In this chapter, we take a social-cognitive view to answering the question “What is it about me that makes me resilient?” By doing that, we equate “me” with the cognitive self, an entity hard to define and difficult to measure or study that has nevertheless been of great interest to psychologists, who, for over a century, have suggested that it plays a central role in thought, affect, behavior, as well as resilience. The self first appeared prominently in the writings of William James (1890), who distinguished between “the self as known” (the “me”) and the “self as knower” (the “I”). This distinction between the experienced self and the experiential self exists today as well. Using the more recent terminology of social cognition, Linville and Carlston (1994) equated the “me” with the declarative knowledge we have about ourselves, and the “I” with the procedural knowledge that directs our actions, thoughts, and feelings. In this chapter, we focus on the former and, specifically, on structural features of the self-concept that play some role in resilience and well-being.

From a social-cognitive view, a resilient self has the cognitive contents, structures, or mechanisms that help one withstand external stressors without serious debilitation. This view focuses less on teleological growth or poststressor advancement, and more on here-and-now coping. Thus, the majority of the work we review here treats resilience (or well-being) as involving temperate emotions, most commonly in reaction to external stressful life events. It then sets out to determine what structural qualities of the self promote this form of resilience.

The empirical study of the self originally focused on the belief that it is a unitary construct (Allport, 1955; Rogers, 1977; Wylie, 1974, 1979). The vast literature on self-esteem is in fact predicated on the notion that people have a unitary self, and that a single dimension of esteem can measure the valence of individuals’ feelings about
their (seemingly unified) self. Whereas some psychologists (James, 1890; Kelly, 1955) and sociologists (Mead, 1934) always held a multifaceted view of the self, an empirical treatment of this multifacetedness began only in the last four decades, with multidimensional models from social cognition (Higgins, 1987; Markus, 1977), narrative psychology (Gergen & Gergen, 1983), and psychodynamic theories (Westen, 1992). Social-cognitive models in particular view the self as comprising various aspects, roles, and perspectives. Each of these multiple “selves” reflects the information we have about ourselves as we are in that particular aspect of ourselves. Consequently, individual differences may exist both in the content (and overall valence associated with the self; i.e., self-esteem: Wylie, 1974), and in the organizational features or structure of this self-knowledge. Both content and structure may play important roles in well-being and resilience.

In a review of the self-concept literature, McConnell and Strain (2007) note that most attention to date has focused on self-content rather than structure. For instance, abundant work examines self-enhancement, or individuals’ tendency to view themselves positively. For example, Brown (1998) found that people with high self-esteem tend to endorse more positive than negative traits for the self, and argued that this tendency is important for developing and maintaining greater subjective well-being in the face of stressors and negative feedback (Taylor & Brown, 1988, 1994). Supporting this idea, Taylor, Lerner, Sherman, Sage, and McDowell (2003) found that self-enhancers not only report better mental health but indeed have a better autonomic nervous system response to stress (as reflected by healthier hypothalamic–pituitary–adrenal [HPA] axis profiles), a finding that was mediated by their enhanced psychosocial resources (e.g., optimism, mastery, and extraversion). In contrast, others (e.g., Colvin & Block, 1994; Paulhus, 1998; Shedler, Mayman, & Manis, 1993) have found that self-enhancement is related to poor mental health. For instance, Colvin, Block, and Funder (1995) found greater self-enhancement to predict psychological impairment and poorer social skills.

Research on self-enhancement (as well as other self-content-related phenomena; e.g., self-verification or self-assessment) has tended to treat the self as unitary, even as the position that the self is complex and multifaceted was gaining prominence, and a separate research tradition focused on self-structure emerged.

**Cognitive Structure and Self-Structure**

The study of the structure of self-knowledge has its roots in cognitive (especially cognitive structure) models of personality that emerged in the first half of the 20th century. These included Lewin’s field theory (1935), the models of the Gestalt school, and the neurocognitive work of Hebb (1949). These earlier models were a strong influence on George Kelly’s (1955) pioneering work on the psychology of personal constructs, a comprehensive theory of individual differences in the structure of social or self-knowledge, and of the psychological implications of such individual differences. In his theory, Kelly suggested that the distinctive constructs with which a person organizes the world are significant sources of individual differences in personality, emotion, and behavior. The set of constructs—or the construct system—used by any individual is that person’s idiosyncratic theory of how the social world (or the intrapersonal world—i.e., the self) is organized. Construct systems can vary in their consistency, rigidity, and complexity—and these variations will determine how “useful” the construct system is in anticipating and responding to the world, and indeed, how resilient one is. To assess construct systems, Kelly developed the repertory grid technique, an interview method that elicits a person’s idiographic constructs by identifying similarities and differences among triads of targets (which
could be other people or aspects of the self). The theoretical notion of complexity within the personal constructs system was further elaborated by Bieri (1955; Tripodi & Bieri, 1966), who used the repertory grid technique to obtain cognitive complexity scores, and suggested that a construct system characterized by greater complexity would allow one to make better predictions of behavior (i.e., to respond more adaptively to one’s environment).

Kelly’s and Bieri’s work was rich theoretically but depended on assessment techniques that were quite cumbersome to administer and score. A novel alternative approach to the study of cognitive complexity was presented by Scott (1962, 1969), who was interested in individuals’ ability to change selectively their cognitive structure in response to environmental stimuli. Scott employed a trait-sorting task that could be scored using a variety of statistics, mostly measures of dispersion borrowed from information theory (Attneave, 1959). Scott’s approach became the dominant one used in self-complexity research, and we return to it in greater detail later.

By the 1970s, several alternative conceptualizations of cognitive complexity were available; these included, in addition to the ones reviewed earlier, others by Crocket (1965), Wyer (1964), and Zajonc (1960). A review of this literature (Streufert & Streufert, 1978) found it to be so plagued with confusing, inconsistent terminology that it was impossible to generalize one theorist’s conceptualization to another’s theory. The term complexity was being used to describe the “beholder’s” perceptual system (e.g., Kelly, 1955; Scott, 1962, 1969), as well as the “beheld” stimulus domain (e.g., Wyer, 1964; Zajonc, 1960). Moreover, the notion of complexity was used inconsistently, sometimes referring to one elemental feature of cognitive structure, differentiation (the degree to which a cognitive domain contains multiple distinct elements; e.g., Crocket, 1965), at other times to another elemental feature, integration (the degree of coherence, interrelatedness, or unity of the cognitive domain), and at yet other times to some mixture of the two (e.g., Zajonc, 1960). This led to different indices of “complexity” that rarely were empirically related.

Researchers interested in self-complexity inherited the complex (or maybe simply disorganized?) legacy of cognitive complexity research; in keeping with this legacy, they proceeded to generate multiple, mostly unrelated models that did not speak clearly to one another. For example, Anderson (1992) studied complexity variables, indices of differentiation and centrality based on Zajonc’s (1960) cognitive complexity work. Using Zajonc’s task, elementary school children generated self-descriptive traits, sorted them into hierarchical groups, and determined which traits were related. The differentiation index refers to the total number of categories composing the schema (e.g., scholastic competence, athletic competence, social acceptance). Higher differentiation scores (i.e., more numerous categories) were expected to lead to less reactivity to positive or negative events because other self-aspects could be activated to maintain self-regard. The centrality index reflects the organization of the schema around one central issue. In Anderson’s study, this issue was scholastic pursuits: Centrality scores are high when scholastic traits are strongly interrelated with other traits. Anderson found that both differentiation and centrality indexes were unrelated to participants’ responses to self-relevant feedback.

Stein (1994) also adopted Zajonc’s (1960) methods but formed an amalgam of two indices: differentiation (the number of attributes in the self-schema) and unity (the degree of dependence among the attributes included in the self-schema). If participants’ self-schemas were both differentiated and not unified, and therefore less integrated, their complexity was higher. Participants had higher differentiation scores if they generated more characteristics about themselves, and lower unity scores if they indicated that changes in one characteristic did not change other
characteristics. High complexity subjects responded more thoughtfully to feedback (as reflected by slower response times) and did not have much change in their self-esteem levels. Low complexity subjects had more of a change—interestingly, in the direction of more self-esteem following failure feedback. In other words, their responses appeared to be more defensive.

Rosenberg (1977), as well as Woolfolk and his colleagues (1999; Woolfolk, Novalany, Gara, & Allen, 1995), used the hierarchical classes clustering algorithm (HICLAS) method (described in Deboeck & Rosenberg, 1988) that derives from network theory. HICLAS represents the structure of cognitions by categorizing participants’ responses into classes or clusters based on patterns of the co-occurrence of attributes within descriptions of others and of the self. Individuals are asked to describe their mothers, fathers, significant others, three other people important to them, and three acquaintances who are less important. They are also asked to describe 11 various aspects of themselves (e.g., “me as I actually am,” “how I am with my mother,” “me as I ideally would like to be,” “me when I am depressed”). A minimum number of characteristics must be used in describing each target person or self-aspect. All of the descriptions are then combined into one randomized list, and respondents rate each of the other people and each of the self-aspects on each characteristic that they themselves provided; a 0- to 2-point scale is used, with 0 indicating that the item does not apply at all, and 2 indicating that the item applies to a great degree to the given person or self. This procedure yields a two-way matrix of targets (20 self-aspects and significant others) by attributes (a varying number of free-response characteristics generated by the subject), which is analyzed using HICLAS (Woolfolk et al., 1999). HICLAS studies repeatedly indicate the need to partition self-complexity into positive and negative constructs. They report an absence of any association between positive self-complexity and depression or low self-esteem, but a positive association between negative self-complexity and depression or low self-esteem (Gara et al., 1993; Woolfolk et al., 1995, 1999).

Self-complexity models based on the Za- jonc (1960) or Rosenberg (1977) approaches represent an implicit way of studying complexity. In contrast, Evans (1994) used the self-report Self-Complexity Inventory (SCI) to measure self-complexity explicitly. In the SCI, eight stressful scenarios in particular domains (e.g., failing a test) are presented, and respondents are asked to rate the degree to which they would be affected both globally and in particular domains other than that portrayed in the scenario (e.g., parental relationships, peer acceptance, physical appearance).

The SCI was initially created to study self-complexity in adolescence, and was guided by Werner’s orthogenetic principle (1948, 1957), which posits that development proceeds from a state of global undifferentiation through increasing differentiation and specificity, and ultimately to integration and consolidation. In terms of the self-concept, young children are thought to have simple, global, and undifferentiated self-concepts. As they mature, they develop and identify numerous distinct self-aspects reflecting various abilities, activities, and relationships; with time, these become integrated into a coherent identity. Marsh (1989) and his colleagues (Marsh, Barnes, Cairns, & Tidman, 1984; Marsh & Shavelson, 1985) provided evidence for this developmental view by showing that multiple self-aspects were more intercorrelated among young children than for older children and adolescents, indicating that adolescents are better able to distinguish among these aspects.

Evans (1994) argued that those adolescents who have not developed the abilities to distinguish their cognitive domains have greater psychological problems. According to developmental psychologists, the ability to differentiate among various domains of the self emerges around age 7 or 8 years (Harter, 1982). Cramer (1987) suggested that older
children begin developing differentiated and more numerous self-aspects as a defense against the anxiety that results from growing older. Abela and Véronneau-McArdle (2002) explained that self-complexity develops together with the capacity for abstract reasoning and formal operational thought. At a certain age, the simplified and globally positive self-view characteristic of earlier childhood ceases to provide a good fit with the negative, as well as positive, self-relevant information they are receiving. To reconcile their shifting view of themselves, they begin to differentiate self-aspects from the global self. With different self-relevant experiences, individual differences in both the content and structure of these self-aspects emerge. Evans and Seaman’s (2000) work supports the idea that one such individual difference, in the complexity of the self, is indeed associated with more mature defense strategies and higher global self-worth; specifically, those with less complex organization had immature defenses, as well as more externalizing and internalizing behaviors.

The SCI is more a measure of integration, assessing the degree to which particular domains of the self-concept are interrelated. Psychoanalytic theorists (e.g., Blatt & Lerner, 1983; Leigh, Westen, Barends, Mendel, & Byers, 1992) have also proposed models of self-complexity that emphasize integration over differentiation. To do so, they use open-ended interviews or projective measures (e.g., the Thematic Apperception Test; Murray, 1943) to code complexity as a function of a number of factors, including perspective taking, ambivalence, and elaboration present in the free responses. These models too suggest that self-complexity (i.e., complex perceptual tendencies) is related to psychological and chronological maturation.

More than 20 years after Streufert and Streufert’s (1978) frustrated critique of the disorganized field of cognitive complexity, Rafaeli-Mor and Steinberg (2002) reviewed the extant literature on self-complexity, including the models summarized earlier, and came to the same conclusion with regards to this field. As had been the case with cognitive complexity, a consensual definition of self-complexity seemed impossible to obtain: Various models of self-complexity operationalized it very differently, some emphasizing the differentiation of the self-concept, others its integration, and still others a combination of both differentiation and integration. Nonetheless, among the various models of self-complexity, one operationalization stood out as both widely studied and visible: the social-cognitive model of self-complexity developed by Linville (1985, 1987). Linville’s theory is notable for several reasons. First, it has piqued the most interest among clinical and social psychologists, and has generated the most extensive body of research. Her model is the only one that has achieved broad recognition within psychology—to the point of inclusion in undergraduate and graduate texts. Second, Linville’s model has been used to address a wide range of resilience or well-being outcomes, including depression (Brown & Rafaeli, 2007; Linville, 1987), mood following trauma (Morgan & Janoff-Bulman, 1994), escape from self (Dixon & Baumeister, 1991), narcissism (Rhodewalt & Morf, 1995), response to domestic violence (Steinberg, Pineles, Gardner, & Mineka, 2003), self-esteem (Campbell, Chew, & Scratchley, 1991), and coping with the ups and downs of everyday life (Campbell et al., 1991; Cohen, Pane, & Smith, 1997; Constantinio, Wilson, & Horowitz, 2006; Miller, Omens, & Delvadia, 1991). Finally, whereas most self-complexity models suggest that complex individuals process information differently and (in particular) respond in more moderate ways to life events, Linville’s model has been unique in detailing the processes that bring about this relationship by bringing together the cognitive structure tradition of Scott (1969), Bieri (1955), and others, with the language of more modern social-cognitive approaches. For these reasons, we devote the majority of this review to this model, its predictions, and literature examining these predictions.
Linville’s Self-Complexity Model

Linville’s (1985) definition of self-complexity begins with the recognition that the self is not unitary, but instead comprises multiple “self-aspects,” which may include social roles, relationships, physical features, types of activities, and goals. Each of these self-aspects includes (or is associated with) one or several attributes—typically, traits. For example, Mary might see herself as a mother, a union organizer, and a wife; as a mother, she might see herself as fierce, loving, and anxious; as a union organizer, as fierce and energetic; and as a wife, as content and playful. Linville defined self-complexity conceptually as having more numerous self-aspects (e.g., Mary has three; others may have as few as one, or as many as 20 or more), and having less redundancy or overlap among these self-aspects (in Mary’s case, the only redundancy is due to the linkage of the trait “fierce” to two of her aspects—being a mother, and being a union organizer).

Self-complexity is thought to develop through processes of generalization and discrimination. The more one experiences varied roles, relationships, and situations, the more differentiated those self-aspects become. Increased differentiation is thought to allow more efficient processing of self-relevant information, more effective discrimination among the various demands of one’s roles and situations, and quicker and more appropriate responses to those demands.

To measure self-complexity, Linville (1985, 1987) used a trait-sorting task similar to the one developed by Scott (1969) in his studies of cognitive complexity. Subjects are given a list of trait words and are asked to use those words to describe different aspects or roles in their lives. The subject is free to identify as many or as few piles of traits (i.e., self-aspects), and to use any trait once, multiple times, or never. The resultant distribution of traits into self-aspects is then summarized using the dimensionality statistic \( H \) (Attneave, 1959; Scott, 1969), an index borrowed from information theory. It measures the degree to which a given observation falls into numerous categories rather than only one. \( H \) is interpreted as the minimal number of independent binary attributes needed to reproduce a trait sort. In other words, it describes the number of dimensions that underlie the sort.

Earlier research by Linville (e.g., 1982) addressed social (rather than self-) categorization and judgments, and offered a social-cognitive take on a widely prevalent ingroup–outgroup phenomenon. This early work demonstrated that affective extremity toward outgroup members can occur as a consequence of the fact that people hold less complex knowledge structures for outgroups than for ingroups (with the groups based on factors such as age, race, or sex).

Linville (1985) imported this model from the realm of intergroup processes (and evaluations) to the realm of intrapersonal cognition (and affect). Following the same logic that applied to in- versus outgroups, she suggested that individuals who hold a more complex self-representation were likely to experience more subdued emotional reactions to self-relevant situations; those with more simple representations were expected to show higher affective extremity. Thus, the model suggests a trade-off between self-complexity and affective extremity. According to this trade-off, greater self-complexity is expected to moderate the impact of positive and negative events for two main reasons, having to do with (1) the relative proportion of the entire self-concept implicated and (2) the degree of spillover among overlapping self-aspects. The model makes the following assumptions: First, when a particular event occurs, it is expected to exert its effect on the self-aspect most relevant to it. For example, a fight with her husband will be most relevant to Mary’s wife self-aspect. Second, the proportion of the entire self-concept that is “taken up” by the implicated self-aspect will be directly related to the strength of the event’s effect. In Mary’s case, her wife self-aspect takes up one-third of her self-concept; for someone with twice
as many self-aspects, that proportion will only be one-sixth. Third, the activation of an implicated self-aspect may spread to other self-aspects, to the extent that these other aspects overlap or are associated with the implicated self-aspect. In Mary’s case, no such spillover would occur from wife to the other two self-aspects; however, events affecting her in one of those two self-aspects (as a union organizer or a mother) would lead to some spillover of activation because these two self-aspects are linked by a common trait.

As thoughts and emotions from one aspect are activated, related self-aspects will also be activated depending on context, associated thoughts, recency and frequency of activation, and relation to already activated aspects, so that more of the self is affected (Linville, 1987). A self-concept characterized by greater complexity—that is, by more numerous and more independent self-aspects—will stem the flow of affective spillover and make the owner of that self-concept be less susceptible to extreme reactions to life events. In other words, those with greater self-complexity are more resilient in response to stressful events.

Early evidence for the affective spillover effect came from a study (Linville, 1985, Study 1) in which participants completed the trait-sorting task along with affect and self-evaluation questionnaires, and were then provided (false) feedback of success or failure following an analytical task putatively related to intelligence. After receiving this feedback, participants were asked to report their mood and self-evaluation again (because a purported computer glitch had resulted in lost data earlier on). Those higher in self-complexity responded less negatively to failure feedback, and less positively to success feedback, than those low in self-complexity. In another study, Linville (1985, Study 2) demonstrated that those high in self-complexity reported more stable daily moods (i.e., less mood variability) over a 2-week period. Finally, Linville (1987) expanded the hypothesized role of self-complexity and suggested that it would serve as a buffer against the negative effects of naturally occurring stressful life events. In a short-term (2 week) prospective study, she demonstrated that Time 1 self-complexity did in fact buffer the effects of Time 1 stressful events on both depressive and somatic symptoms, as well as on the incidence of various stress-related illnesses (e.g., flu, aches, or cramps) at Time 2.

The Status of Self-Complexity Literature

Linville’s self-complexity (SC) model, and particularly the prediction that SC plays a moderating and stress-buffering role, has been met with great enthusiasm in clinical, developmental, and social-psychological circles, and has generated scores of studies attempting to replicate or expand it. Though the results of some replications (e.g., Kalthoff & Neimeyer, 1993, Study 1) supported the model, those of many others did not, and the overall picture has been quite mixed. Two reviews (Koch & Shepperd, 2004; Rafaeli-Mor & Steinberg, 2002) help to clarify the methodological and theoretical factors responsible for the mixed findings regarding SC and well-being, coping, and resilience.

To examine the SC–well-being association, Rafaeli-Mor and Steinberg (2002) carried out a two-pronged research synthesis on the broadest set of available studies that used Linville’s operationalization and reported any positively or negatively valenced well-being outcome (including mood, self-esteem, or depression). Included in the synthesis were all published studies (and all obtainable unpublished work as well), beginning with Linville’s (1985) earliest study, and ending in March 1998. The largest group of studies found (70 of them) reported simple associations (typically, correlations) between Linville’s dimensionality index (the H statistic) and a well-being measure. These were included in a standard meta-analysis and subdivided into three groups: (1) those in which the entire sample had experienced
some uniform stressor (e.g., childbirth: Gallant, 1991; failure feedback: Linville, 1985, Study 1, failure condition); (2) those in which the entire sample had experienced a uniform positive event (or “uplift”; e.g., success feedback: Linville, 1985, Study 1, success condition); and (3) those in which no uniform event was specified, so that only a zero-order correlations were available for meta-analytic aggregation.

The standard meta-analysis found results that failed to support Linville’s (1985) stress-buffering model. When aggregated, the largest group of studies (Group 3—those with no uniform event) had a weak (but negative; mean weighted $r = –.04$) association between SC and well-being; those with greater complexity had more negative mood, less self-esteem, or more depressive symptoms. Though complexity was positively related to well-being in the uniform stressor group (Group 1), the aggregate effect size was very small (mean weighted $r = .03$), indicating very weak stress buffering. In contrast, complexity was moderately and negatively related to well-being in the uniform uplift group (Group 2; mean weighted $r = –.27$), suggesting that it serves more as a moderator of positive events than of negative events.

A more appropriate test of a stress-buffering effect is a prospective diathesis–stress design, which includes an interaction between the putative buffer (Linville’s dimensionality index, in this case) and an index of stressors; Time 2 outcomes (e.g., depressive symptoms) can then be predicted based on the buffer, the stressor, and their interaction, while adjusting for the Time 1 level of the outcome. Unfortunately, this design does not lend itself easily to meta-analytic aggregation because it is usually impossible to obtain a standard effect size from different multiple regression interaction terms. Nonetheless, Rafaeli-Mor and Steinberg (2002) supplemented the meta-analysis of the larger group of studies with a second analytic prong: a simpler, more rudimentary vote-counting procedure on 24 studies that directly tested the hypothesized stress-buffering effect of SC, and that had reported interaction effects within regressions models. Vote counting in this case simply involved reporting whether a particular study’s regression model supported or did not support the buffering hypothesis.

As with the standard meta-analysis, the results of the vote-counting procedure did not support the stress-buffering hypothesis. Though seven of the 24 studies found a significant buffering effect, four other studies found the reverse (a significant exacerbation effect), and the majority of studies failed to find any significant effect.

Following Rafaeli-Mor and Steinberg’s (2002) research synthesis, Koch and Shepperd (2004) conducted a qualitative review of a smaller set of studies that examined the association between SC and coping with stress. This review was more sympathetic to Linville’s (1985) hypothesis, and concluded that SC is indeed a buffer of stress. One major point of departure in the Koch and Shepperd review was their decision to focus only on studies using prospective diathesis–stress designs. In their view, the cross-sectional studies (which were found by Rafaeli-Mor & Steinberg [2002] to report mostly negative, though weak, associations between SC and well-being) were irrelevant for testing Linville’s stress-buffering prediction. This exclusion seems inappropriate to us: After all, the cross-sectional associations suggest that for the average person, SC is mildly deleterious (cf. McConnell & Strain, 2007).

Even if we disregard Rafaeli-Mor and Steinberg’s (2002) cross-sectional results, or the finding that SC had a stronger buffering effect on positive (uplift) than on negative (stressor) events, Koch and Shepperd (2004) do not provide any counterevidence to the results of the vote-counting procedure—the analysis aggregating only prospective studies of the sort found acceptable. That analysis did not find support for the stress-buffering model; moreover, additional prospective studies (e.g., Constantino et al., 2006; Rothermund & Meiniger, 2004; Schleicher &
McConnell, 2005) have also failed to find such support.

Despite this divergence in both methods and conclusions, the main thrust of both review articles was a search for potential factors in the designs or operationalizations used in the reviewed studies that could have affected the SC–resilience association. One such factor noted in both reviews is the valence of the traits used in the self-descriptive task which yields the SC scores. Rather than being a simple methodological issue, this factor brings up a fundamental question about the role of valence in the organization of self-knowledge. As we noted earlier (and as noted by others; e.g., McConnell & Strain, 2007), the interest in self-structure was originally a departure from the focus on the content of the self-concept. If valence (i.e., a feature of content) affects SC, we can no longer treat complexity as a purely structural variable. As it turns out, that is indeed the case.

Morgan and Janoff-Bulman (1994) were first to discuss the segregation of SC by valence. They examined the complexity of positive self-representations separately from that of negative self-representations in an investigation of SC’s role in the lives of students who had (or had not) experienced trauma. Three separate dimensionality indices (H statistics) were computed: one for positive SC (P-SC), one for negative SC (N-SC), and one for overall SC (O-SC). Individuals who had been exposed to trauma did not differ from those who had not in their P-SC, N-SC, or O-SC. However, individuals who had experience with trauma and had high P-SC exhibited better adjustment; the same was not true for those with higher N-SC. In fact, N-SC was associated with poorer adjustment among those participants without a traumatic life event.

Another study (Woolfolk et al., 1995) similarly partitioned SC into partially independent positive and negative dimensions. They too found that N-SC was inversely related to self-esteem, and that depression is related to high N-SC and low P-SC. Thus, according to both Morgan and Janoff-Bulman (1994) and Woolfolk and colleagues (1995), the more people perceive themselves with multiple negative self-aspects, the greater their levels of depression, and the lower the levels of self-esteem and adjustment to trauma.

Consistent with these findings, Rafaeli-Mor and Steinberg (2002) found a continuous effect for the valence content of the trait list used in SC tasks: Cross-sectional studies with a higher proportion of negative traits reported more negative associations between SC and well-being. However, prospective studies (i.e., those in Groups 1 and 2 detailed earlier) that included a greater proportion of negative traits had stronger buffering effects. In other words, if anything, it appears that it is the N-SC that buffers the impact of positive and negative events. We return to this issue of valence within the self-concept again at two later points (in discussing the problems with SC measurement, and in reviewing additional indices of self-structure). For now, we just wish to point out that these findings call into question an implicit part of the SC model—that complexity would buffer affective extremity regardless of the valence of the traits used in the SC task.

Several related factors that help to explain some of the heterogeneity of study results have to do with the internal validity versus external generalizability of the studies. Rafaeli-Mor and Steinberg (2002) found that more constrained and internally consistent studies obtained stronger associations between SC and well-being in the direction predicted. For example, when both SC and well-being were measured in the same session, they tended to be more strongly associated than if there was a time lag between them. Similarly, studies in which stressors were lab-induced (e.g., false feedback studies vs. ones using naturalistic stressors) also yielded stronger results in line with Linville’s model. Finally, studies in which the well-being measure was of mood or emotion (i.e., relatively transitory and narrow constructs) resulted in findings similar to Linville, whereas those measuring self-esteem
or depression (i.e., broader and more stable aspects of well-being) were less similar.

Identifying—and Solving—the SC Measurement Problem

Fortunately, the reviews of the SC literature, with their findings of partial or mixed support for the SC stress-buffering model have not had a chilling effect on this topic of research. Instead, they have stimulated multiple attempts at refining this compelling model. Several of these attempts have focused on the operationalization and measurement of SC, and particularly, on the problematic index (the $H$ statistic) used in it. Why is this statistic so problematic? As Rafaeli-Mor and Steinberg (2002) noted, the short answer is that $H$ was developed as a measure of dispersion or variability, and therefore may not truly capture complexity, at least not in the sense of either differentiation or integration. This statistic originated in information theory (Attneave, 1959), and was first used in psychology as a way of describing dimensionality within multidimensional models of knowledge structures (Scott, 1969). It is best suited for such multidimensional models; in contrast, Linville’s (1985) model of multiple selves applies a categorical approach to self-knowledge. The two underlying mechanisms driving the SC stress-buffering process (i.e., the existence of alternative self-aspects and the degree of spreading activation among them) assume a hierarchical, categorical view of the self-schema.

In Scott’s (1962, 1969) original research, the trait sort and $H$, the dimensionality statistic, were used to operationalize cognitive complexity as “the number of groups-worth of information … represented as the dispersion of objects over a set of distinctions yielded by the category system” (Scott, 1962, p. 408). Importantly, Scott himself presented three caveats to the use of the dispersion measure in studying cognitive complexity. First, this statistic is limited in use to dichotomous attributes (whether a trait is included in the group or not). Second, $H$ probably reflects a lower bound score of true cognitive dimensionality, since it is impossible to assess completely any particular category. Third, any tendency toward randomness in assignment of attributes (traits) to groups (in this case, self-aspects) will falsely inflate $H$: If the subject completing the sort task is not paying attention, then he or she may fail to match two groups that should be identical in his or her mind.

Despite these limitations, Scott (1962, 1969) indicated that $H$ is a reliable and sound, albeit approximate, measure of the structure of cognition, and not dependent on the content of the attributes. While that may be true for $H$ when it is used to index dimensionality in cognitive structure, it has been shown to be untrue when used to index SC, as the meta-analytic results reviewed earlier—particularly the results pertaining to valence within the trait sort—indicate.

To examine this question directly, Rafaeli-Mor, Gotlib, and Revelle (1999) examined the meaning and measurement of SC, and revealed two major problems with the $H$ statistic. First, $H$ proved to be very sensitive to the valenced content of the self-concept. To demonstrate this, the study used a “worst split-half” approach for establishing internal consistency (Revelle, 1979). In this approach, an index (in this case, $H$) is computed not only for randomly selected halves of a scale (or, in this case, the trait list) but also for halves created in a nonrandom way to maximize their difference; this nonrandom splitting was based on valence. In the random splitting, $H$ demonstrated decent split-half reliability ($r = .85–.88$); however, in the valenced split, its reliability was not significantly different from zero ($r = .17$).

Another problem stems from the fact that the $H$ statistic is a single value that is supposed to reflect two mechanisms that underlie the buffering effects of SC: the number of self-aspects and their distinctiveness. A similar idea was suggested by Linville (1987):
Self-representations may differ in terms of both the number of self-aspects and the degree to which distinctions are made among self-aspects. Two self-aspects are distinct to the extent to which they are represented by different cognitive elements. ... Greater self-complexity involves having more self-aspects and maintaining greater distinctions among self-aspects. (p. 664)

If these two components of complexity were strongly associated, the choice of a single index (e.g., $H$) might have been justified. As it turns out, the components are usually unrelated to each other, and $H$ is a particularly bad measure of one of them.

To demonstrate this, Rafaeli-Mor and colleagues (1999) examined two straightforward component indices—one indexing the number of self-aspects (NSA), the other, indexing overlap among them (OL, defined as the average overlap between any two self-aspects over all possible pairs of self-aspects). Linville's $H$ had the expected strong positive association with NSA ($r = .71$, $p < .001$—almost identical to Linville's [1987] own finding). In contrast, it had a moderate and countertheoretical positive association with the OL index as well ($r = .24$, $p < .01$): in other words, when self-aspects were less distinct, $H$ levels were greater. Importantly, the two proposed component indices had higher split-half reliabilities both in the random and in the (“worst split-half”) valenced splits (for NSA, $r = .97–.98$ and .65, respectively; for OL, $r = .90–.92$ and .66, respectively). In other words, unlike $H$, the separate component measures were not strongly affected by the valence of the traits used.

For these theoretical and empirical reasons, it appears that the $H$ statistic might have been an inappropriate choice for the study of SC. The component indices proposed by Rafaeli-Mor and colleagues (1999) directly tap the two separate mechanisms proposed by Linville (1985); they do not have the same internal consistency problems, and, unlike the $H$ statistic, they assume the same categorical cognitive representation that is central to Linville's model.

To date, four groups have utilized Rafaeli-Mor and colleagues’ (1999) component indices, all replicating the finding that the $H$ statistic fails to capture the overlap or distinctiveness of self-aspects. One study (Luo & Watkins, 2008) focused mostly on measurement issues, but the others went on to investigate the roles of the component indices in resilience in the face of stress; we briefly review their results below.

Rothermund and Meiniger (2004) used the indices in two studies, pitting the predictions of the affective spillover model against those of an alternative model of stress buffering. Rather than the passive cognitive–affective process of spreaded activation, which may occur following any kind of event (as predicted by Linville), Rothermund and Meiniger suggested that individuals self-regulate using an active process of reorientation and positive reappraisal—but that they do so only when such regulation is needed, which is following negative events. According to this self-regulatory model, a large number of self-aspects (high NSA) promote efficient self-regulation by offering a greater choice of domains on which to focus one’s attention and activities (i.e., a better framework for reorientation and positive reappraisal after the experience of negative events). In contrast, the model expects the second component of SC—low overlap or high distinctness among self-aspects—to have little effect on well-being (because both high and low OL may be beneficial for various reasons). Using a large undergraduate sample, Rothermund and Meiniger indeed found that the NSA index buffered the effects of negative life events on participants’ depression, and that distinctness (low OL) had no such effect; furthermore, neither component buffered the effects of positive events. They also reported that those participants who had high NSA and a high level of negative life events increased their frequency of positive events,
as would be expected according to the self-regulatory model (though not according to the spreaded activation model).

Constantino and colleagues (2006, Study 2) also used the component indices in a prospective design replicating that of Linville (1987). Neither component (nor their interaction) interacted with stress to predict depressive symptoms at Time 2 (though their model may not have included the necessary component, two-way interaction of NSA and OL). However, a follow-up analysis using only those participants who had not been depressed at Time 1 (i.e., for whom there could be an emergence of depression) proved more promising. Both the OL index itself, and the interaction of OL and stress predicted Time 2 depression levels. Also, though the NSA index did not buffer stress, it had a negative association with perceived stress—a finding that is consistent with that of Rothermund and Meiniger (2004).

One of Rothermund and Meiniger’s (2004) key points is the need to examine SC (and its components) vis-à-vis various types of events (in their case, positive vs. negative). Brown and Rafaeli (2007) followed a similar strategy by investigating the impact of SC on stressors of various kinds: objective versus subjective, diffuse and minor versus acute and severe. In two prospective studies, these authors found a complex pattern of results indicating that the same structural properties may buffer us under one type of stress but exacerbate the effect of other types of stress. Specifically, NSA alone served as a buffer of low-level subjective stress (a finding similar to that of Rothermund and Meiniger); high OL among self-aspects alone served as a buffer of accumulated mundane stress; but low OL and the interaction of low OL and high NSA served as buffers of very severe stressors, such as loss or victimization (similar to Constantino et al., 2006).

Following Rafaeli-Mor and colleagues (1999), another thorough psychometric critique (Locke, 2003) further explained why $H$ is not an appropriate measure for the social-cognitive model of SC (Linville, 1985)—or for any other model attempting to measure the complexity of cognitive representations. By placing experimental constraints on the trait-sorting task, Locke (2003) demonstrated several fundamental problems with the index. First, $H$ levels are affected by the number of traits endorsed. Though this relationship is curvilinear, it rises until the probability of endorsement reaches 50%, which occurs quite rarely (especially with negative traits). This likely explains why researchers (Morgan & Janoff-Bulman, 1994; Woolfolk et al., 1995, 1999) found P-SC and N-SC to differ in their ability to buffer stressors. Rather than well-being or depression being related substantively to variations in the organization of positive or negative traits, they may simply be related to the number of negative and positive traits endorsed, which themselves affect the $H$ statistics used to index P-SC and N-SC.

Three additional problems noted by Locke (2003) also detract from the utility of the $H$ statistic: (1) It confounds uncertainty between and within self-aspects, (2) confounds role numerosity and role independence, and (3) does not measure spillover or overlap accurately. The last two problems were similar to the ones identified by Rafaeli-Mor and colleagues (1999), and like those authors, Locke suggested that alternative indices of role numerosity and role OL be used if the SC model is ever to be accurately tested.

Locke (2003) explicitly approaches complexity from an information theory perspective, which leads to slightly different assumptions than those of both Linville (1985) and Rafaeli-Mor and colleagues (1999). For example, he assumes that nonendorsement of a trait (i.e., Mary failing to say that she is “ebullient” in a particular role) conveys the same amount of information as the endorsement of the trait. In pure information terms, this assumption is absolutely correct. However, in psychological terms, most cognitive and social-cognitive models examining objects and their features (e.g., Fazio, Sherman, & Herr, 1982; Tversky, 1977) do not support this assumption, and instead
focus only on the presence of traits. Nonetheless, based on information theory assumptions, Locke suggests a modification of the OL index proposed by Rafaeli-Mor and his colleagues; to date, no study has tested this modified index, but such a test would be useful.

Other Approaches to the Study of Self-Structure

Although SC has garnered much research attention, it is only one of several models that tie the structure of the self to well-being. To conclude our review, we briefly discuss these other models, placing SC in relation to them within the broader framework of self-concept differentiation and integration—the degree to which the self contains a pluralism of multiple distinct elements, and the degree of unity, coherence, or interrelatedness among these elements (cf. Campbell, Assanand, & Di Paula, 2003; Rafaeli-Mor & Steinberg, 2002).

Differentiation (Pluralism) Approaches

The first component of SC—the number of distinct self-aspects—clearly speaks to differentiation. As such, it fits within a long tradition of research on the effects of having few versus abundant social roles, a tradition that predates the cognitive study of the self (e.g., Stryker, 1987; Thoits, 1983). Thoits noted that having few social roles is tied to social isolation, and therefore to poorer well-being. Similar conclusions emerge from George Brown and colleagues’ work on social isolation and depression (e.g., Brown & Harris, 1978), which suggests that more varied social involvements are beneficial because they engender more opportunities for social contact and integration (Oatley & Bolton, 1985).

Using the number of self-aspects (obtained from the trait-sorting procedure) as a differentiation index addresses a shortcoming of the sociological tradition. In this tradition, identity accumulation and role involvement are typically operationalized using a fixed set of roles. The method developed by Linville (1985) provides a straightforward index of differentiation, yet one emphasizing its idiosyncratic psychological meaning. In addition, this method allows computation of another index of self-knowledge organization: an evaluative integration versus compartmentalization index.

Showers (1992) proposed the construct of compartmentalization to refer to the way in which positive information and negative information are either segregated (compartmentalized) or integrated across various self-aspects. In a compartmentalized organization, the traits associated with any self-aspect tend to be predominantly positive or negative. In contrast, an evaluatively integrated organization involves self-aspects that contain both positive and negative traits. Compartmentalization is indexed with the statistic phi (Φ) (or Cramer’s V; Cramer, 1974), which calculates the extent to which the distribution of negative and positive traits across self-aspects deviates from what would be expected by chance. In early studies (Showers, 1992), compartmentalization was shown to interact with the differential importance of self-aspects: Individuals who emphasize self-aspects that are purely or predominantly positive in valence are more likely to activate positive information about themselves. As a consequence, they are less likely to be affected by negative events, and more likely to have high levels of self-esteem and low levels of depression. Those who emphasize self-aspects that are purely or predominantly negative in valence appear to be more strongly affected by stress, and more likely to feel depressed; however, if they maintain an evaluatively integrative self-concept, these strong reactions are moderated.

Subsequent studies (reviewed in Showers & Zeigler-Hill, 2007) have elaborated on this basic model to make the following dynamic predictions: Positively compartmentalized individuals (i.e., those with predominantly positive self-aspects) do have the
highest levels of self-esteem but are also more vulnerable than integrated individuals to various daily events or to lab-induced social rejection (Zeigler-Hill & Showers, 2007). In other words, maintaining evaluative integration (i.e., a balanced view of positives and negatives in most of one’s self-aspects) appears to be a source of resilience.

Self-concept compartmentalization may seem conceptually similar to SC, especially when the latter is partitioned into positive versus negative complexity (e.g., Morgan & Janoff-Bulman, 1994). In fact, the two are distinct, both theoretically and empirically. Showers, Abramson, and Hogan (1998) suggest that SC and compartmentalization are two different methods of coping with stress: Complex individuals may not need to compartmentalize, and compartmentalized ones may not need to have as much complexity. Indeed, several studies (e.g., Campbell et al., 2003; Luo & Watkins, 2008) found SC and compartmentalization to be unrelated, and though Campbell and her colleagues began their study with the assumption that compartmentalization is a pluralism/differentiation index, they conclude it by saying that it really does not map on either pluralism or unity, and instead, explores an issue that goes beyond these purely structural aspects of cognition.

**Integration Approaches**

OL among self-aspects, the second component of SC, is more an index of unity than of differentiation. As such, it is conceptually related to other indices of self-concept integration—indices that tap the degree to which the self is clear and coherent, and the extent to which self-aspects show internal consistency. Self-concept integration was described by Block (1961) as the outcome of successful psychological development and as an indication of psychological well-being. Drawing on Block’s ideas, Donahue, Robins, Roberts, and John (1993; Roberts & Donahue, 1994) proposed the opposing concept of self-concept differentiation (SCD; the term unfortunately creates confusion when considered as an integration and not a differentiation measure; self-concept fragmentation might have been a better term; cf. Campbell et al., 2003). SCD reflects lack of integration and is operationalized as the degree of unshared variance across social roles. To assess SCD, participants usually rate a set of attributes separately for a number of social roles or self-aspects; the degree of nonoverlap among role- or context-specific ratings is used as an index of SCD.

SCD has been shown to be related to depression, anxiety, and low self-esteem (Constantino et al., 2006; Donahue et al., 1993). It is also consistently related to other measures of self-concept unity (Campbell et al., 2003), particularly to the construct of self-concept clarity (Campbell, 1990) and to low self-discrepancies (Higgins, 1987).

**Self-concept clarity** is the degree to which the self is clearly and confidently defined, internally consistent, and temporally stable (Campbell, 1990). Though Campbell initially measured clarity using unobtrusive measures (e.g., reaction times, responses to pairs of antonyms), she and her colleagues (Campbell et al., 1996) later developed a 12-item self-report scale to measure it. Individuals low in clarity were found to have lower levels of self-esteem (Campbell, 1990; Campbell et al., 1996), were less positive about and more reactive to daily life events (Campbell et al., 1991), and were characterized by “chronic self-analysis,” low internal state awareness, and a ruminative form of self-focused attention (Campbell et al., 1996).

**Self-discrepancies** were introduced by Higgins (1987) and his colleagues (Higgins, Bond, Klein, & Strauman, 1986; Strauman & Higgins, 1987), who defined them as the degree to which the real self differs from the ideal self or the ought self (i.e., one’s selfguides, which may reflect one’s own view and/or the internalized views of significant others). Higgins, Klein, and Strauman (1985) developed the Selves Questionnaire, in which participants list up to 10 traits for each of the self-states, according to their perspective
and to the perspective of their mother, father, and a close friend. For a given pair of lists, self-discrepancy scores are computed by subtracting the number of characteristics that “match” from the number of characteristics that “mismatch.” Higher scores indicate larger self-discrepancies. Higgins proposed that different types of self-discrepancies induce specific negative emotions. Higgins and colleagues (1985) and Strauman and Higgins (1987) found that an Actual–Ideal discrepancy results in feelings of dejection, whereas an Actual–Ought discrepancy results in feelings of agitation. The greater the accessibility and magnitude of a particular type of self-discrepancy, the more the individual will suffer the negative emotions associated with it. Those whose self-states are more concordant are expected to experience greater well-being.

To summarize, the work of Donahue, Campbell, Higgins, and their colleagues on a variety of self-concept unity variables indicates that a cohesive self is tied to less distress and better psychological well-being. Unlike the SC stress-buffering model (Linville, 1987), as well the evaluative compartmentalization model (Showers, 2000), these models’ predictions are not specifically about resilience factors in response to stressors. Instead, they suggest a cross-sectional association between unity or integration and well-being.

It is important to keep in mind that differentiation (pluralism) and integration (unity) are not necessarily related to each other. In the extreme case—a complete absence of pluralism (i.e., the monolithic unitary self that was assumed to be the rule in early research)—integration is obviously constrained (or simply undefined). But within the normal range of differentiation (i.e., for individuals with fewer or more self-aspects), integration (i.e., the degree of overlap among self-aspects) may be high or low. Both our own research on the components of SC, and that of others (e.g., Campbell et al.’s review of various unity and pluralism measures) find this to be the case empirically as well. However, most of the extant literature on SC has not distinguished between the pluralism component (number of self-aspects) and the unity component (overlap among them), and instead has relied on the unitary $H$ statistic. As we have shown, this statistic provides an imperfect reflection of the first component, and an abysmal one of the second.

Conclusions and Future Directions for Self-Complexity Research

Close to half a century of cognitive complexity research and almost 25 years of social-cognitive attention to self-complexity have generated much interest but no firm conclusions regarding the role of integration, differentiation, or complexity in resilience. Conceptual confusion characterized these fields (cf. Rafaeli-Mor & Steinberg, 2002; Streufert & Streufert, 1978); when that seemed under control, measurement problems hit hard (cf. Locke, 2003; Rafaeli-Mor et al., 1999). As a consequence, despite an impressive amount of both theorizing and attempted empirical work, it remains unclear whether SC, differentiation of self-aspects, or unity among them are markers of emotional health, vulnerability factors, or buffers of stress-related responses. We conclude this chapter with some suggestions for a more informative future of SC research.

The first recommendation, one that we made a decade ago (Rafaeli-Mor et al., 1999) and still firmly stand by, is that researchers interested in this model must pay closer attention to the underlying cognitive model. If they share our understanding of this model, they need to choose measures that reflect it well; if they differ from us (as Locke [2003] does), they may wish to use modified indices. Instead, the majority of studies replicating and extending Linville’s (1985) work simply adopted the faulty $H$ statistic, and are therefore less informative than they should be. Given the high correlation between $H$ and the number of self-aspects, they might tell us something about self-differentiation; they
certainly tell us nothing about self-unity or the overlap between aspects. The solution, of course, is to calculate, test, and report the two component indices of complexity (NSA and OL). As we argued earlier, they are particularly good indices of differentiation and integration, respectively—better in some ways than other established measures of these concepts. This is because they are (1) less affected by valence, and (2) obtained from Linville’s trait-sorting task, a task free of the value judgments inherent in measures such as Campbell’s (1990) Self-Concept Clarity Scale.

Few published studies to date have used the component measures; many continue to use the faulty $H$ statistic. Before any additional participants sit down to sort traits into self-aspects in new studies, we hope that the dozens of researchers who have published or unpublished trait-sort data will revisit their existing datasets and remedy the measurement problem by simply running the appropriate analyses on them. Once that happens, an accurate picture regarding SC as a resilience factor will be within reach.

Several of the researchers attempting to clarify the role of SC tried to do so by partitioning self-knowledge into positive and negative attributes, then computing $H$ for each valenced set. Our review (and that of Locke, 2003) suggests that the conclusions drawn from these studies are probably artificial. Nonetheless, as part of painting an accurate picture regarding SC, we hope to learn whether the two psychometrically valid components of complexity (NSA and OL) also differ in their effects when computed on valenced information.

Relatedly, the issue of valence within the self-system should certainly remain at the center of attention. As Rafaeli-Mor and Steinberg (2002) found, the valence make-up of the traits used in different SC studies was directly related to their results. To make sure valence is examined thoroughly, we (and others; e.g., Constantino et al., 2006; Zeigler-Hill & Showers, 2007) strongly suggest that researchers use balanced trait lists with equal numbers of positive and negative traits.

If SC is a resilience factor, studies of various designs should show that. The most ubiquitous SC study is one reporting the cross-sectional association between SC and some well-being measure (cf. Rafaeli-Mor & Steinberg, 2002). Unlike other reviewers (e.g., Koch & Shepperd, 2004) we believe such studies could be very informative. For example, future research may show that having high differentiation (i.e., high NSA) is associated with better well-being (as was found by Constantino et al. [2006] with regard to perceived stress). If that is the case, we may conclude that apart from whatever stress-buffering role it plays (or does not play), NSA is a source of resilience.

Nonetheless, cross-sectional research should be supplemented by studies using other designs. One clearly informative design is the prospective diathesis–stress study. With such studies, we hope to see the suggestions of Brown and Rafaeli (2007) put into effect. In particular, we hope that future studies pay close attention to (1) the timing and nature of stressors (i.e., acute vs. chronic, severe vs. diffuse); (2) the careful probing of interaction effects (e.g., Aiken & West, 1991; Solomon & Haaga, 2003); and (3) the predictions of each SC component as a separate buffer of stress, as well as the joint buffering offered by the interaction of the two components.

But formidable progress in SC research will require it to go beyond blanket statements about the adaptive or maladaptive nature of complexity, whether obtained cross-sectionally or prospectively. What is needed are process studies, in which the underlying mechanisms of spillover (Linville, 1985) or of reorientation (Rothermund & Meiniger, 2004) are directly observed. In some ways, it is quite puzzling that no study to date has really examined the processing mechanisms behind SC. For example, to study the processes inherent in Linville’s spillover prediction would require testing each of the following steps:
1. If a life event (e.g., lab-induced feedback) relevant to a particular self-aspect occurs, then that self-aspect and the attributes tied to it should become activated.

2. Once the self-aspect is activated, the individual’s mood should be imbued by affect tied to the nature of the event (good vs. bad) the nature of the attributes, or some combination of the two.

3. The activation of the specific self-aspect spills over because of trait overlap, into related self-aspects; the more the overlap, the greater the spillover.

4. The overall mood should be a function of the total proportion of the self that is affected (i.e., depending on both NSA and OL).

Some researchers (e.g., Cohen et al., 1997; McConnell, Rydell, & Brown, 2007; Smith & Cohen, 1993) have begun moving in this direction; we hope others will as well.

Once the processing mechanisms underlying SC as a resilience factor are established, future research may profitably examine how different self-aspects, or different attributes within these aspects, may affect these processes and promote (or hinder) resilience. As McConnell and Strain (2007) note, all selves are not created equal; those self-aspects that are more important (Pelham, 1991), more central (Anderson, 1992), or more clearly defined (Campbell, 1990) may matter more; spillover may not be a symmetrical process.

Recent work on another prominent model of self-knowledge organization, namely, evaluative compartmentalization versus integration (Showers, 2000), raises the interesting possibility that structural properties are not trait-like, and should instead be considered as part of a dynamic model. According to such a model, individuals may reorganize their self-concept adaptively in response to life events or moods. Some evidence that this may occur with SC has been reported (Showers et al., 1998), but more evidence is needed. The implications of such findings are crucial to determining whether any stress-buffering benefits of SC predate the stressful life events, or possibly are part of a resilient form of poststressor development.

Selves differ in males and females, are defined differently in various cultures (Gabriel & Gardner, 1999), and may change with age (Diehl, Hastings, & Stanton, 2001). To be able to speak to the generality of SC processes, a wider variety of samples reflecting diverse populations needs to be examined. Maybe most vital are samples of individuals with various forms of stress-related psychopathology or ones contending with ecologically significant, nontrivial stressors. For example, if SC is a resilience factor against stress-related depression (as predicted by Linville, 1987), we should ideally measure it before the onset of mental illness or the occurrence of traumatic events in individuals who are vulnerable to major disorders. Very few studies have examined SC in psychopathology at all, though some notable exceptions do exist: Showers and colleagues’ (1998) sample was followed prior to first-onset depression; Taylor, Morley, and Barton (2007) assessed individuals with remitted bipolar disorder or major depression; and Gara and colleagues (1993) have done extensive research on SC in depression. Clearly, more clinical studies (applying what we now know about SC mechanisms and measurement) are needed.

We began by noting that a social-cognitive structural variable such as SC will confer resilience mostly in the stress-buffering sense, and not in the posttraumatic growth sense. Indeed, most of the research reviewed here, including Linville’s (1985) original formulation of the SC model, as well as more recent responses to it, focuses on this aspect of resilience. Yet there are ways in which SC could speak to the issue of growth. For example, the developmental work (e.g., Abela & Veronneau-McArdle, 2002; Evans & Seaman, 2000) we reviewed suggests that greater SC is a marker for effective and appropriate development. The degree to which this development follows, or maybe even requires, adaptation to stressful life events is unknown, but it is a topic of great interest to students of both normative and disordered matura-
tion of the self-system (cf. Harter, 1998). We hope future developmental research of this sort will help to clarify what happens to the self-concept (and to its complexity) in individuals whose response to stressors is a resilient one of growth and advancement.

**Closing Words**

SC has broad theoretical appeal. It may yet prove to be an important cognitive resilience factor as a buffer of stress, or possibly as a marker of poststress growth and adaptation. For that to happen, the conceptual and methodological problems we reviewed need to be addressed; happily, several research groups are doing just that. In the future, if SC is indeed found to be a source of resilience, we hope to see it incorporated into models applying social-cognitive research to foster well-being, for example, in cognitive therapy prevention and intervention approaches.

**References**


