

PART III

Perspectives from Emotion Theory

Gratitude, Like Other Positive Emotions, Broadens and Builds

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What good is feeling grateful? Certainly people describe experiences of gratitude as pleasant (Mayer, Salovey, Gombert-Kaufman, & Blainey, 1991; Reizenzein, 1994). Plus, as Roberts (chap. 4, this volume) contends, experiences of gratitude mitigate against aversive experiences such as resentment, envy, and regret. But beyond lifting people's spirits in the moment and signaling the absence of negative emotions, does gratitude have any lasting benefits? Classic and contemporary analyses of gratitude suggest that it does. Reviewing the classic writings and synthesizing them with contemporary empirical findings, McCullough, Kilpatrick, Emmons, and Larson (2001; see also McCullough & Tsang, chap. 7, this volume) suggested that the positive emotion of gratitude has three moral functions: It serves as a moral barometer, a moral motivator, and a moral reinforcer. I concur with their analysis of gratitude as a moral emotion and use this chapter to push the analysis of gratitude's lasting benefits a bit further. To this end, I situate the emotion of gratitude in the context of a broader conceptualization of positive emotions. In doing so, I explore the lasting benefits of people's fleeting experiences of gratitude and other positive emotions—benefits ranging from personal and social development, to individual health and well-being, and community strength and harmony.

CURRENT PERSPECTIVES ON EMOTIONS

A brief review of current perspectives on emotions provides an important backdrop. Working definitions of emotions vary somewhat across re-

searchers. Even so, consensus is emerging that emotions are best conceptualized as multicomponent response tendencies that unfold over relatively short time spans. Typically, an emotion process begins with an individual's assessment of the personal meaning of some antecedent event—what Lazarus (1991) called the person-environment relationship, or adaptational encounter. This appraisal process may be either conscious or unconscious, and it triggers a cascade of response tendencies manifested across loosely coupled component systems, such as subjective experience, facial expression, and physiological changes. Although related, emotions differ from moods in that they are *about* some personally meaningful circumstance (i.e., they have an object), whereas moods are often free-floating or objectless (Oatley & Jenkins, 1996). Emotions also differ from affective traits such as hostility, neuroticism, or optimism: Enduring affective traits predispose individuals toward experiencing certain emotions, and so affective traits and emotional states represent different levels of analysis (Rosenberg, 1998). Whereas other authors in this volume consider gratitude an enduring disposition, virtue, or affective trait (McCullough & Tsang, chap. 7; Roberts, chap. 4), my own conceptualization considers gratitude to be a temporary emotional state.

Current models of emotions typically aim to describe the form and function of emotions in general. Despite this aim, many models are formulated around prototypic and negative emotions such as fear and anger. For instance, key to many theorists' models of emotions is the idea that emotions are, by definition, associated with *specific action tendencies* (Frijda, 1986; Frijda, Kuipers, & Schure, 1989; Lazarus, 1991; Levenson, 1994; Oatley & Jenkins, 1996; Tooby & Cosmides, 1990). Fear, for example, is linked with the urge to escape, anger with the urge to attack, disgust with the urge to expel, and so on. No theorist argues that people invariably act out these urges when feeling particular emotions. But rather, people's ideas about possible courses of action narrow to a specific set of behavioral options. A key idea in these models is that specific action tendencies are what make emotions evolutionarily adaptive: These are among the actions that worked best in getting our ancestors out of life-or-death situations (Tooby & Cosmides, 1990). Another key idea is that specific action tendencies and physiological changes go hand in hand. So, for example, when you have an urge to escape when feeling fear, your body reacts by mobilizing appropriate autonomic support for the possibility of running (Levenson, 1994).

Although specific action tendencies have been invoked to describe the form and function of positive emotions as well, the action tendencies identified for positive emotions are notably vague and underspecified (Fredrickson & Levenson, 1998). Joy, for instance, is linked with aimless activation, interest with attending, and contentment with inactivity (Frijda, 1986). These

tendencies, I have argued, are far too general to be called specific (Fredrickson, 1998). They more resemble generic urges to do anything, or to do nothing, than urges to do something quite specific, like flee, attack, or spit. This strategy of squeezing positive emotions into the same theoretical mold as negative emotions has not produced much understanding or appreciation of positive emotions.

THE BROADEN-AND-BUILD THEORY OF POSITIVE EMOTIONS

Noting that traditional models based on specific action tendencies did not do justice to positive emotions, I developed an alternative model for the positive emotions that better captures their unique effects. I call this the broaden-and-build theory of positive emotions (Fredrickson, 1998, 2001), because positive emotions appear to *broaden* people's momentary thought-action repertoires and *build* their enduring personal resources.

I contrast this new theory with traditional models based on specific action tendencies. Specific action tendencies, in my view, work well to describe the form and function of negative emotions and should be retained for models of this subset of emotions. Without loss of theoretical nuance, a specific action tendency can be redescribed as the outcome of a psychological process that narrows a person's momentary thought-action repertoire by calling to mind an urge to act in a particular way (e.g., escape, attack, expel). In a life-threatening situation, a narrowed thought-action repertoire promotes quick and decisive action that carries direct and immediate benefit. Specific action tendencies called forth by negative emotions represent the sort of actions that worked best to save our ancestors' lives and limbs in similar situations.

Yet positive emotions seldom occur in life-threatening situations. Most often, they are experienced when people feel safe and satiated (Fredrickson, 1998). As such, a psychological process that narrows a person's momentary thought-action repertoire to promote quick and decisive action may not be needed. Instead, I have argued (Fredrickson, 1998)—and demonstrated empirically (Fredrickson & Branigan, 2001b)—that positive emotions have a complementary effect: they *broaden* people's momentary thought-action repertoires, widening the array of the thoughts and actions that come to mind. Joy, for instance, appears to broaden by creating the urge to play, push the limits, and be creative, urges evident not only in social and physical behavior, but also in intellectual and artistic behavior. Interest, a phenomenologically distinct positive emotion, appears to broaden by creating the urge

to explore, take in new information and experiences, and expand the self in the process. Pride, a distinct positive emotion that follows personal achievements, appears to broaden by creating urges to share news of the achievement with others, as well as to envision even greater achievements in the future. Contentment, a fourth distinct positive emotion, appears to broaden by creating the urge to take time to savor current life circumstances and integrate these circumstances into new views of self and the world. These various thought-action tendencies—to play, to explore, to envision future achievements, and to savor and integrate—represent ways that positive emotions broaden habitual modes of thinking or acting. In general terms, then, positive emotions appear to “enlarge” the cognitive context (Isen, 1987), an effect recently linked to increases in brain dopamine levels (Ashby, Isen, & Turken, 1999).

Whereas the narrowed mindsets of negative emotions carry direct and immediate adaptive benefits in situations that threaten survival, the broadened mindsets of positive emotions, which occur when people feel safe and satiated, are beneficial in other ways. Specifically, I have argued that these broadened mindsets carry indirect and long-term adaptive benefits because broadening *builds* enduring personal resources (Fredrickson, 1998).

Take play, the urge associated with joy, as an example. Animal research has found that specific forms of chasing play evident in juveniles of a species—such as running into a flexible sapling or branch and catapulting oneself in an unexpected direction—are reenacted in adults of that species exclusively during predator avoidance (Dolhinow, 1987). Such correspondences between juvenile play maneuvers and adult survival maneuvers suggest that juvenile play builds enduring physical resources (Boulton & Smith, 1992; Caro, 1988). Play also builds enduring social resources. Social play, with its shared amusement, excitement, and smiles, builds lasting social bonds and attachments (Aron, Norman, Aron, McKenna, & Heyman, 2000; Lee, 1983; Simons, McCluskey-Fawcett, & Papini, 1986), which can become the locus of subsequent social support. Childhood play also builds enduring intellectual resources by increasing levels of creativity (Sherrod & Singer, 1989), creating the theory of mind necessary for empathy and gratitude (Leslie, 1987), and fueling brain development (Panksepp, 1998). Each of these links between play and resource building suggest that play may be essential to child development. Indeed, Panksepp has argued that “youth may have evolved to give complex organisms time to play” (1998, p. 96).

Like the play prompted by joy, the exploration prompted by the positive emotion of interest creates knowledge and intellectual complexity (Csikszentmihalyi & Rathunde, 1998; Izard, 1977; Renninger, Hidi, & Krapp, 1992). Similarly, envisioning future achievements during experiences of pride fuels self-esteem and achievement motivation (Lewis, 1993). And the

savoring and integrating prompted by contentment produce self-insight and alter worldviews (Izard, 1977). Each of these phenomenologically distinct positive emotions shares the feature of augmenting individuals' personal resources, ranging from physical and intellectual resources to psychological and social resources (for more detailed reviews see Fredrickson, 1998, 2000a, 2000b, 2001, 2002a; Fredrickson & Branigan, 2001a).

It is important to note that the personal resources accrued during states of positive emotions are durable—they outlast the transient emotional states that led to their acquisition. By consequence, then, the often incidental effect of experiencing a positive emotion is an increase in one's personal resources. These resources can function as reserves to be drawn on later, to improve coping and odds of survival. Indeed, a recent study of elderly nuns found that those who expressed the most positive emotions in early adulthood lived up to 10 years longer than those who expressed the least positive emotions (Danner, Snowdon, & Friesen, 2001; for related findings, see Ostir, Markides, Black, & Goodwin, 2000).

In sum, the broaden-and-build theory describes the form of positive emotions in terms of broadened thought-action repertoires and describes their function in terms of building enduring personal resources. In doing so, the theory provides a new perspective on the evolved adaptive significance of positive emotions. Those of our ancestors who succumbed to the urges sparked by positive emotions—to play, explore, and so on—would have by consequence accrued more personal resources. When these same ancestors later faced inevitable threats to life and limb, their greater personal resources would have translated into greater odds of survival, and in turn, greater odds of living long enough to reproduce. To the extent, then, that the capacity to experience positive emotions is genetically encoded, this capacity, through the process of natural selection, would have become part of our universal human nature. Supporting this evolutionary account, the capacity to experience gratitude and other positive emotions is evident among nonhuman primates as well (de Waal, 1997; de Waal & Berger, 2000; see also Bonnie & de Waal, chap. 11, this volume).

GRATITUDE BROADENS AND BUILDS

In earlier articles and chapters, I have provided detailed analyses of several specific positive emotions, first including joy, interest, contentment, and love (Fredrickson, 1998; for an extended analysis of contentment, see Fredrickson, 2000a), and later, pride (Fredrickson & Branigan, 2001a). These analyses show that each of these phenomenologically distinct positive emotions conforms to the broaden-and-build theory. Recently, Haidt (2000; see also

Haidt, 2003) has provided a detailed analysis of the positive emotion of elevation, arguing that it too conforms to the broaden-and-build theory. In this chapter, I provide a comparable analysis of gratitude, describing the circumstances that tend to elicit gratitude, apparent changes in its associated momentary thought-action repertoire, and the consequences or outcomes of these changes.

Gratitude arises when an individual (beneficiary) perceives that another person (benefactor) or source (e.g., God, luck, fate) has intentionally acted to improve the beneficiary's well-being (for reviews, see Emmons & Shelton, 2002; Lazarus & Lazarus, 1994; McCullough et al., 2001; McCullough & Tsang, chap. 7, this volume). Gratitude, according to Lazarus and Lazarus (1994), also requires the capacity to empathize with others. Beneficiaries experience gratitude, Lazarus and Lazarus suggest, only when they recognize and appreciate that the benefactor has expended effort to give them an altruistic gift. Drawing from McCullough and colleagues' reviews, the momentary thought-action tendency sparked by gratitude appears to be the urge to behave prosocially oneself, either toward the benefactor, toward others, or both (i.e., gratitude functions as a moral motive). I conceptualize this thought-action tendency as broadened rather than narrowed, because it does not appear to steer grateful individuals simply to repay the benefactor in a tit-for-tat fashion or to mimic and reciprocate the benefactor's exact prosocial act (a point also raised by Roberts, chap. 4, this volume). Rather, grateful individuals appear to creatively consider a wide range of prosocial actions as possible reflections of their gratitude. Perhaps reflecting the creativity invested in returning gifts, Komter (chap. 10, this volume) describes how the Maori, a native tribe of New Zealand, reciprocate gifts by making presents of some part of themselves. Although the empirical evidence supporting the motivational function of gratitude is sparse (McCullough et al., 2001), the available studies have supported the claim that the prosocial reciprocity inspired by gratitude is creative. For instance, in a longitudinal study of women who graduated from Radcliffe College, B. E. Peterson and Stewart (1996) found a positive association between being mentored in early adulthood (by people other than parents and significant others) and contributing to the welfare of others in a generative way in midlife, a finding they speculate may be mediated by gratitude. Likewise, in a study of children's beliefs about gratitude, Graham (1988) found a positive association between a child's feeling of gratitude toward a team captain for choosing him or her to play on a sports team and the expectation that the chosen child would later reciprocate by giving the captain a gift. These two findings suggest that gratitude does not lead to mindless tit-for-tat behavior (e.g., you scratch my back, I'll scratch yours). Instead, grateful people appear creative as they formulate actions

that promote the well-being of other people, including, but not limited, to the original benefactor.

So gratitude appears to broaden people's modes of thinking as they creatively consider a wide array of actions that might benefit others. Does this particular positive emotion also build psychological and social resources? Theoretical writings on gratitude suggest that it does (again, for a reviews, see Emmons & Shelton, 2002; McCullough et al., 2001; McCullough & Tsang, chap. 7, this volume). Although grateful individuals most typically act prosocially simply to express their gratitude, over time the actions inspired by gratitude build and strengthen social bonds and friendships (see Emmons & Shelton, 2002; Harpham, chap. 2, this volume; Komter, chap. 10, this volume). Gratitude, according to Trivers (1971), fuels reciprocal altruism, which can be viewed as an index of enduring friendships and alliances. (For evidence of gratitude and reciprocal altruism in nonhuman primates, see Bonnie & de Waal, chap. 11, this volume; de Waal, 1997; de Waal & Berger, 2000.) Moreover, people who regularly feel grateful, McCullough and colleagues (2001; McCullough & Tsang, chap. 7, this volume) suggest, are likely to feel loved and cared for by others. So gratitude appears to build friendships and other social bonds. These are social resources because, in times of need, these social bonds can become the locus of consequential social support. In addition to building individuals' social resources, gratitude also appears to build communities' social resources. Smith (1790/1976) held that gratitude helps to maintain a society based on goodwill (see Harpham, chap. 2, this volume; Komter, chap. 10, this volume). And Simmel (1908/1950) suggested that when individuals feel grateful to people whom they do not know personally (e.g., artists, politicians, or poets) for having performed something beneficial for them and others, their gratitude serves to link individuals to society.

Simmel (1908/1950) also suggested that people experience gratitude even when they realize that the gift given to them cannot be reciprocated in any manner (e.g., the gift of life, the gift of the planet). Under these circumstances, gratitude motivates permanent faithfulness and obligation, and, as suggested by Roberts (1991; chap. 4, this volume), a willingness to remain indebted forever, coupled with strong feelings of appreciation. Such lifelong and devoted relationships not only characterize some children's relationships with their parents, but also some believers' relationships with God (Schimmel, chap. 3, this volume). A handful of studies have underscored the centrality of gratitude in spirituality. For example, in a study of nuns and priests, Samuels and Lester (1985) found that gratitude and love were the most frequent of 50 distinct emotions felt toward God. Similarly, a national survey of adults and teens found that 78% of teens and 89% of adults express

gratitude to God regularly (G. H. Gallup, cited in McCullough et al., 2001). Colorfully illustrating the important role of gratitude in spiritual practice, Piper (1996) described the weight that God places on gratitude when deciding people's fates:

When every human being stands before God on the day of judgment, God would not have to use one sentence of Scripture to show us our guilt and the appropriateness of our condemnation. He would need only to ask three questions: (1) Was it not plain in nature that everything you had was a gift, and that you were dependent on your Maker for life and breath and everything? (2) Did not the judicial sentiment in your own heart always hold other people guilty when they lacked the gratitude they should have had in response to a kindness you performed? (3) Has your life been filled with gratitude and trust toward me in proportion to my generosity and authority? Case closed. (Piper, 1996, p. 59)

Analyses of multiple religious traditions reveal that gratitude consistently features prominently. (For a review of the role of gratitude in Judaism, Christianity, and Islam, see Emmons & Crumpler, 2000; for a review that also targets Buddhism and Hinduism, see Carman & Streng, 1989.)

So gratitude, existing theoretical accounts suggest, can be viewed as building a variety of personal and social resources. It builds and strengthens friendships and other social bonds, it builds and strengthens civil communities, and it builds and strengthens spirituality. Drawing more directly from the broaden-and-build theory, I add to this list that gratitude also builds people's skills for loving and showing appreciation. That is, to the extent that gratitude broadens people's momentary thought-action repertoires, it prompts them to stretch themselves to think creatively about how to repay kindnesses. Those creative efforts will yield new ideas about how people might make a gift of themselves (e.g., using expressive touch or words, caring for others in need). Once generated and practiced, these new methods of repaying kindness can become lasting skills in a person's repertoire for expressing love and kindness. So although gratitude motivates people to express their appreciation, people may build up their more general skills for loving through the process of thinking broadly about how to repay kindness.

It is important that all the goods that gratitude builds—close friendships, civil communities, spiritual practices, and skills for loving—are enduring resources in the sense that they function as reserves that can be drawn on in times of need. Those of our ancestors who accrued more of these resources would by consequence have had increased odds of surviving long enough to reproduce.

GRATITUDE AND OTHER POSITIVE EMOTIONS TRANSFORM INDIVIDUALS

The broaden-and-build theory is not limited to describing the evolutionary significance of positive emotions for our ancestors. It also points to the potential significance that positive emotions have in contemporary society. In particular, the theory underscores the relationship between positive emotions and individual growth and development. Through experiences of positive emotions, individuals can transform themselves, becoming more creative, knowledgeable, resilient, socially integrated, and healthy. Individuals who regularly experience positive emotions, then, are not stagnant. Instead, they continually grow toward optimal functioning. How is this continued growth sustained? Positive emotions provide the fuel, creating a self-sustaining system. In particular, positive emotions generate what I have called an upward spiral toward optimal functioning and enhanced emotional well-being (Fredrickson, 2001; Fredrickson & Joiner, 2002). Positive emotions achieve these beneficial outcomes by broadening individuals' habitual modes of thinking and action.

For example, to the extent that positive emotions broaden the **scope** of cognition and enable flexible and creative thinking, they also facilitate coping with stress and adversity (Aspinwall, 1998, 2001; Folkman, 1997; Folkman & Moskowitz, 2000; Fredrickson, Mancuso, Branigan, & Tugade, 2000; Lazarus, Kanner, & Folkman, 1980; Tugade & Fredrickson, 2002). Indeed, the broaden-and-build theory implies that if negative emotions narrow the momentary thought-action repertoire and positive emotions broaden that same repertoire, then positive emotions ought to function as efficient antidotes for the lingering effects of negative emotions. In other words, positive emotions should have an *undoing effect* on the lingering aftereffects of negative emotions (Fredrickson & Levenson, 1998; Fredrickson et al., 2000).

The basic observation that positive and negative emotions (or key components of them) are somehow incompatible—or cannot fully and simultaneously coexist—is not new. This has been demonstrated in earlier work on anxiety disorders (e.g., systematic desensitization; Wolpe, 1958), motivation (e.g., opponent-process theory; Solomon & Corbit, 1974), and aggression (e.g., principle of incompatible responses; Baron, 1976). Even so, the mechanism ultimately responsible for this incompatibility has not been adequately identified. Broadening may turn out to be the mechanism. By broadening a person's momentary thought-action repertoire, a positive emotion may loosen the hold that a negative emotion has gained on that person's mind and body by dissipating or undoing preparation for specific action. In other words, negative and positive emotions may be fundamentally incompatible

because a person's momentary thought-action repertoire cannot be simultaneously narrow and broad.

One marker of the narrowed thought-action repertoire called forth by negative emotions is heightened cardiovascular activity. Invoking positive emotions following negative emotions, then, should speed recovery from this cardiovascular reactivity, returning the body to more mid-range levels of activation. By accelerating cardiovascular recovery, positive emotions create the bodily context suitable for pursuing the wider array of thoughts and actions called forth.

My collaborators and I have tested the undoing effect by first inducing a high-arousal negative emotion in all participants (i.e., fear or anxiety), and then immediately, by random assignment, inducing either mild joy, contentment, neutrality, or sadness by showing short, emotionally evocative film clips. We predicted that those who experienced positive emotions on the heels of a high-arousal negative emotion would show the fastest cardiovascular recovery. We tested this by measuring the time elapsed from the start of the randomly assigned film until the cardiovascular reactions induced by the initial negative emotion returned to baseline levels. The results support the undoing effect: Participants in the two positive emotion conditions (mild joy and contentment) exhibited faster cardiovascular recovery than those in the neutral control condition, and faster than those in the sadness condition (Fredrickson et al., 2000, Study 1; see also Fredrickson & Levenson, 1998). It is also important that, in another study (Fredrickson et al., 2000, Study 2), we found that the positive and neutral films used in this research, when viewed following a resting baseline, elicited virtually no cardiovascular reactivity whatsoever. So although the positive and neutral films do not differ in what they *do* to the cardiovascular system, they do differ in what they can *undo* in this system. Two distinct types of positive emotions—mild joy and contentment—share the ability to undo the lingering cardiovascular aftereffects of negative emotions, a finding consistent with the idea that positive emotions broaden people's thought-action repertoires.

In subsequent work, my colleagues and I (Tugade & Fredrickson, 2002) have discovered individual differences in people's abilities to harness this beneficial undoing effect of positive emotions. Specifically, we have found that people who score high on a self-report measure of psychological resilience (Block & Kremen, 1996) show faster cardiovascular recovery following negative emotional arousal than do those who score low on this measure. Moreover, this faster recovery is mediated by the positive emotions that highly resilient people bring to the situation. Resilient individuals experience more positive emotions than do their less-resilient peers, both at ambient levels and in response to stressful circumstances. These positive emotions, in turn, allow them to bounce back quickly from negative emo-

tional arousal (Tugade & Fredrickson, 2002). Moving beyond the laboratory, we found that resilient individuals reported fewer symptoms of depression and trauma following the terrorist attacks on the United States of September 11th, 2001. More strikingly, we found that resilient individuals experienced more positive emotions in the midst of this national crisis, and that these positive emotions fully accounted for the relation between resilience and reduced depression (Fredrickson, Tugade, Waugh, & Larkin, 2003). In effect, then, resilient individuals appear to be expert users of the undoing effect of positive emotions.

Further spotlighting the potential role of broadened thinking in the link between positive emotions and improved coping, other studies have shown that people who were bereaved and yet nonetheless experienced positive emotions were more likely to develop long-term plans and goals. Together with positive emotions, having plans and goals predicted greater psychological well-being 12 months after bereavement (Stein, Folkman, Trabasso, & Richards, 1997). Thus, the effects of positive emotions appear to accumulate and compound over time. These emotions not only make people feel good in the present, but they also increase the likelihood that people will function well and feel good in the future. By broadening people's modes of thinking and action, positive emotions improve coping and build resilience, improvements that in turn predict future experiences of positive emotions.

The cognitive literature on depression already has documented a downward spiral in which depressed mood and the narrowed, pessimistic thinking it engenders influence one another reciprocally, leading to ever-worsening functioning and moods, and even clinical levels of depression (C. Peterson & Seligman, 1984). In contrast, the broaden-and-build theory predicts a comparable upward spiral in which positive emotions and the broadened thinking they engender also influence one another reciprocally, leading to appreciable increases in functioning and well-being. (For a complementary discussion of downward and upward spirals, see Aspinwall, 2001.)

Thomas Joiner and I conducted a prospective study to demonstrate that positive emotions do indeed trigger such upward spirals (Fredrickson & Joiner, 2002). In a study of college students, we assessed positive and negative emotions, as well as a concept we call broad-minded coping, at two time points, 5 weeks apart. Our aim was to predict changes in positive emotions and broad-minded coping over time. First, we found that, controlling for initial levels of broad-minded coping, initial levels of positive emotion predicted improvements in broad-minded coping from Time 1 to Time 2. These improvements in broad-minded coping in turn predicted subsequent increases in positive emotions. Next, we found evidence for the reciprocal relations. Controlling for initial levels of positive emotion, initial levels of broad-minded coping predicted improvements in positive emotions from Time 1 to

Time 2. These improvements in positive emotions in turn predicted subsequent increases in broad-minded coping. These findings suggest that, over time, positive emotions and broad-minded coping mutually build on one another, leading to improved coping skills and triggering an upward spiral toward enhanced emotional well-being (Fredrickson & Joiner, 2002).

Upward spirals fueled specifically by the positive emotion of gratitude have also been demonstrated. In a study of the daily emotions, physical symptoms, and health behaviors of college students, Emmons and McCullough (2003, study 1) randomly assigned students to one of three experimental groups. Each week, one group recorded five major events that most affected them during the week. The second group recorded five hassles or stressors that occurred in their lives during the week. The third group recorded five things in their lives for which they were grateful. Results showed numerous beneficial effects unique to participants in the gratitude group: Those who practiced gratitude reported more progress on their goals, fewer physical complaints, more frequent physical exercise, more optimism, and higher overall well-being. So, feeling the pleasant emotion of gratitude in the short run led to more optimal functioning and emotional well-being in the long run.

Studies of the physiological effects of positive emotions closely related to gratitude—namely, appreciation and compassion—suggest that reliable changes in cardiovascular and immune functioning may underlie the upward spiral evident in Emmons & McCullough's (2003) work. In a study comparing heart rate variability in individuals who experienced either anger or appreciation (McCraty, Atkinson, Tiller, Rein, & Watkins, 1995; see also McCraty, chap. 12, this volume), McCraty and colleagues found that appreciation increased parasympathetic activity, a change thought to be beneficial in controlling stress and hypertension. This evidence suggests that gratitude and appreciation might join the set of positive emotions that carry the cardiovascular undoing effect noted earlier (Fredrickson et al., 2000). In related work, the same authors reported that appreciation produces entrainment across various autonomic measures (e.g., heart rate variability, pulse transit time, and respiration rate; McCraty, chap. 12, this volume; Tiller, McCraty, Atkinson, 1996) and that compassion increases immune functioning (McCraty, chap. 12, this volume; Rein, Atkinson, & McCraty, 1995).

GRATITUDE AND OTHER POSITIVE EMOTIONS TRANSFORM ORGANIZATIONS AND COMMUNITIES

So far, I have described how positive emotions, through the psychological mechanism of broadening, can transform people into being more creative, effective, socially integrated, and healthy. In short, positive emotions help peo-

ple to thrive. I shift now from individuals to social groups, both organizations and communities. The broaden-and-build theory also illuminates ways that positive emotions transform these social collectives, helping them to thrive as well.

First, it is notable that social groups provide recurring contexts in which individuals can experience positive emotions. Many positive emotions have distinctly social origins, and people generally feel good when interacting with others (Watson, Clark, McIntyre, & Hamaker, 1992). Going to work, for instance, gives people reliable social contact that triggers positive emotions. In these ways, groups and organizations can trigger positive emotions in individuals, with all the beneficial repercussions described earlier. But how do positive emotions experienced in groups transform organizations and the broader community?

Organizational and community transformation occurs because each person's positive emotions can reverberate through others. In part, this is because emotions are contagious (Hatfield, Cacioppo, & Rapson, 1993). Experimental studies have shown that one person's expression of positive emotion, through processes of mimicry and facial feedback, can produce experiences of positive emotion in those with whom they interact (Hatfield et al., 1993; Lundqvist & Dimberg, 1995). Organizational leaders' positive emotions may be especially contagious. Studies have shown, for instance, that a leader's positive emotions predict the performance of their entire group (George, 1995). Another and perhaps more critical way that positive emotions spread through groups and organizations is by creating chains of events that carry positive meaning for others.

Take helpfulness as an example. Social psychological experiments have shown that people induced to feel positive emotions become more helpful to others than those in neutral emotional states (for a review, see Isen, 1987). Building on this experimental work, organizational field studies have demonstrated that salespeople who experience more positive emotions at work are more helpful to their customers (George, 1991). This occurs because salespeople experiencing positive emotions are more flexible and creative, and more empathic and respectful (George, 1998). Being helpful not only springs from positive emotional states but can produce positive emotions as well. The person who gives help, for instance, may afterward feel proud of his or her chosen actions. Experiences of pride, I have argued (Fredrickson & Branigan, 2001a), not only create momentary boosts in pleasure and self-esteem, but also prompt people to envision future and more significant achievements in similar domains. Thus, to the extent that helping others brings pride, it may fuel the motivation to help again in the future.

In addition to the positive emotions experienced by the person who gives help, the person who receives help is likely to feel the complementary

positive emotion of gratitude. Gratitude, as we have seen, not only feels good, but also produces a cascade of beneficial social outcomes, because it reflects, motivates, and reinforces moral social actions in both the giver and recipient of help (McCullough et al., 2001; McCullough & Tsang, chap. 7, this volume). The feeling of gratitude, McCullough and colleagues argue, reflects or identifies moral action because it surfaces when individuals acknowledge that another has been helpful to them. It motivates moral action because grateful people often feel the urge to repay in some manner those who have helped them. Finally, gratitude reinforces moral behavior because giving thanks or acknowledgment rewards help-givers, making them feel appreciated and more likely to give help in the future.

Added to the positive emotions experienced by the givers and recipients of help, people who merely witness or hear about a helpful interchange may experience positive emotions as well. These onlookers, according to Haidt (2000, 2003), often experience the positive emotion of elevation. The momentary thought-action tendency sparked by elevation, according to Haidt (2000), is a generalized desire to become a better person, and to perform helpful acts oneself. As for gratitude, the thought-action tendency sparked by elevation is broadened rather than narrowed, because it does not steer elevated individuals simply to mimic the helpful acts they have witnessed, but rather to creatively consider a wide range of helpful acts as paths toward becoming more moral people. Experiences of elevation, then, carry the potential to change people as well organizations and communities. To the extent that people act on the urges sparked by elevation, they may reach their goal of becoming better, more moral persons. Also, when others in turn witness the helpful acts inspired by elevation, they too may experience elevation and its beneficial repercussions. As Haidt (2000) put it, "If elevation increases the likelihood that a witness to good deeds will soon become a doer of good deeds, then elevation sets up the possibility for the same sort of 'upward spiral' for a group that Fredrickson (2000a) describes for the individual" (p. 4). As this cycle continues, organizations and communities are transformed to be become ever more compassionate and harmonious.

This analysis, though centered on helpfulness, illustrates how gratitude and related positive emotions might spread through organizations and communities, and how their effects might accumulate and compound at the group level. Complementing this analysis, other research suggests that positive emotions, including gratitude, help to curb organizational conflict by promoting constructive interpersonal engagement (for a review, see Baron, 1993). It is important to note that positive emotions propagate in groups and communities not simply because smiles are contagious (i.e., through facial mimicry), but because positive emotions stem from—and create—meaningful interpersonal encounters. When people act on their experiences of grati-

tude, for instance, they create meaningful situations for others. The original benefactors may feel reinforced for their initial prosocial acts (McCullough et al., 2001; McCullough & Tsang, chap. 7, this volume), onlookers may feel elevated (Haidt, 2000), and anyone else who receives an altruistic gift may feel gratitude. This socioemotional cycle centered on gratitude could continue indefinitely. In this manner, positive emotions tend to beget subsequent positive emotions. Accordingly, the broaden-and-build theory predicts that positive emotions not only produce individuals who function at higher levels, but also produce organizations and communities that function at higher levels.

Indirect evidence that positive emotions transform organizations and help them to thrive comes from research that links employee engagement to a wide range of organizational outcomes. I have argued elsewhere that measures of employee engagement can be recast as measures of positive emotional experience at work (Fredrickson, 2000c). To the extent that this reframing holds, existing research shows that organizations with employees who experience frequent positive emotions have lower employee turnover, more customer loyalty, higher net sales, and in turn, more profitable financial outcomes (Fleming, 2000a, 2000b; Harter, 2000). Research that expressly traces the effects of gratitude in organizations is clearly needed. Nonetheless, the broaden-and-build theory identifies positive emotions, along with the psychological broadening they engender, as the critical links between the momentary experiences of individual employees and long-range indicators of optimal organizational functioning. Positive emotions transform organizations because they broaden people's habitual modes of thinking and, in doing so, make organizational members more flexible, empathic, creative, and so on. Over time, such broadening builds stronger social connections, better organizational climates, and more effective businesses. The broaden-and-build theory predicts that a wide range of distinct positive emotions—ranging from pride and joy to contentment and gratitude—create and sustain these dynamic processes that keep individuals and organizations developing and thriving.

SUMMARY AND FUTURE RESEARCH DIRECTIONS

Although the broaden-and-build theory of positive emotions did not initially include the emotion of gratitude, the present analysis suggests that gratitude—like joy, interest, contentment, love, pride, and elevation—broadens people's modes of thinking, which in turn builds their enduring personal and social resources. Gratitude, like other positive emotions, appears to have the capacity to transform individuals, organizations, and communities for the

better. Although this analysis draws on rich and varied theorizing about gratitude, its foundation of empirical research is comparatively thin. My hope is that the ideas presented here may provide directions for kindling a science of gratitude.

First, future studies could test multiple hypotheses about gratitude drawn from the broaden-and-build theory. For instance, joy and contentment have been shown to broaden people's momentary thought-action repertoires (Fredrickson & Branigan, 2001b). Does gratitude similarly broaden? Does it widen the array of thought and actions that come to mind as grateful individuals creatively consider ways to acknowledge their appreciation?

Second, can feeling grateful be distinguished from feeling indebted? If gratitude is experienced as pleasant and indebtedness as aversive, the broaden-and-build theory predicts that only gratitude would lead to broad and creative thinking about how to repay a gift. In contrast to gratitude's creativity, indebtedness should yield simple tit-for-tat reciprocity reflective of narrowed thinking (e.g., if an invitation to someone's dinner party leaves you feeling unpleasantly indebted, you host your own dinner party, invite that person, and you are even).

A third question for study is whether expressions of gratitude, over time, build and strengthen social bonds. This could be studied in the contexts of friendships, marriages, and work relationships.

Fourth, does gratitude build and strengthen organizations and communities, increasing social harmony? In organizations, does gratitude lead to lower employee turnover, more customer loyalty, higher net sales, or more profitable financial outcomes? In communities, does gratitude lead to more volunteer service, or more helping of those in need? Does it lead to less crime, less littering, or less wasting of natural resources? In nations, does it lead to greater patriotism?

A fifth question is tied more directly to the broadened, creative thinking that I propose is part and parcel of feeling grateful: Does gratitude, over time, build people's skills for loving? Does it build their skills for expressing love and kindness so that, even outside the context of gratitude, people who have been frequently grateful know how to show their love and compassion?

Sixth, do gratitude and other positive emotions mediate the salutary effects of spiritual practices on health? Drawing from the broaden-and-build theory, I have recently sketched a causal model for testing this hypothesis (see Fredrickson, 2002b).

More generally, does gratitude predict future increases in health and well-being? Beyond edging out or undoing negative emotions like resentment, envy, and regret in the present, does gratitude fuel upward spirals that optimize the future? In other words, if you feel grateful today—because it broadens your thinking and builds your social bonds and skills for

loving—does this enhance your physical and emotional well-being 6 months from now?

These open empirical questions clearly situate the study of gratitude in the emerging science of positive psychology, with its mission to understand and foster the factors that allow individuals, communities, and societies to flourish (Seligman & Csikszentmihalyi, 2000). The concept of gratitude merits further scientific scrutiny. The more empirical research on gratitude that this volume can inspire, the more benefits we may be able to discover and substantiate. And these lines of inquiry will no doubt have substantial real-world significance: From them, we may learn how gratitude may serve as one of the keys to human flourishing.

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References

- Aron, A., Norman, C. C., Aron, E. N., McKenna, C., & Heyman, R. E. (2000). Couples' shared participation in novel and arousing activities and experienced relationship quality. *Journal of Personality and Social Psychology*, *78*, 273–284.
- Ashby, F. G., Isen, A. M., & Turken, A. U. (1999). A neuropsychological theory of positive affect and its influence on cognition. *Psychological Review*, *106*, 529–550.
- Aspinwall, L. G. (1998). Rethinking the role of positive affect in self-regulation. *Motivation and Emotion*, *22*, 1–32.
- Aspinwall, L. G. (2001). Dealing with adversity: Self-regulation, coping, adaptation, and health. In A. Tesser & N. Schwarz (Eds.), *The Blackwell handbook of social psychology: Vol. 1. Intraindividual processes* (pp. 591–614). Malden, MA: Blackwell.
- Baron, R. A. (1976). The reduction of human aggression: A field study of the influence of incompatible reactions. *Journal of Applied Social Psychology*, *6*, 260–274.
- Baron, R. A. (1993). Affect and organizational behavior: When and why feeling good (or bad) matters. In K. Murnighan (Ed.), *Social psychology in organizations: Advances in theory* (pp. 63–88). New York: Prentice Hall.
- Block, J. & Kremen, A. M. (1996). IQ and ego-resilience: Conceptual and empirical connections and separateness. *Journal of Personality and Social Psychology*, *70*, 349–361.
- Boulton, M. J., & Smith, P. K. (1992). The social nature of play fighting and play chasing: Mechanisms and strategies underlying cooperation and compromise. In J.

- H. Barkow, L. Cosmides, & J. Tooby (Eds.), *The adapted mind: Evolutionary psychology and the generation of culture* (pp. 429–444). New York: Oxford University Press.
- Carman, J. B., & Streng, F. J. (Eds.). (1989). *Spoken and unspoken thanks: Some comparative soundings*. Cambridge, MA: Harvard Center for the Study of World Religions.
- Caro, T. M. (1988). Adaptive significance of play: Are we getting closer? *Trends in Ecology and Evolution*, 3(2), 50–54.
- Csikszentmihalyi, M., & Rathunde, K. (1998). The development of the person: An experiential perspective on the ontogenesis of psychological complexity. In W. Damon (Series Ed.) & R. M. Lerner (Vol. Ed.), *Handbook of child psychology: Vol. 1. Theoretical models of human development* (5th ed., pp. 635–684). New York: Wiley.
- Danner, D. D., Snowdon, D. A., & Friesen, W. V. (2001). Positive emotions in early life and longevity: Findings from the nun study. *Journal of Personality and Social Psychology*, 80, 804–813.
- de Waal, F. B. M. (1997). The chimpanzee's service economy: Food for grooming. *Evolution and Human Behavior*, 18, 375–386.
- de Waal, F. B. M., & Berger, M. L. (2000). Payment for labour in monkeys. *Nature*, 404, 563.
- Dolhinow, P. J. (1987). At play in the fields. In H. Topoff (Ed.), *The natural history reader in animal behavior* (pp. 229–237). New York: Columbia University Press.
- Emmons, R. A., & Crumpler, C. A. (2000). Gratitude as a human strength: Appraising the evidence. *Journal of Social and Clinical Psychology*, 19, 56–69.
- Emmons, R. A., & McCullough, M. E. (2003). Counting blessings versus burdens: An experimental investigation of gratitude and subjective well-being in daily life. *Journal of Personality and Social Psychology*, 84(2), 377–389.
- Emmons, R. A., & Shelton, C. M. (2002). Gratitude and the science of positive psychology. In C. R. Snyder & S. J. Lopez (Eds.), *Handbook of positive psychology* (pp. 459–471). New York: Oxford University Press.
- Fleming, J. H. (2000a). Relating employee engagement and customer loyalty to business outcomes in the financial services industry. *Gallup Research Journal*, 3, 91–101.
- Fleming, J. H. (2000b). Relating employee engagement and customer loyalty to business outcomes in the retail industry. *Gallup Research Journal*, 3, 103–115.
- Folkman, S. (1997). Positive psychological states and coping with severe stress. *Social Science Medicine*, 45, 1207–1221.
- Folkman, S., & Moskowitz, J. T. (2000). Positive affect and the other side of coping. *American Psychologist*, 55, 647–654.
- Fredrickson, B. L. (1998). What good are positive emotions? *Review of General Psychology*, 2, 300–319.
- Fredrickson, B. L. (2000a). Cultivating positive emotions to optimize health and well-being. *Prevention and Treatment*, 3, Article 0001a. Retrieved May 12, 2003, from <http://journals.apa.org/prevention/volume3/pre0030001a.html>
- Fredrickson, B. L. (2000b). Cultivating research on positive emotions [Response to commentaries on "Cultivating positive emotions to optimize health and well-

- being"]. *Prevention and Treatment*, 3, Article 7. Retrieved May 12, 2003, from <http://journals.apa.org/prevention/volume3/pre0030007r.html>
- Fredrickson, B. L. (2000c). Why positive emotions matter in organizations: Lessons from the broaden-and-build model. *Psychologist-Manager Journal*, 4, 131–142.
- Fredrickson, B. L. (2001). The role of positive emotions in positive psychology: The broaden-and-build theory of positive emotions. *American Psychologist*, 56, 218–226.
- Fredrickson, B. L. (2002a). Positive emotions. In C. R. Snyder & S. J. Lopez (Eds.). *Handbook of positive psychology* (pp. 120–134). New York: Oxford University Press.
- Fredrickson, B. L. (2002b). How does religion benefit health and well-being? Are positive emotions active ingredients? *Psychological Inquiry*, 13, 209–213.
- Fredrickson, B. L., & Branigan, C. A. (2001a). Positive emotions. In T. J. Mayne and G. A. Bonnano (Eds.), *Emotion: Current issues and future developments* (pp. 123–151). New York: Guilford.
- Fredrickson, B. L., & Branigan, C. (2001b). *Positive emotions broaden the scope of attention and thought-action repertoires: Evidence for the broaden-and-build theory*. Manuscript submitted for publication.
- Fredrickson, B. L., & Joiner, T. (2002). Positive emotions trigger upward spirals toward emotional well-being. *Psychological Science*, 13, 172–175.
- Fredrickson, B. L., & Levenson, R. W. (1998). Positive emotions speed recovery from the cardiovascular sequelae of negative emotions. *Cognition and Emotion*, 12, 191–220.
- Fredrickson, B. L., Mancuso, R. A., Branigan, C., & Tugade, M. M. (2000). The undoing effect of positive emotions. *Motivation and Emotion*, 24, 237–258.
- Fredrickson, B. L., Tugade, M. M., Waugh, C. E., & Larkin, G. R. (2003). What good are positive emotions in crises? A prospective study of resilience and emotional responding following the terrorist attacks on the United States on September 11th, 2001. *Journal of Personality and Social Psychology*, 84(2), 365–376.
- Frijda, N. H. (1986). *The emotions*. Cambridge, UK: Cambridge University Press.
- Frijda, N. H., Kuipers, P., & Schure, E. (1989). Relations among emotion, appraisal, and emotional action readiness. *Journal of Personality and Social Psychology*, 57, 212–228.
- George, J. M. (1991). State or trait: Effects of positive mood on prosocial behavior at work. *Journal of Applied Psychology*, 76, 299–307.
- George, J. M. (1995). Leader positive mood and group performance: The case of customer service. *Journal of Applied Social Psychology*, 25, 778–794.
- George, J. M. (1998). Salesperson mood at work: Implications for helping customers. *Journal of Personal Selling and Sales Management*, 18, 23–30.
- Graham, S. (1988). Children's developing understanding of the motivational role of affect: An attributional analysis. *Cognitive Development*, 3, 71–88.
- Haidt, J. (2000). The positive emotion of elevation [Commentary on "Cultivating positive emotions to optimize health and well-being" by B. L. Fredrickson]. *Prevention and Treatment*, 3, Article 3. Retrieved May 12, 2003, from <http://journals.apa.org/prevention/volume3/pre0030003c.html>

- Haidt, J. (2003). Elevation and the positive psychology of morality. In C. L. M. Keyes & J. Haidt (Eds.), *Flourishing: Positive psychology and the life well-lived* (pp. 275–289). Washington, DC: American Psychological Association.
- Harter, J. (2000). The linkage of employee perception to outcomes in a retail environment: Cause and effect? *Gallup Research Journal*, 3, 25–38.
- Hatfield, E., Cacioppo, J. T., & Rapson, R. L. (1993). Emotional contagion. *Current Directions in Psychological Science*, 2, 96–99.
- Isen, A. M. (1987). Positive affect, cognitive processes, and social behavior. *Advances in Experimental Social Psychology*, 20, 203–253.
- Izard, C. E. (1977). *Human emotions*. New York: Plenum.
- Lazarus, R. S. (1991). *Emotion and adaptation*. New York: Oxford University Press.
- Lazarus, R. S., Kanner, A. D., & Folkman, S. (1980). Emotions: A cognitive-phenomenological analysis. In R. Plutchik & H. Kellerman (Eds.), *Theories of emotion* (pp. 189–217). New York: Academic Press.
- Lazarus, R. S., & Lazarus, B. N. (1994). *Passion and reason: Making sense of our emotions*. New York: Oxford University Press.
- Lee, P. C. (1983). Play as a means for developing relationships. In R. A. Hinde (Ed.), *Primate social relationships* (pp. 82–89). Oxford, MA: Blackwell.
- Leslie, A. M. (1987). Pretense and representation: The origins of “theory of mind.” *Psychological Review*, 94, 412–426.
- Lewis, M. (1993). Self-conscious emotions: Embarrassment, pride, shame, and guilt. In M. Lewis & J. M. Haviland (Eds.), *Handbook of emotions* (pp. 563–573). New York: Guilford.
- Levenson, R. W. (1994). Human emotions: A functional view. In P. Ekman & R. Davidson (Eds.), *The nature of emotion: Fundamental questions* (pp. 123–126). New York: Oxford University Press.
- Lundqvist, L. O., & Dimberg, U. (1995). Facial expressions are contagious. *Journal of Psychophysiology*, 9, 203–211.
- Mayer, J. D., Salovey, P., Gombert-Kaufman, S., & Blainey, K. (1991). A broader conception of mood experience. *Journal of Personality and Social Psychology*, 60, 100–111.
- McCraty, R., Atkinson, M., Tiller, W., Rein, G., & Watkins, A. D. (1995). The effects of emotions on short-term power spectrum analysis of heart rate variability. *American Journal of Cardiology*, 76, 1089–1093.
- McCullough, M. E., Kilpatrick, S. D., Emmons, R. A., & Larson, D. B. (2001). Is gratitude a moral affect? *Psychological Bulletin*, 127, 249–266.
- Oatley, K., & Jenkins, J. M. (1996). *Understanding emotions*. Cambridge, MA: Blackwell.
- Ostir, G. V., Markides, K. S., Black, S. A., & Goodwin, J. S. (2000). Emotional well-being predicts subsequent functional independence and survival. *Journal of the American Geriatrics Society*, 48, 473–478.
- Panksepp, J. (1998). Attention deficit hyperactivity disorders, psychostimulants, and intolerance of childhood playfulness: A tragedy in the making? *Current Directions in Psychological Science*, 7, 91–98.

- Peterson, B. E., & Stewart, A. J. (1996). Antecedents and contexts of generativity motivation at midlife. *Psychology and Aging, 11*, 21–33.
- Peterson, C., & Seligman, M. E. P. (1984). Causal explanations as a risk factor for depression: Theory and evidence. *Psychological Review, 91*, 347–374.
- Piper, J. (1996). *Desiring God: Meditations of a Christian hedonist*. Sisters, OR: Multnomah.
- Rein, G., Atkinson, M., & McCraty, R. (1995). The physiological and psychological effects of compassion and anger. *Journal of Advancement in Medicine, 8*, 87–105.
- Reisenzein, R. (1994). Pleasure-arousal theory and the intensity of emotions. *Journal of Personality and Social Psychology, 67*, 525–539.
- Renninger, K. A., Hidi, S., & Krapp, A. (Eds.). (1992). *The role of interest in learning and development*. Hillsdale, NJ: Erlbaum.
- Roberts, R. C. (1991). Mental health and the virtues of community: Christian reflections on contextual therapy. *Journal of Psychology and Theology, 19*, 319–333.
- Rosenberg, E. L. (1998). Levels of analysis and the organization of affect. *Review of General Psychology, 2*, 247–270.
- Samuels, P. A., & Lester, D. (1986). A preliminary investigation of emotions experienced toward God by Catholic nuns and priests. *Psychological Reports, 56*, 706.
- Seligman, M. E. P., & Csikszentmihalyi, M. (2000). Positive psychology: An introduction. *American Psychologist, 55*, 5–14.
- Sherrod, L. R., & Singer, J. L. (1989). The development of make-believe play. In J. Goldstein (Ed.), *Sports, games and play* (pp. 1–38). Hillsdale, NJ: Erlbaum.
- Simmel, G. (1950). *The sociology of Georg Simmel*. Glencoe, IL: Free Press. (Original work published 1908)
- Simons, C. J. R., McCluskey-Fawcett, K. A., & Papini, D. R. (1986). Theoretical and functional perspective on the development of humor during infancy, childhood, and adolescence. In L. Nahemow, K. A. McCluskey-Fawcett, & P. E. McGhee (Eds.), *Humor and aging* (pp. 53–77). San Diego, CA: Academic Press.
- Smith, A. (1976). *The theory of moral sentiments* (6th ed.). Oxford, UK: Clarendon Press. (Original work published 1790)
- Solomon, R. L., & Corbit, J. D. (1974). An opponent-process theory of motivation: I. Temporal dynamics of affect. *Psychological Review, 81*, 119–145.
- Stein, N. L., Folkman, S., Trabasso, T., & Richards, T. A. (1997). Appraisal and goal processes as predictors of psychological well-being in bereaved caregivers. *Journal of Personality and Social Psychology, 72*, 872–884.
- Tiller, W. A., McCraty, R., & Atkinson, M. (1996). Cardiac coherence: A new, noninvasive measure of autonomic nervous system order. *Alternative Therapies in Health and Medicine, 2*, 52–65.
- Tooby, J., & Cosmides, L. (1990). The past explains the present: Emotional adaptations and the structure of ancestral environments. *Ethology and Sociobiology, 11*, 375–424.
- Trivers, R. L. (1971). The evolution of reciprocal altruism. *Quarterly Review of Biology, 46*, 35–57.

- Tugade, M. M., & Fredrickson, B. L. (2002). Positive emotions and emotional intelligence. In L. Feldman Barrett & P. Salovey (Eds.), *The wisdom in feeling: Psychological processes in emotional intelligence* (pp. 319–340). New York: Guilford.
- Watson, D., Clark, L. A., McIntyre, C. W., & Hamaker, S. (1992). Affect, personality, and social activity. *Journal of Personality and Social Psychology*, 63, 1011–1025.
- Wolpe, J. (1958). *Psychotherapy by reciprocal inhibition*. Stanford, CA: Stanford University Press.