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Promoting Positive Affect

Barbara L. Fredrickson

One of Ed Diener's key contributions to social science was to point out that the ratio of people's experiences of positive to negative emotions in daily life predicts their overall levels of subjective well-being (Diener, 2000). This practice of examining the ratio of people's good to bad feelings—what I term "positivity ratios"—has proven fruitful in other domains as well. In studies of people's recovery from depression, for instance, Schwartz and colleagues (2002) found that in optimal remission, clients' positivity ratios climb from less than 1-to-1 to higher than 4-to-1. In studies of marriage, Gottman (1994) found that stable and happy marriages are characterized by positivity ratios of about 5-to-1, whereas other marriages—those Gottman (1994) describes as "on a cascade toward divorce"—sport positivity ratios that are lower than 1-to-1. In studies of business teams, Losada (1999) found that profitable and well-regarded business teams have positivity ratios of over 5-to-1 during their business meetings, whereas less profitable and less highly regarded teams have ratios of less than 1-to-1. In each of these contexts, we see that high ratios of positivity to negativity—ratios near 5-to-1—are associated with doing well, whereas low positivity ratios—those lower than 1-to-1—are associated with doing poorly.

Another of Ed Diener's key contributions was to highlight that positive and negative affect are not mere opposites. Many consequential asymmetries between these good and bad experiential states exist. Although others have emphasized that "bad is stronger than good" (Baumeister, Bratslavsky, Finkenauer, & Vohs,

2001), Diener and colleagues marshaled evidence for another important asymmetry: that "most people are happy" and "most moments are good" (Diener & Diener, 1996). These two points reflect what has come to be called the "positivity offset"—that people's most frequent emotional state is mildly positive (Cacioppo, Gardner, & Berntson, 1999). This offset is thought to be an adaptive bias that motivates people to get up in the morning and approach novelty with curiosity rather than fear. Together with the negativity bias ("bad is stronger than good"), the positivity offset ("most moments are good") may help explain why the positivity ratios for doing well and doing badly keep turning up as near 5-to-1 and 1-to-1, respectively. If, measure for measure, negative states hold more sway than positive states, then although ratios near 1:1 may represent equal "air time" for opposing states, this does not translate into equal impact. Instead such ratios portend downward spirals toward doing poorly. At the same time, if positive emotions are commonplace, perhaps positivity ratios need to appreciably exceed people's typical positivity offsets to trigger upward spirals toward doing well or optimal functioning.

However intriguing these observations may be, they raise a more critical set of questions: What is so special about positive states? How and why do they—in the right ratios—forecast optimal functioning? Do positive emotions simply track and mirror personal successes? Or, as Diener and colleagues have asked more recently (Lyubomirsky, King, & Diener, 2005), might positive affect also lead to success?

My own contribution to the study of positive states is encapsulated in what I call the broaden-and-build theory of positive emotions (Fredrickson, 1998, 2001). The theory holds that, unlike negative emotions, which narrow people's ideas about possible actions in ways that aided our ancestor's survival in life-threatening circumstances (e.g., fight, flee), positive emotions broaden people's thought and action repertoires (e.g., play, explore) in ways that spurred our ancestor's development of key assets, including their physical, mental, psychological, and social resources. In time, the resources gained during positive emotional states would have better equipped our ancestors to survive the threats to life and limb that they would inevitably face.

Several key aspects of the broaden-and-build theory have been empirically tested and supported. For instance, laboratory experiments have shown that, relative to neutral and negative states, induced positive emotions widen the scope of attention (Fredrickson & Branigan, 1998; Rowe, Hirsh, & Anderson, 2007), broaden repertoires of desired actions (Fredrickson & Branigan, 1998), dismantle physiological preparation for specific actions sparked by negative emotions (Fredrickson, Mancuso, Branigan, & Tugade, 2000), and increase openness to new experiences (Isen, 1970; Kahn & Isen, 1993). At the interpersonal level, induced positive emotions, again relative to neutral and negative states, increase people's sense of "oneness" with close others (Hejmadi, Waugh, Otake, &

Fredrickson, 2007), their trust in acquaintances (Dunn & Schweitzer, 2005), and their ability to recognize cross-race faces (Johnson & Fredrickson, 2005). Prospective correlational studies have further shown that people who, for whatever reasons, experience or express positive emotions more than others cope more effectively with adversity (Fredrickson, Tugade, Waugh, & Larkin, 2003; Folkman & Moskowitz, 2000; Stein, Folkman, Trabasso, & Richards, 1997; Bonanno & Keltner, 1997), and enjoy more successes in their work (Diener, Nickerson, Lucus, & Sandvik, 2002) and in their relationships (Harker & Keltner, 2001; Waugh & Fredrickson, 2006). People with more positive emotions and outlooks have also been shown to live longer (Danner, Snowden, & Friesen, 2001; Levy, Slade, Kunkel, & Kasl, 2002; Moskowitz, 2003; Ostir, Markides, Black, & Goodwin, 2000). Moreover, as is detailed in a later section, field experiments have demonstrated that interventions that increase people's daily experiences of positive emotions serve to build their physical, social, mental, and psychological resources (Fredrickson, Cohn, Coffey, Pek, & Finkel, 2007).

The broaden-and-build theory of positive emotions, together with its growing empirical support, provides an explanation for how and why high positivity ratios might forecast optimal functioning: By broadening people's mindsets and building consequential personal resources, positive emotional states, over time, transform people for the better, enabling them to survive, thrive, and even flourish. To *flourish* means to live within an optimal range of human functioning, one that simultaneously connotes growth, goodness, generativity, and resilience.

Another of Ed Diener's key contributions to science has been to help establish and legitimize the positive psychology movement (Diener & Seligman, 2004). One of the fruits of this new movement has been to describe, define, and measure flourishing mental health (Keyes, 2002). Epidemiological studies show that fewer than 20% of U.S. adults can be classified as enjoying flourishing mental health (Keyes, 2002). About the same percentage can be classified as fitting the diagnostic criteria for a mental illness. The rest of the population—the majority—can be described either as having only moderate mental health or as languishing. Those who languish might describe themselves as being "stuck in a rut" or "yearning for more." Although not diagnosable with any clinical disorders, these people experience as many lost workdays and illnesses as those who are depressed, costing society billions of dollars each year (Keyes & Lopez, 2002). Clearly there would be much gained by the discovery of reliable pathways toward flourishing mental health. Doing so would not only lift multiple burdens from society, but also create a society of citizens who are not merely self-sufficient but also generative and resilient—citizens well poised to make the world a more livable place for future generations.

Using the diagnostic tools developed to assess flourishing mental health, my past work has shown that, relative to people who do not flourish, those who do

flourish experience higher positivity ratios (Fredrickson & Losada, 2005). More-over, there appears to be a particular threshold—or tipping point—within people's positivity ratios, above which flourishing mental health and other good outcomes become much more probable. Consider the differences between ice and water. Whereas ice is solid, rigid, and immobile, water is flowing, flexible, and dynamic. Yet despite these stark differences, to change one into the other simply requires a change in temperature: As the ambient temperature rises above 0 degrees Celsius, rigid ice melts into flowing water. Water undergoes a second phase-state change at 100 degrees Celsius, changing this time from liquid to vapor. The differences between not flourishing and flourishing may show similar properties: Our recent findings suggest that as people's habitual positivity ratios rise above about 3-to-1, they may leave behind stagnant states of languishing and begin to enjoy the more complex, dynamic, generative, and resilient states of flourishing mental health (Fredrickson & Losada, 2005). Likewise, if people's habitual positivity ratios exceed about 11-to-1, they may experience diminished generativity and resilience. Above that upper bound, negative experiences may be so infrequent that people lose their credibility as connected to reality. Just as water in its liquid state exists within a range of temperatures (bounded by 0° and 100° C), so too may humans exist within a range of positivity ratios in their flourishing states (bounded by about 3:1 and 11:1; Fredrickson & Losada, 2005). Across multiple samples, I have found that individuals classified as flourishing have positivity ratios above 3-to-1 (but less than about 11:1), whereas those who are not flourishing have positivity ratios below 3-to-1 (Fredrickson & Losada, 2005). Although the upper boundary of flourishing positivity ratios has yet to be tested empirically, the wide disdain associated with the label "Pollyanna" suggests that people intuitively recognize that an upper boundary on credible positivity exists.

So, as Ed Diener has long held, people's positivity ratios appear to be inextricably tied to their subjective well-being. My most recent theory and evidence, detailed in the *American Psychologist* (Fredrickson & Losada, 2005), illuminates the possible nature and dynamics of this important tie.

Increasing Positivity Ratios

If increases in people's positivity ratios might help them escape languishing and attain flourishing—like rising temperatures can melt ice into water—then it behooves us to learn ways to reliably augment people's positivity ratios. The rest of this chapter is devoted to this important topic.

Changing people's emotional habits is a tall order, akin to moving a river. Although possible, it is not something done on a whim or without tremendous and continued effort. The best new research suggests that forging lasting changes

in people's emotional well-being requires as much intention, effort, and lifestyle change as does losing weight or changing cholesterol levels (Lyubomirsky, Sheldon, & Schkade, 2005).

As with many change efforts, multiple paths toward the goal are possible. A core implication of conceptualizing people's well-being and prospects for flourishing in terms of a ratio of positive to negative affect is that there are three overarching possibilities by which to increase a ratio: Either increase the numerator, decrease the denominator, or both. The principle of the negativity bias ("bad is stronger than good"; Baumeister et al., 2001) assures that efforts to decrease the denominator hold great promise (Larsen, 2002). Even so, the goal should not be to reduce all forms of negativity. Negative emotions are often appropriate and useful. It is, for instance, appropriate and even adaptive to mourn following a loss (Keller & Nesse, 2006) or to resonate on anger to fight an injustice (de Rivera, Gerstmann, & Maisels, 2002). Recall, too, that positivity ratios greater than about 11-to-1 may no longer predict flourishing mental health (Fredrickson & Losada, 2005). One implication of this upper boundary is that negative affect is, in fact, a necessary component of flourishing mental health. Yet, at times, people's emotional habits can intensify or prolong aversive feelings far beyond their usefulness. Rumination, for one, is a mental habit that can prolong feelings of sadness and increase a person's odds of falling prey to depression (Nolen-Hoeksema, 2002). Fortunately, the entire toolbox of cognitive–behavioral therapy—developed over the last several decades—is available to help people reduce their experiences of negative affect. In the present chapter, I focus exclusively on the less-studied path: increasing the numerator, or increasing positive affect.

Good intentions alone will not make anyone happier. A parallel to physical pain can illustrate this point. Suppose at this instant—for whatever reason—you wanted to make your left shin sting with pain. Could you rouse the intended experience of pain simply by thinking about this limb and willing your body to feel pain there? Not likely. To carry out this intention you would need to do more than apply sheer willpower. You would have to *do something*. And this "something" would need to be quite specific: such as banging your leg against a table leg or coaxing someone to kick you. Those and related actions could be considered leverage points by which you can carry out your intention to feel pain in your shin. By this same logic, people cannot simply will themselves to feel a positive emotion. They must instead locate one of a several quite specific leverage points to boost positive feelings. A probabilistic web of causality connects certain forms of thought and action to increases in positive emotions. So just as you must "do something" to rouse a feeling of pain out of thin air, so too must people "do something" to rouse positive emotions where none previously existed. A fundamental difference between physical pain and emotions, however, is that leverage points for emotions can involve redirections of conscious

thought. This means that you can "think something" in addition to "do something" to rouse positive emotions.

The close causal ties between people's patterns of thought and their subsequent emotional experiences were introduced and tested within appraisal theories of emotion and later refined and applied within cognitive-behavioral therapies for affective disorders. A core assumption within these approaches is that changing the course of people's emotions requires that they change their course of thinking. This is as true for increasing positive emotions as it is for decreasing negative emotions. For the most part, positive emotions take root when people find and enact positive meaning within their current circumstances. Although other routes to enhanced positive affective experiences exist (e.g., through diet, exercise, facial feedback), our habits of mind and action provide perhaps the most powerful leverage points for increasing positive affectivity. In the sections that follow, I detail various ways in which changes in thinking and action can leverage positive emotions to augment positivity ratios.

Find Positive Meaning

Does the local forecast predict a partly cloudy sky? Or a partly sunny sky? Is the cup or cupboard half empty? Or half full? Most circumstances in which we find ourselves are not completely, 100%, bad. So the opportunity to find the good or accentuate the inherent positive meaning is almost always present, even if it is simply to say "This too shall pass." When people reappraise or reframe bad circumstances in positive ways, they increase the odds that positive emotions, such as hope, awe, or gratitude, will follow. Granted, these "silver lining" positive emotions may at times be subtle and may not fully neutralize the aversive situation. Yet they nonetheless appear to unlock positive dynamics. For instance, people who experience positive emotions during bereavement tend to develop more long-term plans and goals. Together with positive emotions, plans and goals predict better well-being and psychological functioning 12 months following bereavement (Stein et al., 1997). Similarly, most Americans felt a combination of sadness, anger, and fear in the wake of the 9/11 terrorist attacks. Yet those who, alongside these negative emotions, also experienced positive emotions—such as love, compassion, and gratitude—were the least likely to experience depressive symptoms and the most likely to show postcrisis growth in positive traits such as optimism, tranquility, and life satisfaction (Fredrickson et al., 2003).

One path toward finding positive meaning is to reframe or reappraise a negative event in positive terms. Another path is to infuse ordinary events with positive meaning (Folkman & Moskowitz, 2001). The strategy of "counting blessings" adopts this approach by encouraging people to recast hidden or mundane aspects of daily life as "gifts" to be cherished, and as such, these aspects of life can become sources of gratitude and other positive emotions. Experimental studies

have shown that people who count their blessings, relative to those who do not, report increases in their own positive affect (Emmons & McCullough, 2003; Lyubomirsky, Sheldon, & Schkade, 2005).

Be Open

The broaden-and-build theory asserts that positive emotions broaden people's attention and thinking (Fredrickson & Branigan, 2005), and we also know that broadened attention and thinking forecasts future positive emotions (Fredrickson & Joiner, 2002). Similarly, in his study of business team meetings, Losada (1999) finds bidirectional relations between positivity and two plausible indicators of openness, namely inquiry (e.g., asking questions) and other-focus. Noting the reciprocal causal links between positive emotions and broadened, open mindsets raises the possibility that another leverage point for augmenting positive feelings is to practice openness. One way to do so is to become more open to direct sensory experience. On a morning walk, for instance, rather than being lost in your ever-expanding mental "to-do" list, you might practice being open to the colors of the leaves and blooms, the call of the nearby birds, the smell of the wet grass, the feel of the cool morning air against your skin, and the pressure of the earth beneath your feet.

Focusing on the present moment and being experientially open are viewed as the two core components of mindfulness. This consensus definition of mindfulness was articulated by Western psychological scientists and was based on the emerging clinical and empirical literature on mindfulness meditation practices, which themselves emanate from Buddhist traditions (Bishop et al., 2004). The first component of mindfulness, focusing on the present moment, involves self-regulation of attention. Unpacked further, effective self-regulation of attention requires both (1) sustained attention, to maintain awareness of current experiences and a chosen focal object (often the breath), and (2) attention switching, to return attention to the focal object once an arising thought, feeling, or sensation has been acknowledged. The second component of mindfulness, being open to experience, involves cultivating an orientation of curiosity and acceptance about the arising contents of consciousness. In this manner, thoughts, feelings, and sensations that may surface are not viewed as disruptions to be suppressed in favor of the focal object, but instead acknowledged, appreciated, and allowed to pass. Mindfulness, then, characterizes a wider, more accepting perspective on present experience than is typical. Mindfulness training, through meditation and other practices, can thus be conceptualized as a skillful means of cultivating the broad-minded attentional state that is produced automatically during positive emotional states.

Would increasing openness to experience—through mindfulness training or other means—increase positive emotions? Might it not also increase negative

emotions? Certainly all experiences to which people might open themselves are not pleasant. During that morning walk, for instance, you may suddenly discover animal excrement on your shoe or in your hair. Creating openness to experience will not selectively augment positive emotions. Even so, cultivating an open, accepting stance toward negative experience can diffuse emotional distress. To illustrate, consider once again that animal excrement and imagine the affective difference between thinking to yourself "Shit!" versus "Shit happens." Intentional efforts to be open to experience are hypothesized to improve people's tolerance for negative emotions and diffuse the reactivity and intensity of aversive states (Bishop et al., 2004; Hayes, Follette, & Linehan, 2004).

But let's return to positive emotions: Why might we expect increased openness to increase positivity? One key is to consider the natural topography of good and bad experiences. We know from Diener's work on the positivity offset that unpleasant experiences are relatively rare, which is part of the reason why negative events rivet our attention (Baumeister et al., 2001; Schwartz & Garamoni, 1989). As such, when people open themselves to experience, those experiences are likely to reflect this inherent positivity offset. So, depending on people's immediate circumstances and habitual positivity ratios, increasing openness to experience is highly likely to increase the experience of positive emotions and thereby increase positivity ratios.

Being open and mindful can also expand people's awareness such that they recognize features of their environment that had previously gone unnoticed. For instance, being open and mindful can increase awareness of oneness and interconnectedness, both with other people and with the natural world. Such perceived oneness can, in turn, inspire the self-transcendent positive emotions of awe (Keltner & Haidt, 2003), gratitude (McCullough, Emmons, & Tsang, 2002), and compassion (Cialdini, Brown, Lewis, Luce, & Neuberg,1997).

By intentionally cultivating openness, people can find the good even within the bad. With high openness, for instance, that animal excrement on your morning walk might be transformed into a reminder that you are just one of many creatures co-experiencing that particular stretch of earth, and begin to draw out your fascination and awe, and even your gratitude and amusement. The link between openness and the ability to discover the good within the bad can be illustrated by an often-cited Zen meditation that goes something like this: A farmer's horse ran away. His neighbors say, "Such bad luck!" The farmer says "Maybe." The next week, the farmer's horse returns with a several other horses. His neighbors say, "What wonderful luck!" The farmer says "Maybe." A few days later, the farmer's son tries to ride one of the new horses and is thrown and breaks his leg. "Ah, such bad luck!" the farmer's neighbors cry out. "Maybe" said the farmer. A short time later, the ruler of the country comes to recruit all young men to join his army for battle. The son, with his broken leg, is left at home. "What good luck that your son was not forced into battle!" celebrated the neigh-

bors. The farmer said "Maybe." Whereas this parable might imply that every bad experience is matched by a good one (and vice versa), we know empirically—again from Diener's work on the positivity offset—that most events and experiences are, in fact, at least mildly pleasant. So, in the end, as people increase their openness, positivity is likely to accrue in greater abundance than negativity.

Is the logic of this link between openness and positivity born out empirically? The evidence to date is scant but nonetheless suggestive. One study, for example, used an experience sampling technique to compare two groups of mindfulness meditators (Easterlin & Cardena, 1998). The groups were defined by their level of meditation experience. Advanced meditators ($n = 24$) had practiced Vipassana for 3 years or more, with at least 10 days of formal retreat experience each year, and showed advanced skill level on a self-report measure of meditation experience. Beginning meditators ($n = 19$) had less experience (on average, about 1 year) and lower skill levels. The two groups carried electronic pagers for 5 days, which signaled them at random between two and five times a day. When signaled, they completed a specially designed Experience Sampling Form (Csikszentmihalyi & Larson, 1987). Comparing the culled experiences of these two groups revealed that the advanced meditators—those more skilled in mindful, open attention—reported experiencing more positive affect, more active affect, as well as more self-awareness and acceptance (Easterlin & Cardena, 1998). Did greater openness directly account for this difference? These data do not answer that question. Although it is possible that practicing mindful attention created an openness to greater positive experiences, it is also possible that the advanced meditators perceived more success and delight in their meditation practice, and that these greater positive emotions reduced their threshold to experience further positive emotions. Plus, it is important to note that the two groups were not randomly assigned, and so the direction of causality cannot be determined. It may be, for instance, that people prone to experience more frequent positive emotions are especially likely to become effective meditators. Even so, the association between skillful practice of mindful, open attention and enhanced positivity is intriguing.

Another line of evidence regarding the effects of mindfulness meditation on emotion experience can support causal claims. The research program of Kabat-Zinn and colleagues is representative (for a review, see Kabat-Zinn, 2003). In a program of research that spans more than 25 years, Kabat-Zinn has documented the salutary effects of mindfulness training on stress, anxiety, pain, and various illnesses. More recently, Kabat-Zinn and colleagues (Davidson, Kabat-Zinn, Schumacher, et al., 2003) examined the affective, brain, and immunological effects of mindfulness practice. A sample of volunteers for a workplace study on the effects of meditation was randomly assigned either to a waitlist control group ($n = 16$) or to an 8-week mindfulness-based stress reduction workshop ($n = 25$), which required a daily practice of guided mindfulness meditation lasting about an

hour. At the start of the study, immediately after the 8-week training period, and again 4 months later, the researchers assessed brain electrical activity (i.e., by an electroencephalogram [EEG]). At the end of the 8-week training period, all participants were vaccinated with influenza vaccine, and blood draws at about 4 and 8 weeks later were examined for antibody titers in response to the vaccine. As in past studies, Kabat-Zinn et al. found that trait anxiety was significantly reduced in the meditation group. More strikingly, results also showed that individuals practicing mindfulness show greater left-sided anterior activation at rest, and also during both positive and negative emotion inductions. This pattern is striking because Davidson's past work (2000) has linked it decisively to greater positive affectivity. The meditation group also showed greater increases in antibody titers to the influenza vaccine, and this salutary immune response was correlated with the magnitude of left-sided anterior brain activation. So even though self-reports of positive affect did not change as a result of the mindfulness intervention, asymmetric brain activation and immune function changed in a manner indicative of increased positivity.

A third approach to testing the connection between openness and increased positivity is illustrated by a recent study from my laboratory (Fredrickson, Cohn, Coffey, Pek, & Finkel, 2001). The aim of this study was to test the build hypothesis—derived from the broaden-and-build theory—which states that as positive emotions accumulate and compound, people show a positive trajectory of growth in which they augment or build a range of personal resources that better equip them to handle future adversity. The resources so gained may be physical (e.g., health, sleep quality), psychological (e.g., resilience, optimism), social (e.g., closeness, support given/received), and/or mental (e.g., mindfulness, savoring). To test this hypothesis, we sought an intervention that would selectively increase people's positive emotions over the course of several weeks. We chose to test the effects of a loving-kindness meditation practice, a "cousin" to mindfulness meditation.

Like mindfulness meditation, loving-kindness meditation emanates from ancient Buddhist mind-training practices. Each practice involves quiet contemplation in a seated posture, often with eyes closed and an initial focus on the breath. Yet whereas mindfulness meditation aims to train a person's attention toward the present moment, loving-kindness meditation aims to train a person's emotions toward warm, tender, and compassionate feelings. The practice, as we studied it, is akin to guided emotional imagery. Individuals are first asked to focus on their breath and their heart region and to contemplate a person for whom they already feel warm, tender, and compassionate feelings (e.g., their child or a close loved one). They are then asked to extend these warm feelings to themselves. As the practice continues, they are also asked to radiate these warm, tender, and compassionate feelings to others, first to a few people they know well, then to all their friends and family, then to all people with whom they have a

connection, and finally to all people and creatures of the earth. By radiating warm feelings to an ever-widening circle of others, the practice of loving-kindness meditation cultivates not only positive emotions but also openness, or broad-minded, attention. According to the broaden-and-build theory, these two experiential consequences go hand in hand.

To test the effects of loving-kindness mediation on positive emotions and positive trajectories of growth, we recruited a sample of about 200 working adults to participate in a workplace wellness program described as a workshop on "stress-relieving meditation." We randomly assigned participants to either a wait-list control group or a 6-week meditation workshop. Before the workshop began, we assessed participants' mental health and personal resources. Mental health was conceptualized as degrees of flourishing, using Keyes's (2002) measures. Personal resources included physical (e.g., sleep quality), psychological (e.g., trait resilience), social (e.g., self–other overlap), and mental (e.g., mindfulness) domains. Over the next 8 weeks, while those assigned to the meditation group attended the workshop and initiated a daily practice of meditation, all participants (including those in the waitlist group) reported their emotion experiences daily. We assessed 10 distinct positive emotions (i.e., amusement, awe, contentment, compassion, joy, gratitude, hope, interest, love, and pride) and 8 distinct negative emotions (i.e., anger, contempt, disgust, embarrassment, fear, guilt, sadness, and shame). At the close of the study (approximately 10 days after the last workshop session), we again assessed participants' mental health and personal resources.

Analysis of the daily emotion reports revealed that, beginning in week 3 and persisting through the end of the study, participants in the meditation group, compared to those in the waitlist control group, reported more intense experiences of a wide range of positive emotions. No significant group differences emerged for the experience of negative emotions. These data document that loving-kindness meditation practice succeeds at selectively increasing positivity and therefore provides a critical manipulation check in this study.

What happened when we augmented people's daily experiences of positive emotions in this manner? The build hypothesis states that as positive emotions increase, people accrue and build personal resources, which in turn enhances their overall mental health. This hypothesis not only predicts group differences in improved resources and mental health favoring those in the meditation workshop, but it also predicts that increments in people's resources account for (i.e., mediate) the association between their increased positive emotions and their enhanced mental health. We found support for each of these predictions. First, significant group differences emerged across a wide range of resources, including one physical resource (sleep quality, Buysse, Reynolds, Monk, Berman, & Kupfer, 1989) one psychological resource (i.e., trait resilience, Block & Kremen, 1996; Fredrickson et al., 2003), two social resources (i.e., self–other overlap,

Aron, Aron, & Smollan, 1992; and social support given, Spanier, 1976), and three mental resources (mindfulness, Brown & Ryan, 2003; the ability to savor the future, Bryant, 2003; and implicit incremental theories, Hong, Chiu, Dweck, Lin, & Wan, 1999). Each significant effect reflected greater gains in the targeted resource within the meditation group. Second, group differences emerged on our index of increased flourishing, with those in the meditation group showing significantly larger gains. Finally, a test of mediation, following the Kenny et al. (1998) guidelines, confirmed that an aggregate measure that reflected all evident resource gains mediated the association between increased positive emotions and enhanced mental health. In other words, practicing loving-kindness meditation reliably augmented people's daily experiences of positive emotions, and those increases in positive emotions, in turn, accounted for gains in a wide range of personal resources, ranging from sleep quality to resilience and mindfulness. These resource gains, in turn, elevated signs of flourishing mental health. These data provide the first experimental evidence for the build hypothesis. They not only tell how to augment positivity but also underscore the consequential downstream effects of doing so.

The design of this initial study on the effects of loving-kindness meditation does not allow us to pinpoint the active ingredients within this particular meditation practice. Further studies are needed to do so. The active ingredient may be the pleasantness of the emotions induced. Alternatively, it could be the greater openness inspired by the repeated focus on an ever-widening circle of others. Yet knowing that positive emotions and open, broad-minded thinking co-occur and mutually reinforce one another, from the perspective of the broaden-and-build theory, a "both–and" view of active ingredients may prove more viable than an "either–or" view. Positivity and openness may, by nature, coexist. Teasing them apart may not even be possible. Whichever attribute or attributes of the loving-kindness practice emerge as most critical, the larger test of the build hypothesis stands on solid ground: Experimentally induced positive emotions accounted for gains in resources, which in turn accounted for gains in flourishing mental health.

Although meditation—be it mindfulness, loving-kindness, or both—may be a skillful way to increase openness, it is not the only way. Another route may be to reduce certain habits of mind that tend to constrain and compartmentalize experience. New theory and research suggest that humans face a "pleasure paradox" such that thinking too much about a pleasant experience actually dampens that experience and reduces the overall pleasantness that we can derive from it (Wilson, Centerbar, Kermer, & Gilbert, 2005). A series of experiments tested this pleasure paradox by giving study participants a gift of a $1 coin taped to an index card. By random assignment, one group of participants received an explanation for this gift, whereas another group did not. A third group received no card or gift. Researchers then assessed the magnitude of participants' pleasant feelings 5

minutes later. Results showed that the group without an explanation experienced the most enduring positive emotions. Subsequent experiments showed that people are unaware of this pleasure paradox: When given a choice, they overwhelmingly prefer more certainty about their upcoming positive events. What these data suggest is that explaining a pleasant event can paradoxically erase its pleasantness. One lesson in these findings is that it may be best to accept random acts of kindness as random. Be open to goodness however it arrives: Practice acceptance, not analysis.

Whereas habitually analyzing events may paradoxically squelch pleasant experiences, other habits of mind might expand and intensify our experience of them. *Savoring* appears to be one of these more helpful mental habits. Savoring represents the capacity to willfully generate, intensify, and prolong one's enjoyment of positive events. People's self-evaluations of their ability to savor pleasant experiences taps into a form of perceived control over positive emotions, just as their self-evaluations of their ability to cope taps into a form of perceived control over negative emotions. Moreover, these two types of perceived control over emotions—positive and negative—appear to be largely independent (Bryant, 2003). People's beliefs about savoring are hypothesized to predict the intensity and frequency of the pleasure gained from positive experiences. One study (Bryant, 2003), measured three aspects of people's savoring beliefs: their self-evaluations of their ability to savor (1) future pleasant events, (2) present pleasant events, and (3) past pleasant events. Participants were then contacted before, during, or after a vacation from college. Bryant's (2003) Savoring Beliefs Inventory showed predictive, convergent, and discriminant validity in that the relevant subscale best predicted behaviors and affect more strongly than did the subscales with other two temporal orientations. The research on savoring suggests that perhaps beyond merely accepting goodness, we should relish it, deeply appreciating each facet of its pleasantness.

Our lab group recently discovered another strategy for increasing openness completely serendipitously: Go outside. More precisely, go outside in good springtime weather. A former student of mine, Matt Keller, was keenly interested in the effects of weather on mood (as any Texas native transplanted to Michigan might be). He examined the extant literature and was surprised to learn that the mood-boosting quality of good weather was judged to be an old wives' tale, unsupported by empirical evidence (Watson, 2000). Keller reasoned that perhaps the persistent null finding could be attributed to people's limited exposure to the weather. A fact of modern life is that people are largely insulated from direct exposure to the weather, spending an average of 93% of their time indoors (Woodcock & Custovic, 1998). Noting this, Keller predicted an interaction between good weather and time spent outside on people's mood.

My laboratory routinely collects data on study participants' mood as well as their broadened thinking or cognitive openness. One spring Keller added to two

simple questions to our standard battery: "How much time did you spend outside so far today?" and "How physically active have you been today?" The latter question provided an important control for the known effects of activity level (which may covary with time spent outside) on mood. He later downloaded precise metrics on the local weather (i.e., temperature and barometric pressure) from the National Climatic Data Center.

Regression analyses revealed two striking interaction effects—one predicted, the other not. People who spent more time outside when the weather was nice (high temperature or high pressure) showed the predicted boost in pleasant mood, whereas those who spent little time outside did not. What we did not expect to find was that those who spent more time outside when the weather was nice also scored higher on measures of broadened, open thinking. These included measures of digit span and openness to new information. The following spring we tested Keller's prediction experimentally, randomly assigning participants to spend time outside or not, and then measured mood and broadened thinking. The same two interaction effects emerged. Later studies done year-round revealed that these were seasonal effects, evident in the spring and early summer only.

We queried the data to learn whether either effect mediated the other. They did not. In the time span in which we tested our participants, the increase in openness did not account for their boost in mood, nor did their boost in mood account for their increases in openness. These appeared to be two independent effects. Even so, other research documents that nature experiences are high on both *fascination*—they draw people's attention involuntarily—and *extent*—they provide sufficient scope and richness to fully occupy people's attention (Kaplan, 1995)—two qualities that might produce positive emotion and openness, respectively, and together with other characteristics (being in a different [novel] location, and being compatible with one's purposes and inclinations) are restorative. Simply put, when outdoors people can often see farther, and seeing farther may be all it takes to expand people's modes of thought, giving them more about which to feel good. These speculations merit empirical testing.

Do Good

So far, the strategies described to augment positivity emphasize internal changes, various ways of finding positive meaning, and becoming more open. A third very broad class of strategies worth mentioning, at least briefly, is to externalize positive perspectives, instantiating them as behaviors, especially within social interactions. A classic stream of research in social psychology highlights one way to boost positivity: Help others. Helpful, compassionate actions not only spring from positive feelings (Isen, Clark, & Schwartz, 1976), but they also generate and reinforce positive feelings (Fredrickson, 2003). More recent studies report that

the happiest people show more kindness to others relative to those who are less happy, and that subjective happiness increases when people increase their focus on their own acts of kindness (Otake, Shimai, Tananka-Matsumi, Otsui, & Fredrickson, 2006). That is, the habit of "counting one's own kindnesses" may function a bit like "counting one's blessings." Each strategy has been shown to boost positive affect. Another external way to augment and prolong positive affect is to share news of your good fortunes with supportive others. Diary studies confirm that when people do so, they multiply their good feelings significantly (Gable, Reis, Impett, & Asher, 2004). Related work demonstrates that when people celebrate or otherwise mark their successes, they extend the happiness they derive from them (Langston, 1994). Likewise, I would speculate that, to the extent that you are open, appreciative, and supportive of good news that you hear, you too can derive pleasure from it. Outside of social interaction, other ways to "do good" also augment positivity. Work by Folkman and Moskowitz (2000) suggests that actively working to solve problems can create important senses of mastery and control that, in turn, increase positive affect. For instance, even though caregivers whose partners were dying of AIDS in the 1990s experienced the disease itself as completely uncontrollable, many pursued realistic, attainable goals by focusing on and solving specific problems related to caregiving, such as helping to manage their dying partner's pain. The point to underscore here is that strategies for increasing positivity are not "all in your head." Externalizing positive perspectives, whether through kind acts, sharing good news, solving problems, or other routes, can also reliably increase positivity.

Be Social

Still another of Ed Diener's contributions was to closely examine the attributes of "very happy" people (Diener & Seligman, 2002). All very happy people, it appears, are highly social: Compared to less happy people, very happy people spend the least amount of time alone, the most amount of time with family, friends, and romantic partners, and have the strongest romantic and other social relationships. From these data, Diener and Seligman (2002) concluded that good social relations are a necessary condition for happiness, albeit not a sufficient condition (i.e., some less happy people showed comparable sociality). Not surprisingly, very happy people were also more extraverted, agreeable, and less neurotic than less happy people. This finding raises the interesting question of whether people might increase their positive affect by being more social. A recent series of studies tested this hypothesis directly, both within daily life and within a controlled laboratory setting (Fleeson, Malanos, & Achille, 2002). An experience sampling study revealed that rapid, within-person fluctuations in extraversion were strong predictors of rapid, within-person fluctuations in positive affect. Strikingly, this within-person association was evident for each person tested:

That is, each participant was happier when acting extraverted than when acting introverted. A laboratory experiment further revealed that when people are randomly assigned to "act extraverted" (versus "act introverted") during a group discussion, they experience more intense positive affect (Fleeson et al., 2002). So, beyond doing good for others, simply interacting with others appears to be a reliable strategy for increasing positivity.

Closing Words:
Reflect and Anticipate Diener's Legacy

This volume aims to detail the latest social science on subjective well-being, a field that would hardly exist without Ed Diener's major contributions and steering influence. The aim of this chapter was to describe a set of pathways for augmenting subjective well-being by increasing the ratio of people's pleasant to unpleasant experiences. Furthering the practical application of the science of subjective well-being, Ed Diener has recently advocated for a national well-being index (Diener & Seligman, 2004). Developed societies have long tracked the influence of various societal factors and social policies on economic well-being. It is time to look beyond money. As the data (and the Beatles) say, time and again, money can't buy love . . . or peace, joy, or any other lasting indicators of subjective well-being. Through the developing science of subjective well-being, scientists are beginning to understand the practices that can "buy" these positive states, and what they, in turn, can "buy" for us. We, as a field, owe Ed Diener a debt of gratitude for opening this possibility for us.

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