

The How, Who, What, When, and Why of Happiness:
Mechanisms Underlying the Success of Positive Activity Interventions
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Most people want to be happy (Diener, 2000) and they seek happiness in a variety of ways – through achieving greater income or more prestigious careers, living walking distance to the ocean, or buying a shiny new car. Evidence suggests, however, that changing one's life circumstances (e.g., marital status, career, location, and income) is not the most fruitful path to greater well-being (Sheldon & Lyubomirsky, 2006a). Instead, simple cognitive and behavioral strategies that people can employ in their daily lives have been found to reliably improve happiness. These strategies do not involve making major shifts to people's current life situations and can be used by anyone, regardless of their genetic make-up. Although possessing the capacity to increase one's own happiness may sound too good to be true, the development and understanding of happiness-boosting strategies have come a long way since Fordyce (1977, 1983) published his first successful attempts at intentionally increasing happiness levels in his classrooms. Since that time, research has accumulated to convincingly suggest that a large portion of happiness may be under people's control through the activities they choose and how they construe and respond to situations in their lives (Lyubomirsky, Sheldon, & Schkade, 2005).

A common argument from skeptics is that people's happiness levels are genetically determined and cannot be substantively changed. Despite persuasive evidence from twin studies that well-being levels are strongly influenced by genetics (Lykken & Tellegen, 1996), more recent research suggests that genetic influences on happiness might be weaker than originally thought, with environmental influences explaining a large portion of individual differences in happiness (Røysamb, Harris, Magnus, Vittersø, & Tambs, 2002; Stubbe, Posthuma, Boomsma, & de Geus, 2005). Furthermore, research on gene-environment interactions suggests that biology and environment continuously interact in a dynamic process to influence people's behavior, so even genetic predispositions are not deterministic (Plomin, 2004).

Studies also show that the relationship between people's life circumstances (e.g., their income, relationship status, or health) and their happiness is not as strong as intuition would suggest (Diener, Suh, Lucas & Smith, 1999). For example, the fulfillment of one's basic psychological needs (autonomy, competence, and relatedness; Deci & Ryan, 2000) is a better predictor of daily positive and negative emotions than one's income (Diener, Ng, Harter, & Arora, 2010). Also, although people do receive an emotional boost from a highly positive event such as getting married, these initial boosts do not last indefinitely (Lucas, Clark, Georgellis, & Diener, 2003), as people tend to adapt to their life circumstances over time (Lyubomirsky, 2011). Such findings suggest that trying to become happier by improving one's life circumstances – if those circumstances are not dreadful to begin with – is unlikely to pay off.

Although individual differences in biology and circumstances combine to explain part of the happiness puzzle, a gap exists in the explained variance (Lyubomirsky, Sheldon, et al., 2005). For example, people's happiness levels have been found to shift over time. In a 17-year longitudinal study, 24% of participants showed substantive changes in their happiness over time, with 9% changing by over two standard deviations (Fujita & Diener, 2005). We argue that these observed changes can be explained in part by deliberate ways that people choose to think and

behave in their daily lives. How and why these practices and habits can “work” to shift well-being has been the focus of our laboratory’s efforts for over a decade.

How Can Well-Being Be Increased?

One way to generate a list of potentially efficacious happiness-increasing strategies is to review literature on the emotions, cognitions, and behaviors that characterize happy people (e.g., Lyubomirsky, 2001). For example, compared to their less happy peers, happy individuals are more grateful for the positive circumstances in their lives (McCullough, Tsang, Emmons, 2002), act generously towards others (Krueger, Hicks, & McGue, 2001; Lucas, 2001), and perceive themselves, their worlds, and their futures optimistically (Lucas, Diener, & Suh, 1996; Lyubomirsky, Tkach, & DiMatteo, 2006). After identifying the characteristics that distinguish happy and unhappy people, the next step is to package these potentially happiness-promoting thoughts and behaviors in interventions that can be tested against neutral control activities. The result of these efforts – what we call positive activity interventions (PAIs) – involve simple, self-administered cognitive or behavioral strategies designed to mirror the thoughts and behaviors of naturally happy people and, in turn, improve the happiness of the person performing them.

A number of PAIs have already established their effectiveness in increasing well-being and/or reducing negative symptoms in randomized, controlled interventions. They include (but are not limited to) writing letters of gratitude (Boehm, Lyubomirsky, & Sheldon, 2011a; Layous & Lyubomirsky, 2011; Lyubomirsky, Dickerhoof, Boehm, & Sheldon, 2011; Seligman, Steen, Park, & Peterson, 2005), counting one’s blessings (Chancellor & Lyubomirsky, 2012; Emmons & McCullough, 2003; Froh, Sefick, & Emmons, 2008; Lyubomirsky, Sheldon, et al., 2005; Seligman et al., 2005), practicing optimism (Boehm et al., 2011a; King, 2001; Layous, Nelson, & Lyubomirsky, in press; Lyubomirsky et al., 2011; Sheldon & Lyubomirsky, 2006b), performing acts of kindness (Della Porta & Lyubomirsky, 2012; Dunn, Aknin, & Norton, 2008; Sheldon, Boehm, & Lyubomirsky, in press; Study 2), using one’s strengths in a new way (Seligman et al., 2005), affirming one’s most important values (Nelson & Lyubomirsky, 2012a), and meditating on positive feelings towards self and others (Fredrickson, Cohn, Coffey, Pek, & Finkel, 2008). These activities are similar in that they are all relatively brief, self-administered, and non-stigmatizing exercises that promote positive feelings, positive thoughts, and/or positive behaviors, rather than directly aiming to fix negative or pathological feelings, thoughts, and behaviors. For example, in one positive activity, people are instructed to spend 8 to 10 minutes writing a gratitude letter to someone who has been kind to them. No restrictions about letter format or to whom the letter should be written are provided. Participants are encouraged to describe in detail what that person has done for them and how it has affected their lives. Some researchers have encouraged their participants to deliver their letter(s) (Froh et al., 2008; Seligman et al., 2005), whereas others specify that the letter(s) remain unshared (Boehm et al., 2011a; Lyubomirsky et al., 2011). Both types of experiments have shown positive effects for the letter writer. Although other positive activities vary in content and practice, they are equally uncomplicated and take relatively little time to perform.

A growing body of evidence is showing that happiness-increasing strategies do stimulate increases in well-being. An oft-cited meta-analysis of 51 positive interventions overwhelmingly revealed that positive interventions significantly increase well-being (mean $r = .29$) and alleviate depressive symptoms (mean $r = .31$; Sin & Lyubomirsky, 2009). In practical terms, this means

that out of 200 individuals – 100 of whom are randomly assigned to practice a positive activity and 100 to perform a neutral control activity – 64 of the individuals in the positive activity group will increase in well-being, compared to only 36 individuals in the control group.

To put these effect sizes into perspective, the classic Smith and Glass (1977) meta-analysis of 375 psychotherapy studies found that psychotherapy demonstrated an average effect size r of .32 for outcomes like self-esteem and adjustment. The Sin and Lyubomirsky (2009) meta-analysis strongly supports the overall efficacy of positive interventions; however, it also revealed that several variables moderated the effectiveness of the activities. These results highlight the importance of establishing the optimal conditions for positive activity interventions (e.g., duration, intervention format), as well as identifying the personal characteristics of participants (e.g., self-selection, initial depression status) that might predict maximum success.

Current and future research would do well to move beyond simply focusing on whether PAIs can increase well-being. They can. Today's pressing questions involve understanding the mechanisms underlying the success of happiness-increasing interventions. Fortunately, a great deal of ground has already been covered in researchers' understanding of the how, who, what, when, and why of the success of PAIs; or, more formally, the moderators and mediators underlying the efficacy of happiness-boosting strategies. This chapter will provide an overview of what has already been learned about the boundary conditions of happiness-increasing strategies, as well as what remains to be investigated. Specifically, we review 1) the characteristics of a particular activity that may enhance its probability of success (e.g., its timing and variety), 2) the characteristics of the individual that may lead him or her to benefit more from performing positive activities (e.g., motivation, effort, social support, culture, age, and baseline levels of well-being), 3) the intersection between the positive activity and the individual that might produce an optimum "person-activity fit," and 4) the psychological processes by which positive activities work to improve well-being.

Characteristics of Positive Activities That May Impact Their Efficacy

Timing and Dosage

When patients take prescription drugs, the pharmacist explains the correct dosage or timing of the medication to make it optimally effective – for example, "take three pills immediately, and one per day for a week after that." Preliminary research suggests that "dosage" and "timing" matter in PAIs too. In one study, participants were asked to perform five acts of kindness either all in one day or spread out over the course of the week. Participants who performed the kind acts all in one day showed greater increases in well-being than those who performed kind acts throughout the week (Lyubomirsky, Sheldon, et al., 2005). This finding indicates that particular packagings of PAIs might make them relatively more effective.

Similarly, another study showed that participants who counted their blessings only once per week for 6 weeks saw greater gains in well-being than participants who counted their blessings three times per week (Lyubomirsky, Sheldon et al., 2005). This result suggests that performing a positive activity too much during the course of a week might make it burdensome and therefore diminish the benefits. On the other hand, a naturalistic study examining people's everyday pursuit of happiness found that, on average, people perform their chosen happiness-increasing strategies several times a week for at least an hour each time (Parks, Della Porta, Pierce, Zilca, & Lyubomirsky, in press, Study 2). Moreover, people who voluntarily engaged in

positive activities through an application on their iPhones reported greater increases in well-being the more frequently they logged into the application (Parks et al., in press, Study 3). Although these findings might initially appear contradictory, they suggest that the optimum frequency for practicing positive activities may vary depending on whether the happiness-seeker is voluntarily engaging in a self-chosen activity versus one mandated by an investigator.

The length of an intervention may also bolster the benefits garnered from performing a particular activity, such that the longer the intervention, the greater the increase to well-being (Sin & Lyubomirsky, 2009). Because the majority of the interventions highlighted in the 2009 meta-analysis were between 4 and 10 weeks long, they may not have been long enough to observe potential hedonic adaptation, whereby the rewards of an activity subside with time. We predict a curvilinear relationship between increases in well-being and the length of the intervention over time, if the same positive activity is performed without any variation.

Variety

One of the chief obstacles to people's attempts to sustainably increase their happiness is their remarkable capacity to adapt to almost all positive changes (Brickman & Campbell, 1971; Frederick & Loewenstein, 1999; see Lyubomirsky, 2011, for a review). As just two persuasive illustrations of such hedonic adaptation, two studies showed that both newlyweds (Lucas et al., 2003) and high-level managers with new promotions (Boswell, Boudreau, & Tichy, 2005) eventually adapted to their respective positive life change and returned to baseline levels of well-being. If people adapt to positive circumstantial changes, they might adapt to the practice of positive activities over time as well. Lyubomirsky and her colleagues (Lyubomirsky, 2011; Sheldon, Boehm, & Lyubomirsky, in press) propose that one way to inhibit or slow down adaptation to positive experiences or activities is by bolstering variety.

Theory and research suggests that variety in thoughts and behaviors is inherently motivating and rewarding (Berlyne, 1970; Pronin & Jacobs, 2008; Rolls et al., 1981). College students report being less likely to adapt to dynamic life changes (e.g., those that involve continued engagement in a variable, self-directed process, like taking a language class or making a new friend) than to static ones (e.g., acquiring a better dorm room or more financial aid; Sheldon & Lyubomirsky, 2006a; Study 1). Furthermore, people are slower to adapt to positive stimuli that are varied than those that are stable (Leventhal, Martin, Seals, Tapia, & Rehm, 2007).

For example, consider a young person who receives a Wii gaming system as a present. If the Wii includes only one game, the initial positive emotions gained from playing with the new console will be short-lived, and boredom with the one game will quickly ensue. However, if the Wii is loaded with a variety of games, with multiple levels, and the ability to play with multiple different people, the combinations of games, levels, and players will vary each time the individual uses his gift. Introducing variety into the activity of playing the Wii leads the positive emotions of the initial positive experience to last much longer than it would have otherwise.

Similarly, with respect to positive activities, if an individual intends to become happier by practicing only one activity (say, counting blessings or doing acts of kindness) for several weeks or months, she is likely to tire of the activity over time, experiencing fewer and weaker positive emotions from each subsequent week of performing the activity. Indeed, a study investigating how people pursue happiness in the real world (i.e., outside of a randomized

controlled intervention) found that people perform between seven and eight activities to improve their own happiness at any one time (Parks et al., in press, Study 2). Furthermore, in another study, those who voluntarily purchased a happiness-increasing iPhone app saw greater increases in mood and overall happiness if they practiced multiple positive activities as opposed to just one (Parks et al., in press, Study 3).

In sum, these findings suggest that varying the practice of any one positive activity could also serve to prolong its positive effects. In a test of this hypothesis, Sheldon and colleagues (in press; Study 2) found that people instructed to perform different acts of kindness each week (e.g., do a new household chore one week, surprise their pet with a treat another week) showed larger gains in well-being than those instructed to perform the same acts of kindness (e.g., do new household chores each week). In a separate study, Sheldon and colleagues (in press; Study 1) asked participants to make a positive life change (e.g., walking to work each day). Those who reported that their life change varied over time (e.g., they varied their daily route to work) showed sustained increases in well-being at a follow-up assessment relative to those who did not report variety. These results indicate that happiness researchers may need to consider the potential routineness and monotony of PAIs as an obstacle to increases in well-being.

Characteristics of Persons That May Impact the Extent to Which They Benefit

The PAIs we have highlighted have shown positive overall effects on participant well-being. Analyses of the data beyond simple averages, however, reveal that PAIs work better for some individuals than others. Accordingly, researchers may find it instructive to consider the characteristics of persons that make them more or less likely to benefit from practicing a positive activity.

Motivation and Beliefs

Admittedly, some positive activities might sound cliché or corny and may deter skeptics from engaging in them in a meaningful way. Two important components of the success of PAIs in raising well-being are the participant's motivation to seriously engage in the target activity and her belief that the activity could work to enhance well-being. We speculate that an individual who self-selects into a PAI is both motivated to become happier and believes in the target activity's efficacy. Indeed, participants who self-select into positive interventions have been found to show larger gains in well-being and larger decreases in depressive symptoms than those who do not self-select (Sin & Lyubomirsky, 2009). For example, a study that recruited participants through an advertisement in one of the authors' self-help books, thus capturing individuals who had already taken steps to improve their mental health, showed impressive increases in well-being and decreases in depressive symptoms among those engaging in a simple activity for just a week (Seligman et al., 2005). In an experimental manipulation of this factor, Lyubomirsky, Dickerhoof, and colleagues (2011) found that after performing a positive activity, participants who initially self-selected into an intervention ostensibly designed to make them happier showed greater gains in well-being than those who self-selected to "test cognitive exercises." This experiment established self-selection as an important moderator of the efficacy of PAIs. Although, to our knowledge, motivation to become happier and beliefs in the efficacy and benefits of happiness-seeking activities have not been directly measured and manipulated, we expect these variables to relate to gains in well-being following positive activities.

The above evidence suggests that participant motivation to become happier might be an important component in the success of PAIs. Other evidence, however, indicates that having the goal of happiness might have deleterious outcomes. For example, in a cross-sectional study, people who valued happiness more were actually less happy when facing low levels of life stress, likely because stressors were not present to account for negative emotions experienced (Mauss, Tamir, Anderson, & Savino, 2011; Study 1). Experimentally inducing participants to value happiness through a fake newspaper article that extolled the virtues of happiness showed similar results. Participants led to value happiness actually experienced less happiness from a positive video clip than participants who read an affectively neutral news clip (Mauss et al., 2011; Study 2). Furthermore, feelings of disappointment mediated the relationship between valuing happiness and emotions experienced. The authors reasoned that pursuing happiness as a goal is not the same as pursuing a goal such as high grades. If a student does not attain the grade for which she was striving, she will likely be disappointed, but she may at least earn a slightly lower grade, and thus will still have achieved part of her goal. Feeling disappointed at not reaching the goal of happiness, however, is a direct threat to happiness.

The implication from the Mauss and colleagues (2011) studies is that being highly motivated to become happier serves as a barrier to real happiness. Support for this notion can be found in traditional Buddhist thought, as Buddhism stipulates that true happiness is achieved when you renounce your individual happiness. Indeed, increased self-monitoring and self-focus have often been associated with lower well-being (Gruber et al., 2011; Lyubomirsky, Boehm, Kasri, & Zehm, 2011). Despite the potential pitfalls of being too motivated to be happy, most Westerners list happiness as an important goal (Diener, 2000), so it is important that researchers understand the relationship between motivation to become happier and experienced happiness. How can the seemingly contradictory findings about the effects of directly pursuing happiness be reconciled?

Although designed to make people happier, the precise practice of PAIs does not direct the practitioners' attention on their own happiness. Instead, people are encouraged to follow specific instructions for concrete cognitive or behavioral activities that are often other-focused in nature (e.g., writing letters of gratitude or performing acts of kindness for others) or seek to indirectly increase happiness through providing a need satisfying experience (Boehm, Lyubomirsky, & Sheldon, 2011b; Layous et al., in press). Also, the transient positive emotion induction used in Mauss and colleagues' second study (2011) cannot be generalized to the dynamic, longitudinal, naturalistic happiness-seeking strategies that people may employ in their daily lives. Nevertheless, exploring the potential negative impact of being motivated to become happier is a vital contribution to the literature and needs to be studied further in the context of PAIs.

Effort

People are often taught that if they want something, they have to work for it. This adage seems to be true for increasing happiness as well. For example, one reason that motivated happiness-seekers are more successful than their less motivated peers is that they are willing to put more effort into a positive activity. Supporting the critical role of effort, a 6-week PAI found that self-reported participant effort predicted linear increases in well-being over the course of the study (Layous & Lyubomirsky, 2011), and, in a 6-week workplace intervention, the number of

characters written (an indicator of effort) during a gratitude-focused activity also predicted increases in well-being (Chancellor & Lyubomirsky, 2012).

Lyubomirsky, Dickerhoof, and colleagues (2011) had independent coders rate the effort that participants put into completing one of two positive activities (imagining one's best possible self or writing a letter of gratitude) or a neutral control activity. Coder-rated effort predicted increases in well-being in the positive activity conditions, but not in the neutral activity condition. This finding suggests that when effort toward becoming happier is well-placed – in an experimentally tested positive activity – it can result in increases to well-being. However, when effort is put toward a neutral activity, these same boosts do not take place. As the authors suggest, happiness-increasing activities take both a “will” and a “proper way” to be effective.

In other studies, participants' self-reports of continued practice of positive activities after the intervention period have been found to predict sustained increases in positive affect at a 2-week follow-up (Sheldon & Lyubomirsky, 2006b), sustained decreases in depression scores at a 1-month follow-up, and sustained increases in well-being at a 6-month follow-up (Seligman et al., 2005). Furthermore, at a 15-month follow-up to an 8-week loving-kindness meditation training, participants who continued to meditate after the intervention period reported more positive emotions than non-continuers (Cohn & Fredrickson, 2010). These studies offer persuasive evidence that increases to well-being garnered from a PAI can be sustained if people continue to muster effort into their practice.

Social Support

A link between social support and various health outcomes (e.g., depression, anxiety, recovery from an illness or accident, and blood pressure) has long been noted in the literature (Broadhead et al., 1983; Ogden, 2000). Social support – which we broadly define as the perceived or actual support one receives from at least one other individual – has also been shown to have a direct effect on well-being (Ogden, 2000), as well as a stress buffering effect (Cohen & Wills, 1985).

Evidence of the importance of social support for well-being can be found on a global scale. The Gallup World Poll shows that in the four highest-ranking countries for life satisfaction (Denmark, Finland, Norway, and the Netherlands), 95% of respondents felt they had relatives or friends they could count on to help them in times of trouble (Diener, Helliwell, & Kahneman, 2009). In contrast, only 55% of respondents in the four lowest-ranking countries (Togo, Burundi, Sierra Leone, and Zimbabwe) reported having this type of social support.

In light of its cross-sectional association with well-being, we argue that social support is a critical ingredient in a successful PAI. Indeed, organizations such as Alcoholics Anonymous and Weight Watchers have long used a team approach to encourage behavior change. For example, in one experiment, people recruited into a weight loss intervention with friends lost more weight at a 4- and 10-month follow-up than people recruited individually (Wing & Jeffrey, 1999). Further, individuals who have social support are more likely to adhere to medical treatment (DiMatteo, 2004) and to maintain New Year's resolutions even 2 years after they are made (Norcross & Vangarelli, 1989).

Social support has just begun to be investigated in the PAI literature as an experimental factor. In one study, college students engaged in a positive, goal-oriented writing task each week

for 4 weeks (Layous et al., in press). Before the weekly task, they were assigned to read either a generic passage of information about campus resources or a bogus supportive testimonial from a fellow college student modeling how to perform the writing activity and empathizing with its challenges. Those who read the testimonial from their peers (a manipulation of social support), as opposed to the generic information, showed larger increases in well-being. Another recent study compared the efficacy of a kindness intervention with or without social support (Della Porta & Lyubomirsky, 2012). Some of the participants received supportive messages each week directed toward increasing their felt autonomy while they performed acts of kindness. A sample autonomy-support message was, “Hey, [participant name]! I hope you’re excited to do five acts of kindness all in one day. Just wanted to let you know that where you do these acts and who you do them for is totally up to you. Feel free to do this however you want.” Participants who received autonomous social support during their practice of the positive activity showed larger increases in well-being than participants who did not (Della Porta & Lyubomirsky, 2012).

One caveat, however, is that researchers need to be careful about how they try to implement social support in PAIs. Research has suggested that perceived access to social support is more strongly related to well-being than actual received support, and that received support can sometimes have negative outcomes (Bolger, Zuckerman, & Kessler, 2000). For example, received support during a happiness-increasing activity could come across as nagging, patronizing, or intrusive and therefore have counterproductive consequences. The challenge in bringing social support to a PAI is to make participants feel supported (perceived support) without being overbearing and possibly detracting from their sense of autonomy in the activity.

Culture

Not only do characteristics of individuals matter for the efficacy of positive activities, the values relevant to the culture with which they identify also likely bear on how they perform positive activities and how effective those activities may be. Unfortunately, few happiness-increasing experimental interventions have considered culture. Evidence suggests that different cultures conceive of happiness in varying ways. Members of Western cultures place great weight on personal achievement and goal pursuit in evaluating their own happiness (Uchida, Norasakkunkit, & Kitayama, 2004), whereas those of Eastern cultures tend to place collective harmony and relationships above their individual needs and not view their personal happiness as an ultimate goal (Diener & Suh, 1999; Uchida et al., 2004). The Western focus on intrapersonal factors and the Eastern focus on interpersonal factors when defining well-being may affect which types of positive activities people from each of these cultures find most efficacious.

One logical factor to consider is whether individuals from Eastern cultures would even want to actively pursue their own happiness. If personal happiness is not valued in their culture, then its members may not be motivated to become happier or to put in the requisite effort to do so. Alternatively, they may only benefit from certain types of positive activities. For example, happiness interventions conducted with two different Japanese samples showed increases in well-being in the intervention group (relative to a control group) after asking participants to keep track of the kind acts they performed during each day of a single week (Otake, Shimai, Tanaka-Matsumi, Otsui, & Fredrickson, 2006) and to write about three things that went well each week at work over 6 weeks (Chancellor & Lyubomirsky, 2012). These results imply that people from a collectivist culture can benefit from simply keeping track of what they do for others or the ways that they contribute to their company’s or family’s success. Although the above two studies did

not include a Western sample for comparison, a recent intervention, in which participants actually performed kind acts rather than simply recalling them, found that both U.S. and South Korean students became happier after doing kindness, but only when they felt supported by peers (Della Porta & Lyubomirsky, 2012). No cultural differences were found in this experiment.

In contrast, Boehm and colleagues (2011a) found that predominantly foreign-born Asian Americans saw smaller increases in well-being from practicing happiness-increasing activities, relative to Anglo Americans. However, Asian Americans in this study trended toward experiencing greater increases in well-being from an other-focused activity (writing letters of gratitude) than from a self-oriented activity (writing about your best possible self), but this effect did not reach significance.

More research needs to examine the role of culture in the efficacy of positive activities. In addition to clarifying differences between happiness seeking in Western and Eastern cultures, much remains to be learned about how the pursuit of happiness unfolds in other types of cultures and subcultures, as well as how positive activities can be tailored to best meet the needs of cultural members.

Age

Another factor to consider is age. That is, might certain age groups gain more from the practice of positive activities? A meta-analysis provided evidence that older participants benefit more from positive activities than younger ones (Sin & Lyubomirsky, 2009). This finding was limited, however, by the small number of studies included in the youngest (less than 17 years old) and oldest (60 years old or more) age ranges. Hence, what the age moderator analysis actually showed was that young adults (18 to 35 years old) gained less from positive interventions than middle adults (36 to 59 years old). Furthermore, because the middle adult samples were more likely than the young adult ones to self-select into their respective positive interventions, age was confounded with self-selection.

Intuitively, it makes sense that older participants might gain more from the practice of positive activities, because they likely take the activities more seriously than younger participants and put more effort into them. Nevertheless, some evidence suggests that practicing positive activities can have both emotional (Froh et al., 2008; Haworth, Bao, Layous, Nelson, Lyubomirsky, Plomin, 2012; Layous, Nelson, Oberle, Schonert-Reichl, & Lyubomirsky, 2012;) and social (Layous et al., 2012) benefits among youth. Early adolescents ($M = 12.2$ years old) randomly assigned to count their blessings for 2 weeks showed larger increases in well-being than those assigned to keep track of their daily hassles (Froh et al., 2008). In a within-subjects pilot study for a larger, genetically sensitive intervention, pairs of monozygotic and dizygotic adolescents ($M = 14.9$ years old) simultaneously engaged in two simple positive activities (writing letters of gratitude and performing acts of kindness) over 3 weeks (Haworth et al., 2012). Overall, participants displayed larger increases in well-being during the positive activity period than during a baseline period (also 3 weeks long) in which they engaged in neutral tasks. Further, preliminary evidence indicated that whether participants maintained these boosts in well-being at a 4-week follow-up was strongly influenced by genetics (Haworth et al., 2012).

In a classroom-based study, preadolescents ($M = 10.6$ years old) were instructed either to keep track of the locations they visited or to perform kind acts weekly over 4 weeks (Layous et al., 2012). Both groups showed increases in life satisfaction, happiness, and positive affect, but,

students who were high in perspective taking at baseline (indicating that they can relate to and empathize with fellow students) saw greater gains in well-being from performing kind acts than keeping track of their locations. This finding indicates that youth may need to be developmentally ready to identify with the positive activity and to obtain maximal benefit from it. However, students' levels of perspective taking did not influence whether they reaped social benefits from performing kind acts: Students who engaged in kind acts were more likely to see increases in nominations from their peers as "someone you would like to be in school activities with" (a measure of peer acceptance) than those who kept track of their locations (Layous et al., 2012).

In sum, evidence is emerging that positive activities can benefit youth populations. Studies with even younger children are needed, however, to identify the youngest age range for which specific positive activities will still be efficacious. In addition, although positive interventions that prompt elderly participants to reflect on their lives within the context of group and individual therapy (e.g., life review therapy and reminiscence) have been found to increase life satisfaction and alleviate depressive symptoms (Cook, 1998; Davis, 2004), to our knowledge, self-administered positive activities have not been tested specifically among older adults. Exploring the age ranges in which positive activities are optimally helpful, and tailoring positive activities to certain age brackets depending on their unique developmental needs (Nelson & Lyubomirsky, 2012b), could be an important area for future research.

Baseline Levels of Well-Being

An interesting possibility is that people might need to be at a certain level of well-being before they are ready to benefit from positive activities. Specifically, a lower boundary of individual happiness levels may exist that renders PAIs too emotionally challenging for individuals to perform. For example, given the self-directed nature of PAIs, those suffering from severe depression may not have the energy to do even a simple writing activity. To date, the literature on how happiness-increasing activities affect depressed individuals seems to be mixed. Evidence suggests that positive psychotherapy can be even more effective than treatment as usual (Fava & Ruini, 2003; Seligman, Rashid, & Parks, 2006), but less research has focused specifically on how self-administered positive activities affect symptoms of depression.

The limited number of studies that have investigated PAIs among depressed populations have had mixed results. Seligman and colleagues (2005) observed easing of depression in a mildly depressed sample, and Layous and Lyubomirsky (2011) found that students who demonstrated mild depressive symptoms benefitted more from practicing positive activities than participants who either were not depressed at all or were moderately to severely depressed. However, another study found a distracter activity (listening to neutral music) to be more effective in decreasing depressive symptoms than a gratitude letter writing activity for mildly depressed participants who expected the activity to make them happier (Sin, Della Porta, & Lyubomirsky, 2011). Writing a letter of gratitude might have been too demanding for dysphoric participants, whereas the music listening task may have served as a welcome distraction from ruminative thoughts (Sin et al., 2011). Individuals with depression would likely benefit from exercises guided by a trained clinician. Indeed, research suggests that the most effective form of treatment based in positive psychology is individual therapy (Sin & Lyubomirsky, 2009).

Supporting the notion that people may need to be at a certain level of well-being to benefit from a PAI, participants who reported more positive emotion at the beginning of a

loving-kindness meditation study showed more rapid improvements in positive emotions in response to meditation and were more likely to have continued meditating at the 15-month follow-up than those who reported less positive emotion at baseline (Cohn & Fredrickson, 2010). Admittedly, these results could be cynically interpreted as intimating that only already relatively happy people can become even happier from performing positive activities. The loving-kindness meditation study, however, showed that, although people with higher baseline positive emotions increased in positive emotions relatively earlier, meditation practice increased positive emotions over the course of the 8-week intervention in all participants, which led to the building of valuable personal resources, which, in turn, increased life satisfaction (Fredrickson et al., 2008). To experimentally examine whether a certain level of positive affect is optimal for individuals to benefit from a positive activity, future PAIs might do well to begin with a positive mood induction, which can put participants in a state in which they are eager and enthusiastic to receive their instructions, thus leading to more rapid improvements in well-being.

Although people who are already comparatively happy may show unique benefits from engaging in positive activities, a more pressing need exists for research on how PAIs may serve as a complementary treatment to non-responders to drug or talk therapy (Layous, Chancellor, Lyubomirsky, Wang, & Doraiswamy, 2011). For example, PAIs may not be effective in and of themselves for depressed individuals, but might serve as an effective adjunctive treatment. The effect of PAIs on people with depression is an important area of research, as an analysis of a representative internet sample of happiness seekers revealed that approximately half of people actively trying to become happier show levels of distress that would qualify them as clinically depressed (Parks et al., in press; Study 1). This finding suggests that many people with depression are already engaging in self-administered positive activities, but researchers do not yet know the extent to which these positive activities will be efficacious for them.

Person-Activity Fit

A French phrase, “to each his own taste,” illustrates another factor researchers need to consider when implementing PAIs – namely, that certain positive activities might work better for certain types of people. To date, nearly all investigations have assessed overall or average effects (e.g., finding that varying the practice of a positive activity or limiting that practice to once per week yields the largest mean improvements in well-being). Different people likely have distinct preferences for positive activities, such that each person may have his own ideal program for increasing his happiness. For example, highly extraverted individuals may benefit more from positive activities that encourage them to interact with other people and religious individuals may benefit more from activities with a spiritual component. We argue that the greatest gains in well-being from practicing positive activities will emerge when the specific intervention format matches the individual preferences or characteristics of the person (i.e., the degree of person-activity fit).

The importance of person-activity fit has been most persuasively demonstrated in the literature on goal pursuit. Specifically, the effect of goal attainment on well-being depends on the degree of goal-person fit (Sheldon & Elliot, 1999). People put more effort into goals that fit their interests and core values (i.e., self-concordant goals) and also reap greater benefits to their well-being from the attainment of self-concordant goals (Sheldon & Elliot, 1999). Because seeking happiness is one type of goal pursuit, we predict that people who perform a positive activity that fits with their preferences will show the largest increases in well-being.

Although the question of person-activity fit has not been widely studied in the context of PAIs, some research suggests that person-activity fit is important during the pursuit of happiness. People who indicated a preference for certain positive activities (i.e., they enjoyed them, benefited from them, and did not find them difficult) were more likely to adhere to those activities and to show greater increases in well-being (Schueller, 2010). Similarly, participants who reported that specific happiness-increasing activities were more natural and enjoyable to them were more likely to continue to engage in the activities after the study was over and also showed bigger boosts in happiness (Dickerhoof, 2007). Notably, people have been found to show a coherent pattern of preferences for certain types of activities (e.g., activities that focus on the present versus the past; Schueller, 2010), suggesting that positive activities could be empirically grouped and used to predict which activities will benefit which individuals. Supporting this idea, Schueller (2011) found that people assigned to complete an activity similar to one for which they previously stated a preference showed marginally larger increases in well-being than those assigned to perform a dissimilar positive activity.

On the other hand, the most fitting happiness-increasing strategies employed by users of an iPhone application were not necessarily the most helpful ones (Parks et al., in press, Study 3), suggesting that person-activity fit is not the sole criterion of effectiveness. Although engaging in positive activities that one prefers is important (because good fit will foster greater adherence, effort, and engagement), choosing efficacious activities is equally important. A great deal more research on the role of person-activity fit in the pursuit of happiness is needed to enhance researchers' understanding of the matches between activities and happiness seekers that might lead to the most beneficial, individualized happiness increasing programs.

How Do Positive Activity Interventions Work?

Although ample evidence exists to suggest that positive activity interventions are successful in increasing well-being, many questions remain about the process through which positive activities work. Lyubomirsky and colleagues have started to dissect the potential mechanisms underlying the success of happiness-increasing activities. They theorize that prompting people to perform positive activities leads them to have more positive emotions, positive thoughts, and positive behaviors, which in turn serve to increase well-being, decrease depressive symptoms, and improve other life domains such as work, relationships, and health (see Figure 1).

Preliminary analyses have shown support for this simple model. One study found that the relationship between engaging in positive activities and improvements in well-being was mediated by perceived increases in satisfying experiences (Dickerhoof, 2007). Notably, in this investigation, independent coders rated participant experiences as becoming less (rather than more) satisfying over time, indicating that engaging in positive activities made the participants construe their objectively less-than-positive experiences more charitably and optimistically (Dickerhoof, 2007). Another study showed that expressing gratitude and optimism increased the positive, need satisfying feelings of relatedness and autonomy (but not competence), which, in turn, increased well-being (Boehm et al., 2011b). Paralleling these results, students prompted to engage in goals that would enhance their autonomy or relatedness increased in well-being over a 6-month period more than students prompted to change something about their life circumstances (Sheldon et al., 2010). Students prompted to engage in goals that would enhance their competence, however, did not show relative gains in well-being (Sheldon et al., 2010). Finally, a

6-week intervention that combined instructions to perform acts of kindness with delivery of autonomously supportive messages from peers boosted the participants' perceived choice, which, in turn, predicted increases in their happiness and decreases in negative affect (Della Porta & Lyubomirsky, 2012).

In sum, studies have found evidence for satisfying experiences, feelings of autonomy, and feelings of relatedness as mediators of the success of positive activities. More research is needed to test this model and to look further into the role of need satisfaction (autonomy, relatedness, and competence; Deci & Ryan, 2000; Sheldon, Elliot, Kim, & Kasser, 2001), as well as the three categories of hypothesized mediation variables (e.g., positive thoughts, emotions, and behaviors).

Researchers have also begun to posit the neural mechanisms by which positive activities might serve to improve well-being and decrease depressive symptoms (Layous et al., 2011). Affective neuroscientists have accumulated two decades of evidence suggesting that people with depression demonstrate hyperfunctioning limbic systems (e.g., Mayberg et al., 1999; Siegle, Thompson, Carter, Steinhauer, & Thase, 2007), hypofunctioning dorsal cognitive control systems (e.g., Mayberg et al., 1999; Siegle et al., 2007), and a relatively reduced response in reward-related neural circuitry (e.g., Heller et al., 2009; Pizzagalli et al., 2009). Whereas pharmacotherapy has been shown to downregulate limbic hyperactivity and cognitive behavioral therapy has been shown to improve cognitive control, no current therapy has focused directly on upregulation of the reward system.

Although, to our knowledge, no studies of PAIs have incorporated the use of brain scan technologies, researchers predict that engaging in positive activities might increase the response of depressed individuals to reward-relevant stimuli (i.e., after practicing positive activities, people with depression will exhibit the appropriate neural response to a piece of chocolate or a victory). Possibly, when combined with drug and cognitive behavioral therapy, the practice of positive activities might provide the missing component to a well-integrated treatment program that focuses on addressing all of the abnormalities in neural functioning characteristic of people with depression (Layous et al., 2011). Alternatively, the practice of positive activities alone might serve to help the 70% of reported cases of depression that do not receive the recommended level of treatment (National Institute of Health, 2008). Before recommending the practice of positive activities to people with depression, however, randomized controlled trials need to be conducted comparing PAIs to pharmacotherapy and talk therapy. The neural mechanisms underlying the success of positive activities in healthy individuals also need research attention.

How Long Can Happiness Boosts Last?

A 4 to 6-week happiness intervention is not expected to fuel endless amounts of happiness. A stronger possibility is that a positive intervention can teach people happiness-increasing techniques that they can later call upon as needed to improve their levels of well-being. For example, an individual taught to express gratitude may have felt positive emotions from counting his blessings every Sunday. Later, even if he is usually happy, when he faces a trying time (or even just a bad day), he might remember the positive activity and tell himself that counting his blessings might help him navigate his current hardships. This example highlights one of the ways we think positive activities can be practically useful – not as something that people may draw on every day of their lives (although some might), but instead as a tool that people are conscious of and can deploy when needed. If the positive activity is practiced long

enough during the intervention that it becomes habitual, then applying it in later times of need will be relatively effortless and automatic. In these ways, participating in PAIs may serve to ameliorate or even prevent more serious mental health issues that can build over time.

As postulated in our model of how positive activities work to improve well-being (Figure 1), we predict that positive activities can trigger people to experience “upward spirals” of positive emotions, thoughts, and behaviors. According to Fredrickson’s (2001) broaden-and-build theory, positive emotions broaden thinking and attention. Broadened mindsets, in turn, generate novel ideas and actions (e.g., the urge to play and explore) and lead to the building of long-term social, psychological, intellectual, and physical skills and reserves. Thus, even transient moments of well-being can produce durable and valuable personal resources. For example, a college student attempting acts of kindness might choose to help a classmate with a homework assignment. The classmate is grateful for the assistance and compliments the student’s teaching ability. The compliment, in turn, makes the student feel encouraged and proud (both positive emotions), and prompts her to obtain a tutoring job at the campus learning center (a positive behavior). The job garners the student a social network of fellow tutors, valuable professional skills, and inspiring and supportive mentors at the center. Thereby, one positive act (a kindness toward a classmate) stimulates a chain of positive events. Although the positive emotions the student feels as a result of her initial act of kindness do not endure, the chain of events they set off certainly has an enduring impact.

This scenario spotlights how practicing one positive activity – via the triggering of upward spirals – can serve as a catalyst for lasting positive change. The upward trajectory of positive thoughts, emotions, and behaviors may not be activated right away, however, as people may need to continue to practice positive activities to boost their daily happiness. Not surprisingly, research suggests that to have lasting effects, happiness-increasing strategies require sustained practice. Three studies have demonstrated that people who engage in positive activities even after the prescribed study period continue to show improvements in well-being over a control group (Cohn & Fredrickson, 2010; Lyubomirsky et al., 2011; Seligman et al., 2005). Performing intentional happiness-increasing activities is akin to weight loss efforts. An individual cannot simply reach his goal weight, cease to diet and exercise, and expect to remain thin. Similarly, if a person attains her target level of happiness via positive activities, but then stops performing them altogether, she is likely to slip back to her previous levels of well-being. Intentionality and effort toward specifically designed happiness-increasing strategies are major contributors to their efficacy (Chancellor & Lyubomirsky, 2012; Layous & Lyubomirsky, 2011; Lyubomirsky, Dickerhoof et al., 2011). If the effort stops, so likely will the effect.

Benefits of Increasing Happiness

Just because happiness can be increased does not mean that it should be. However, growing research supports the notion that pursuing happiness is neither selfish nor hedonistic. Instead, happiness is associated with multiple benefits above and beyond simply living a pleasurable life. A meta-analysis of 225 papers provides convincing evidence of the link between happiness and multiple desirable life outcomes (Lyubomirsky, King, & Diener, 2005). By examining not only cross-sectional data, but also longitudinal and experimental data, the authors collected an abundance of evidence indicating that happiness and positive affect are precursors or sources of such positive outcomes as having a happy marriage and successful career, living longer, earning more money, and boasting more friends (Lyubomirsky, King, et al., 2005). The

results of this meta-analysis suggest that happiness may not only be a consequence of these successes in life, but also a cause.

Nonetheless, Aristotle's notion of the Golden Mean advocates for everything in moderation. Does this dictum apply to happiness as well? If so, then focusing too much on one's own happiness may have pitfalls. To paraphrase a popular aphorism, is happiness like a fist full of sand? If gripped too tightly, does it fall right through one's fingers? The phrase "the pursuit of happiness" implies that happiness is elusive or something to be found, like a soul mate, the fountain of youth, or the holy grail. Yet, despite legitimate sources of pessimism and philosophical concern over intentional happiness activities, randomized controlled PAIs – many of which have been conducted on samples not necessarily motivated to be happier – have successfully increased well-being.

Fortunately, the designs of happiness-increasing interventions circumvent the prospect of the pursuit of happiness leading to deleterious outcomes. Instead of simply urging people to "go make [themselves] happy," PAIs typically offer specific recommendations (i.e., write a letter of gratitude) that mimic the thoughts, behaviors, and emotions that characterize very happy people (e.g., gratitude, optimism, prosocial behavior). The benefits of specific (versus broad or vague) recommendations for psychological well-being have been observed in a wide range of activities (Dube, Lapierre, Bouffard, & Alain, 2007; Emmons, 1992). For example, when an individual strives to increase fitness, being encouraged to "exercise" is less helpful than to "start walking 30 minutes 5 times a week." If feeling lonely, being advised to "go meet new friends" is less helpful than to "sign up for a class of interest." Although focusing too much on one's own happiness may be counterproductive, practicing specific types of thoughts and behaviors (e.g., gratitude and optimism) will foster positive emotions and, ultimately, greater global well-being.

Can Too Much Happiness Be Detrimental?

Although numerous studies have found happiness to have worthwhile individual and societal outcomes, some evidence suggests that too high a degree of happiness (including the experience of mania and hypomania) has maladaptive outcomes (see Gruber, Mauss, & Tamir, 2011, for a review). Bearing this caveat in mind, we assuredly do not believe the goal of improving PAIs is to galvanize an upward trajectory of happiness without limit. First, PAIs are clearly not appropriate for individuals in a clinically manic phase (Gruber et al., 2011). Second, the experience of transitory negative emotions is both inevitable and adaptive in particular contexts. Supporting the importance of balancing positive and negative affect, a review of research on the evolutionary implications of emotions suggests that frequent mild positive emotions combined with occasional negative emotions is the most adaptive combination (Diener & Oishi, 2011).

Happiness-increasing strategies are not designed with the end goal of eliminating negative emotions altogether. The practice of positive activities can, however, serve as "daily emotional maintenance" for much of the general population. That is, if feeling down or stressed, an individual may be able to call upon a positive practice to mitigate or cope with her negative emotions. People who are already very happy need not carry out happiness-increasing strategies intentionally – research shows that they are already practicing the behaviors and thought patterns that PAIs are meant to invoke (Lyubomirsky, 2001). Positive activities are not for everyone; given their self-administered nature, each individual can choose for himself which, if any, positive activity he would like to practice, how much, how often, and in what way.

Concluding Remarks

With growing empirical support for the efficacy of happiness-enhancing strategies, happiness seekers need no longer rely solely on their intuitions, anecdotes, or grandmotherly advice. The last decade of research has not only established that happiness can be increased through intentional activity, but has begun to parse the details of the how, who, what, when, and why of this important process. Still, much remains to be discovered about the mechanisms by which positive activities work and the conditions under which they optimally increase well-being. In the next decade, investigators would do well to continue exploring the following questions: 1) What types of positive activities are most successful and for whom?; 2) How can person-activity fit be detected to provide the best match between a person and a positive activity?; and 3) What are the circumstances under which pursuing happiness might be detrimental to the seeker? The more completely researchers understand the process of happiness-seeking, the better positioned they will be to offer empirically sound recommendations to individuals who need help experiencing their lives to the fullest.

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Figure 1. Model of Psychological Mechanisms Underlying the Efficacy of Positive Activity Interventions. Reprinted from “Delivering Happiness: Translating Positive Psychology Intervention Research for Treating Major and Minor Depressive Disorders” by K. Layous, J. Chancellor, S. Lyubomirsky, L. Wang, & P. M. Doraiswamy, 2011, *Journal of Alternative and Complementary Medicine*, 17, 675-683.

