, sadness) whereas AO self-discrepancies are related to the agitation-related emotions (e.g., anxiety, tension). The magnitude of any significant self-discrepancy (i.e., one with self-regulatory

significance in the particular situation) is, therefore, related to the intensity of the specific emotion (Higgins, 1987).

The model also specifies that discrepancies with self-guides from the individual's own standpoint are related to different specific dejection- and agitation-related emotions than discrepancies with the standpoints of a significant other. AI (own) self-discrepancies are proposed to be related to disappointment and dissatisfaction whereas AI (other) self-discrepancies are proposed to be related to shame or embarrassment. Likewise, AO (own) self-discrepancies are related to guilt and self-contempt whereas AO (other) self-discrepancies are related to feeling threatened and being fearful.

Finally, the model states that self-discrepancies do not always produce negative emotions. Rather, these occur only when the self-guide has self-regulatory significance. Factors that influence self-regulatory significance moderate the relationships between AI and self-discrepancies and dejection-related emotion, and between AO self-discrepancies and agitation-related emotion. These factors include the extent to which self-discrepancies are accessible (i.e., the discrepancy has been frequently and recently activated), and the applicability or relevance of a self-guide to the situation or context in which it is primed (Boldero & Francis, 1999; Higgins, 1987; 1989).

Early investigations of SDT's propositions examined whether unique discriminant relationships exist between AI self-discrepancies and dejection-related emotions and between AO self-discrepancies and agitation-related emotions. These studies can be classified by the nature of their research design. Some studies were correlational (e.g., Higgins, Bond, Klein, & Strauman, 1986; Strauman & Higgins, 1988) whereas others involved the comparison of criterion groups (e.g., Strauman & Higgins, 1987) or groups where a self-discrepancy was primed (e.g., Higgins, Klein, & Strauman, 1985). In correlational studies, support was provided for the model when the magnitude of a significant AI self-discrepancy is uniquely related to the intensity of dejection-related emotion and the magnitude of a significant AO self-discrepancy is uniquely related to the intensity of agitation-related emotion. Research using theoretically defined criterion groups confirmed these correlational findings. For example, Higgins, Bond, Klein, and Strauman (1986) found that participants with large AI self-discrepancies reported higher levels of the dejection-related emotions than those with small AI self-discrepancies, and those with large AO self-discrepancies report higher levels of the agitation-related emotions than those with small AO self-discrepancies.

Early research endeavors provided substantial support for the model. This evidence was partially

reviewed by Boldero and Francis (1999) and, more comprehensively, by Boldero, Roney, Francis, Strauman, and Higgins (under review). This latter review, although designed to examine evidence for the propositions of regulatory focus theory (RFT; Higgins, 1997, 1998), the successor to SDT, also reviewed evidence relating to the emotional outcomes of AI and AO discrepancies. The literature search yielded 23 correlational studies (reported in 16 publications) and seven criterion group studies (reported in six publications) that support these propositions. Based on findings such as these, Higgins (1999) argued that support for the basic propositions of the model was clear enough for research to progress to 'second order' issues, such as investigating the conditions which strengthen or weaken the relationships between self-discrepancies and the relevant emotions (e.g., Boldero & Francis, 2000). However, some research continues to test SDT's fundamental propositions and to interpret null findings as evidence against the major tenet of the model (i.e., that specific self-discrepancies are uniquely related to specific emotions). We now review two such studies and discuss why we believe that this interpretation is not necessarily correct.

The studies of Tangney et al. (1998) and Ozgul, Heubeck, Ward, and Wilkinson (2003) both examined SDT's propositions and failed to find the specified discriminant relationships. Tangney et al. partly replicated and extended Higgins et al.'s (1985) study. They examined relationships between the four discrepancy-types (i.e., AI and AO from the perspective of "self" and "other") and chronic intensities of specific emotions, and between AI and AO self-discrepancies, regardless of standpoint (i.e., averaging across the two standpoints) and dejection- and agitation-related emotions. These discrepancies were assessed using the Selves Questionnaire (Higgins et al., 1985) and an adjective ratings list. They found that self-discrepancies assessed using the adjective checklist had similar predictive ability as those assessed using the idiographic Selves Questionnaire. In addition, they found moderate to high correlations between AI and AO self-discrepancies, and no evidence for either general or specific relationships between self-discrepancies and emotions. They concluded that there is "no evidence to support the more general proposition that specific self-discrepancies are differentially related to distinct emotional symptoms or experiences ... self-discrepancies were related to emotional distress across the board" (p. 266). However, although they stated that "it may be premature to conclude that people don't have some sort of implicit actual/ideal discrepancy distinct from an implicit actual/ought discrepancy" (p. 266), they suggested that "without empirical evidence of

unique relations between specific self-discrepancies and distinct affective vulnerabilities” (p. 266), the observation that discrepancies are related to negative affect “is not really new” (p. 266).

Likewise Ozgul et al. (2003) tested three predictions of SDT. Specifically they examined whether self-discrepancies were related to emotional discomfort; whether AI self-discrepancies were uniquely related to dejection-related emotion, and AO self-discrepancies to agitation-related emotion; and whether AI (other) self-discrepancies were uniquely related to shame and AO (own) self-discrepancies to guilt. These are the predictions that Tangney et al. (1998) tested. In addition, like Tangney et al., Ozgul et al. examined whether self-discrepancies are better assessed using the Selves Questionnaire (SQ; Higgins et al., 1985) or using Tangney et al.’s nomothetic adjective rating list (ARL). Finally, like Moretti and Higgins (1990), they examined whether self-discrepancies contributed to the prediction of emotional discomfort over and above that contributed by self-concept negativity alone.

Ozgul et al. (2003) concluded that “self-discrepancies made either only a small contribution (ARL), or no contribution (SQ) to the prediction of negative emotional states independent of having a negative self concept” (p. 60). In addition “The findings in the current study would appear to provide some support for the relationship of self-discrepancies to negative affective states; however, the specificity of these relations is not evident. Overall, these results raise serious doubts about the major tenet of self-discrepancy theory, that specific emotions are a function of specific types of self-discrepancy.” (p. 60). In addition, because of the high correlations between the AI and AO self-discrepancy magnitudes, assessed using the two measures (between 0.59 and 0.81), they concluded that “these instruments were unable to clearly discriminate between different self-discrepancies” (p. 60).

In assessing the importance of this research, we consider whether the results of these studies provide the necessary discriminant test of the propositions of SDT. In raising this issues with regard to Tangney et al.’s (1998) and Ozgul et al.’s (2003) papers, we have a broader aim: to clarify the issue of whether SDT contributes anything to the understanding of the relationship between inconsistent self-beliefs and negative affect over and above the insights provided by those models that specify that there is a general relationship (e.g., Adler, 1964; Freud, 1923/1961; James, 1890/1948; Rogers, 1961). First, we discuss the assumption that if AI and AO self-discrepancy magnitudes are correlated, they are not functionally distinct, and second, we examine the appropriate data analytic techniques to test the unique discrimi-

nant relationships predicted by SDT and the appropriate method of assessing self-discrepancies. Finally, we discuss the interpretation of null results.

If AI and AO self-discrepancies are correlated, can they be distinct psychological constructs?

One of the overwhelming conclusions that can be drawn from the many studies examining SDT’s propositions is that the magnitudes of AI and AO self-discrepancies are substantially correlated. For example, Boldero and Francis (2000) reported correlations between 0.63 and 0.79 in their five studies. Indeed, in the first study examining the model’s propositions, Higgins et al. (1985) found correlations in the range of 0.53–0.76. Regardless of the size of the correlations, they are significantly different from zero.

Does the presence of large correlations between AI and AO self-discrepancy magnitudes necessarily preclude a functional distinction between the two self-discrepancy types? The presence of correlated predictors and correlated outcome variables is pervasive in psychology; indeed, much of psychology focuses on elucidating the specific processes that underlie interrelated patterns of psychological experience. However, correlations between variables do not constitute conclusive evidence of lack of distinctive underlying psychological processes, as it is possible this situation reflects one in which the “measures of two or more variables are statistically related . . . but are not in fact causally linked, usually because the statistical relation is caused by a third variable.” (Vogt, 1988, p. 217).

How should the high intercorrelations that are commonly found between AI and AO discrepancy scores be interpreted? Because assessing discrepancies always involves a comparison with the actual-self, one source of association between different types of discrepancy obtained in studies, such as those discussed above, can be presumed to occur due to the common role of the actual self. In addition, if an individual perceives that some elements of one self-guide are discrepant with the actual self, they might also be inclined to perceive some elements of the other self-guide are also discrepant. This can be thought of as a general tendency to perceive discrepancies in any self-aspect, regardless of the specific aspect, that is, a generalized discrepancy component. This generalized component would contribute to self-discrepancy measures along with those associated with the discrepancies between specific self aspects (i.e., between the actual self and the ideal and ought self-guides). As a result, AI and AO self-discrepancies can be thought of as comprising a generalized discrepancy component and the specific

discrepancy type. Thus, it is not surprising that AI and AO self-discrepancy magnitudes are significantly correlated.

This conception of AI and AO self-discrepancy magnitudes as comprising generalized and specific components is analogous to conceptions of depression and anxiety as comprising a generalized negative mood component as well as specific components. Assessments of these two types of emotion, whether in their trait or state manifestations, typically yield values that are strongly and significantly correlated. For example, Fairbrother and Moretti (1998) found that scores on the Beck Depression Inventory (Beck, Ward, Mendelson, Mock, & Erbaugh, 1961) correlated 0.56 with scores on the Beck Anxiety Inventory (Beck, Epstein, Brown, & Steer, 1988). Similarly, Ozgul et al. (2003) reported their measures of dejection- and agitation-related emotion were correlated 0.52.

The “large” correlations between anxiety and depression have, likewise, led some to question the utility of considering the two disorders as distinct. For example, Stavarakis and Vargo (1986) used the finding that often in factor analytic studies items assessing anxiety and depression load on the same factor, to argue that they are variants of the same disorder. However, others have argued that they are distinct. Indeed, Dobson (1985), following a review of the cognitive and emotional models of affect, psychometric evidence, and data on the clinical diagnosis of anxiety and depressive argued that, despite equivocal empirical separation, they are distinct disorders. Likewise, Clark and Watson (1991) proposed a tripartite model of depression and anxiety, which hypothesizes that the symptoms of these disorders group into three subtypes: those associated with general distress, those that are relatively unique to anxiety (e.g., physiological hyperarousal) and those that are relatively unique to depression (e.g., anhedonia). Moreover, Gotlib and Cane (1989), acknowledging the communalities between these two disorders, stated that, “given the overlap in symptoms we should be suspicious of measures of anxiety and depression that do not intercorrelate” (p. 161). The tripartite model of depression and anxiety is now generally accepted in the clinical psychology (e.g., Eley & Stevenson, 1999; Joiner, Steer, Beck, Schmidt, Rudd, & Catanzaro, 1999; Laurent, & Ettelson, 2001). That is, researchers and practitioners have come to understand and accept that the co-occurrence of depression and anxiety makes sense psychologically, although it is valid to consider them distinct psychological experiences.

Given these considerations, we would expect the assessments of AI and AO self-discrepancy magnitudes to be significantly correlated. Likewise, we

would expect the intensities of dejection- and agitation-related emotions to be significantly correlated. However, the presence of significant correlations between predictor variables and between outcomes variables does not mean that it is not possible to uncover unique relationships between particular pairs of predictors and outcomes. Nevertheless, these significant correlations between variables carry implications for how researchers investigate unique processes, as we now discuss.

Testing for unique relationships in the presence of correlated variables

If AI and AO self-discrepancy magnitudes are significantly correlated, as are the intensities of dejection- and agitation-related emotions, then to uncover the unique relationships between self-discrepancies and emotions, appropriate statistical techniques that remove the variance shared between self-discrepancies or emotions should be used.

Despite the source of overlap between measures, methods of adjusting for the overlap are the same in both the correlated emotion and discrepancy situations, namely partialling out the effect of the adjunct variable before assessing the contribution of the target variable. This was recognized by Higgins et al. (1985) at the beginning of the research program examining these relationships. To test for unique relationships, these researchers calculated partial correlations in which the contribution of the alternate discrepancy was systematically removed from the discrepancy of interest and the dependent variables. More recently, both the contributions of the other discrepancy (e.g., AO in the case of AI relationships) and the other emotion have been removed from both the predictors and the dependent variable (i.e., emotion) before the relationship of interest is assessed, (e.g., Boldero & Francis, 2000). According to Strauman, Vookles, Berenstein, Chaiken, and Higgins (1991), this “double-partial strategy provides a stringent test of the discriminant hypothesis” (p. 949). Likewise, Strauman and Higgins (1987) used latent-variable modeling to uncover the relationships between self-discrepancies and social anxiety and depression. However, partial correlations and latent variable modeling are not the only techniques that can be used. Semi-partial correlations and hierarchical regression analyses achieve the same result, namely, estimates of latent constructs. All the 23 studies, reviewed by Boldero et al. (under review), used such analytic techniques.

Ozgul et al. (2003) made adjustments for the correlated elements in terms of their dependent affect variables, in that they removed the contribution of anxiety when calculating part correlations between self-discrepancies and depression, and

depression when calculating part correlations between self-discrepancies and anxiety, but they made no such adjustment for the correlated self-discrepancy variables. Likewise, in their regression analyses, the extent to which participants' self-concept was negative and the predicted self-discrepancy were simultaneously entered into the equation. However, they did not control for any other assessed self-discrepancy. Thus, in all analyses the shared variance in AI or AO self-discrepancies was not partialled out. As a result, they did not test the discriminant relationships proposed by the model.

However, it is possible to use the correlation matrix reported by Ozgul et al. (2003) in their Table II to "reconstruct" their data set and to conduct the appropriate analyses, specifically hierarchical regression analyses in which the magnitude of the theoretically "irrelevant" self-discrepancy was entered on the first step of the equation and the "relevant" self-discrepancy on the second. These analyses yield the following result. Inconsistent with SDT predictions, depression in their sample was not uniquely related to AI (own) self-discrepancies ($r_p = -0.01$) but was uniquely related to AO (other) self-discrepancies ($r_p = 0.18$). In contrast, consistent with SDT, anxiety was uniquely related to AO (other) self-discrepancies ($r_p = 0.16$) but was not uniquely related to AI (own) self-discrepancies ($r_p = 0.08$). Thus, in contrast to their conclusion that "the specificity of these relations is not evident" (p. 60), our analyses of their data provide partial support for SDT's propositions, as AO (other) discrepancies predicted anxiety.

A stronger test of the SDT specificity assumption involves using criterion groups or experimental priming manipulations. As previously noted, the basic design of the criterion group procedure involves comparing participants specifically selected for high scores on a target discrepancy variable, and low scores on alternate discrepancy variable in terms of their scores on dependent variables of interest (e.g., Higgins et al., 1985; Strauman & Higgins, 1987, see Boldero et al., under review). As the correlation between AI and AO discrepancy presents a challenge to researchers needing to identify appropriate criterion groups, such studies are best conducted in large samples or in clinical populations where AI and AO are likely to vary independently.

Fairbrother and Moretti (1998) and Scott and O'Hara (1993) have used this approach. In both studies it was found that those with depression had large AI self-discrepancies whereas those with anxiety had large AO self-discrepancies. For example, Scott and O'Hara (1993) found that among four groups of university students (those who were clinically depressed; had an anxiety disorder; were

both depressed and anxious; or who had no psychiatric disorder), those with clinical levels of depression had larger AI self-discrepancies whereas those with clinical levels of anxiety had larger AO self-discrepancies.

These researchers interpreted their results in terms of demonstrating the independence of the AI and AO dimensions, rather than as representing the distribution of discrepancy in the population. Likewise, priming manipulations have been used to demonstrate that AI and AO discrepancies can be manipulated independently (e.g., Andersen & Chen, 2002; Higgins et al., 1986, Study 2). Such manipulations do not require participants to have a large self-discrepancy of one type and small self-discrepancy of the other, but rather involve making one self-discrepancy more accessible at a particular time by, for example, requiring individuals to write descriptions of how they (or another) would ideally like, hope, or wish them to be (ideal self-guide priming), or how they (or another) believe they should or ought or believe it is their duty or responsibility to be (ought self-guide priming) (e.g., Higgins et al., 1985; Strauman & Higgins, 1987).

Assessing AI and AO self-discrepancies

A further issue raised by Ozgul et al. (2003) is the method of assessing self-discrepancies. Because the model specifies that ideal and ought self-guides, whether they be those from the individual's own perspective or that of a significant other, are personally relevant and important to the individual, Higgins (1987) argued that it is important to assess them idiographically. In contrast, the provision of a checklist of attributes may artificially prime attributes that are not personally relevant. The Selves Questionnaire (SQ; Higgins et al., 1985) asks participants to spontaneously generate up to 10 attributes that describe themselves as they actually are [actual self], as they would ideally like to be [ideal self], and as they should or ought to be [ought self]. They also rate the extent to which they actually, would like to, or ought to possess each attribute (on a scale of 1 to 4). AI and AO discrepancies are calculated by identifying attributes on the appropriate sections of the questionnaire that represent synonymous matches, synonymous mismatches, antonymous mismatches, and nonmatches. Synonymous matches occur when an actual-self attribute and an ideal or ought attribute are synonyms and differ by no more than 2 scale points on the extent ratings. Synonymous mismatches are synonyms that differ by more than 2 scale extent points. Antonymous mismatches occur when an attribute on one section is an antonym of one on the other section. Finally, nonmatches are attributes listed on one section that

are unrelated to the attributes on the other section. Only synonymous matches, synonymous mismatches, and antonymous mismatches are used to calculate of self-discrepancies. Non-matches are excluded because they are not structurally connected to the appropriate self-guide. This comparison of the attributes listed on the different sections of the SQ is time-consuming, as Tangney et al. (1998) noted.

As a result, both Tangney et al. (1998) and Ozgul et al. (2003) examined the relative utilities of the SQ and an adjective rating list, comprising 60 experimenter-provided attributes. Participants indicated the extent to which each attribute described them as they actually are, ideally would like to be, and ought to be from each of their own and their parents perspective. Self-discrepancies are assessed by taking the sum of all differences in extent ratings across the relevant self-aspects. Tangney et al. found correlations of between 0.67 and 0.80 between assessments, concluding that this raises “concerns about the degree to which these different types of self-discrepancies tap distinct constructs” (p. 265).

A different conclusion was reached by Ozgul et al. (2003). They found correlations of between 0.59 and 0.81. However, rather than concluding that AI and AO self-discrepancies are not distinct psychological constructs, they asserted that the “high correlations between the self-discrepancy scores within each instrument raise serious doubts about the utility of these instruments in being able to discriminate between the various self-domains and the discrepancies between them” (p. 60).

As we argued above, correlations of these magnitudes are not surprising when the same elements of the self-system are used to compute the scores and we would be concerned if these measures were not correlated. Thus, we suggest that these measures are likely assessing distinct, but related, concepts. This conclusion that assessments using different measures are correlated does nothing to resolve any debate about which has greater utility when measuring self-discrepancies.

Construct validity is best established by comparing the “new” measures with established measures. This was the strategy used by Moretti and Higgins (1990) in assessing the relative value of the SQ idiographic measure versus a nomothetic measure of discrepancy. Arguing that low self-esteem is analogous to an AI self-discrepancy, they found that SQ-assessed AI self-discrepancies were correlated with self-esteem inventory scores, whereas SQ-assessed AO self-discrepancies were not, confirming the construct validity of the SQ measure. More importantly, the relationship between SQ-assessed AI self-discrepancies and self-esteem remained significant even when the extent of positivity of actual self descriptions was statistically controlled.

However, the relationship between the nomothetic discrepancy measure and self-esteem was diminished to a non-significant level once actual-self positivity was controlled.

Like Higgins (1987) and Moretti and Higgins (1990), we argue that it is important to measure self-discrepancies idiographically to ensure that they are meaningful and important to the individual. Of course, this does not mean that one has to use the SQ. Other idiographic measures have been successfully developed and used to measure self-discrepancies. Boldero and Francis (2000), in Study 5, successfully used a different idiographic technique to assess AI and AO self-discrepancies in the student domain. Participants first typed a description of themselves as they actually were as a student. They then read this description and indicated the extent to which it deviated from the student they ideally would like to be and the student they believe they ought to be. These ratings were then used as the measures of AI and AO student self-discrepancies. Thus, comparing the utility of idiographic and nomothetic measures of self-discrepancies clearly supports the use of those that are idiographic.

Francis and Boldero (under review) used the ‘self-lines’ technique, in which participants not only list self-guide attributes but also their antonyms, and indicate the position of their actual self on the continuum between these two poles. Self-discrepancy magnitudes are calculated using the distance along the line between the positions of the actual self and the self-guide, for each attribute, resulting in a score with a ‘true’ zero. This measure has been used successfully by Boldero, Williams, and Robins (2003) to measure not only AI and AO self-discrepancies, but also the ideal and ought relational discrepancies that form the basis of theorizing in relational discrepancy theory (Robins & Boldero, 2003).

Despite their method of testing the unique relationships between self-discrepancies and negative emotions in regression analyses, Ozgul et al. (2003) report that AI (other) and AO (other) self-discrepancies were related to shame and anxiety, respectively, when they were assessed using Tangney et al.’s (1998) adjective checklist. These discriminant relationships are those predicted by SDT. Given the problems inherent in nomothetic measures of self-discrepancies, these results are encouraging since they suggest these relationships are robust. They also suggest that the appropriate evaluation of different idiographic methods of self-discrepancy assessment is likely to be a fruitful research endeavour.

Interpreting null results

The final issue concerns the problem of interpreting null results – null findings can mean either that the

study did not or was unable to appropriately test what it intended to, or that the hypotheses are incorrect. The latter conclusion should only be reached when an appropriate experimental design has been used to test the model, there is sufficient power to detect the presumed effects, an appropriate significance level has been chosen to minimize the number of Type I and II errors, and there is sufficient variability in the variables of interest.

The issue of variability is particularly relevant when considering relationships between self-discrepancies and emotion. According to SDT, individuals possess a number of self-discrepancies. Larger discrepancies result in more intense emotions of the appropriate type. As a result, to appropriately test the specificity of discrepancy-emotion relationships one needs to adequately sample the range of scores across a target discrepancy construct. For example, Boldero and Francis' (2000) in their first study examined the global self-discrepancies (i.e., those in all aspects of "self") that were assessed in a University classroom. They found that the majority of participants reported no discernible AI or AO self-discrepancies. Rather, they reported varying degrees of congruence between their actual selves and self-guides. This failure to find adequate variability in self-discrepancy magnitudes might account for the failure of Tangney et al. (1998) and Ozgul et al. (2003) to find self-discrepancy-emotion relationships could reflect the effect of restricted self-discrepancy magnitudes.¹

In addition, as noted above, SDT does not state that self-discrepancies should result in the predicted emotional outcomes in every case. Rather, a number of factors that alter the self-regulatory significance of the particular self-guide moderate these relationships.

Self-discrepancies not only differ in magnitude but also in cognitive accessibility, determined by factors such as the frequency and recency of activation (Higgins, 1987). In addition, Higgins (1989) noted that the applicability and relevance of a particular self-discrepancy in a current context, and the importance of it to the individual also determine self-regulatory significance. The accessibility, applicability, relevance, and importance of self-discrepancies should, therefore, moderate their relationships with emotional or behavioral outcomes.

Higgins et al. (1986) examined the impact of accessibility in their second study. They found priming specific discrepancies in participants who possessed relatively large AI and AO discrepancies resulted in an increase in the magnitude of the

predicted emotions, but not an increase of the emotion associated with the non-primed discrepancy. In addition, participants with relatively small self-discrepancies did not report any increase in emotion following priming. Similarly, Higgins, Shah, and Friedman (1997) directly assessed self-guide accessibility using response latencies when listing self-guide attributes. They found that the frequency with which dejection- and agitation-related emotions were experienced during the previous week (Studies 1 & 2) and current emotional intensities (Studies 3 & 4) were predicted by the interaction of relevant self-guide accessibility and self-discrepancy magnitude.

Higgins et al. (1985) examined the role of the importance of the self-guide. Participants in that study indicated the importance of the standpoints on the self of the participants themselves or that of their mother or father. Self-discrepancies, calculated using the most important standpoint, were uniquely related to emotion. Likewise, Klein and Higgins (1984, cited in Higgins, 1987) found that emotions reported in response to an imagined performance which was discrepant from a self-guide were more intense when the self-guide was more relevant than when it was less relevant. Thus, it is possible that the failure of researchers, such as Bruch, Rivett, and Laurenti (2000) and Weilage and Hope (1999), to find discriminant relationships between AO (other) self-discrepancies and agitation-related emotion reflects the moderating effect of self-guide importance. That is, these self-guides provided by others may have been low in self-regulatory significance.

Arguing that the global self-discrepancies they assessed in their first study may not have been particularly relevant in the location in which they were assessed (i.e., in a University classroom), Boldero and Francis (2000, Studies 2, 3, and 4) specifically examined the impact of the relevance of testing location and importance of the discrepancy to the individual on self-discrepancy-emotion relations, providing support for the operation of these moderators. As discussed above, they found that when a location was highly relevant to the particular type of discrepancy (i.e., academic discrepancies assessed in a University class room), unique relationships were found between AI self-discrepancies and dejection-related emotions and between AO self-discrepancies and agitation-related emotions. However, when the location was not as relevant the relationships were more complex. AI self-discrepancies were still uniquely related to dejection-related emotions whereas the relationship between AO self-discrepancies and agitation-related emotions was moderated by the importance of the ought self-guide.

¹Neither Tangney et al. (1998) nor Ozgul et al. (2003) report the means and standard deviations of any of the self-discrepancies assessed in their study.

Gramzow, Sedikides, Panter, and Insko (2000) included self-discrepancies in their study of the relationships of a number of self-factors to emotional distress. Using a partial correlational approach, they found that AI discrepancies were uniquely related to both emotions while AO discrepancies were related neither. They did, however, find that items on the California Adult Q-sort (Block, 1961/1978) reflecting social anxiety, submissiveness, and a tendency toward over-control were uniquely related to AI self-discrepancies, whereas items reflecting hostility and spitefulness toward others were uniquely related to AO self-discrepancies. They concluded "although we did not support the notion that the actual:ideal and actual:ought subscales of the SQ related differentially to agitation and dejection, we did find them to be related to different self-reported patterns of (poor) social relations" (p. 17).

Boldero and Francis (1999) speculated that Gramzow et al.'s (2000) results may reflect the operation of discrepancy-relevance. They reasoned that, because Gramzow et al.'s measures were obtained in five one-hour sessions over a five-week period, for a large proportion of participants, self-discrepancies and emotions were assessed in different testing sessions. They argued that self-discrepancies assessed on one occasion are unlikely to be related to emotions measured on another occasion if participants report self-discrepancies that are relevant to the specific testing context. This follows from the finding that domain-specific self-discrepancies are related to emotional intensities currently experienced (see Boldero & Francis, 2000, Studies 2, 3, 4, & 5). However, this explanation is entirely speculative.

A final issue that bears on the interpretation of null findings is that of the methods used to assess self-discrepancies and emotions. There has been considerable debate about the most appropriate methods of assessing depression and anxiety (see, for example, Gotlieb & Crane, 1989). In addition, it is likely that the different methods developed to assess self-discrepancies also provide estimates that are contaminated by error variance. This error will produce correlations that are artificially low because they are attenuated by the unreliability of the measures. This is demonstrated by the comparison of Ozgul et al.'s (2003) and Tangney et al.'s (1998) results. In these studies, the pattern of correlations between the two self-discrepancy measures, namely the Selves Questionnaire and the Adjective Rating List, were substantially different, likely accounting for the different pattern of correlations obtained with emotions in the two studies.

These issues demonstrate that there is a clear need to investigate the factors that are proposed to influence the self-regulatory significance of

self-discrepancies. However, alongside this research, there is also a need for research that examines the utility of different methods of assessing not only emotions but also self-discrepancies.

Summary and conclusions

The present paper identified several critical methodological issues related to research on SDT. We have argued that interpreting a non-significant correlation as lack of support for the model fails to account for two basic premises of the theory, namely, that these specific relationships are nested within general psychological processes, and that they are moderated by factors that influence the self-regulatory significance of a self-discrepancy. We also contend that those who argue that the high correlation between AI and AO self-discrepancy is evidence that they are not functionally distinct constructs, misunderstand the meaning of such correlations. Finally, we point out that a large body of research has demonstrated these discriminant relationships (see Boldero et al., under review), and studies should now turn to examining the conditions under which these relationships do or do not occur, rather than merely attempting to replicate basic relationships through limited methodological procedures. Thus, we encourage those colleagues who are interested in the links between self-discrepancies and negative emotions to continue to the search for the answer to Zanna and Fazio's (1982) second order question of "when is there an effect?" rather than attempting to replicate already established findings.

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