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Cognitive Outlooks and Well-Being

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Abstract

The top-down approach to well-being focuses on how people attend to and construe information in their lives and how these processes affect their well-being. In this chapter, we review evidence that attention and construal, broadly conceived, influence well-being. We then discuss specific types of attention and construal (i.e., cognitive outlooks) that affect well-being. Such cognitive outlooks include gratitude, self-esteem, optimism, locus of control/autonomy, competence, connectedness, attributional style, and ruminative style. For each cognitive outlook, we review research that demonstrates an association between the cognitive outlook and well-being. We then discuss evidence for causal effects and theoretical accounts of these effects. We conclude with a brief discussion of questions that future research can explore.

Keywords: Cognitive outlooks, Well-being, Attention, Construal, Top-down approach

Cognitive Outlooks and Well-Being

Research on the correlates and causes of well-being has yielded two approaches (Diener, 1984). The bottom-up approach emphasizes the role of the objective environment on well-being. Specifically, the bottom-up approach seeks to explain variance in well-being levels by examining the moment-by-moment situations people face. For example, exploring the impact of daily hassles and uplifts on life satisfaction (Lavee & Ben-Ari, 2008) fits squarely under the umbrella of the bottom-up approach to well-being.

In contrast to the bottom-up approach, a top-down approach focuses on subjective processing of the environment to explain variation in well-being. From a top-down perspective, the effect of the environment on well-being is heavily mediated by subjective construal. For example, research taking a top-down approach to explore the effect of divorce on well-being might consider whether a partner views the divorce as freedom from an unhealthy relationship or as the loss of a supposedly lifelong partner. Conversely, a researcher who views well-being with a bottom-up approach may focus on certain features of the divorce, such as its effects on one's living situation and access to immediate family members.

As the science of well-being has grown and matured over the last several decades, most well-being researchers have gravitated toward the top-down approach. This trend is likely the result of robust findings indicating that life circumstances, which are emphasized in a bottom-up approach, explain a surprisingly small amount of the variance in well-being, whereas personality, emphasized in a top-down approach, explains a relatively large proportion of the variance in well-being. Although some researchers initially believed life circumstances would have large impacts on well-being, reviews revealed that they account for only about 10-15% of the variance in well-being (Andrews & Withey, 1976; Argyle, 1999; Campbell, Converse, & Rogers, 1976). By contrast, a meta-analysis found that Big Five traits account for up to 63% of the variance in well-being (Steel, Schmidt, & Shultz, 2008).

Further support for the top-down approach comes from research on general positivity, which has primarily been measured in two ways. One method assesses the degree to which general satisfaction ratings are more positive than the aggregate of specific satisfaction ratings. For example, an individual high in general positivity would score higher on a measure of life satisfaction than measures of work and family satisfaction. Other researchers have used a positivity scale, which contains items regarding optimism, life satisfaction, and self-esteem (Caprara, et al., 2012). With both approaches, general positivity is strongly associated with well-being (Caprara, Eisenberg, & Alessandri, 2016; Diener, Scollon, Oishi, Dzokoto, & Suh, 2000; Lauriola & Iani, 2015; Oishi & Diener, 2001).

In this chapter, we review specific cognitive outlooks that show how positive cognitions affect well-being, which fits squarely within the top-down approach. We define a cognitive outlook as a pattern of thinking that comprises one's evaluation of the self and events in the world. Thus, cognitive outlooks are a component of personality and are likely a major reason why personality accounts for a large proportion of the variance in well-being. Consistent with the overwhelming support for the top-down approach, many cognitive outlooks impact well-being.

Construal

Why do life circumstances account for a relatively small proportion of the variance in well-being? Many researchers point to the role played by construal, or one's subjective perception and evaluation of a situation. Construal research can be traced back to Henry Murray's (1938) distinction between alpha press and beta press. A "press" is an environmental influence on an individual. Alpha press is the objective environmental influence, and beta press is the subjective or perceived environmental influence. For example, Javier may repeatedly glance at Mary during their psychology class. This is the alpha press, as it describes objectively the situation or event that is occurring. The beta press would represent Mary's thinking about why Javier keeps looking at her. Mary might believe that Javier is looking at her because she looks weird today. Alternatively, she might guess that Javier is attracted to her.

As illustrated in this example, the beta press (i.e., construal) can vary widely. Many well-being researchers point to this variability in explaining individual differences in the effects of life events or situations on well-being. For example, Lyubomirsky (2001) argues that the effects of life events on well-being are strongly mediated by cognitive processes. According to Lyubomirsky, situations affect well-being not directly but through cognitive and motivational processes—that is, situations are "processed" (i.e., evaluated, framed, remembered). The modal model of emotion (Gross & Thompson, 2007) offers a very similar explanation. According to this model, situations lead to construals (via attention, as described in the next section), which lead to an emotional response (see Figure 1). This idea can also be stated using Murray's terminology: The alpha press affects well-being via the operation of the beta press. Returning to the example with Javier and Mary: Whether Mary interprets Javier's glances as condemning or flattering will affect how Mary feels.

As people go through their daily lives, they repeatedly form construals, which affect well-being. For this reason, construal style (i.e., one's pattern of construing situations in a particular way) predicts well-being. For example, Lyubomirsky and Tucker (1998) found that happy individuals did not differ from their unhappy peers in the number of stressful and negative life events they reported experiencing, but rather, happier people employed different cognitive strategies than unhappy ones. Happier people rated positive events as making them more happy than did unhappy people, and unhappy people rated negative events as making them more unhappy than did happy people. In addition, when envisioning themselves in hypothetical scenarios, happier people reported more positive evaluations overall—that is, rating the scenarios as being more positive, less negative, bringing them more happiness, and improving their moods.

Although these results are correlational, they form a compelling argument for the effect of construal on well-being. Two experiments tested a causal effect of construal on well-being (Lichter, Haye, & Kammann, 1980). First, a small sample of participants met for eight 2-hour sessions over 4 weeks to discuss a list of irrational/maladaptive thoughts with the aim of combating them (i.e., attempting to shift their evaluations). After this period and at a 6-week follow-up, participants' beliefs were more positive, their affective well-being increased, and their life satisfaction increased more than those of participants in a no-activity control. In a second experiment, participants were randomly assigned to either rehearse positive statements for 2 weeks or to a no-treatment control. Participants who rehearsed positive statements increased in

well-being more than control participants. These findings support the above theories, which state that construal causes well-being.

Few studies have focused on general construal and its effect on well-being, although the existing work provides both correlational and causal evidence of this effect. Further evidence of the relatively large effect of construal on well-being resides in research on specific cognitive outlooks. However, these cognitive outlooks are not just characterized by construals, but also have attentional components.

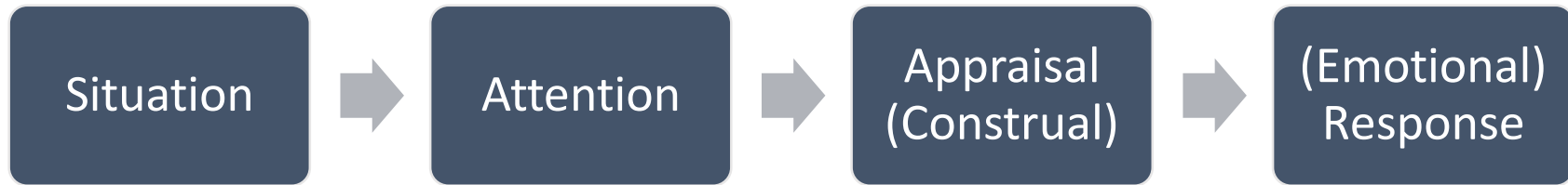


Figure 1. The modal model of emotion. Adapted from “Emotion regulation: Conceptual foundations,” by J.J Gross and R.A. Thompson, 2007. In J. J. Gross (Ed.), *Handbook of emotion regulation* (pp. 3-24).

Attention

The modal model of emotion (Gross & Thompson, 2007) indicates that one must direct attention to particular elements of a situation before one construes that situation (see Figure 1). Attention refers to the process by which people select a subset of perceivable information to concentrate on or cognitively process further (i.e., construe). Thus, attention selects the information that is to be construed. This process is necessary because people cannot attend to all the information they perceive. For example, imagine a woman walking into a party with dozens of people and evaluating whether she should stay at the party or leave. The woman cannot possibly attend to all the activity in the party (e.g., she cannot attend to each person's behavior). Instead, she must try to attend to the salient cues in the environment (e.g., the behavior of people she knows, the music, etc.) and make her decision from that information. Although some human universals drive people's attention (e.g., people naturally attend to changes in their visual fields), there are individual differences in what people habitually attend to (Isaacowitz, 2006). Some researchers point to these individual differences to explain the large effect of personality on well-being. Indeed, individual differences in attention are robustly associated with well-being levels. A meta-analysis of 33 studies examined individuals with anxiety and/or depression with eye tracing methods (Armstrong & Olatunji (2012). Relative to those without anxiety, participants with anxiety displayed increased vigilance for (i.e., attention to) threat during free viewing and visual search tasks, and had difficulty removing their attention from threat in visual search tasks. Furthermore, relative to those without depression, individuals with depression oriented to positive stimuli less and attended to positive stimuli for shorter times than they attended to negative stimuli.

Research indicates that the link between well-being and attention is bidirectional: Well-being affects attention and attention affects well-being. The broaden-and-build theory of positive emotions (Fredrickson, 2013) indicates one way in which well-being affects attention. According to this theory, positive emotions serve a functional role in that they broaden awareness, which builds skills and resources. Conversely, negative emotions narrow one's focus. Negative emotions alert individuals that something is not well, and narrowing their attention allows them to search for the problem and focus on solving it. In contrast, positive emotions signal that all is relatively well. In the absence of threats, there is no need to search for and resolve problems; instead, a person with positive emotions has the flexibility to broaden attention. The broaden-and-build theory of positive emotions has held up to empirical testing using experimental methods. For example, one study manipulated positive affect by randomly assigning participants to hear a happy or sad song. Those induced to feel positive (rather than negative) emotions showed increased access to remote semantic associates, as well as increased attention to stimuli outside their immediate focus of attention (i.e., flanking "distractors" in the Eriksen flanker task; Rowe, Hirsh, & Anderson, 2007). In another set of studies, participants randomly assigned to a positive mood induction attended relatively more to reward words during a spatial probe task (Tamir & Robinson, 2007). In sum, a large body of evidence supports the idea that well-being influences attention.

However, the opposite is also true: Attention affects well-being. Several methods of attention modification, including dot-probe training methods, visual search training methods, clinical auditory training tasks, and meditation (primarily mindfulness-based stress reduction),



have been used to reorient people to more positive and/or less negative stimuli. These attention-altering tasks appear to have beneficial effects on affective well-being (Wadlinger & Isaacowitz, 2011). More recent research also supports the notion that changes in attention can cause changes in well-being. For example, participants experimentally induced to attend to positive information experienced more positive affect in response to success (Grafton, Ang, & MacLeod, 2012). Furthermore, meditation seems to increase well-being via shifts in attentional processes (Menezes et al., 2013; Pavlov et al., 2015). The well-replicated effect of attention on well-being supports the modal model of emotion, because, according to that model, changes in attention should have downstream effects on emotion and hence well-being.

Before turning to specific types of attention and construal, we would like to note that the effects of attention and construal on well-being are also manifested in another cognitive process—namely, memory. Although evidence that actual recall is affected by well-being is mixed (Lyubomirsky & Tucker, 1998; Seidlitz & Diener, 1993; Seidlitz, Wyer, & Diener, 1997), positive construal of memories has been associated with well-being. In one study, for example, people higher in well-being reflected more positively on their memories than those lower in well-being (Liberman, Boehm, Lyubomirsky, & Ross, 2009). In addition, turning one’s attention to positive memories can boost well-being. In one experiment, a small group of participants randomly assigned to reminisce about positive memories increased in well-being, relative to those assigned to simply think about a life event (Bryant, Smart, & King, 2005). Thus, well-being may be associated with memory processes via attention and construal. Although a large literature has examined the relationship between current affective states and memory (Blaney, 1986; Bower, 1981), there is room for much more research on the link between memory processes and more general well-being.

Specific Types of Attention and Construal

As reviewed above, there is a great deal of evidence that attention and construal, broadly conceptualized, impact well-being. However, most research on the links between cognitive outlooks and well-being targets specific cognitive outlooks. These cognitive outlooks are organized in Table 1. With the exception of attributional style, which refers to a specific type of construal, each of these cognitive outlooks has both attentional and construal components.

Table 1

Cognitive Outlooks Related to Well-Being

Evaluations of the Past and Present	Evaluations of the Self	Evaluations of the Future
Gratitude	Self-Esteem	Optimism
	Locus of Control/Autonomy Competence Connectedness	
Attributional Style Ruminative Style		

In this chapter, we review each of these cognitive outlooks. We begin by defining the specific cognitive outlook and then review the research that supports its association with well-being. Next, we examine research that suggests the cognitive outlook has a causal effect on well-being. Lastly, we discuss the leading theories that explain the observed relationships.

Appreciation and Gratitude: Evaluations of the Past and Present

Appreciation and gratitude are closely related conceptually. Generally, appreciation is viewed as a more general form of gratitude. Gratitude has been defined as “the recognition of a positive outcome from an external source, including a felt sense of wonder or thankfulness for benefits received” (Emmons & McCullough, 2003; Nelson & Lyubomirsky, 2016; Roberts, 2004). Gratitude is “a component of appreciation,” where appreciation is “acknowledging the value and meaning of something—an event, a person, a behavior, an object—and feeling a positive emotional connection to it” (Adler & Fagley, 2005). Both gratitude and appreciation involve recognizing a positive event. However, gratitude is directed towards a specific source or cause. One may be grateful to one’s mother for providing support. Appreciation differs in that it need not be directed towards a source or cause. One may appreciate a beautiful natural scene without attributing the landscape to geological forces or a god. Following these examples, gratitude typically occurs in interpersonal contexts, whereas appreciation can occur in any context with a positive outcome.

Notably, researchers have overwhelmingly focused on investigating gratitude rather than appreciation more generally. However, some factor analytic work suggests that gratitude and appreciation are a singular construct (Wood, Maltby, Stewart, & Joseph, 2008). If this is the case, all conclusions about the association between gratitude and well-being should hold true for appreciation and well-being. Because gratitude is a part of appreciation and most research focuses on gratitude, we discuss the two constructs together.

Unsurprisingly, those with higher levels of gratitude and appreciation tend to have higher levels of well-being (Lambert, Fincham, & Stillman, 2012; Watkins, 2004; Wood, Joseph, & Maltby, 2008, 2009; see Wood, Froh & Geraghty, 2010 for a review). This effect holds across a variety of positive outcomes (e.g., positive emotions) and negative outcomes (e.g., depressive symptoms) in dozens of studies. Evidence supporting a causal effect of gratitude on well-being comes from two longitudinal studies that measured gratitude and well-being at the beginning and end of participants’ first semester of college (Wood, Maltby, Gillett, Linley, & Joseph, 2008). Cross-lagged analyses suggested that gratitude leads to well-being and not the other way around.

Experimental studies have provided stronger causal evidence. In these studies, participants typically list things they appreciate or write a gratitude letter to a person towards whom they feel grateful. Those performing one of these appreciation/gratitude activities tend to increase in well-being more than those in a control condition, demonstrating that gratitude causes shifts in well-being (e.g., Boehm, Lyubomirsky, & Sheldon, 2011; Emmons & McCullough, 2003; Froh, Sefick, Emmons, 2008; Layous, Lee, Choi, & Lyubomirsky, 2013; Lyubomirsky, Dickerhoof, Boehm, Sheldon, 2011; Seligman, Steen, Park & Peterson, 2005; see Wood et al.,

2010, for a review). The effect of appreciation/gratitude activities on well-being tends to be meaningful in size, with Cohen's *ds* typically between $d = .2$ and $d = .6$ (Wood et al., 2010, Table 5).

Why or how do appreciation and gratitude impact well-being? Gratitude may cause one to engage in positive reframing (i.e., focusing attention on the positive aspects of a past events to construe the event in a more favorable light), which, in turn, boosts well-being (Lambert et al., 2012). For example, a student may reflect on a challenging English course and feel grateful towards the professor for substantially improving her writing skills. Gratitude may also boost well-being via improved feelings about relationships, particularly the relationship with the target of gratitude (Lambert & Fincham, 2011). These positive relationship feelings may then boost well-being because feelings of connectedness are important for well-being (Ryan & Deci, 2000). Lastly, gratitude seems to boost prosocial behavior (Bartlett and Desteno, 2006; Tsang, 2006), and prosocial behavior increases well-being (Crocker, Canevello, & Brown, 2017). Because these two mediators (i.e., feelings about relationships and prosocial behavior) are inherently social, they may be specific to gratitude's effect on well-being and hence potentially not mediate the relationship between appreciation and well-being. However, we expect that positive reframing would also mediate the relationship between appreciation and gratitude.

Optimism: Evaluations of the Future

Those with an optimistic disposition expect future events to be positive. For example, an optimist may believe that a trip to the DMV will be quick and easy, whereas a pessimist is more inclined to believe that they will be stuck waiting for hours. Research shows that the former person is more likely to be happy than the latter person.

A recent meta-analysis found that across various measures of well-being, optimism is positively associated with well-being (Alarcon, Bowling, & Khazon, 2013). For example, across 50 studies including 19,831 participants, optimism, as measured by the Life Orientation Test (Scheier & Carver, 1985), was correlated with life satisfaction at an average of $r = .43$. Interestingly, the same meta-analysis found that, across 13,593 participants in 36 studies, optimism was positively associated with general physical health at $r = .28$. Optimism may have such strong correlations with both physical and mental health because it offers both physical and psychological resilience. For example, one study sampled middle-aged men before and after coronary artery bypass surgery. The more optimistic men, compared to less optimistic men, used more effective coping styles, recovered from the surgery faster, and reported a higher quality of life 6 months after the surgery (Scheier et al., 1989).

Despite the plethora of correlational research on optimism and well-being, little direct evidence exists for a causal effect of optimism on well-being. A few relevant experiments have had participants envision their "best possible selves"—an exercise that prompts them to form optimistic thoughts about the future—and found subsequent increases in well-being (Layous, Nelson, & Lyubomirsky, 2013; Lyubomirsky, et al., 2011; Peters, Flink, Boersma, & Linton, 2010; Sheldon & Lyubomirsky, 2006).

Longitudinal designs can also provide some evidence of causality. One study found that pessimism predicted increases in depressive symptoms over 3 years (Bromberger & Matthews, 1996). In addition, a few longitudinal studies suggest optimism predicts future well-being following or during a stressful period (see Scheier & Carver, 1992, for a review).

Which theories can explain the beneficial effects of optimism? To our knowledge, no explicit theory of how optimism impacts well-being has been put forward. This may be the case because it is rather intuitive that those who believe more positive events will occur are happier. However, we still believe this lack of theory represents a hole in the literature. Although the relationship between optimism and well-being may seem self-evident, there are many distinct ways in which optimism could impact well-being. For example, optimists may be less concerned than others about stressful future events. Alternatively, optimists may experience anticipatory pleasure when thinking about future events. Or do optimists spend more time thinking about the future, leading them to ruminate less about the past or present? Another possibility is that optimists simply hold more positive construals (or appraisals) in general. Alternatively, perhaps it is not optimists' construals that differ from those of other people but rather their attention; in other words, they attend to more positive information, particularly about the future. Lastly, optimists may be goal-oriented, which is associated with greater goal progress, which leads to greater well-being. One or several of these hypotheses could be true. We encourage researchers to identify mediators between optimism and well-being, and more broadly, develop theories that explain why optimism seems to have a causal impact on well-being.

Self-Esteem: Evaluations of the Self

Self-esteem is typically conceptualized as an overall evaluation of one's worth. Individuals with high self-esteem are likely to believe that they are capable and deserve the positive outcomes they experience. By contrast, those with lower self-esteem may believe they have little power to produce good in the world and feel that praise directed towards themselves is unwarranted.

Multiple studies have found a positive correlation between self-esteem and well-being (Cheng & Furnham, 2003a; Cheng & Furham, 2003b; Emmons & Diener, 1985; Hills & Argyle, 2002; Joshanloo & Afshari, 2011; Lyubomirsky, Tkach, & DiMatteo, 2006; Paradise & Kernis, 2002). This effect seems to be quite robust: One study found a positive correlation between self-esteem and life satisfaction in each of the 31 countries sampled (Diener & Diener, 2009). These correlations were rather strong (average $r = .45$) and depended on a country's individualism : The correlation between self-esteem and life satisfaction was greater in more individualistic countries.

Unfortunately, to our knowledge, no studies have used experimental methods to directly test for a causal effect of self-esteem on long-term well-being. Presumably, researchers have judged self-esteem as a stable construct that is very difficult to manipulate in the long-term. However, researchers have used tasks that temporarily manipulate self-esteem as mood induction techniques. These tasks involve receiving positive or negative feedback on some task (e.g., a social skills task or a game; see Martin, 1990; Westermann, Spies, Stahl, & Hesse, 1996, for reviews). The impact of positive and negative feedback on mood suggests that self-esteem

causally impacts the affective component of well-being. However, these studies manipulate self-esteem over short durations and the effects on affect are transient.

Some interventions may be effective at boosting self-esteem in the long-term, albeit indirectly. Self-affirmation interventions target self-integrity, which is the belief that one is a good and moral person (Sherman & Cohen, 2006). Because self-integrity and self-esteem overlap conceptually, self-affirmation interventions might boost self-esteem. In addition, self-affirmation interventions may have recursive effects that last for months or even years (Cohen & Sherman, 2014). Thus, self-affirmation interventions may be one way to boost self-esteem for a long duration and observe downstream effects on well-being. Indeed, two studies found that such interventions did boost well-being (Nelson, Fuller, Choi, & Lyubomirsky, 2014; however, see Revord & Lyubomirsky, 2017 for a nonreplication). One should note that these effects were not robust and were found with small sample sizes.

Self-compassion interventions, which teach people to accept their perceived shortcomings, may also boost self-esteem for a relatively long duration. Like self-integrity, self-compassion is distinct from, yet related to, self-esteem (Neff, 2003, 2011). A few small pilot studies and experiments suggest that self-compassion interventions boost well-being (Gilbert & Procter, 2006; Neff & Germer, 2013; Smeets, Neff, Alberts, & Peters, 2014). Future studies can explore whether self-compassion and self-affirmation interventions impact well-being via changes in self-esteem, which would suggest that self-esteem causally impacts well-being.

The direction of causality between self-esteem and well-being has also been examined with longitudinal designs (Ciarrochi, Heaven, & Davies, 2007; Lucas, Diener, & Suh, 1996; Orth & Robins, 2013). One of the largest studies to investigate this effect longitudinally sampled over 1,824 individuals aged 16 to 97 five times over a 12-year period. Cross-lagged analyses suggested that self-esteem was a cause, and not a consequence, of positive affect, negative affect, and depression (Orth, Robins, & Widaman, 2012). Furthermore, a meta-analysis with 77 studies found that self-esteem predicted decreases in depression ($\beta = -.16$) to a greater extent than depression predicted decreases in self-esteem ($\beta = -.08$, Sowislo & Orth, 2013).

Which mechanisms link self-esteem and well-being? According to Beck's cognitive theory of depression (Beck, 1967), negative views of the self predispose one to experience depression. Although few studies have tested mediators of the effect of self-esteem on well-being, one found rumination as a mediator between self-esteem and depression (Kuster, Orth, & Meier, 2012). Alternatively, people with high self-esteem may simply attend to more positive information about themselves. For example, one study used a Stroop task with rejection (e.g., "neglected") and acceptance (e.g., "included") words and found that participants with low self-esteem experienced more interference for (i.e., attended more to) rejection words than acceptance words (Dandeneau & Baldwin, 2004). No such difference was found for participants with high self-esteem. This attentional mechanism may account for another possibility—namely, that self-esteem may lead an individual to have more positive construals of the self overall, boosting well-being. One study found that participants with high self-esteem construed ambiguous attributes of themselves more positively than did those with low self-esteem (Suls, Lemos, & Stewart, 2002). In addition, other studies have found that those with low self-esteem feel like they do not deserve positive events and, thus, experience less positive affect from them

(Wood, Heimpel, Manwell, & Whittington, 2009; Wood, Heimpel, & Michela, 2003). In sum, there are many potential avenues by which self-esteem could impact well-being, and future studies can continue to explore the precise mechanisms by which this occurs.

Evaluations of Autonomy/Locus of Control, Competence, and Connectedness: Evaluations of the Self

Self-determination theory posits three needs that are fundamental for the well-being of an individual: connectedness, competence, and autonomy (Ryan & Deci, 2000). Connectedness, also called relatedness, indicates the extent to which people feel they are close to others. Thus, a person high in connectedness believes that he or she has meaningful social relationships. Conceptually, the construct of connectedness requires only a perception of social connectedness and not objective connections, such as number of friends. The construct of competence is similarly subjective. Competence is defined by the degree to which people believe they possess mastery and can bring about desired changes in their lives. People low in feelings of competence may lack confidence when trying to learn a new skill, for example. Competence is certainly related to self-esteem and may be a component of it. Indeed, the State Self-Esteem Scale (Heatherton & Polivy, 1991) has a performance subscale that closely resembles competence. Lastly, autonomy indicates the degree to which people believe their actions are a result of their internal motivations rather than pressure from other individuals. Autonomy is closely related to locus of control, which reflects the degree to which people believe they, rather than external factors, control their life. Locus of control, which is similar to the internal/external dimension of attributional style, also varies from internal (i.e., one has great control over one's life) to external (i.e., one has little control over one's life). Due to the heavy degree of overlap between locus of control and autonomy, we will discuss these two constructs together.

According to self-determination theory, autonomy, competence, and connectedness are all necessary for well-being. Thus, all three needs to be satisfied in order for a person to have high well-being. However, research has simply used bivariate correlations between needs and well-being. Autonomy, competence, and connectedness are each positively correlated with well-being (Deci et al., 2001; Kasser & Ryan, 1999; Milyavskaya & Koestner, 2011). If these constructs are indeed needs, then these correlations should hold across cultures and evidence supports this (Chirkov, Ryan, Kim, & Kaplan, 2003; Diener, Ng, Harter, & Arora, 2010; Tay & Diener, 2011). Furthermore, longitudinal research has found significant correlations among these constructs and well-being both between and within individuals (La Guardia, Ryan, Couchman, & Deci, 2000; Reis, Sheldon, Gable, Roscoe, & Ryan, 2000; Sheldon, Ryan, & Reis, 1996). Lastly, people with an internal locus of control tend to have higher levels of well-being than those with an external locus of control (April, Dharani, & Peters, 2012; Cvetanovski & Jex, 2007; Krause & Stryker, 1984).

Clearly, research supports the idea that the needs posited by self-determination theory correlate with well-being. But perhaps a stronger test of whether autonomy/locus of control, competence, and connectedness increase well-being is to test them as causes of well-being. Unfortunately, experimental research examining the effects of autonomy/locus of control, competence, and connectedness on well-being is very limited. However, one study assigned participants to pursue goals related to connectedness, competence, autonomy, or life

circumstances (as a control) and tracked well-being over 6 months (Sheldon et al., 2010). The main effect was not significant: Those who pursued the three goals related to self-determination theory did not improve in well-being significantly more than those in the control condition. However, this effect was present for participants who pursued goals with sustained effort and made progress. This study serves as weak evidence for causal effects of autonomy, competence, and connectedness on well-being. Future research can use experimental methods similar to the above study to test for causal effects.

Attributional Style: Evaluations of the Past, Present, Future, and Self

People naturally ascribe causes to events and these are referred to as attributions. According to attributional models of depression, certain patterns of attribution can create a susceptibility to depression (Abramson, Seligman, & Teasdale, 1978). Early attributional models of depression emphasized the importance of attributions of negative events along three dimensions: internal-external (i.e., personal), stable-unstable (i.e., permanent), and global-specific (i.e., pervasive).

Variation on each of these dimensions can be demonstrated by considering the attributions someone can draw. For example, Susan may have failed a midterm exam during her first semester of college. If Susan believed that she failed because she lacked the intelligence and dedication to do well on the exam, she would be drawing an internal (i.e., personal) attribution. However, Susan might make an external attribution by concluding that she failed because the exam was unusually difficult. Thus, the internal-external dimension indicates the degree to which one attributes an event to oneself rather than external forces. Susan may further infer her failing is a stable characteristic of herself—she will continue to fail in similar situations. Thereby, Susan would be using a stable attribution. Alternatively, Susan may believe this instance of failing is not going to be typical for her, thus drawing an unstable attribution. Unstable attributions indicate that future outcomes may be different, whereas stable attributions specify that a negative outcome shows evidence of what the future holds. Lastly, Susan may view her failure as global by reasoning that failing in this one class indicates that she will fall short in other situations. For example, Susan could believe that her failing an exam indicates that she will fail as a friend and as a mother. However, Susan could also view the event as specific. Perhaps she believes her failure is limited to exams of a certain format. The permanency of attributions indicates the extent to which one believes a negative outcome in one domain indicates that negative outcomes will occur in other life domains.

One study provides evidence that explanatory style is a relatively stable trait. Burns and Seligman (1989) examined the content of written text (e.g., letters, diaries, essays) of 30 participants. Each participant provided text from early adulthood and late adulthood (the average age difference was 52 years). The authors found that the attributional style used by participants in these texts was consistent over time. However, this only demonstrates weak evidence of stability and the study had a small sample size.

Attributional models of depression posit that individuals who consistently draw internal, global, and stable attributions for adverse events and external, specific, and unstable attributions for positive events are at higher risk for depression. This style of attribution is often referred to as

a pessimistic or depressive attributional style. An optimistic attribution is the opposite: Drawing external, specific, and unstable attributions for negative events and internal, global, and stable attributions for positive events.

Does evidence support this attributional model of depression? A meta-analysis of over 100 studies found that internal, global, and stable attributions of negative events were each positively related with depression measures, supporting this attributional model of depression (Sweeney, Anderson, & Bailey, 1986). Furthermore, internal, global, and stable attributions of positive events (i.e., an optimistic attributional style) were each negatively related to depression measures. The same pattern of results has also been found in more recent work (Cheng & Furnham, 2001, 2003a; Winefield, Tiggemann, & Smith, 1987). Furthermore, cross-lagged analyses from longitudinal studies demonstrate that attributional style predicts changes in measures of depression (Firth & Brewin, 1982; Golin, Sweeney, & Schaeffer, 1981; Seligman et al., 1984)

Unfortunately, this area of research suffers from a lack of causal studies. This is understandable, as it seems it would be difficult to experimentally manipulate people's habitual attributions. However, clinical therapy may do just that. Indeed, one longitudinal study randomly assigned employees to a cognitive-behavioral training program or waitlist control and assessed whether changes in attributions mediated between condition and well-being outcomes such as job satisfaction, self-esteem, and psychological distress (Proudfoot, Corr, Guest, & Dunn, 2009). Most mediation analyses did not yield significant results. Although this is evidence that attributional styles do not casually impact well-being, one study cannot rule out a causal path. Thus, researchers should conduct more longitudinal experiments to test whether clinical therapy causes changes in attributional styles, which then cause changes in well-being.

Although this area of research lacks experimental longitudinal studies, longitudinal studies without random assignment have been used to suggest a causal effect of attributional style on well-being. One meta-analysis examined whether attributional style could predict subsequent changes in depression among adolescents (Joiner & Wagner, 1995). Across seven studies, a pessimistic attributional style positively predicted increases in depression.

Longitudinal studies in adults also suggest that attributional style has a casual impact on well-being. One study assessed 143 Japanese undergraduates at three time points across 6 months (Sakamoto & Kambara, 1998). In relatively negative environments, participants with a depressive attributional style tended to be more depressed than those without such an attributional style. Another study that did not consider the state of one's environment found that a depressive explanatory style predicted increases in depressive symptoms (Sanjuán & Magallares, 2009).

Interestingly, Sakamoto and Kambara (1998) found that participants with an internal, global, and stable attributional style decreased in depressive symptoms more than those without that attributional style in positive environments. Similarly, Needles and Abramson (1990) found that individuals with depression experienced increases in well-being when they employed a internal, global, and stable attributional style towards positive events. In sum, evidence suggests attributional models of depression are correct. That is, an internal, global, and stable attributional style decreases well-being in negative contexts but increases well-being in positive contexts.

Why are internal, global, and stable attributions maladaptive in negative contexts but adaptive in positive contexts? Internal, global and stable attributions in negative contexts signal learned helplessness, which is the process by which an organism learns that it is helpless when the environment contains threats (Maier & Seligman, 1976). Internal, global, and stable attributions about negative events indicate that this learned helplessness is a result of personal shortcomings, applies to more than the one context, and will persist. This construal creates a grim outlook of one's past, present, and future experiences, thus lowering well-being. However, internal, global, and stable attributions of positive events signal "learned optimism" such that one believes positive events are the result of one's personal capabilities and indicative of positive events to come both in the situation in question, as well as other domains (Seligman, 2011). Thus, people with learned optimism are thought to be higher in well-being because they are characterized by stronger self-esteem and higher optimism.

Ruminative Style: Evaluations of the Past, Present, Future, and Self

Drawing internal, global, and stable responses is not the only maladaptive way to respond to negative events. A large body of research has explored the ruminative response style, which involves a tendency to respond to negative events by repeatedly attending to the symptoms, causes, and consequences of distress rather than focusing on possible solutions (Nolen-Hoeksema, 1991). Ruminative thoughts need not contain negative content—their defining feature is their repetitive yet passive approach to negative moods. Although rumination is highly correlated with worry (Fresco, Frankel, Mennin, Turk & Heimberg, 2002), the two are conceptually distinct in several ways (Nolen-Hoeksema, Wisco, & Lyubomirsky, 2008). Rumination typically involves focus on the past, whereas worry involves focus on the future. In addition, ruminative thoughts tend to contain themes of meaning, loss, and self-worth, whereas worried thoughts regard potential threats. Lastly, ruminative thoughts are characterized by certainty, uncontrollability, and insight-seeking, whereas worried thoughts are characterized by uncertainty, controllability, and threat-preparation.

Ruminative style is associated with other cognitive outlooks we have discussed, including maladaptive attributional styles, pessimism, and low self-esteem (Lam, Smith, Checkley, Rijdsdijk, & Sham, 2003; Lyubomirsky & Nolen-Hoeksema, 1995; Lyubomirsky, Tucker, Caldwell, & Berg, 1999; Spasojevic & Alloy, 2001). Importantly, rumination predicts depression even after controlling for these cognitive styles (Flett, Madorsky, Hewitt, & Heisel, 2002; Nolen-Hoeksema, Parker, & Larson, 1994; Spasojevic & Alloy 2001). Furthermore, multiple longitudinal studies demonstrate that the more people ruminate, they more likely they are to develop depression and have longer periods of depression (Just & Alloy, 1997; Kuehner & Weber, 1999; Nolan, Roberts, & Gotlib, 1998; Nolen-Hoeksema, 2000; Nolen-Hoeksema, Larson, & Grayson, 1999; Nolen-Hoeksema, Morrow, & Frederickson, 1993; Nolen-Hoeksema, et al., 1994; Sarin, Abela, & Auerbach, 2005; Segerstrom, Tsao, Alden, & Craske, 2000; Spasojevic & Alloy, 2001; Wood, Saltzberg, Neale, Stone, & Rachmiel, 1990).

Researchers have sought to establish a causal effect of rumination on well-being—negative affect, in particular—using a rumination induction task developed by Nolen-Hoeksema and Morrow (1993). In this task, participants are told to focus on the meanings, causes, and

consequences of their current feelings for 8 minutes. Several studies have demonstrated that this seemingly benign task boosts negative affect among dysphoric or depressed participants (Donaldson & Lam, 2004; Lavender & Watkins, 2004; Lyubomirsky, Caldwell, & Nolen-Hoeksema, 1998; Lyubomirsky & Nolen-Hoeksema, 1993, 1995; Lyubomirsky, et al., 1999; Morrow & Nolen-Hoeksema, 1990; Nolen-Hoeksema & Morrow, 1993; Watkins & Baracaia, 2002; Watkins & Moulds, 2005; Watkins & Teasdale, 2001).

Why does rumination exhibit consistent detrimental effects on well-being? Response styles theory (Nolen-Hoeksema, 1991) argues that rumination can lead to depression through several paths. First, rumination is thought to enhance negative thinking while one is in a negative mood. Indeed, dysphoric participants experimentally prompted to ruminate reported more frequent negative life events than did those prompted to distract themselves (Lyubomirsky et al., 1998). Using the same design, other studies have found dysphoric individuals assigned to ruminate (versus to distract themselves) construe hypothetical negative and positive events in a more negatively-biased, pessimistic manner (Lyubomirsky & Nolen-Hoeksema, 1993, 1995). Rumination is also believed to impede problem solving. Dysphoric participants induced to ruminate found problems more overwhelming and developed less effective solutions, compared to participants induced to distract themselves (Lyubomirsky & Nolen-Hoeksema, 1995; Lyubomirsky et al., 1999). Lastly, ruminators engage in less social support. Ruminators seem to avoid social interaction, either to take time to think or write about their feelings or by repelling others with their negativity. In sum, rumination has both behavioral and cognitive adverse consequences, which seem to account for its affective ramifications.

Future Directions

All the cognitive outlooks we reviewed in this chapter have been found to relate to well-being. These findings speak to the value of the top-down approach. Clearly, attention and construal, which are manifested in each of the different outlooks, are both important to well-being. However, despite the relatively sizable research literature on each of these cognitive outlooks, more work is needed in several areas.

Throughout this chapter, we have noted where we believe holes in specific literatures exist. However, a broad overview of the literature highlights that most researchers tend to focus on a specific cognitive outlook. However, these constructs have considerable overlap. What is the unique effect of each construct on well-being? Furthermore, do any cognitive outlooks interact to predict well-being? For example, self-esteem could moderate the effect of gratitude on well-being because one needs to feel deserving of an act of kindness to appreciate it. Alternatively, a particular cognitive outlook might mediate the association between another cognitive outlook and well-being. For example, a sense of autonomy might boost self-esteem, which then affects well-being. These possibilities can be explored in future studies that focus in concert on several cognitive outlooks and well-being. This type of research could utilize multiple regression and path-analytic techniques to uncover unique, moderation, and mediation effects.

Another hole in the cognitive outlooks literature is the lack of causal evidence. The reasons that little experimental work has been conducted in these areas are likely to vary widely—from relevant researchers' lack of interest or training in experimental methods to some

constructs, like self-esteem, being particularly difficult to manipulate experimentally. However, investigators may erroneously believe that some constructs are difficult to manipulate. Thus, we encourage researchers to think creatively to design studies that explore causal effects.

In sum, more research is needed on how to improve people's levels of gratitude, optimism, locus of control/autonomy, connectedness, competence, and optimistic attributional style. We know much more about which cognitive outlooks impact well-being than about how to intervene on these constructs. Determining the most effective ways to shift these cognitive outlooks could have profound implications for individuals' well-being.

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