Is Self-Complexity Linked to Better Coping?
A Review of the Literature

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ABSTRACT   Initial theorizing depicted self-complexity as the number of nonoverlapping self-aspects, such as traits, roles, and behaviors, and proposed that greater self-complexity is linked to better coping in response to stress and negative events. A review of the literature, however, finds inconsistent results. The inconsistency apparently arises from variation in the measurement of self-complexity. The different measures stem from disagreement over the definition of self-complexity, and the various definitions apparently result from theoretical disagreement about how to conceptualize the structure of self-knowledge. The present paper reviews the self-complexity literature and suggests directions for future research. The present paper suggests a positive, moderating relationship between self-complexity and coping, and additional research that includes careful measurement and definition of self-complexity may provide stronger support for this relationship.

> "Don't put all your eggs in one basket."

The above adage suggests that people should not invest all of their resources—whether financial, physical, or emotional—in one area.

Research on self-complexity extends this metaphor to the realm of self-knowledge. Thus, Linville (1985) advised, ''Don't put all your eggs in one cognitive basket,'' suggesting that people should mentally separate their self-knowledge, keeping thoughts about various traits, behaviors, or roles distinct. When people view themselves differently in their different roles, for example, a negative event relevant to one role (e.g., poor performance evaluation) may not disproportionately affect self-views relevant to other roles (e.g., friend, spouse, volunteer).

Self-complexity research represents part of a broader trend in psychological research that depicts the self as multifaceted, rather than unitary (e.g., Campbell, Assanand, & DiPaula, 2000; Kihlstrom & Klein, 1994). With the seemingly infinite number of ways to represent oneself, an organized structure of the self seems necessary. Thus, researchers have proposed a variety of models of self-organization, including self-regulation (Carver & Scheier, 1982), self-discrepancy (Higgins, 1987), self-schemas (Markus, 1977), possible selves (Markus & Nurius, 1986), and self-complexity (Linville, 1982, 1985, 1987), that presumably have self-relevant consequences.

This review focuses on self-complexity and its presumed consequences for coping. The purpose is not to provide a broad overview of various types of self-organization, but rather to focus on self-complexity with an eye toward reconciling the often-disparate findings of the self-complexity/coping relationship. Specifically, some findings suggest a positive relationship between self-complexity and coping (e.g., Campbell et al., 1990; Dixon & Baumeister, 1991; Linville, 1985, 1987), some findings suggest a negative relationship, (e.g., Gara, Woolfolk, Cohen, & Goldston 1993; Woolfolk, Novalany, Gary, Allen, & Polino, 1995; Woolfolk et al., 1999), and some studies find no relationship (e.g., Hershberger, 1989; Koenig, 1989, as cited in Rafaeli-Mor Gotlib, & Revelle, 1999).

Indeed, results of a recent meta-analysis reveal, on average, a small, negative correlation between self-complexity and well-being (Rafaeli-Mor & Steinberg, 2002). However, a limitation of the meta-analytic procedure is that collapsing across studies and treating them all as similar and equivalent may obscure important differences between studies that may moderate effects. Although the authors carefully examined various potential moderators (e.g., publication status of study, internal reliability of measures) in their traditional meta-analysis, they also acknowledged that they could not include all

relevant studies in their procedure because of statistical limitations. Specifically, prospective studies, which, as we later describe, are the most appropriate designs to test the self-complexity model, typically use regression analyses and therefore did not contain statistics that could be included in a meta-analytic procedure. The authors therefore also included a "vote count" of studies not included in the meta-analysis, and the vote count failed to yield evidence of self-complexity's benefits. However, the meta-analysis also revealed a large heterogeneity of effect sizes, suggesting that results of self-complexity studies vary greatly (Rafaeli-Mor & Steinberg, 2002). Given the mixed findings reported in the meta-analysis, a closer inspection of how researchers have conceptualized self-complexity seems warranted. A purpose of this conceptual review was to identify patterns in prior methods and results that might explain the divergent findings.

We begin with an overview of the construct of self-complexity. Next, we outline the presumed consequences of self-complexity, addressing both measured and manipulated self-complexity. We then reexamine findings regarding self-complexity and coping and attempt to reconcile the apparent inconsistencies. We conclude by suggesting considerations for future research, including definitions, measurement, and unanswered questions.

What is Self-Complexity?

Linville's definition of self-complexity. In her initial descriptions, Linville (1982, 1985) defined self-complexity as the number of self-aspects (i.e., "sub-selves," Morgan & Janoff-Bulman, 1994) a person has and the amount of independence among those self-aspects. Compared to people low in self-complexity, people high in self-complexity possess a greater number of self-aspects and greater distinctions among these aspects (Linville, 1985, 1987). Such self-aspects may include information about specific events and behavior, generalizations developed from repeated observations of one's own behavior, or other self-relevant knowledge such as traits, roles, physical features, category membership, abilities, preferences, autobiographical recollections, and relations with others (Linville, 1985). Greater self-complexity is associated with greater demands, more experiences, and multiple roles (Linville, 1985). For example, a woman who conceives herself as having separate roles including professor, wife, mother, friend, and daughter, and who has encountered a wide variety of life experiences,

presumably has a large number of nonoverlapping self-aspects (i.e., high self-complexity). In contrast, a woman who perceives herself only as a professor and friend, who sees these roles as closely intertwined, and who has a relatively narrow range of life experiences presumably has a small number of self-aspects and substantial overlap between her few self-aspects (i.e., low self-complexity).

Distinguishing self-complexity from other "self" constructs. Researchers have described a number of constructs that on the surface seem similar to self-complexity, yet are nevertheless distinct. Specifically, self-complexity is distinct from a self lacking in clarity (e.g., Campbell, Chew, & Scratchley, 1991) or cohesiveness (e.g., Donahue, Robins, Roberts, & John, 1993). For example, seeing oneself as holding many different roles or as possessing distinct traits in different contexts may appear to characterize a lack of certainty about the self (i.e., low self-concept clarity). Like self-complexity, a lack of clarity or certainty about the self may involve a wide variety of self-views (Campbell, 1990). However, theorists have argued against equating high complexity with low self-concept clarity (Campbell et al., 2000). Self-concept clarity refers not to a low number of self-views, but to a rather high *articulation* of self-views. Specifically, self-concept clarity refers to the extent to which self-views are well defined and includes certainty, temporal stability, and internal consistency of self-views (Campbell et al., 2000; Campbell et al., 1996). According to Campbell and colleagues (1996), "any particular set of self-beliefs could, in principle, be organized with varying degrees of confidence and stability" (p. 142). Furthermore, self-concept clarity may actually relate positively to self-complexity, as high self-complexity also entails well-defined self-aspects. For example, a man may be high in self-complexity because he sees himself as possessing nonoverlapping roles (e.g., father, friend, husband, employee). He may also be high in self-concept clarity because he is certain of his views of himself in each role. Of course, a positive relationship between self-complexity and self-certainty does not mean that the constructs are identical.

Some evidence supports the distinction between self-concept clarity and self-complexity. Results of several studies indicate that self-esteem is positively correlated with self-concept clarity (Bigler, Neimeyer, & Brown, 2001; Campbell, 1990; Campbell et al., 1991). Thus, people with low self-esteem also tend to be uncertain of their

self-views (Campbell, 1990). If self-complexity were merely a lack of self-concept clarity, then it should correlate negatively with self-esteem. Instead, empirical evidence demonstrates that self-complexity is either positively correlated (Campbell et al., 1991) or uncorrelated (Campbell et al., 2000) with self-esteem. Thus, high self-complexity does not appear to be merely low self-concept clarity.

Similarly, self-complexity is distinct from self-concept differentiation (SCD) and therefore is not merely the opposite of cohesion within the self (Donahue et al., 1993). Like self-complexity, SCD involves the mental organization of self-aspects (e.g., identities, roles). However, unlike self-complexity, SCD involves not the number and independence of self-aspects, but rather the variability of one's traits across roles. SCD refers to the degree to which individuals differentiate their identities, and people high in SCD presumably lack coherence and integration among their self-aspects (Donahue et al., 1993). In contrasting SCD with self-complexity, researchers have suggested that measures of SCD may tap the subjective (and ostensibly negative) experience of a "divided self," whereas self-complexity measures may instead tap the (ostensibly positive) experience of specializing within multiple roles. For example, an SCD measure may draw a person's attention to the potentially unpleasant experience of wearing "multiple masks" (Goffman, 1959), as one begins to recognize how differently he or she behaves as a student, sibling, friend, or romantic partner (Harter, Bresnick, Bouchey, & Whitesell, 1997). In contrast, as we later describe in more detail, typical self-complexity measures simply require that participants consider personally important roles and the traits inherent in each role (e.g., Linville, 1985, 1987). Such a process may draw attention away from the sense of a "divided self" and instead tap flexibility in the manner in which people view themselves (e.g., Diehl, Hastings, & Stanton, 2001). In support of the theoretical distinction between self-complexity and SCD, results of a recent study revealed that self-complexity (as assessed by a standard card sort task) was uncorrelated with SCD (assessed by Donahue et al.'s [1993] measure; Constantino & Pinel, 2000).

Self-complexity is also distinct from evaluative integration, which is the mental intermingling of positive and negative information within self-aspects (Showers, 1992b). For example, a woman whose self-aspects regarding her "professor" role include "competent," "enthusiastic," "disorganized," "stressed" and "helpful" possesses both positive

and negative information within one self-aspect. Thus, her self-aspects display evaluative integration. Like self-complexity, evaluative integration represents a construct that describes an individual's mental organization of self-relevant information. However, several theorists depict self-complexity and evaluative integration as theoretically distinct (e.g., Campbell et al., 2000; Showers, Abramson, & Hogan, 1998). Self-complexity refers to the number of nonoverlapping self-aspects, whereas evaluative integration refers to the degree to which positive and negative information within self-aspects is mentally separated. In support of the conceptualization of self-complexity and evaluative integration as distinct, empirical research demonstrates an average correlation of $-.06$ between the two constructs (Campbell et al., 2000).

Finally, self-complexity appears not to be a self-presentational variable. Specifically, it is uncorrelated with variables such as self-monitoring, concern for appropriateness, and protective social comparison (Miller, Omens, & Delvadia, 1991). Similarly, research findings demonstrate that self-complexity is uncorrelated with self-regulatory variables such as self-discrepancy and negative emotions (Gramzow, Sedikides, Panter, & Insko, 2000). Thus, self-complexity appears to be a unique psychological variable.

Processes involved in self-complexity. Presumably, the effects of self-complexity operate by preventing the process of spreading activation or affective spillover (Linville, 1987). High self-complexity may benefit someone by preventing emotion arising from a negative event pertinent to one self-aspect from spreading to self-aspects that are unrelated to the event (Linville, 1985, 1987). For example, a negative job evaluation may have little impact on self-evaluation if one is able to distinguish self as employee from self as friend, spouse, or parent. Therefore, one may be able to maintain a positive self-view if feedback about job performance is mentally separated from self-evaluations in other roles. Apparently, the impact of any one negative event diminishes as it mentally "travels" across independent self-aspects (e.g., Linville, 1985). Thus, possessing many self-aspects should prevent a negative event from having a disproportionate negative impact on the self. Conversely, self-complexity may temper the potentially positive effects of pleasant events, although empirical support for this possibility is less consistent (e.g., Cohen, Pane, & Smith, 1997; Dixon & Baumeister, 1991; Linville, 1985; Niedenthal, Setterlund, & Wherry, 1992).

Although most theorists describe the processes involved in self-complexity in terms of preventing spreading activation, some researchers have proposed alternative processes. For example, as some researchers note, the self-complexity model shares assumptions with theories such as self-affirmation (Steele, 1988) and role theory (e.g., Thoits, 1983), and the processes involved in these theories may also explain self-complexity (e.g., Dixon & Baumeister, 1991; Niedenthal et al., 1992). When people engage in self-affirmation, they preserve their self-esteem following a threat to one self-relevant area by looking to positive qualities in another self-relevant area (Steele, 1988). For example, students who fail an exam may become less despondent if they can affirm their identity in some other area such as athletics. Sociological theory offers another perspective, suggesting that as the number of roles that a person holds increases, the commitment to each role decreases (Thoits, 1983). Thus, when people hold multiple roles, they may have a relatively low investment in any one role, so that a setback related to one role has little impact on the self as a whole (Niedenthal et al., 1992). For example, a woman who sees herself as possessing multiple roles (e.g., friend, mother, daughter, spouse, employee) has not fully invested her identity in any one of these roles, so that difficulties in one role (e.g., at work) presumably will not disproportionately affect her overall self-view. Regardless of the theoretical approach, the consistent theme is that self-complexity serves as a buffer from stress and negative events.

Summary.   In her influential work, Linville (1985, 1987) depicted self-complexity—the number of independent self-aspects that one possesses—as a cognitive structural variable that is distinct from concepts such as self-concept differentiation (Donahue et al., 1993), self-concept clarity (Campbell et al., 1991; Campbell et al., 2000), and evaluative integration (Showers, 1992b). Although some theorists have postulated that self-complexity prevents spillover from negative events, other theorists note similarities in the assumptions of self-affirmation theory (Steele, 1988) and role theory (Thoits, 1983), suggesting that other processes may explain self-complexity's presumed benefits.

Consequences of Self-Complexity

Much of researchers' interest in self-complexity stems from its presumed consequences. However, results of studies exploring the rela-

tionship between self-complexity and coping yield inconsistent and, at times, contradictory findings. Linville and others have argued that the importance of self-complexity lies in its potential role as a buffer from stress (e.g., Linville, 1987), negative feedback (e.g., Dixon & Baumeister, 1991), and affective variability (e.g., Campbell et al., 1991; Linville, 1987). Accordingly, some evidence suggests that people who are high in self-complexity fare better in response to stress, negative feedback, and other negative events than do people who are low in self-complexity (Linville, 1985, 1987). In contrast, other evidence suggests that people who are high in self-complexity fare no better (e.g., Hershberger, 1990; Koenig, 1989, as cited in Rafaeli-Mor et al., 1999) or even worse (e.g., Gara et al., 1993) than do those low in self-complexity. Researchers have sought evidence of self-complexity's benefits using a variety of prospective, experimental, and cross-sectional designs. However, cross-sectional designs may be inherently flawed in testing self-complexity benefits in that they do not appropriately test the complexity-coping relationship. With cross-sectional designs, participants complete a measure of self-complexity and a measure of well-being simultaneously, and analyses examine whether people scoring high in self-complexity display greater well-being than do those scoring low in self-complexity. Yet, the original self-complexity model suggests a moderating rather than direct effect, such that self-complexity's benefits will appear only in response to negative events (Linville, 1985, 1987). Accordingly, researchers should not expect a simple correlation between self-complexity and well-being, and cross-sectional designs are thus inappropriate. This section reviews the results of studies that either measured or manipulated self-complexity.

Measured self-complexity.   Although correlational studies of self-complexity obviously preclude causal inferences, such research assumes that self-complexity affects psychological functioning. In correlational studies, researchers typically classify participants as being high or low in self-complexity, based on a median split procedure, then examine mean differences in criterion variables such as levels of depression, mood, or variability in mood. More appropriately designed research has attempted to specify the causal direction either longitudinally (e.g., Campbell et al., 1991; Showers, Abramson, & Hogan, 1998) or experimentally (e.g., Halberstadt, Niedenthal, & Setterlund, 1996; Margolin & Niedenthal, 2000). However, although

flawed, much self-complexity research is cross-sectional, and thus we address the *presumed* consequences of self-complexity, rather than the *known* consequences of self-complexity. The following subsections include descriptions of studies that offered the strongest test of the self-complexity model, as well as descriptions of cross-sectional studies.

Affective reactivity.   Linville proposed that greater self-complexity corresponds to less affective reactivity, or fluctuations in mood (1985). A review of the literature, however, yields inconsistent findings. According to Linville's affective reactivity hypothesis, a person low in self-complexity should experience a high level of negative affect in response to negative events, as the impact of any negative event may ''spill over'' into other self-aspects. For example, a student low in self-complexity who receives a poor grade on an exam should experience higher levels of sadness, disappointment, or frustration than should a student high in self-complexity. If this student does not mentally separate academic self-aspects (e.g., ''me as student'') from other self-aspects (e.g., ''me as athlete''), the negative affect from the poor grade may spread to these other self-aspects. In contrast, a student high in self-complexity may mentally separate academic and other self-aspects, preventing the negative affect from a poor grade from spreading to these other self-aspects. Thus, a student high in self-complexity may feel unsure of his or her academic abilities but still feel confident about his or her athletic abilities.

In support of her affective reactivity hypothesis, Linville found that people low in self-complexity experienced more negative affect after failure (1985, Study 1) and demonstrated higher affective variability over 2 weeks (1985, Study 2) than did people high in self-complexity. A 2-week diary study offered further support for the affective reactivity hypothesis, demonstrating that self-complexity correlated negatively with frequency of mood change (Campbell et al., 1991).

Subsequent studies have supported the affective reactivity hypothesis. For example, in three studies of reactions to self-relevant feedback, Niedenthal and colleagues (1992) found that participants' responses to feedback varied as a function of self-complexity. However, this result was limited to particular representations of the self. Some theories of the self suggest that people possess mental representations for both who they believe they are (i.e., actual self, present self), and who they believe they may become (i.e., future self, possible self; Markus & Nurius, 1986). If people vary in the degree of

complexity of their actual selves, they may also vary in the degree of complexity of their possible selves. Following this logic, Niedenthal and colleagues (1992) found that responses to feedback about present performance varied as a function of actual self-complexity (i.e., complexity of present self), but not as a function of possible self-complexity (i.e., complexity of future self). Conversely, participants' responses to feedback about future performance varied as a function of possible self-complexity, but not as a function of actual self-complexity. More specifically, participants high in possible self-complexity showed significantly smaller increases in positive mood following success feedback about future performance (and to a lesser degree, a smaller decrease in positive mood following failure feedback) than did participants with a less complex future self. In contrast, participants high in actual self-complexity did not differ from participants low in actual self-complexity in their reactions to feedback about future performance.

Although the studies just described find that greater self-complexity corresponds to less affective reactivity, other research finds that greater self-complexity corresponds to greater affective reactivity. For example, according to Emmons and King (1989), being complex in one's strivings means that attainment of one goal does not influence attainment of another. The authors operationalized striving complexity in three ways: participants' self-rated dissimilarity across all possible pairs of strivings, a Striving Instrumentality Index that accounts for the independence of all possible striving pairs, and a Striving Specification Task in which participants indicated the number of ways they planned to achieve each striving. Emmons and King (1989) found that affective reactivity correlated positively with the complexity of a person's "strivings," or goals, thereby supporting the premise that people high in affective reactivity attempt to seek maximal stimulation or affect by structuring their lives in a complex manner (Emmons, 1989; Emmons & King, 1989), perhaps by creating multiple roles (Emmons, 1989).

The above findings differ from the predictions of Linville's (1985, 1987) affective reactivity hypothesis, which asserts that people low in complexity are high in affective reactivity. However, an additional finding may assist in reconciling these seemingly contradictory positions. Results demonstrated that participants who were high in affective reactivity were not only more complex in their strivings (i.e., goals) but also less complex in their plans (Emmons & King, 1989).

Perhaps people who are high in affective reactivity *attempt* to create self-complexity (i.e., have goals of complexity), but ultimately fail because of their poorly designed plans (Emmons, 1989). For example, people may "strive" to be successful, respected, or liked in a variety of settings, but their plans to achieve success, respect, or liking may not necessarily be complex, well defined, or well executed. The concepts that self-complexity tasks measure may ultimately include people's plans (i.e., how they achieve their goals) rather than merely their "strivings" (i.e., what goals they would like to achieve). More importantly, these studies employed a cross-sectional—rather than a prospective—design. As noted previously, the original self-complexity model (Linville 1985, 1987) does not suggest a simple correlation between self-complexity and well-being. Thus, the design of these studies (Emmons, 1989; Emmons & King, 1989) seems inappropriate to test the presumed moderating effects of self-complexity.

Coping with negative or stressful events.   Linville's model (1987) suggests that people high in self-complexity cope more successfully with negative events than do those low in self-complexity. Although results of several studies support this prediction, results of other studies fail to support it. The supportive evidence finds that, compared to people low in self-complexity, those high in self-complexity experience lower levels of stress and illness (Kalthoff & Neimeyer, 1993; Linville, 1987) and have a greater tolerance for frustration (Gramzow, Sedikides, Panter, & Insko, 2000). For example, results of one study that assessed self-complexity and then manipulated performance feedback suggest that people high in self-complexity cope with failure relevant to one self-aspect (e.g., verbal intelligence) by persisting at a task relevant to other, independent, self-aspects (e.g., life goals; Dixon & Baumeister, 1991). For people low in self-complexity, whose various self-aspects are less independent, negative thoughts about a particular self-aspect may spill over into thoughts about other, unrelated self-aspects (Dixon & Baumeister, 1991).

Other supportive evidence finds that self-complexity may also buffer the effects of more personal feedback. Specifically, results of a study examining individuals' responses to the dissolution of a relationship demonstrated that when their "relationship self" (i.e., how they view themselves in their relationship) overlapped greatly with seemingly unrelated self-aspects (reflecting lower self-complexity), they were more likely to avoid future relationships (Smith & Cohen, 1993). In contrast, people who mentally separated their self-aspects

involving their romantic relationships from other self-aspects (i.e., people high in self-complexity) reported being less upset and less likely to avoid thinking about the relationship. Thus, as Linville (1987) hypothesized, self-complexity may indeed buffer people from the potentially adverse effects of negative life events.

Although some studies support the buffer hypothesis, several studies fail to find a buffer effect (e.g., Kalthoff & Neimeyer, 1993; Morgan & Janoff-Bulman, 1994). For example, a study of coping among people who had experienced a traumatic life event demonstrated that high self-complexity was not associated with coping and adjustment, as assessed by measures of symptomotology and constructive thinking (Morgan & Janoff-Bulman, 1994). In this study, researchers classified participants into trauma and no-trauma groups based on responses to a questionnaire that assessed the occurrence and evaluation of highly negative life events. Trauma and no-trauma participants did not differ significantly in level of self-complexity, and among the trauma participants, self-complexity accounted for essentially none of the variance in emotional and psychological distress (as assessed by a measure of symptomotology) and coping ability (as assessed by a measure of constructive thinking). Again, however, this study employed a cross-sectional—rather than a prospective—design. Thus, the design of the study might have been inappropriate to test the presumed moderating effects of self-complexity.

Depression.   Just as self-complexity may characterize people with better coping skills and less affective reactivity, self-complexity may also characterize people who are low in depression. Once again, however, evidence for a negative relationship between self-complexity and depression is mixed. For example, some studies indicate that people high in self-complexity are less susceptible to depression over a period of several weeks (Kalthoff & Neimeyer, 1993; Linville, 1987), but subsequent studies failed to find this effect (e.g., Hershberger, 1990; Koenig, 1989, as cited in Rafaeli-Mor et al., 1999). Some studies have even demonstrated a positive relationship between self-complexity and depression (e.g., Gara et al., 1993; Woolfolk et al., 1999; Woolfolk et al., 1995). For example, results of one study revealed that self-complexity uniquely predicted levels of depression over a period of 9 months (Woolfolk et al., 1999).

Manipulated Self-Complexity.   As noted previously, much research on the effects of self-complexity is correlational. However, some re-

searchers have sought to manipulate self-complexity in an attempt to understand more clearly its effects. One possibility is that transmitting information about the self may reduce self-complexity. For example, when an employee attempts to describe a performance evaluation to a co-worker, the employee would likely focus his or her thoughts and organize the contents of the evaluation in a simple manner, making it more comprehensible. Thus, the employee may not think of himself or herself in a complex manner when describing the evaluation to another person. In support of this possibility, Margolin & Niedenthal (2000) found that expecting to transmit information about the self—specifically, describing oneself to a ''personality analyst''—resulted in lower levels of self-complexity. In contrast, expecting to receive information about the self—specifically, reading the assessment of a ''personality analyst''—resulted in higher levels of self-complexity, as assessed by a card sort task (Linville, 1985, 1987).

Another method researchers have used to manipulate self-complexity involves use of a card sort task (typically used to measure self-complexity, as we describe later). Specifically, Halberstadt et al. (1996) instructed participants to sort cards involving specific self-aspect categories into three or seven piles. Forcing people to organize their self-aspects into seven categories apparently induces a higher level of self-complexity than does forcing people to organize their self-aspects into three categories (Setterlund, 1993, as cited in Halberstadt et al., 1996).

Does manipulating self-complexity have consequences? Only two published studies have attempted to answer this question. The first study suggests that high self-complexity leads to greater difficulty in making decisions and, consequently, lower satisfaction with decisions (Halberstadt et al., 1996). Apparently, considering many self-aspects when making a self-relevant decision makes a decision difficult. For example, in deciding on which job offer to accept, a person low in self-complexity may only consider his or her role as an employee. In contrast, a person high in self-complexity may have difficulty deciding on a job when considering how the job will affect career, friendships, and family relationships. One experimental study supports this possibility (Halberstadt et al. 1996). When participants were primed to think of their future selves using three (low self-complexity) versus seven (high self-complexity) categories, participants primed to be high in self-complexity reported greater difficulty and

less satisfaction in their decisions about future careers and hobbies than did participants primed to be low in self-complexity. Surprisingly, manipulated high self-complexity also led to less time in making a decision (Halberstadt et al., 1996), although prior correlational research suggests the contrary (Setterlund, 1993, as cited in Halberstadt et al., 1996).

The second experimental study manipulating self-complexity yielded findings suggesting that, contrary to predictions of Linville's (1985) model, manipulated self-complexity does not influence affective reactivity (Margolin & Niedenthal, 2000). However, the manipulation produced only a small difference in self-complexity scores (Margolin & Niedenthal, 2000), suggesting that the failure to find differences in affective reactivity may have resulted from a weak manipulation. Obviously, more research is needed to examine the effects of manipulated self-complexity.

An important question is whether the existing self-complexity manipulations yield states that are comparable to measured self-complexity. For example, although organizing self-relevant trait cards into three versus seven categories (Halberstadt et al., 1996) seems a reasonable manipulation, it is unknown whether this manipulation actually induces the type of thinking presumably involved in low versus high self-complexity. As Margolin and Niedenthal (2000) note, presenting participants with specific self-aspects to consider constrains the self-knowledge that participants may draw upon while performing the task. Thus, the card sort manipulation may not effectively preserve the idiosyncratic nature of self-complexity. A more effective manipulation of self-complexity may be to prime participants to think of few versus many self-aspects, or overlapping versus non-overlapping facets of themselves. If, however, self-complexity is not a variable that can be manipulated, researchers have an additional reason to employ prospective designs to examine potential effects of self-complexity.

Summary. Although prospective designs seem most appropriate to test the original self-complexity model, researchers have also used cross-sectional and experimental studies. Some evidence supports the hypothesis that self-complexity is associated with better coping with stress or negative events (e.g., Dixon & Baumeister, 1991; Linville, 1985, 1987). In addition, some research suggests that self-complexity is negatively associated with depression (e.g., Linville, 1987; Kalthoff

& Neimeyer, 1993). However, other research suggests that self-complexity is either positively associated with depression (Gara et al., 1993; Woolfolk et al., 1999; Woolfolk et al., 1995), or that it is unrelated to depression (Hershberger, 1990; Koenig, 1989, as cited in Rafaeli-Mor et al., 1999). Thus, an examination of correlational findings reveals inconsistent results. The few attempts to manipulate self-complexity experimentally suggest that self-complexity affects decision making (Halberstadt et al., 1996), but that self-complexity may not influence affective reactivity (Margolin & Niedenthal, 2000). However, existing experimental manipulations of self-complexity may be inadequate to the extent that they produce weak effects or states that are not comparable to measured self-complexity. Thus, like the prior research on self-complexity, the experimental research on self-complexity is inconclusive.

Source of the Inconsistent Findings I: Variations in the Measurement of Self-Complexity

Thus far, the evidence for the presumed relationship between self-complexity and coping appears mixed at best and contradictory at worst. Results of a recent meta-analysis suggest that the relationship between self-complexity and well-being is, on average, negative (Rafaeli-Mor & Steinberg, 2002). Is the relationship between self-complexity and coping indeed negative (e.g., Gara et al., 1993; Woolfolk et al., 1999; Woolfolk et al., 1995) or nonexistent (e.g., Hershberger, 1990; Koenig, 1989, as cited in Rafaeli-Mor et al., 1999), as some studies suggest? Or, is the relationship between self-complexity and coping positive (e.g., Dixon & Baumeister, 1991; Linville, 1985, 1987; Smith & Cohen, 1993), as still other studies suggest? As noted previously, the original self-complexity model suggests no direct, simple relationship between self-complexity and coping (Linville, 1985, 1987). However, the model suggests a positive relationship between self-complexity and coping in response to negative events or under conditions of stress. Furthermore, close inspection of the self-complexity literature reveals that the answers to questions about the complexity-coping relationship may lie partly in the measurement of self-complexity. In the next section, we describe the methods that researchers have used to measure self-complexity. We then reexamine the studies that have explored the relationship between self-complexity and coping with stress and depression, the primary places where

studies reveal inconsistent findings. The general finding that emerges is that the inconsistency in results stems from differences in how researchers have measured self-complexity.

Measuring self-complexity.   Researchers traditionally measure self-complexity as an individual difference variable using an idiographic approach. Participants in self-complexity research typically display their presumed level of complexity by describing their self-aspects in personally meaningful ways. Rather than complete questionnaires (a more nomothetic method), participants in self-complexity studies describe themselves using a card-sort task in which they select and organize self-relevant traits. For example, Linville (1985, 1987) initially provided participants with 33 cards, each containing a potentially self-descriptive adjective (e.g., outgoing, playful, unorganized, lazy). Participants then organized the cards into categories or groups (e.g., "relationship with friends," "home life") that described them. They could omit cards, use cards more than once, and create as many groups as they wanted. Finally, participants indicated the contents of their groups, which they could label if they wished to do so, on a recording sheet.

Ultimately, researchers using the trait card sort task must translate the contents of participants' card sorts into a meaningful statistic. Thus, researchers typically use the H statistic (Attneave, 1959; Nielsen, 1996; Scott, 1969)—a measure of the redundancy in binary data sets—to represent the number of independent attributes in a participant's sort. A high H reflects a high degree of independence of traits across many self-aspects, whereas a low H reflects high redundancy of traits across self-aspects, or a small number of self-aspects. Thus, researchers commonly operationalize high self-complexity as a high H and low self-complexity as a low H.

Coping with stressful or negative events.   As noted previously, a study of coping among people who had experienced a traumatic life event demonstrated that high self-complexity was uncorrelated with coping and adjustment, as assessed by measures of symptomotology and constructive thinking (Morgan & Janoff-Bulman, 1994). However, a closer inspection reveals that this study measured self-complexity differently than Linville (1985, 1987) initially did, and the differences in measurement of self-complexity may explain the surprising findings. Specifically, the study distinguished between posi-

tive and negative self-complexity. (Although the conceptualization of positive and negative self-complexity somewhat resembles Showers's [1992b] conceptualization of evaluative integration, the construct of evaluative integration extends beyond the focus of this paper, as previously noted.) Whereas complexity of negative self-aspects (i.e., negative self-complexity) correlated negatively with coping, complexity of positive self-aspects (i.e., positive self-complexity) correlated positively with coping. Results of regression analyses indicated that positive self-complexity—operationalized as the number of distinct positive self-aspects across self-relevant categories—accounted for more variance in symptomotology and constructive thinking than did negative or overall self-complexity. (Negative self-complexity was operationalized as the number of distinct negative self-aspects across self-relevant categories, and overall self-complexity was operationalized as the number of distinct self-aspects across categories, regardless of valence.) In fact, as noted previously, overall self-complexity accounted for essentially no variance in symptomotology and constructive thinking. Thus, although overall self-complexity may be unrelated to coping with trauma, people with highly complex positive self-aspects appear to cope with trauma more successfully than do people with highly complex negative self-aspects (Morgan & Janoff-Bulman, 1994). For example, a negative event such as the loss of a significant other may activate many negative self-aspects (e.g., distracted employee, confused mother, helpless friend), in turn impairing one's ability to think constructively or positively (Morgan & Janoff-Bulman, 1994).

The distinction between positive and negative self-complexity and the findings regarding the relationship between self-complexity and coping with trauma raise an important conceptual question: to what extent is self-complexity a unitary construct? Linville (1985, 1987) conceptualized self-complexity as a structural variable without regard to valence or affective content. However, subsequent theorists have questioned the utility of this conceptualization. As we describe next, other theorists have also suggested measuring self-complexity by dividing it into positive and negative components.

Depression. As noted previously, although some research (e.g., Kalthoff & Neimeyer, 1993; Linville, 1987) suggests that self-complexity is negatively associated with depression, subsequent research suggests that it may be unrelated (e.g., Hershberger, 1990; Koenig,

1989, as cited in Rafaeli-Mor et al., 1999) or positively related (Gara et al., 1993; Woolfolk et al., 1999; Woolfolk et al., 1995) to depression. However, measuring overall self-complexity may obscure the picture of how depressed people actually organize their self-knowledge. To create a clearer description of the organization of self-aspects among depressed people, several researchers have measured positive and negative self-complexity independently (Gara et al., 1993; Woolfolk et al., 1995; Woolfolk et al., 1999). Apparently, depression involves high negative self-complexity, low positive self-complexity, or both. In contrast, an absence of depression may involve high positive self-complexity.

Several studies support the hypothesis that depression is associated with either high negative self-complexity or low positive self-complexity. For example, in a longitudinal study, negative self-complexity predicted persistence of depression over a 9-month period, even after controlling for factors such as self-esteem and initial depression levels (Woolfolk et al., 1999). Results of other studies indicate that higher levels of negative self-complexity correspond to higher levels of depression over a period of two weeks (Woolfolk et al., 1995) and that people who display depressive symptoms have higher levels of negative self-complexity than do people who do not display depressive symptoms (Gara et al., 1993). Conversely, some studies find that people high in depression have lower levels of positive self-complexity than do people low in depression (Gara et al., 1993; Sato, 1999). Perhaps the studies that revealed a negative relationship between overall self-complexity and depression actually measured positive self-complexity (Campbell et al., 2000; Morgan & Janoff-Bulman, 1994).

Recent studies have addressed the possibility that prior measures of overall self-complexity actually tapped positive self-complexity. As several researchers have noted (e.g., Campbell et al., 2000; Conway & White-Dysart, 1999; Woolfolk et al., 1995), Linville's (1985) initial card-sort task included more positive traits than negative traits. The measure included a 2:1 ratio of positive to negative traits, ostensibly to reflect a common positivity bias in self-views (Conway & White-Dysart, 1999). Thus, the greater proportion of positive traits in the card-sort task may accurately reflect how most people think about themselves. However, a measure slanted toward positive words may prevent accurate assessment of people who have many negative self-views. For example, people who are depressed may

have many negative thoughts about themselves. Although people who are depressed may appear to be low in self-complexity, they may instead be low in positive self-complexity and high in negative self-complexity—a possibility that a measure of overall self-complexity would obscure.

To examine the possibility that findings regarding depression and self-complexity depend heavily on measurement, Woolfolk and colleagues (1995, Study 1) constructed three adjective lists for a card-sort task. Lists contained a 2:1, 1:1, or 1:2 ratio of positive to negative traits, and participants completed the card-sort task using cards created from one of the three lists. As expected, participants exhibited the highest levels of overall self-complexity when they completed a card-sort task with a 2:1 ratio of positive to negative traits. Participants exhibited lower self-complexity when the cards featured a 1:1 positive to negative ratio, and even lower self-complexity when the cards featured a 1:2 positive to negative ratio. Furthermore, participants exhibited highest levels of positive self-complexity when the cards featured a 2:1 positive to negative ratio and the highest levels of negative self-complexity when the cards featured an equal number of positive and negative traits (Woolfolk et al., 1995). Results of a subsequent study indicated that depression was positively correlated with the number of negative words that participants used in a card-sort task (Woolfolk et al., 1995, Study 3). Thus, previous findings demonstrating a positive relationship between self-complexity and depression may have resulted from participants who were low in depression selecting many positive traits and few negative traits in the card-sort task. Prior studies that provided twice as many positive as negative adjectives may have limited participants' ability to select from a full range of potentially negative self-beliefs.

The distinction between positive and negative self-complexity may also partly explain the puzzling findings of a recent meta-analysis. The meta-analysis found that self-complexity is negatively correlated with well-being (Rafaeli-Mor & Steinberg, 2002). However, the meta-analysis also revealed a large heterogeneity of effect sizes, ranging from highly negative to highly positive relationships between self-complexity and well-being (Rafaeli-Mor & Steinberg, 2002). Moreover, the number of negative words included in self-complexity card sorts contributed to substantial heterogeneity in effect sizes (Rafaeli-Mor & Steinberg, 2002).

Summary.   A summary of the results of measured self-complexity studies appears in Figure 1. Recent research suggests that prior studies that revealed a positive relationship between overall self-complexity and coping (e.g., Baumeister & Dixon, 1991; Linville, 1985, 1987) actually assessed positive self-complexity (e.g., Woolfolk

Self-Complexity linked to positive outcomes	Self-Complexity linked to negative outcomes	Null Self-Complexity findings
• Linville, 1985, Study 1: less negative affect after failure	• Gara et al., 1993: greater levels of depression (for –SC)	• Koenig, 1989, as cited in Rafaeli-Mor et al., 1999: no significant differences in people with versus without depressive symptoms
• Linville, 1985, Study 2: less affective variability over 2 weeks	• Morgan & Janoff-Bulman, 1994: more symptomotology and less constructive thinking among trauma and no-trauma groups (for –SC)	• Hershberger, 1990: no significant differences in people with versus without depressive symptoms
• Linville, 1987: lower levels of depression, perceived stress, physical symptoms, and illness	• Woolfolk et al., 1995: higher levels of depression over 2 weeks (for –SC)	• Kalthoff & Neimeyer, 1993: no significant differences in levels of stress, illness, and depression over 2 weeks
• Campbell et al., 1990: less frequent mood changes over 2 weeks	Jordan & Cole, 1996: higher levels of depression among children	• Morgan & Janoff-Bulman, 1994: no significant differences in symptomotology and constructive thinking among trauma and no-trauma groups (for overall SC)
• Dixon & Baumeister, 1990: greater effort at a task after failure at unrelated task	• Woolfolk et al., 1999: greater persistence of depression over 9 months (for –SC)	
• Kalthoff & Neimeyer, 1993: lower levels of stress, illness, and depression over 4 weeks	• Rafaeli-Mor & Brown, 2001: higher levels of depression under low stress	
• Gara et al., 1993: lower levels of depression (for +SC)		
• Morgan & Janoff-Bulman, 1994: less symptomotology and greater constructive thinking among a trauma group (for +SC)		
• Sato, 1999: lower levels of depression and negative affect (for +SC)		
• Brown & Rafaeli-Mor, 2001: lower levels of depression under high stress		
• Rafaeli-Mor & Brown, 2001: lower levels of depression under high stress		

Figure 1
Summary of findings regarding self-complexity and coping-related outcomes.

et al., 1995). In contrast, studies that separately examined positive and negative self-complexity suggest that positive self-complexity is associated with effective coping, whereas negative self-complexity is associated with poorer coping (Gara et al., 1993; Morgan & Janoff-Bulman, 1994; Sato, 1999; Woolfolk et al., 1999; Woolfolk et al., 1995). Thus, understanding the relationship between self-complexity and coping may require examination of the words used in the card-sort task that assesses self-complexity.

Source of the Inconsistent Findings II: Variation in the Definition of Self-Complexity

Examining the various measures of self-complexity can be overwhelming. Not only have researchers varied the procedure, they have also varied the content of the measurement itself. One potential reason why the measurement of self-complexity varies so widely across studies is that disagreement exists over how best to define self-complexity.

"Specific" self-complexity.   Although Linville's (1985) definition depicts self-complexity as a broad, structural variable, subsequent theorists have proposed examining complexity at a more specific level. For example, some research suggests that self-complexity has more predictive value when examined within a particular self-relevant domain, such as relationships (Cohen et al., 1997; Smith & Cohen, 1993). Similarly, theorists have also suggested examining the complexity of self-relevant goals versus self-relevant plans to achieve those goals (Emmons, 1989; Emmons & King, 1989). These researchers have also proposed that a more specific construal of self-complexity would better predict how people cope with a particular negative event.

Although some researchers have suggested defining self-complexity at a more specific level than did Linville (1985, 1987), such specificity presents several potential problems. At a theoretical level, complexity within specific self-aspects (e.g., Cohen et al., 1997; Smith & Cohen, 1993) differs from the self-complexity of Linville's (1985, 1987) original model. This model depicts high self-complexity as "cognitively organizing self-knowledge in terms of a greater number of self-aspects and maintaining greater distinctions among self-aspects" (Linville, 1987, p. 663). Complexity within a particular self-aspect—for example, self in relationships (e.g., Cohen et al., 1997)—

differs from complexity across self-aspects. The original theoretical model makes no predictions about how specific self-aspects relate to variables such as coping (Linville, 1985, 1987).

Although defining self-complexity at a specific level may predict a particular behavior more effectively than does overall self-complexity, "specific" self-complexity may actually represent a theoretically distinct construct from Linville's (1985, 1987) self-complexity. How, then, might researchers best characterize self-complexity? Cohen et al. (1997) offer one answer to this question, suggesting that self-complexity "serves as a stress-buffer for negative events *in the aggregate*" (p. 398). Perhaps as in the attitudes literature (e.g., Fishbein & Aizen, 1975), the level of specificity of self-complexity should correspond to the desired level of specificity of the behavior to be predicted. Overall self-complexity may more accurately predict overall levels of coping with negative events, but not necessarily coping within a specific area. Similarly, specific self-complexity, such as complexity of self-aspects within the domain of relationships, may predict coping in response to relationship dissolution (Smith & Cohen, 1993), but may not predict overall coping or coping in other, unrelated, domains such as academics. Furthermore, Cohen et al. (1997) speculate that complexity of specific self-aspects (e.g., academic) may not predict response to negative events in these domains (e.g., academic performance), unless the domains are important. Perhaps level of complexity within a domain becomes irrelevant when that domain is not viewed as personally important.

If "specific" self-complexity represents a different construct from Linville's (1985, 1987) self-complexity, perhaps it is a form of more general cognitive complexity. For example, constructs such as "relationship self-complexity" (Smith & Cohen, 1993; Cohen et al., 1997) may represent complexity with regard to one's cognitions about a particular facet of the self—for example, one's relationships. Thus, what some theorists have coined "specificity" of self-complexity may actually represent particular examples of *cognitive* complexity (i.e., cognitive elaboration), rather than *self*-complexity per se. Although self-complexity may represent one facet of more general complexity (e.g., Manning, 2001), the consequences of *self*-complexity may differ from those of other types of complexity such as emotional complexity (Manning, 2001) or cognitive complexity (Zajonc, 1960). The field may benefit from reserving the term "self-complexity" to refer to the degree of multiple, independent self-aspects, con-

sistent with the original model of self-complexity (Linville, 1985, 1987). In addition, researchers may avoid contributing to confusion within the literature by not using the term ''self-complexity'' to refer to more specific complexity, or to cognitive or emotional complexity.

"Positive" and "negative" self-complexity. As noted previously, some researchers have measured self-complexity by splitting it into positive and negative components (e.g., Gara et al., 1993; Morgan & Janoff-Bulman, 1994; Woolfolk et al., 1999; Woolfolk et al., 1995). Thus, these researchers defined self-complexity not as the overall number of nonoverlapping self-aspects, but rather as the number of nonoverlapping negative and positive self-aspects (e.g., Gara et al., 1993; Morgan & Janoff-Bulman, 1994; Woolfolk et al., 1999; Woolfolk et al., 1995). However, like ''specific'' self-complexity, the concept of positive versus negative self-complexity differs from Linville's (1985, 1987) theoretical model of self-complexity. Linville (1985, 1987) construed self-complexity as a structural variable without regard to content of self-knowledge. However, findings of studies that included measurement of both positive and negative self-complexity suggest that content of self-knowledge may predict levels of depression (Gara et al., 1993; Woolfolk et al., 1999; Woolfolk et al., 1995) and effectiveness of coping with trauma (Morgan & Janoff-Bulman, 1994).

The separate examination of positive and negative self-complexity served as a response to criticisms that Linville's (1985, 1987) model was incomplete, in that it focused on organization or structure of self-aspects and failed to incorporate content or valence of self-aspects (Morgan & Janoff-Bulman, 1994). At a theoretical level, researchers have depicted positive and negative self-complexity as independent dimensions (Woolfolk et al., 1995). Thus, the distinction between positive and negative self-complexity should allow for distinct theoretical predictions about their independent effects. If positive and negative self-complexity are indeed theoretically distinct, they should be either modestly correlated or uncorrelated. However, research that has examined positive and negative self-complexity separately has yielded inconsistent relationships between the two constructs. Findings demonstrate that positive and negative self-complexity are uncorrelated (Woolfolk et al., 1999), moderately correlated (Morgan & Janoff-Bulman, 1994), or highly correlated (Jordan & Cole, 1996; Woolfolk et al., 1995). Thus, the evidence that positive and negative self-complexity are distinct constructs is inconclusive.

Summary.   Part of the inconsistency in the self-complexity literature arises from differences in the definition of self-complexity. Although some researchers (e.g., Emmons & King, 1989; Cohen et al., 1997) advocate defining self-complexity at a more specific level than did Linville (1985, 1987), such ''specific self-complexity'' may actually represent a construct that more closely resembles cognitive complexity (e.g., Zajonc, 1960), rather than self-complexity. Similarly, although some researchers advocate defining self-complexity as a construct having both positive and negative components (e.g., Gara et al., 1993; Morgan & Janoff-Bulman, 1994; Woolfolk et al., 1999; Woolfolk et al., 1995), empirical evidence suggests that positive and negative self-complexity may not be as independent as some researchers suggest (Jordan & Cole, 1996; Woolfolk et al., 1995).

Conclusion.   Our review of the literature reveals that high self-complexity corresponds to more effective coping with negative events than does low self-complexity. Studies that examine overall self-complexity (consistent with Linville's [1985, 1987] original theoretical model) suggest that high self-complexity corresponds to lower affective reactivity (e.g., Campbell et al., 1991; Linville, 1985), less negative response to setbacks (e.g., Dixon & Baumeister, 1991; Smith & Cohen, 1993), and lower levels of depression (Linville, 1987). However, recent research suggests that examining positive and negative self-complexity may more adequately predict responses to trauma (Morgan & Janoff-Bulman, 1994) or provide a more thorough understanding of depression (e.g., Gara et al., 1993; Woolfolk et al., 1999). Specifically, well-elaborated positive self-aspects (i.e., positive self-complexity) may increase effective coping with traumatic events (Morgan & Janoff-Bulman, 1994), whereas well-elaborated negative self-aspects (i.e., negative self-complexity) may increase vulnerability to depression (Woolfolk et al., 1995). Because the empirical evidence for positive and negative self-complexity as independent constructs is inconsistent, additional research is needed to understand more thoroughly how positive and negative self-complexity contribute to coping.

Directions for Future Research

As noted throughout the present review, the most appropriate method for assessing the consequences of self-complexity is a prospective

design. Future research may elucidate the presumed benefits of self-complexity by examining participants prior to and following negative events. If, as Linville (1985, 1987) suggests, self-complexity buffers people from the impact of negative events, then people high in self-complexity should fare better psychologically than people low in self-complexity. However, such differences between people high versus low in self-complexity may appear *only* in response to negative events, and thus researchers need not expect a direct relationship between self-complexity and well-being. In addition to suggesting that future research use prospective designs, we suggest the following considerations for improving future research on self-complexity.

Defining and measuring self-complexity.   Future research may benefit by including clear distinction between self-complexity (Linville, 1985, 1987) and other constructs. Constructs such as emotional complexity (Manning, 2001) and specific self-complexity (Emmons, 1989; Emmons & King, 1989) apparently represent forms of cognitive complexity that deviate from theoretical descriptions of self-complexity. Though research suggests the importance of each of these in predicting behavior, each construct is distinct from self-complexity. Moreover, using ''self-complexity'' as an umbrella term for various, distinct constructs further adds to the confusion surrounding the construct of self-complexity. Similarly, the construct of self-concept differentiation (e.g., Donahue et al., 1993) differs from the construct of self-complexity. As some theorists (e.g., Constantino & Pinel, 2000; Diehl et al., 2001) have noted, researchers occasionally use the terms interchangeably (e.g., Brown & Rafaeli-Mor, 2001; Halberstadt et al., 1996). However, as Donahue et al. (1993) noted, self-complexity and self-concept differentiation should share little variance. Perhaps mental health or adequate coping requires both high self-complexity (i.e., flexibility in the way that people think about themselves) and low self-concept differentiation (i.e., a sense of a coherent self; Constantino & Pinel, 2000).

Lack of agreement in defining self-complexity clearly contributes to inconsistencies in the literature, as does variability in the measurement of self-complexity. We offer two suggestions to researchers attempting to measure self-complexity. First, we suggest that researchers carefully consider the valence of the adjectives they select to assess self-complexity. Linville suggested pretesting the adjectives used for sorts (Nielsen, 1996), and such pretesting procedures could

include examination of the valence of words used in the card sorts (e.g., Morgan & Janoff-Bulman, 1994). Results of self-complexity studies depend highly upon the content of the card sorts. For example, research indicates that the level of overall self-complexity increases as the proportion of positive words available increases (Woolfolk et al., 1995). Similarly, understanding the content of self-aspects of people who display depressive symptoms may require providing a sufficient number of traits that characterize people who are depressed (Showers, 1992a).

Second, in pretesting words, researchers also need to examine the words' specificity. (Alternatively, researchers may consult a dictionary to eliminate words that have multiple, distinct meanings from their card-sort tasks.) Broad words presumably carry multiple meanings across contexts (Showers, 1999). Thus, use of words such as Big-Five traits may create spurious positive relationships between self-complexity and overlap across self-aspects (e.g., Rafaeli-Mor et al., 1999). For example, the word ''outspoken'' may be considered positive or negative, depending on the context (Showers, 1999). Participants who include ''outspoken'' in several categories in a card sort may do so not because they are low in self-complexity, but because they perceive ''outspoken'' as holding different meanings across different self-aspects. Although many traits may carry multiple meanings, choosing trait words that carry relatively few meanings may allow for more precise measurement of self-complexity.

Unanswered Questions

The construct of self-complexity lends itself to many interesting research questions with important theoretical and practical implications:

How does self-complexity function?   As noted previously, Linville proposed that the coping benefits of self-complexity stem from preventing spreading activation (e.g. Linville, 1985, 1987). However, the mechanisms behind this process remain unclear. Studies that examine spreading activation typically entail priming manipulations or lexical decision tasks, but such techniques have not been used in self-complexity research. Thus, empirical evidence for the role of spreading activation in self-complexity is not available, and the use of spreading activation concepts to explain self-complexity seems pure-

ly heuristic. Alternatively, possessing the same self-aspect across a variety of domains may stabilize mood. However, this possibility is highly speculative and awaits empirical testing. Furthermore, as also noted earlier, self-complexity may benefit coping through a process of compensation (or self-affirmation; Steele, 1988) rather than via blocking spreading activation. Specifically, the presumed benefit of high self-complexity may arise from compensating for negative feedback in another domain, rather from mentally separating one's self-aspects. For example, high self-complexity may allow students who fail an exam to avoid intense negative affect because they possess unrelated domains from which to self-affirm, and not merely because they view themselves differently in different roles. Alternatively, the presumed benefit of high self-complexity may arise simply from distraction. For example, students who fail an exam may use unrelated self-aspects (e.g., good athlete, caring friend) to distract them from thoughts about the disappointing outcome. Thus, greater understanding of self-complexity may require testing these competing potential processes.

Can self-complexity be measured more effectively? Although the standard card-sort task (e.g., Linville, 1985, 1987) provides a useful measurement of self-complexity, the possibility of a more desirable measurement remains. For example, results of one study that included a repertory-grid task and a narrative self-description task suggest that the card sort is a superior measure (Kalthoff & Neimeyer, 1993). However, a task similar to the repertory grid may prove useful if its instructions do not limit the number of roles that participants may generate. Similarly, a narrative self-description task may prove useful if analyzed more precisely, rather than simply by a count of the number of self-descriptors that participants list. For example, coders could examine the amount of elaboration in participants' sentences, the number of distinct self-aspects mentioned, or the number of times that positive and negative attributes were listed together. Another potential measure involves a simple listing task. In one study, Linville (1987) instructed participants to list the various activities in which they engage during the school year. Results revealed no significant findings for this alternative measure of self-complexity, but modifications to this procedure may ultimately create a useful measure. For example, perhaps instructing participants to list the number of activities that they find personally meaningful

(rather than all activities) may yield a measure of personally important self-aspects that participants draw upon when confronted with stress or failure.

A recent suggestion for assessing self-complexity involves instructing participants to generate self-aspects in response to "probes" (Campbell et al., 2000). Perhaps rather than carefully constructing trait words used in self-complexity card sorts, researchers should allow participants to select the trait words themselves. Participants have the opportunity to portray themselves as high in self-complexity only to the extent that they are presented adjectives that they happen to find self-descriptive. Several researchers suggest that the standard procedure of using traits to generate self-aspect groups may be difficult and that listing groups *before* considering the traits relevant to those groups may more accurately reflect how people think about themselves. A broader issue is whether a trait card sort actually taps the thought processes presumably inherent in self-complexity. Does possession of some traits (e.g., anxious) in some roles or situations and other traits (e.g., playful) in other situations truly represent self-complexity, or merely malleability in the self across situations? Although self-complexity scores apparently do not share variance with self-monitoring (Miller et al. 1991), the question of what trait sort tasks actually measure remains.

Can self-complexity manifest itself in a state form?   Linville (1985) initially depicted self-complexity as a stable structural variable, but other theorists (e.g., Niedenthal et al., 1992; Salovey, 1992) have depicted self-complexity as more malleable. However, only two published studies have attempted to manipulate self-complexity (Halberstadt et al., 1996; Margolin & Neidenthal, 2000). Thus, the question of whether self-complexity manifests itself as a state remains largely unexplored. Perhaps, rather than attempt to manipulate self-complexity per se (Halberstadt et al., 1996; Margolin & Neidenthal, 2000), future research could manipulate the type of thinking that characterizes self-complexity. Specifically, rather than preparing people to receive information about themselves (Margolin & Neidenthal, 2000) or forcing them to create a high number of categories in a card-sort task (Halberstadt et al., 1996), researchers could induce people to think about their multiple, independent roles (i.e., high self-complexity) or one role (i.e., low self-complexity). This alternative approach may be more effective to the extent that it more

closely approximates the type of thinking that characterizes different levels of self-complexity. Of course, future research will also need to determine whether manipulations of state self-complexity actually induce a state that is comparable to measured self-complexity.

Is self-complexity a cause or consequence of coping?   Experimental manipulation of self-complexity would allow researchers to assess directly whether self-complexity actually *causes* effective coping. Results of prospective studies (e.g., Kalthoff & Neimeyer, 1993; Linville, 1987; Showers et al., 1998) suggest that self-complexity indeed leads to more effective coping, as evident in lower levels of depression, illness, and stress. However, several theorists have also suggested that people may become more complex to cope with potential failure (e.g., Margolin & Niedenthal, 2000) or stressful events (e.g., Showers, 1992a; Showers et al., 1998). Thus, the relationship between self-complexity and coping may be reciprocal, and additional longitudinal and experimental work may assess this possibility.

What are the limits of self-complexity's benefits?   Although self-complexity may indeed assist people in coping, self-complexity may also carry liabilities (e.g., Dixon & Baumeister, 1991; Halberstadt et al., 1996). First, just as self-complexity presumably buffers people from the effect of negative events (e.g., Linville, 1985), self-complexity may also diminish the benefits of positive events. Thus, possessing a highly complex self-view may prevent people from enjoying entirely positive experiences (e.g., Linville, 1985; Showers, 1992a). Second, maintaining the multiple roles necessary for creating distinct self-aspects may create low-level stress, though this possibility has yet to receive empirical support (Linville, 1987). Third, self-complexity may not aid in coping with all types of stress. For example, recent research suggests that self-complexity may buffer people from experiencing depression only under high (but not low) levels of stress (Brown & Rafaeli-Mor, 2001; Rafaeli-Mor & Brown, 2001; cf. Showers et al., 1998). Such findings suggest some qualifications for Linville's (1985, 1987) initial model.

Can self-complexity explain individual differences in other behaviors? We have focused on the ability of self-complexity to explain individual differences in coping, but self-complexity may also explain

variance in other types of behavior. For example, self-complexity shares several features with the construct of self-affirmation (Steele, 1988). The process of self-affirmation entails preserving self-esteem in the presence of a threat to one self-relevant area by affirming overall self-worth in another self-relevant area (Steele, 1988). People high in self-complexity may more easily self-affirm in response to threat to one aspect of the self, because they have more self-aspects from which to draw. For example, after receiving a negative performance evaluation at work, a woman high in self-complexity may self-affirm by considering how much her friends value her. Thus, she may preserve her self-esteem by reacting to a threat to one self-aspect (self as employee) by affirming her worth in another self-aspect (self as friend). In contrast, a woman low in self-complexity may find that she cannot self-affirm so easily, because she has few independent self-aspects from which to draw.

Summary and Conclusion

The present review of the relationship between self-complexity and coping demonstrates that the self-complexity literature has been marred by inconsistent findings that characterize self-complexity as both an asset and a liability. Close inspection of the literature reveals that the inconsistent findings result partly from variations in the measurement of self-complexity. The different measures stem from disagreement over the definition of self-complexity, and the various definitions apparently result from theoretical disagreement about how to conceptualize the structure of self-knowledge. To understand the relationship between self-complexity and coping more thoroughly, researchers would do well to employ prospective designs and consider whether they are actually examining self-complexity and not some other seemingly related construct such as cognitive complexity, emotional complexity, self-concept clarity, or self-concept differentiation. Although the present review suggests that high self-complexity corresponds to effective coping with negative events (e.g., Dixon & Baumeister, 1991; Linville, 1985, 1987), additional research that includes careful measurement and definition of self-complexity may provide stronger support for the apparent relationship. Greater precision in defining and measuring self-complexity would move researchers closer to knowing, when it comes to the self, whether to heed the adage "Don't put all of your eggs in one basket."

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