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ELABORATION VERSUS FRAGMENTATION: DISTINGUISHING BETWEEN SELF-COMPLEXITY AND SELF-CONCEPT DIFFERENTIATION

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While theorists have argued that self-concept differentiation (SCD) (i.e., the lack of interrelatedness of roles) is an important precursor to mental health problems (Donahue et al., 1993), self-complexity (i.e., having more self-aspects and maintaining greater distinction among self-aspects) is seen as a cognitive buffer against the deleterious effects of stress (Linville, 1985, 1987). Using a sample of 260 college students, the current study was designed to empirically validate the distinction between these seemingly similar constructs. As predicted, SCD and self-complexity demonstrated opposite relationships with indices of psychological distress. Whereas SCD was positively related to depression, loneliness, and dissociation, and negatively related to self-esteem, the opposite pattern of results was observed with respect to self-complexity. Further, SCD, but not self-complexity, was associated with retrospective reports of parental bonding. Finally, results indicated that each of the two aspects of selfhood contributed unique variance to the prediction of psychological maladjustment. Thus, the current study provides quantitative justification for treating SCD and self-complexity as theoretically distinct aspects of self-concept structure.

From almost the inception of the field, psychological theorists have recognized the central role of the self to the effective negotiation of one's environment (Freud, 1923/1961; James, 1890; Lewin, 1935). Likewise, early theorists such as William James posited that the self is not a unified

structure, but rather that it has many different components that vary as a function of the social roles one inhabits. Although possessing a number of bases for self-definition was seen as normative, it also has long been assumed that a "divided self," that is a self concept which lacks integration, is an important precursor to the development of psychological problems (Block, 1961; James 1902; Rogers, 1959). These ideas have found their way into modern psychology in that many social psychologists view the self as a multifaceted cognitive structure (Kihlstrom & Cantor, 1984; Markus & Nurius, 1986; Markus & Wurf, 1987; Strauman & Higgins, 1988). The idea of a fragmented or divided self also has been subject to empirical scrutiny under the heading of *self-concept differentiation* (SCD; Bigler, Neimeyer, & Brown, 2001; Diehl, Hastings, & Stanton, 2001; Donahue, Robbins, Roberts, & John, 1993; Hart, Field, Garfinkle, & Singer, 1997; Sheldon, Ryan, Rawsthorne, & Ilardi, 1997). Consistent with earlier views, cross-sectional and longitudinal studies have begun to empirically validate the positive relationship between self-concept differentiation (SCD; i.e., the lack of interrelatedness of roles) and indices of maladjustment such as depression, anxiety, and physical symptoms (Bigler et al., 2001; Diehl et al., 2001; Donahue et al., 1993; Hart et al., 1997; Sheldon et al., 1997). On the other hand, *self-complexity*, which is defined as "having more self-aspects and maintaining greater distinction among self-aspects" (Linville, 1987, p.664), is thought to serve as a buffer against the detrimental effects of stress (Linville, 1985). Thus, these seemingly closely related constructs have both theoretically and empirically opposite ties to symptoms. As Campbell and colleagues (Campbell, Chew, & Scratchely, 1991, p. 479) aptly summarized the issue, "Distinguishing an uncertain self-concept from a complex one is difficult because the point at which a clear, confident self-schema shades into one that is 'simplistic' is conceptually ambiguous—an ambiguity that is reflected in the fact that highly similar measures have been interpreted as indicating either uncertainty or complexity."

Although investigators have conceptually distinguished fragmentation from complexity (Campbell et al., 1991; Diehl et al., 2001; Donahue et al., 1993), studies have yet to directly examine the relationship between these aspects of selfhood and related constructs within the same sample. Recently, Gramzow and colleagues (Gramzow, Sedikides, Panter, & Insko, 2000) conducted a study examining the factor structure of several regulatory and structural aspects of the self as well as the ability of these constructs to independently predict emotional distress. This study represents a crucial step in clarifying the otherwise diverse and confusing literature on the self (Byrne, 1996). As Gramzow et al. (2000) note, "a researcher wishing to examine the self and emotional distress stirs up a cloudy pool of theoretical constructs" (p. 188). Unfortunately,

Gramzow et al. examined self-complexity, but not SCD. However, the current study was designed to establish the discriminant validity of SCD and self-complexity. It was hypothesized that not only would self-complexity and SCD differentiation show opposite relationships with indices of adjustment such as self-esteem, depression, loneliness, and dissociation, but with early childhood attachment as well. Further, in view of research suggesting that these two constructs demonstrate different patterns of relationships with adjustment, we expected them to be negatively correlated with each other. We will begin with a brief description of SCD and self-complexity. We also will summarize theoretical and empirical links with other constructs. Finally, we present a study that lends support to the discriminant validity of these two aspects of selfhood and their measures.

SELF-COMPLEXITY AND SELF-CONCEPT DIFFERENTIATION

When Linville first introduced the concept of self-complexity, she conceptualized this construct as a social cognitive buffer against the deleterious effects of stress (Linville, 1985). The logic for this stress-buffering effect was similar to that of spreading activation models. That is, if one assumes that stressful situations stimulate negative self-appraisals, having a number of relatively distinct self-aspects may prevent the activation from spreading to other segments of one's mental self-representation. For instance, if a woman has recently experienced a bitter disappointment in her job, she may begin to question her competency in that area. However, if this person has a complex self-representation, the negative cognitions activated by the job stress will be less likely to "contaminate" representations of herself in other roles (such as the role of parent, friend, lover, etc). Because activation of negative cognitions is contained to just one or a few self-aspects, persons high in self-complexity are thought to experience less extreme affective reactions to specific negative events. Only nodes associated with certain aspects of the self are triggered in response to certain stressors. Over time, such persons are less likely to suffer from depression and stress-related physical problems. Support for this contention comes from both experimental and prospective studies demonstrating that persons low in self-complexity are more likely to suffer negative affect and physical health problems following stressful events as compared to persons high in self-complexity (Linville, 1985, 1987). Further, at least with respect to "negative self-complexity," research suggests that low complexity also is associated with the chronicity of depression and with poorer adjustment following a traumatic event (Morgan & Janoff-Bulman, 1994; Woolfolk et al., 1999).

Donahue et al. (1993) have asserted that the concept of cognitive complexity really embodies two different structural components of self: (1) the number of self-aspects that are personally meaningful to the individual, and (2) the overlap (or lack thereof) among these self-aspects. The former component may represent more of a cognitive flexibility in thinking about oneself, whereas the latter represents SCD. Consistent with Donahue's distinction, there is a subtle, yet important difference in the way that the two constructs are measured. Specifically, SCD is frequently measured by examining the amount of deviation in one's assessments of his or her own personality across a number of different *predefined* roles. In contrast, Linville's measure of self-complexity requires one to independently generate the roles that are personally meaningful to himself or herself when provided with a set of personality descriptors. An index of self-complexity is then calculated that reflects both the number and distinctiveness of roles people utilize to mentally represent themselves. This distinction between self-generated or artificially imposed roles is potentially important in that it implies that these measures may be tapping two different underlying dimensions of self-structure: flexibility (versus rigidity) and integration (versus fragmentation) (Diehl et al., 2001; Donahue et al., 1993). These two dimensions theoretically could be independent of each other in that a person could possess one in the absence of the other or alternatively both simultaneously.

EMOTIONAL AND PSYCHOSOCIAL ADJUSTMENT

We attempted to provide validity for the distinction between self-complexity and SCD by examining the pattern of relationships these aspects of self-hood share with various indices of adjustment, including self-esteem, depression, loneliness, and dissociation. Although some of these relationships have been explored in previous research, no study to our knowledge has examined both self-complexity and SCD within the same sample. One exception is a study by Campbell et al. (1991, footnote 1) that examined the relationship between these two variables and self-esteem. Their results indicated that whereas self-esteem was positively related to self-complexity, self-esteem was negatively related to SCD. Thus, the results of this study lend preliminary support to the claim that self-complexity and SCD represent different aspects of self-concept structure. Unfortunately, these authors did not directly examine the relationship that self-complexity and SCD possess with each other.

One of the most intriguing questions that has captured the interests of self-concept theorists is how various aspects of self-concept structure relate to the experience of psychological distress. As stated previously,

SCD and self-complexity possess both theoretically and empirically op-posite relationships with depression. That is, while persons with highly differentiated self-concepts are more likely to experience depression (Donahue et al., 1993; Hart et al., 1997; Sheldon et al., 1997), self-com-plexity has been found to moderate the relationship between stress and depression (Linville, 1985, 1987). It is important to note that although one might easily see how self-complexity and depression could be in-versely related to each other through their differential pattern of rela-tionships with self-esteem, Linville did not posit a direct link between self-complexity and depression. Nor have studies, with a few notable ex-ceptions, consistently identified a relationship between these two vari-ables. One exception is a study conducted by Jordan and Cole (1996) that found a significant positive relationship between depression and self-complexity among grade school children. However, their measure of complexity was more similar to that of SCD in that participants made self-ratings across a number of *predefined* as opposed to *self-generated* roles. A second exception is Woolfolk et al.'s (1999) study that found that negative self-complexity (i.e., the degree of complexity of the negative components of one's self-schema) was associated with higher levels of depression among psychiatric patients. Further, there was a trend for positive self-complexity to be associated with lower levels of depres-sion. Based on these observations, we hypothesized that SCD would be associated with higher levels of depression, whereas there would be no significant relationship or a weak negative relationship between self-complexity and depression.

One unique component of our study is that we have included vari-ables, such as loneliness and dissociation, that one would theoretically predict are related to both self-complexity and SCD, but have not to date been subject to empirical scrutiny. It stands to reason that if one lacks a stable view of self, then one's mental representations of others might be equally volatile. This speculation is in line with social cognitive research that suggests that the constructs one uses to view the self are the same as those used to view others (Lewicki, 1983; Lewicki, 1984; Markus, Smith, & Moreland, 1985). This hypothesis is also consistent with clinical con-ceptualizations of borderline personality disorder. Unstable, poorly in-tegrated mental representations of both self and others are earmarks of this disorder (DSM-IV, American Psychiatric Association, 1994). These poorly integrated mental representations could lead to alienation and feelings of loneliness. Thus, we hypothesize that persons high in SCD will be more likely to report feelings of loneliness than their low differ-entiation counterparts. Conversely, we hypothesize that persons with a complex self-concept will be less likely to experience loneliness. Re-search on the construct of *cognitive complexity*, which is defined as "the

capacity to construe social behavior in a multidimensional way" (Bieri et al., 1966, p. 185), suggests that complex individuals are more likely to experience higher levels of marital adjustment as indicated by superior communication skills and greater perceptual accuracy of high conflict scenarios (Denton, Burleson, & Sprenkle, 1995).

Another variable we explored in relation to self-concept structure was that of dissociation. The DSM-IV defines dissociative experiences as "a disruption in the usually integrated functions of consciousness, memory, identity, or perception of the environment (American Psychiatric Association, 1994, p. 477)." Given that inherent in this definition is identity disruption, it stands to reason that this construct would be closely related to fragmentation in one's self-representation. Thus, it was predicted that dissociative experiences would be positively related to SCD. No specific hypotheses were made regarding the relationship between dissociative experiences and self-complexity.

EARLY PARENTAL BONDING

Attachment theorists such as Ainsworth, Blehar, Waters, and Wall (1978) have pointed out the importance of a secure attachment to one's primary caregiver in the early emergence of the self. Many emphasize the critical role of caregiver responsiveness in childhood attachment (Schaeffer & Emerson, 1964). According to Bowlby (1977), there are two critical dimensions of parental behavior involved in healthy personality development. One is the expression of affection and warmth, provided in caregiver responsiveness to children's signals of need. Another, however, is the encouragement of environmental exploration from a base of emotional security, developing autonomy, and mastery. These factors are thought to play a key role in the development and shaping of one's internal representations of the self and others, as hypothesized by attachment and object relations theorists (Bowlby, 1973; Collins & Read, 1990).

Other studies also have demonstrated reliable and strong associations between the parent-child relationship, as retrospectively reported by adults, and various types of psychopathology. Many of those focusing on anxiety disorders emphasize the negative effects of intrusive, controlling parental overprotection, coupled with rejection in the manifestation of adult psychopathology (Cavedo & Parker, 1994). Indeed, studies examining the dimensions of parental bonding and disorders in adulthood consistently find that lower levels of paternal care and higher levels of overprotection are reported by those suffering from anxiety (Hafner, 1988; Hoekstra, Visser, & Emmelkamp, 1989) and depressive disorders (Blatt, Wein, Chevron, & Quinland, 1979; Parker, 1983; Gotlib, Mount, Cordy, & Whiffen, 1988; Perris, Maj, Perris, & Eisemann, 1985).

Consequently, overprotection and lower warmth in parent-child relationships appear to be risk factors for the development of nonspecific psychopathology in adulthood.

Early childhood interactions with caregivers that are characterized by severe parental abuse or neglect also are thought to lead to difficulties on the part of the child in developing a stable, positive sense of self (Cole & Putnam, 1992; Sable, 1997). Indeed, disorders characterized by an extreme disruption in the manner in which the self is experienced, such as borderline personality disorder and dissociative identity disorder, have consistently been found to be related to very high rates of trauma in childhood (Cole & Putnam, 1992; Gleaves, 1996; Ross, 1997; Sable, 1997). For example, retrospective reports of persons with dissociative identity disorder indicate that up to 97% experienced severe childhood physical abuse, with two-thirds reporting childhood sexual abuse perpetrated by a family member (Putnam, Guroff, Silberman, Barban, & Post, 1986). These findings suggest that poor parental bonding in childhood would be associated with a fragmented sense of self (i.e., SCD) later in life. The potential for early dysfunctional family environments to explain the development of self-complexity, however, is less promising. For example, a recent study by Erbes and Harter (1999) investigating the role of reported childhood abuse in the development of cognitive complexity for self and others found no differences in self-complexity between college-age adults with or without abuse histories. In fact, Fisher et al. (1997) argued that persons with sexual abuse histories often possess highly complex, albeit volatile and excessively negative, mental representations of self and others. Consequently, our predictions regarding the relationship between self-complexity and parental bonding remained open.

THE CURRENT STUDY

In the current study, we sought to provide further evidence for the discriminant validity of two seemingly similar, but conceptually distinct components of self-structure, self-complexity and SCD. Multiple strategies for measuring these two constructs have been reported in the literature (Jordan & Cole, 1996; Showers, 1992; Woolfolk, Novalany, Gara, Allen, & Polino, 1995). We chose to use the same techniques as did Linville (1985) and Donahue et al. (1993) in order to ensure fidelity to their original conceptualizations of these constructs. Participants also completed self-report measures of the aspects of psychological distress described above (i.e., depression, loneliness, self-esteem, and dissociative tendencies) as well as the quality of their relationships with their family of origin. We hypothesized that SCD and self-complexity would be negatively related with each other and would demonstrate differential pat-

terns of relations with distress and parental bonding. Specifically, we expected SCD to be positively associated with depression, loneliness, and dissociative tendencies and negatively associated with self-esteem. Conversely, we expected self-complexity to be negatively associated with loneliness, but positively associated with self-esteem. In keeping with previous studies on parental bonding and adult psychopathology, we also hypothesized that lower levels of caregiver warmth and higher levels of overprotection would be related to greater levels of fragmentation (i.e., SCD). In contrast, we predicted that self-complexity would be either unrelated to indices of parental bonding or related in the opposite direction as predicted for SCD.

METHOD

PARTICIPANTS

There were 260 undergraduates (192 female, 68 male) from a private, Midwestern university who were enrolled in introductory psychology courses and participated in the current study for course credit. The mean age of the sample was 19 years (SD = 1.07). The racial composition was 91% Caucasian, 3% African American, and 6% other racial identities.

PROCEDURES

Participants were given a packet of questionnaires containing measures of loneliness, self-esteem, parental bonding, dissociative tendencies, and depression. In order to assess SCD, participants completed measures of their personality across five roles: student, friend, romantic partner, employee, and daughter/son. Participants then completed the same q-sort task developed by Linville in her work on self-complexity (1985). Prior to completion of this task, they were read Linville's standardized set of instructions. Finally, participants were thanked and debriefed as to the rationale behind the study.

MEASURES

Self-Concept Differentiation. Self-concept differentiation (SCD) was measured using the procedure designed by Donahue et al. (1993). Participants made ratings of their standing on the Big-Five personality traits across the five roles listed above. The adjectives were the 40 items taken from Sheldon et al. (1997). These authors paired down Donahue et al.'s original list of 60 in order to reduce participants' fatigue. The adjectives were listed on a sepa-

rate page for each role. The ordering of presentation of the role questionnaire was counterbalanced using a Latin square design.

An index of SCD was calculated using the method originally developed by Block (1961). We first constructed individual data files for each subject. The data were restructured such that the personality items for each role rather than participants were treated as the unit of analysis. We then factor-analyzed each participant's personality ratings across the five roles. The first principal component was extracted and the remaining variance was used as our measure of SCD. Hence, this index represents the amount of variance that is not shared across the five roles.

Self-Complexity. Self-complexity was assessed using the same q-sort task developed by Linville (1985). However, rather than using her original list of 33 trait descriptors, we used the same 40 traits from the self-concept differentiation task. This modification was made in order to maximize the similarities between the two self-concept tasks, thereby providing a more robust test of our hypothesis that self-concept differentiation and self-complexity represent two distinct constructs.

Participants were given a stack of 40 index cards, each containing a single trait adjective and a number corresponding to that trait. Participants also were given 10 blank index cards and two recording sheets. The recording sheets were comprised of five columns each. Participants were instructed "to sort the traits into groups of traits on any meaningful basis-but remember to think about yourself while doing this." They were told that they could form as many or as few groupings as was meaningful to them. The blank index cards were used so that participants could write down any adjectives they wanted to use in more than one grouping. Participants were then instructed, for each grouping, to list the numbers corresponding to the adjectives in the columns of the provided recording sheet. Hence, each column contained the numbers associated with the adjectives used for a specific sort. Participants were told that it was not necessary to label their groupings, but that they could do so if they wished.

Based on participants' responses to this q-sort task, the H statistic was derived. The H statistic was developed by statisticians (Attneave, 1959; Scott, Osgood, & Peterson, 1979) and adopted by Linville as an index of self-complexity (1985, 1987). The formula for this statistic is as follows:

$$H = \log_2 n - (_i n_i \log_2 n_i)/n$$

In this equation, n represents the number of possible adjectives that the participant could have selected (in this case 40), and ni is equal to the number of adjectives that appear in a particular group combination (e.g., the number of adjectives that appear in only one subself, those that appear in two subselves, etc.). Conceptually, the H statistic represents the

number and distinctiveness of roles a person utilizes to mentally represent himself.

Parental Bonding. The Parental Bonding Inventory (PBI) (Parker, Tupling, & Brown, 1979) is a 25-item instrument designed to assess adults' retrospective perceptions of their bonds with their parents. Participants completed two versions of this inventory: one in which they were to rate their relationship with their mother and one in which they were to rate their relationship with their father. This measure is comprised of two subscales: parental overprotection (i.e., the extent to which the parent was intrusive versus fostered independence) and parental care (i.e., the extent to which the parent was responsive versus cold and distant). The Parental Bonding Inventory demonstrates good convergent validity with other measures of parental bonding such as the Egna Minnen Betraffande Uppfostran (EMBU) (Arrindell, Gerlsma, Vandereycken, Hageman, & Daeseleire, 1998). In addition, Parker (1981, 1989) has shown that participants' responses on the PBI are significantly correlated with the reports of their parents and siblings in both clinical and non-clinical populations. The PBI also has been shown to be uninfluenced by current depressed mood (Gerlsma, Das, & Emmelkamp, 1993; Gotlib, Mount, Cordy, & Whiffen, 1988). Coefficient αs for our sample ranged from .81 to .93 (father overprotection and father care, respectively).

Depression. The Center for Epidemiologic Studies Depression Scale (CES-D) (Radloff, 1977) was used to assess depression. The CES-D is a 20-item scale designed to reflect six common components of depression: depressed mood, feelings of guilt and worthlessness, feelings of helplessness and hopelessness, psychomotor retardation, loss of appetite, and sleep disturbance. This measure is widely used in research on depression in normal populations. The CES-D has good demonstrated internal consistency and is highly correlated with other popular self-report measures of depression including the Beck Depression Inventory (Wilcox, Field, Prodromidis, & Scafidi, 1998) and the Self-Rating Depression Scale (Liu, Tang, Chen, & Hu, 1995). The coefficient α for our sample was .91.

Self-Esteem. The Rosenberg Self-Esteem Scale (SES) (Rosenberg, 1965) is a 10-item measure designed to assess participants' global self-esteem. Research indicates that this measure has strong internal consistency and test-retest reliability. Additionally, this measure has been found to be positively correlated with theoretically relevant variables such as self-confidence and popularity (Lorr & Wunderlich, 1986) and negatively correlated with depression and anxiety (Fleming & Courtney, 1984). The SES also possesses good convergent validity with other measures of self-esteem (Savin-Williams & Jaquish, 1981). Coefficient α for our sample was .90.

Loneliness. The third version of the UCLA Loneliness Scale (Russell &

TABLE 1. Zero–Order Correlations between Self–Concept Differentiation, Self–Complexity, Adjustment, and Early Family Environment

	1	2	3	4	5	6	7	8	9	10
1. SCD	—									
2. S–COM	–.26**	—								
3. DEP	.26**	–.19**	—							
4. DISS	.29**	–.26**	.44**	—						
5. S–E	–.34**	.21**	–.60**	–.43**	—					
6. LONE	.33**	–.25**	.58**	.42**	–.61**	—				
7. M–CARE	–.18**	.08	–.11	–.24**	.23**	–.23**	—			
8. M–OP	.20**	–.10	.16**	.28**	–.30**	.25**	–.36**	—		
9. D–CARE	–.22**	.12	–.27**	–.26**	.28**	–.28**	.24**	–.12	—	
10. D–OP	.04	–.01	.16**	.26**	–.21**	.25**	–.11	.40**	–.39**	—

Note. SCD = self–concept differentiation; S–COM = self–complexity; DEP = depression; DISS = dissociation; S–E = self–esteem; LONE = loneliness; M–CARE = mom's care; M–OP = mom's overprotection; D–CARE = dad's care; D–OP = dad's overprotection. *Correlation is significant at the 0.05 level (2–tailed). **Correlation is significant at the 0.01 level (2–tailed).

Cutrona, 1988) was used to measure loneliness in the current study. This is a 20-item measure with good test-retest reliability and internal consistency. The UCLA has been found to be related to measures of depression and anxiety as well as to a number of other theoretically relevant variables such as social behavior (Jones, Freemon, & Goswick, 1981), attributional style (Anderson, 1983), and immune system functioning (Kielcolt-Glaser et al., 1984). Coefficient α for our sample was .94.

Dissociation. The Questionnaire of Experiences of Dissociation (QED) (Riley, 1988) is a 26-item measure of dissociation (i.e., of one's inability to adequately integrate thoughts, feelings, and behaviors into conscious awareness). The QED has good demonstrated convergent validity with the Dissociative Experiences Scale (Gleaves, Eberenz, Warner, & Fine, 1995). Additionally, research indicates that scores on the QED are able discriminate between people with dissociative disorders and either non-clinical samples or persons with eating disorders or substance abuse disorders (Dunn, Ryan, Paolo, & Miller, 1993; Gleaves, et al., 1995). Coefficient α for our sample was .83.

RESULTS

As one can see from Table 1, the zero-order correlations indicate that SCD was associated with higher levels of depression, loneliness, and

TABLE 2. Stepwise Multiple Regression Analyses Predicting Self–Concept
Differentiation from Indices of Current Adjustment or Early Childhood Environment

Variable	β	t	Sig.	R^2	Sig.
Current Adjustment					
S–E	−.18	−2.38	.02	.16	.00
LONE	.17	2.20	.03		
DISS	.14	2.01	.04		
Early Childhood Environment					
M–OP	.24	3.69	.00	.10	.00
D–CARE	−.26	−4.08	.00		
D–OP	−.16	−2.28	.02		

Note. S–E = self–esteem; LONE = loneliness; DISS = dissociation; M–OP = mom's overprotection;
D–CARE = dad's care; D–OP = dad's overprotection.

dissociation, and with lower levels of self-esteem. Conversely, self-complexity was associated with lower levels of depression, loneliness, and dissociation, and with higher levels of self-esteem. Further, while SCD was associated with a number of indices of negative childhood environment, self-complexity was not significantly related to any of the indices of parental bonding. Finally, SCD and self-complexity were negatively correlated with each other.

In order to determine the most important predictors of both SCD and self-complexity, three stepwise multiple regression analyses were conducted. For the first two equations, SCD was the criterion, and either the indices of current adjustment or parental bonding served as the predictors and were entered in a single block. For the third equation, self-complexity was the criterion, and the indices of current adjustment served as the predictors and were the entered in a single block.

As can be seen in Table 2, of the adjustment variables, loneliness, dissociative tendencies, and low self-esteem were the most important predictors of SCD. Loneliness and dissociative tendencies were also the primary predictors of self-complexity, but the effect was in the opposite direction (see Table 3). That is, persons with lower levels of self-complexity were more likely to experience loneliness and dissociation. Finally, the results depicted in Table 2 indicate that the parental bonding index of maternal overprotectiveness was predictive in the positive direction whereas paternal overprotectiveness and care were predictive in the negative direction of SCD. Given that no parental bonding indices were correlated with self-complexity, further analyses regarding the predictive utility of caregiver attachment to self-complexity were not conducted.

TABLE 3. Stepwise Multiple Regression Analysis Predicting Self–Complexity from Indices of Current Adjustment

Variable	β	t	Sig.	R^2	Sig.
LONE	−.19	−2.24	.03	.10	.00
DISS	−.18	−2.15	.03		

Note. LONE = loneliness; DISS = dissociation.

One remaining question is whether self-complexity and SCD each contribute unique variance to the prediction of symptoms beyond the other aspect of selfhood. Assuming this is the case, such finding would lend further support for treating self-complexity and SCD as separate constructs. In order to address this question, we constructed a series of four hierarchical multiple regression equations. In the first two equations, loneliness was used as the criterion, and either self-complexity or SCD was entered in the first step. The other component of self-concept structure was then entered on the second step. The significance of the $R^2\Delta$ value of the second step was used as an indication of the unique contribution of self-complexity or SCD to the prediction of loneliness. Two other equations of the same form were constructed, but dissociation rather than loneliness was used as the criterion variable. We chose only to conduct analyses on loneliness and dissociation rather than all of the symptoms measured in this study because these were the only two symptoms that were consistently related to both self-complexity and SCD. The results of these analyses are summarized in Tables 4 and 5.

As one can see from Table 4, the $R^2\Delta$ values of the second step for both regression equations predicting loneliness from the two aspects of self-concept are statistically significant. This suggests that self-complexity and SCD do, in fact, make independent contributions to the prediction of loneliness. Likewise, as can be found in Table 5, the $R^2\Delta$ values of the second step for both regression equations predicting dissociation from the two aspects of self-concept are also statistically significant. Thus, self-complexity and SCD also make independent contributions to the prediction of dissociation. Hence, the incremental validity of these two concepts appears to be supported by these data.

DISCUSSION

Psychological theorists have long been interested in the issue of how people organize information about the self, and in turn how these organizational structures relate to the experience of psychological distress

TABLE 4. Incremental Validity of Self–Complexity or Self–Concept Differentiation in the Prediction of Loneliness

Variable	β	t	$R^2\Delta$	Sig.
Incremental Validity of Self–Complexity				
Step 1				
SCD	.42	5.88	.17	.00
Step 2				
S–COM	–.15	–2.07	.02	.04
Incremental Validity of Self–Concept Differentiation				
Step 1				
S–COM	–.24	–3.24	.06	.00
Step 2				
SCD	.38	5.23	.13	.00

Note. SCD = self–concept differentiation; S–COM = self–complexity

(Freud, 1923/1961; James, 1890; Lewin, 1935). Many have speculated that a self-concept that lacks integration among its various facets is an important precursor to mental illness. The notion of a fragmented self-concept has been advanced under several different labels, including "a divided self" (James, 1902), "an interpersonal chameleon" (Block, 1961), "an inauthentic self" (Rogers, 1959), and most recently "self-concept differentiation" (Donahue et al., 1993). Although this construct has only begun to receive empirical attention within roughly the last 10 years, preliminary results suggest that persons high in SCD are at a greater risk for a number of mental health problems including anxiety, depression, low self-esteem, and physical health problems than persons with a more unified sense of self (Bigler et al., 2001; Diehl et al., 2001; Donahue et al., 1993; Hart et al., 1997; Sheldon et al., 1997).

Another closely related aspect of self-structure that also has received a good deal of attention is self-complexity. In contrast to SCD, self-complexity is thought to be associated with positive mental health, such as higher self-esteem and less vacillation in mood states (Campbell et al., 1991; Linville, 1985). Some investigators have asserted that the reason for this apparent disparity in findings is that measures of SCD and self-complexity tap somewhat different aspects of self-concept structure (Campbell et al., 1991; Diehl et al., 2001; Donahue et al., 1993). The predominant operational definition of SCD is a lack of integration across predefined roles (Block, 1961; Donahue et al., 1993), thus implying fragmentation in self-concept structure. Alternatively, self-complexity assesses the number of self-generated roles that are personally meaningful

TABLE 5. Incremental Validity of Self–Complexity or Self–Concept Differentiation in the Prediction of Dissociation

Variable	β	t	$R^2\Delta$	Sig.
Incremental Validity of Self–Complexity				
Step 1				
SCD	.32	4.26	.10	.00
Step 2				
S–COM	−.19	−2.59	.04	.01
Incremental Validity of Self–Concept Differentiation				
Step 1				
S–COM	−.26	−3.47	.07	.00
Step 2				
SCD	.27	3.54	.07	.00

Note. SCD = self–concept differentiation; S–COM = self–complexity

in describing a person (Linville, 1985, 1987), thus implying a complexity or flexibility in self-concept structure. Although conceptual distinctions have been made between these two constructs, no studies to our knowledge have validated these distinctions by directly examining the relationship between measures of SCD and self-complexity. Further, with the exception of Campbell et al. (1991), no studies have examined their differential pattern of relationships with psychological adjustment within the same sample. The current study was designed to provide empirical support for the theoretical distinction between SCD and self-complexity by examining these patterns of relationships. This study also provides an initial look at the possible etiologies of SCD and self-complexity. In discussing the results of the current study, we will begin by providing a brief summary and explanation of these results. We will then discuss directions for future research.

THE ASSOCIATION BETWEEN SELF-COMPLEXITY AND SCD

As stated previously, no studies to date have directly examined the relationship between self-complexity and SCD. We found a negative relationship between these constructs even when using the same adjective descriptors for both sets of self-ratings to optimize the similarity in measurement between the two. Further, the correlation between self-complexity and SCD was only moderate in strength. This finding lends support for the claim that possessing a complex self-representation and possessing a highly differentiated self-representation are not identical

phenomena. Not only are they not identical phenomena, but they are, in fact, inversely related to each other. This negative relationship is hardly surprising when one considers that these seemingly similar aspects of selfhood have been shown to result in dramatically different psychological sequelae. However, it is also important to avoid the temptation to view these two aspects of self-concept structure as opposite ends of the same dimension. The correlation was *not* high enough to support such a model, nor would it be theoretically justifiable to do so (Donahue et al., 1993).

SELF-STRUCTURE AND ADJUSTMENT

We also found evidence for the discriminant validity of these two constructs through an examination of their pattern of relationships with other variables. Recall that the results indicated that SCD and self-complexity were significantly related to all four of the adjustment variables in the opposite direction from each other. Interestingly, the stepwise regression analyses indicated that when the adjustment indices were entered as a set, depression was not a significant predictor of either self-complexity or SCD. Rather, loneliness and dissociative tendencies were found to make significant independent contributions to the prediction of both constructs. These findings are somewhat surprising when one considers that the bulk of research on self-structure has been concerned with linking self-complexity and SCD to the experience of depression and self-esteem, not to dissociation or loneliness. However, as stated previously, it stands to reason that dissociative tendencies would be closely tied to the manner in which one organizes information about the self. With respect to the findings regarding loneliness, it is possible that loneliness serves as a mediator of the relationship between dysphoria and self-concept structure. That is, possessing a fragmented sense of self may contribute to feelings of alienation, which in turn result in low self-esteem and depression. Conversely, possessing a complex self-concept may enhance the quality of one's social interaction, thereby reducing the likelihood of experiencing negative self-appraisals.[1] Although this interpretation is necessarily speculative, it suggests that a

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1. In order to explore the possibility of mediation directly, a series of four regression models were calculated using either self-complexity or self-concept differentiation as the criterion. In all models, loneliness was entered in the first step. Either depression or self-esteem was entered in the second step. According to the conditions of mediation put forth by Baron and Kenny (1986), evidence for loneliness as a mediator would be obtained if the $R^2\Delta$ value of the second step was non-significant. This was the case for all four regression models.

promising area of future research would be to further examine the link between SCD, cognitive representations of others, and negative affect.

Another important question addressed in these analyses concerned to what extent each of these two constructs was able to make independent contributions to the prediction of related constructs? The results of four hierarchical multiple regression equations suggested that SCD and self-complexity each predict loneliness and dissociation while controlling for the contribution of the other. Thus, this finding represents another piece of evidence that these two aspects of self-concept are, to some extent, functionally independent from each other.

PARENTAL CAREGIVING, SELF-CONCEPT DIFFERENTIATION, AND SELF-COMPLEXITY

This study also explored the link between retrospective reports of early family environment and both SCD and self-complexity. Since Bowlby's (1973) seminal work on attachment processes in young children, volumes of literature have been written on the instrumental role of the family environment in shaping a person's understanding of himself and his social world (e.g., Ainsworth et al., 1978; Bowlby, 1977; Collins & Reed, 1990; Fonagy & Target, 1997; Hazan & Shaver, 1987; Sroufe, 1988; Zeanah & Zeanah, 1989). Likewise, it has been assumed that a childhood environment characterized by severe abuse or neglect gives rise to difficulties in integrating information about self and others as manifested by splitting or dissociative tendencies (Cole & Putnam, 1992; Gleaves, 1996; Ross, 1997; Sable, 1997). Surprisingly, however, there has been a relative dearth of research attempting to directly correlate measures of poor parental bonding and fragmented self-concept. Consistent with our predictions, SCD was associated with retrospective reports of negative aspects of the childhood environment, such as overprotection and lack of care. In fact, even after controlling for current adjustment variables of loneliness and dissociation, parental bonding accounted for an additional 10% of the variance in predicting SCD. These results are particularly noteworthy in that they are the first to our knowledge that lend empirical support to the widely held assumption that negative family environment and a poorly integrated sense of self are inextricably linked.

In terms of the etiology of self-complexity, previous studies suggest that, over time, children develop a more elaborate and complex view of the self. For example, Mullener and Laird (1971) found that as children in their sample grew older, they tended to give increasingly more variable ratings across content areas when evaluating themselves, suggesting that "with age, there was a change from relatively global to relatively

differentiated self-evaluations" (p. 235). In addition, studies by Jolley (1982) and Jolley and Mitchell (1984) support this view in finding that children's self-descriptions evolve from rather concrete to more abstract categories as they age. Interestingly, self-complexity was not tied to aspects of parental bonding examined in this study. Possibly, fragmentation in the self develops earlier, perhaps as a function of early trauma, neglect, and abuse, and continues to color interpersonal perceptions throughout life. In contrast, self-complexity may represent personally constructed elaborations of the self that develop later on in life and are less of a function of early social interactions.

DIRECTIONS FOR FUTURE RESEARCH

There are a number of ways in which the current findings could be extended in future research. First, the etiologies of these two aspects of self-concept should be explored in greater detail and preferably with the aid of longitudinal methodologies. In the current study, we examined the general nature of one's parental bonding as a precursor to SCD. Future research could attempt to extend these findings to the experience of severe interpersonal trauma, such as sexual or physical abuse. Although research has documented a relationship between abuse history and presence of psychological disorders that are characterized by poor integration of one's self-representation, such as borderline personality disorder or dissociative identity disorder (Gleaves, 1996; Ross, 1997; Sable, 1997), no studies to our knowledge have attempted to directly identify a relationship between trauma and SCD. A related question is whether interpersonal traumas that occur later in one's development would be sufficient to cause disruptions in the integrity of one's representation of self. Existing literature on self-complexity and traumatic events has to date failed to document a relationship between these two variables (Erbes & Harter, 1999). However, as the results of our study suggest, the development of SCD may be more closely tied to negative interpersonal experiences than is self-complexity. A second direction for future research is to explore the validity of the distinction between self-concept differentiation and self-complexity in conjunction with situational stress. Although theorists posit a direct link between SCD and adjustment, the link between self-complexity and adjustment is posited to be moderated by situational stress (Donahue et al., 1993; Linville, 1987). These differential patterns of associations with situational stress should be examined within the same sample.

Finally, it would be fruitful to further elucidate the theoretical distinction between self-complexity and SCD. Donahue et al. (1993) made the distinction between overlap in self-aspects versus flexibility in thinking

about the self. However, the construct of self-complexity embodies both of these ideas. In order to enhance conceptual clarity of this distinction, methodologies for isolating these two components of self-complexity need to be developed. Isolating the dimensions of flexibility and integration is particularly important in that the two may potentially interact with each other in their relationships with adjustment. Clearly, a self-concept structure characterized by both rigidity and lack of integration is likely to result in difficulties in psychological adjustment. However, one could speculate that a flexible self-concept comprised of numerous self-defined roles might be conducive to positive mental health only to the extent that there exists some level of cohesiveness across these various role identities. Conversely, a well-integrated, yet rigid self-concept may be problematic as well, particularly in the face of situational stress or if the overall valence of one's self-concept is negative. Such speculation is in line with research indicating that negative self-complexity is positively related to depression and poor adjustment following a traumatic event (Gara et al., 1993; Morgan & Janoff-Bulman, 1994; Woolfolk, Novalany, Gara, Allen, & Polino, 1995). Thus, while our study represents an advance in answering the question, "Are self-concept differentiation and self-complexity different constructs?" still more work is needed to address the question, "*How* are self-concept differentiation and self-complexity different?"

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