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## CHAPTER 30

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# Problems with Positive Thinking and How to Overcome Them

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Imagine that a young woman—let us name her Jeanne—dreams of starting a successful jewelry brand. For years, she has fantasized about the joys of designing exquisite jewelry decorated with the finest pearls, diamonds, and gemstones. She has sketched out various designs for necklaces, earrings, and bracelets, and carefully stored the drawings in her drawer as her little secret. She sits in class and fantasizes about her future after launching her brand. Perhaps she would travel to Paris, Rome, and Madrid to meet her clients in their lavish homes; perhaps she would get invited to Michelin-starred restaurants and get introduced to more clients at posh parties. Wouldn't it be wonderful to notice celebrities being photographed wearing the jewelry she so carefully designed? Jeanne treats these dreams like an intimate secret. These mental images are greatly satisfying to her and make her feel relaxed, even a little proud. Eventually, Jeanne graduated from her program, and time passed. Even though her dream was still alive within her, Jeanne simply could not bring herself to take the important step of enrolling in design school. Besides, she told herself, she had no background in that field and, after all, she was too busy with her current life, hardly getting by as it is.

Why didn't Jeanne have the impetus to enroll in design school and finally fulfill her dreams? After all, she seemed to be doing what we are so often encouraged to do—to dream positively about fulfilling our wishes and desires. What was it that stopped her from going forward?

The idea that merely imagining the fulfillment of our deepest desires will support us in realizing them has been a postulate in popular culture for a long time, and it persists today. On the shelves of bookstores, best-selling volumes such as *The Secret* (Byrne, 2006) provide the comforting message that we can fulfill our dreams just by thinking positively. Politicians, educators, and economists celebrate dreamers as heroes who can

save the world, while advising against “negative thinking” if we want to become successful (Galvan, 2012). An inspiring message found in many gift card shops, “Reach for the moon; even if you miss, you’ll land among the stars,” and a common proverb says it all: “Dream it, Wish it, Do it.”

In this chapter, we investigate whether positive thinking about the future is indeed as powerful as pop culture claims, particularly when it comes to its self-regulatory power. Vohs and Baumeister (2011; Bauer & Baumeister, 2011) have defined *self-regulatory power* as the power to expend the effort to control what we think, say, and do, while trying to be the person we aspire to be. Assuming that becoming the person we aspire to become demands overcoming resistance and impediments (Oettingen, 2012; Oettingen & Gollwitzer, 2015), the central question of this chapter is under what circumstances and in what form positive thinking about the future can help—or may in fact hamper—overcoming the challenges that lie in the way of wish fulfillment.

This chapter has four parts. In the first section, we differentiate between two forms of positive future thought: expectancy judgments (expectations) on the one hand, and free thoughts and images (fantasies) on the other. Based on the distinction between expectations and free thoughts or fantasies, we describe in the second section how positive thinking in terms of future fantasies can hamper the self-regulation of effort and success. In the third section we explain how positive future fantasies are not necessarily motivationally harmful: Contrasting them with the obstacles in the present reality (mental contrasting) leads to wise goal pursuit. After investigating the mechanisms behind this strategy, we show that people rarely use this prudent tool in their everyday lives. We therefore propose mental contrasting in the framework of a teachable metacognitive strategy. Finally, we describe in the fourth section mental contrasting combined with forming if–then plans (implementation intentions), resulting in a technique (mental contrasting with implementation intentions) that elicits behavior change more than either strategy alone.

## POSITIVE FUTURE THOUGHT

Positive thinking about the future may pertain to proximal or distal events; these events may be construed as specific or vague, concrete or abstract. Future thoughts may aim to increase one’s capabilities through learning, or show off one’s capabilities through performing. People may think about approaching or avoiding a future, or they may think about how they may freeze in light of anticipated events (e.g., Bandura, 1997; Dweck & Leggett, 1988; Elliot, 1997; Gollwitzer, 1999; Gray & McNaughton, 2000; Locke & Latham, 2002; Oettingen & Mayer, 2002; Taylor, Pham, Rivkin, & Armor, 1998).

In the context of this chapter, distinguishing the type of positive future thought people are involved in is important. Do they entertain beliefs or expectations (i.e., judgments about the probabilities of certain events or behaviors) or do they engage in free thoughts and images about future events or behaviors? These two forms of thinking about the future exist in parallel, so that a person can imagine a certain event or behavior, independently of the expectation or subjective likelihood that the event will come true or that the behavior will be carried out (Oettingen & Mayer, 2002). Returning to the earlier example, Jeanne may well positively dream about being the CEO of the fine jewelry start-up business, but at the same time she might have low expectations that she will ever implement her dream in reality.

Animal psychologists, such as the neobehaviorist Edward Chase Tolman (1938; see also Rescorla, 1985; Seligman, 1972) have been laying the groundwork for the extensive literature on beliefs or expectancy judgments. In humans, expectancies refer to the subjective likelihood of whether certain positive or negative events will happen in the future. Over many decades, research testing expectancy models has been dominant in social psychology and other fields of psychology. Indeed, expectancy judgments, which reflect experience and performance in the past, are valid predictors of specified intentions, as well as actual behaviors (Ajzen, 1991; Bandura, 1977; Maddux, 1999; Mischel, 1973; Oettingen & Mayer, 2002; Scheier & Carver, 1992; Seligman, 1972; Taylor, 1989).

## Beliefs versus Free Thoughts

A future event or behavior may appear in the stream of consciousness irrespective of whether it is believed to be true or false. It may appear as an image *per se*, or it may be subject to judgments about whether it is true or not. In other words, while free thoughts and images depict events and behaviors as a continuous stream, beliefs imply a cognitive determination about whether the event is true or not. William James referred to Franz Brentano:

But we must insist that, so soon as the object of a thought becomes the object of an assenting or rejecting judgment, our consciousness steps into an entirely new relation towards it. It is then twice present in consciousness, as thought of, and as held for real or denied. (Brentano, cited in James, 1890, p. 286)

The images described by James refer to the present or past, to what has occurred and to what could have occurred, similar to what more recently has been investigated as ruminative thought (Martin & Tesser, 1989; Moberly & Watkins, 2008; Nolen-Hoeksema, 2013) or as counterfactual thinking (Epstude & Roese, 2008; Kahneman & Miller, 1986; Markman & McMullen, 2003; Roese, 1997; Smallman & Roese, 2009). In this chapter, however, we refer not to images and beliefs about the present and past, but to those about the future.

Research on future thought has traditionally focused on beliefs and expectancy judgments based on past experiences, referring to judgments about the probabilities that specified events or behaviors will or will not occur. However, researchers have been much less interested in free thoughts and images about the future, with notable exceptions such as Jerome Singer (1966), who pioneered investigations on fantasy in the 1960s. He asked his participants to rate their own daydreams and fantasies regarding diverse characteristics, such as acceptance, affect, frequency, subjective experience, and tense. In recent years, the emotional, motivational, and neuropsychological processes underlying mental time travel and episodic future thinking have been investigated, as well as their downstream consequences (e.g., D'Argembeau & Mathy, 2011; Schacter, 2012; Szpunar, Spreng, & Schacter, 2014). An interest has also developed as to how people's heuristics influence the emergence and content of free future thoughts or mental simulations (e.g., Kahneman & Tversky, 1982), and which conditions may lead the mind to wander and generate task-unrelated thoughts (Killingsworth & Gilbert, 2010; Smallwood & Schooler, 2015). Finally, free future thoughts are a topic of studies on mental simulations (Kahneman & Tversky, 1982; Taylor et al., 1998), affective forecasting (Buechel, Zhang, Morewedge, &

Vosgerau, 2014; Gilbert, Pinel, Wilson, Blumberg, & Wheatley, 1998), and anticipated regret (Gilbert, Morewedge, Risen, & Wilson, 2004).

Another pioneer in the research on free thoughts and images is Eric Klinger, whose book *Structure and Functions of Fantasy* (1971) provides a compelling summary of the facets of fantasies and their motivational concomitants. He observed that the frequency of events and scenarios in a person's daydreams and fantasies can be taken as an indication of his or her current concern, and that these frequencies predict selective attention and the processing of relevant information (Klinger, 1975). Similarly, research on the information-processing concomitants of a deliberative versus implemental mindset showed that the deliberative mindset promotes cognitive tuning toward making an informed decision, while the implemental mindset promotes cognitive tuning toward effective planning and goal striving (Gollwitzer, 1990, 2012).

### **Free Thoughts about the Future and Behavior**

Research on the behavioral consequences of free thoughts and images is relatively rare, with a few notable exceptions. For instance, Taylor and colleagues (1998) investigated mental simulations related to the cumbersome process of reaching a goal (process simulations) versus the pleasant outcome of attaining it (outcome simulations). Process simulations (as opposed to outcome simulations) facilitated performance by spurring plans and reducing anxiety. Similarly, counterfactual thinking about how a past negative event could have been avoided promoted negative thoughts about the future, which in turn spurred attempts to remedy the negative situation (Epstude & Roese, 2008; Smallman & Roese, 2009).

Recently, mind wandering has been analyzed alongside mindfulness with the aim of reducing its detrimental effects for performance on cognitively demanding tasks. Indeed, *mindfulness training* (i.e., mindfully observing present emotions, thoughts, and sensations) reduced mind wandering and its downstream consequences (Mrazek, Franklin, Phillips, Baird, & Schooler, 2013; Smallwood & Schooler, 2015). Finally, once people feel committed to a goal, future thought in the form of implementation intentions or "If situation X, then I will goal-directed behavior Y" spurs automatic goal striving and increases the likelihood of goal attainment (Gollwitzer, 1999, 2014; Gollwitzer & Sheeran, 2006).

### **Positive Fantasies Emerge from a Person's Needs**

*Expectations* are judgments concerning the likelihood of future events or behaviors (Bandura, 1977; Mischel, 1973; for a review, see Olson, Roese, & Zanna, 1996), which summarize a person's past experiences and achievements. Free fantasies, in contrast, depict future events or behaviors in the stream of thought (Klinger, 1975; Oettingen, 2014; Singer, 1966), and are independent of past performance. Indeed, H. B. Kappes, Schwörer, and Oettingen (2012) observed that positive fantasies emerge from a person's aroused needs. Needs in the context of research on motivation refer not only to physiological needs (e.g., hunger and thirst) but also to idiosyncratic psychogenic needs, including achievement, affiliation, and power, among others (McClelland, Clark, Roby, & Atkinson, 1949; Murray, 1938). Abraham Maslow's hierarchy of needs (1943) depicts the most basic physiological need at the bottom and the need for self-actualization at the

top. In their research, H. B. Kappes and colleagues showed that people with an aroused need generated more positive fantasies depicting idealized future scenarios relevant to addressing the need than did people for whom the need was not aroused. For instance, the authors aroused the need for affiliation or relatedness (Baumeister & Leary, 1995; Deci & Ryan, 2004; Murray, 1938) by asking older adults to list 12 recent instances of “close contact with others who care about you,” while control participants were only asked to list four such instances. Need-relevant fantasies were measured by having participants imagine the ending to scenarios, such as “You are on your way to a store when you suddenly recognize one of your close friends. You go over to the friend and . . .” Need-irrelevant fantasies were measured by having participants fantasize the ending of matched scenarios that did not allude to a close friend. After writing down their fantasies, participants indicated how positive or negative their thoughts and images made them feel. Those with an aroused need for relatedness came up with more positive fantasies in response to the relevant (vs. irrelevant) scenarios; control participants did not show this difference. This pattern of findings was also observed for other needs, such as the need for meaning in life, the need for water (thirst), and the need for power, and it emerged regardless of whether the needs were measured or manipulated.

These results are in support of classic research on motivation, which postulates that needs influence the content of people’s thoughts and images (McClelland et al., 1949). For instance, as basic physiological needs such as the need for food increase, people are more likely to come up with thoughts and images in which food is the central theme and the need for food is mentioned (Atkinson & McClelland, 1948). Consequently, when basic needs are strong and cannot be satisfied in the here and now (e.g., when thirsty people are not given an opportunity to obtain water), satisfying the needs in one’s positive fantasies may help satisfy needs in actuality by decreasing anxiety and arousal, so that the person can focus on problem solving. Furthermore, to the extent that positive fantasies originating from these unsatisfied needs guarantee that solving the task remains the focus of attention, they should uphold the task of eventually satisfying these needs (James, 1890). However, when a person *can* satisfy his or her need through exerting real effort or using other resources, positive fantasies may sap the necessary energy to take action.

### THE DARK SIDE OF POSITIVE FANTASIES

Positive thinking in the form of free thoughts and images about the future is often thought of as the recipe for high effort and successful performance. However, positive fantasies might prevent people from taking the necessary precautions for wish fulfillment. For instance, people may fail to foresee potential opportunities for goal-directed actions (Gollwitzer, 1999; Taylor et al., 1998); they may fail to shield against distractions (Achtziger, Gollwitzer, & Sheeran, 2008; Shah, Friedman, & Kruglanski, 2002); and they may fail to plan for temptations or hindrances on the way to the desired future (Taylor et al., 1998). By feigning a smooth path to a grandiose outcome, positive fantasies may even sap the energy to pursue actively the wished-for future. We discuss research that tests whether positive fantasies about a desired future put people at risk for low effort and little success, and if so, the mechanisms that underlie this effect.

## Evidence

### *Health*

Among a sample of patients undergoing hip replacement surgery (Oettingen & Mayer, 2002, Study 4), the evening before their surgery, we measured their expectations of recovery and the positivity of their recovery-related fantasies. To assess expectations, we asked participants simple questions, such as “How likely do you think it is that 2 weeks after surgery you will be able to go for a brief walk using an assistive cane?” To obtain a measure of the positivity of their fantasies, participants had to imagine themselves as the main characters in five recovery-related scenarios with open endings. Participants were asked to fantasize them to completion and to write their fantasies down. For example, one scenario read, “At the end of your hospital stay you want to buy a newspaper in the hospital shop. . . .” One patient wrote in response, “I am walking down the stairs without help, and I walk easily and quickly to the newspaper stand.” In contrast, another patient wrote, “I am trying to walk to the door first, using my cane. But how shall I open the door? Uh, and then walking to the elevator? How would I ever do it?” After writing down their thoughts and images, participants indicated on a scale of 1 to 5 how positive and how negative their thoughts and images were.

Two weeks after their surgery, patients’ physical therapists reported how well the patients could move their hip joint, how many steps on a staircase they could walk, as well as their general recovery. In line with past work, the more positive patients’ expectations were, the better the patients had recovered; however, the more positive their *fantasies* were, the *less* they had recovered. These results show that while positive expectations predict high effort and successful recovery, positive fantasies predict the reverse.

### *Interpersonal Relations*

Moving forward from the health domain to the interpersonal domain, the same pattern of results emerged (Oettingen & Mayer, 2002, Study 2). American university students who had a crush on someone reported their expectations of starting a relationship with their “crushee.” Participants were then asked to identify with the main characters of eight scenarios depicting opportunities to get to know their crushee better. They imagined these scenarios to completion and rated the positivity and negativity of their own thoughts and images. Four months later, participants were contacted again to assess whether they had started an intimate relationship with the adored person. The higher participants’ initial expectations of success, the more likely it was that they had started an intimate relationship with their crushee; in contrast, the more positive their *fantasies* were, the *less* likely they were to actually have started the desired relationship. This negative relation was mediated by the extent to which they openly acknowledged their adoration to their crushee.

### *Achievement*

The effort-hampering effects of positive fantasies were observed in the achievement domain as well. The more graduating students fantasized about successfully finding a job postgraduation, the fewer applications they sent off, the fewer job offers they received,

and the lower their salaries were 2 years later (Oettingen & Mayer, 2002, Study 1). In another study, positive fantasies predicted lower effort and lower course grades (Oettingen & Mayer, 2002, Study 3), and this finding was extended to students from financially disadvantaged backgrounds (H. B. Kappes, Oettingen, & Mayer, 2012).

### *Prediction of Economic Downturn*

Beyond the individual and interpersonal levels, could positive fantasies also predict these outcomes on a larger societal scale? Sevincer, Wagner, Kalvelage, and Oettingen (2014) investigated this question by looking at the relationship between positive thinking and economic development using a computerized content analysis (linguistic inquiry and word count [LIWC]; Pennebaker, Chung, Ireland, Gonzales, & Booth, 2007) of historical documents. Consistent with the studies described previously, the analysis revealed that positive economic and political rhetoric predicted worse national economy: Between 2007 and 2009, the years of the financial crisis, the more newspaper articles in the economy page of *USA Today* displayed positive future thinking, the lower the Dow Jones Industrial Average was in the subsequent week and after 1 month. Another study indicated that between the New Deal era and the present day, the more presidential inaugural addresses displayed positive future thinking, the lower the gross domestic product and the employment rate in the following presidential terms. This inverse relationship between positive thinking and economic development suggests that positive fantasies can predict downturns even at the societal level.

## **Mechanisms**

While prior studies demonstrated that positive fantasies predict low effort and success, the reason as to *why* this effect occurs is still open to question. In order to discover the underlying mechanisms, experimental work manipulating positive fantasies versus relevant control instructions was carried out.

### *Mental Attainment*

Oettingen and Mayer (2002) suggested that positive fantasies about an idealized future would lead people to respond as though they had already attained the future. A series of experimental studies tested this hypothesis. The studies used valid indicators of implicit affect (H. B. Kappes, Kappes, & Oettingen, 2015) and behavior (Sciarappo, Norton, Oettingen, & Gollwitzer, 2015) as dependent variables.

#### IMPLICIT AFFECT

Based on findings that people implicitly evaluate instrumental objects more positively during goal pursuit, as compared to when goals have been attained (e.g., Ferguson & Bargh, 2004), H. B. Kappes and colleagues (2015) argued that positive fantasies about a desired future should lead to less positive automatic evaluations of words related to the desired future, as they feign already having achieved the desired future. Using an automatic evaluation paradigm (Fazio, Sanbonmatsu, Powell, & Kardes, 1986), they found

that student participants who generated positive fantasies about the idealized experience of taking a neuroenhancing drug (vs. questioning thoughts, negative thoughts, or no thoughts) generated less positive automatic evaluations of words related to neuroenhancing drugs. Apparently, positive fantasies led to mental attainment of the desired experience.

#### BEHAVIOR

In two studies, Sciarappo and colleagues (2015) used a delay discounting task that measures the extent to which the value of a reward declines the more the anticipated receipt of the reward is delayed (Ainslie, 1992; Loewenstein & Prelec, 1992; Rachlin & Raineri, 1992). Based on the previous finding that possessing greater financial resources is associated with a decrease in delay discounting (Green, Myerson, Lichtman, Rosen, & Fry, 1996), the authors reasoned that mental attainment of financial resources, like actual attainment of financial resources, should increase people's tolerance to wait, and therefore to show less delay discounting. Indeed, Mechanical Turk users who positively fantasized about a large monetary prize discounted future rewards less steeply compared to the control groups (who either questioned the desirability of winning, or neither fantasized nor questioned the prospect of winning money). These findings suggest that positive fantasies allowed people to mentally attain their desired futures, leaving relatively little motivation for actual pursuit.

#### *Low Energization*

Based on the finding that positive fantasies foster mental attainment, H. B. Kappes and Oettingen (2011) speculated that positive fantasies would lead to low rather than high energization. Energization is vital to pursue and achieve one's desired futures (Brehm & Self, 1989). In line with traditional approaches of motivation, Elliot (2006) argued that "a full account of motivation will attend to both direction and energization" (p. 114). Energization or energy mobilization was a central variable in Cannon's (1915) work on stress being defined as "the extent to which the organism as a whole is activated or aroused" (Duffy, 1934, p. 194). Energy can be mobilized not only by engaging in actual effort, but also by merely anticipating that one will exert effort in the future (Wright, Brehm, & Bushman, 1989). By pretending that the wished-for future has already been attained, positive fantasies should conceal the fact that effort is required and should therefore relax people instead of energize them (Oettingen & Mayer, 2002).

H. B. Kappes and Oettingen (2011) supported this hypothesis in a series of experiments. In the first experiment, women who were induced to fantasize positively about looking great in high heels displayed lower systolic blood pressure (SBP), which is a reliable physiological measure of energization (Wright, 1996), compared to those who were induced to question how good they looked in the heels. Two more experiments replicated this effect in regard to excelling in an essay contest and accomplishing desired outcomes during the upcoming week, as indicated by self-reported feelings. Finally, a fourth study showed that the more positive fantasies pertained to currently pressing needs, the more deenergizing they were (e.g., need for achievement vs. need for water).

It should be noted that the deenergizing consequences of positive fantasies are limited to pursuits of a desired future that demand energy in the first place. In other words,

if a thirsty person can easily obtain water at a nearby store, positive fantasies will not get in the way of obtaining the water. It is when getting water requires energy and effort that positive fantasies may hinder successful goal pursuit. The role of positive fantasies in responding to tasks that require high (vs. low) resources is the topic of the following experiments.

### *Little Charitable Giving*

In three studies, H. B. Kappes, Sharma, and Oettingen (2013) investigated the effects of positive fantasies on charitable giving when high (vs. low) resources were demanded. Charity solicitations often try to elicit plentiful giving by having people imagine a positive future of effectively supporting others. However, in all three studies, positive fantasies about effectively giving to a charity caused participants to become *less* willing to give (e.g., time or money) when helping required a large number of resources; this effect did not emerge when helping required a relatively small number of resources. In comparison to control manipulations (e.g., factual thoughts), positive fantasies made participants feel that donating larger (but not smaller) amounts of resources would be overly demanding. These results imply that positive fantasies hinder giving, especially when giving means yielding many resources (e.g., time, energy, money).

## MENTAL CONTRASTING

Positive fantasies hamper effort and success when attaining the desired future requires energy and effort. However, these findings do not imply that positive fantasies and dreams should be avoided entirely. In fact, used in the proper way, they can become change agents that foster persistent and effortful goal pursuits. The theory of fantasy realization (Oettingen, 2000, 2012), outlines how one can turn positive fantasies into such change agents: by complementing them with thoughts about the obstacles of reality standing in the way. The theory differentiates mental contrasting of future and reality from three other modes of thought: indulging in the future, dwelling on obstacles of reality, and reverse contrasting.

*Indulging* pertains to engaging in positive fantasies regarding a desired future, as described in the first part of the chapter. In contrast, *dwelling* consists solely of pondering the obstacles of present reality standing in the way. *Reverse contrasting* alludes to mentally elaborating the obstacles of reality and only then imagining the desired future. Interestingly, all three modes of thought do *not* produce a discrepancy between one's wishes and the obstacles of reality that stand in the way of wish fulfillment. Accordingly, no behavior change has been found to occur. It is only when people engage in *mental contrasting*, that is, *first* imagining the desired future (e.g., solving a nagging problem with one's partner), *then* shifting gears to identify and imagine the obstacle of reality (e.g., anxiety, resentment), that behavior change occurs. This is because in mental contrasting, the future fantasies provide the direction in which to go, and the obstacles of reality instill the energy to overcome the hardships on the way to wish fulfillment. Specifically, when the obstacles are surmountable (i.e., expectations of success are high), people fully commit and persistently pursue the desired future; when the obstacles are insurmountable (i.e., when expectations of success are low), people delegate, postpone,

or let go of the fulfillment of their wishes, or otherwise adjust to a more feasible wish. In this way, mental contrasting helps people to discriminate prudently between feasible and unfeasible wishes.

In reverse contrasting, people first elaborate the reality, then the future. Here, the future does not serve as the anchor for reality; thus, reality is not understood as an obstacle *impeding* the desired future. Reverse contrasting therefore fails to induce behavior change. In the same vein, indulging and dwelling do not change behavior. In indulging, the future stands alone and no obstacle spurs energy, whereas in dwelling, no dreams about the future point to the direction in which to act.

Importantly, mental contrasting does not operate on expectations of success; expectations of success remain unchanged throughout the entire procedure. Studies have shown expectations of success *before* and *after* mental contrasting to be almost perfectly correlated. In fact, expectations remain the same through any of the four modes of self-regulatory thought (indulging, dwelling, reverse contrasting, and mental contrasting). These findings demonstrate that the power of mental contrasting lies in *activating* expectations of success rather than in altering them in any way (Oettingen, Pak, & Schnetter, 2001).

## Evidence

Most evidence on mental contrasting has accumulated in the achievement domain. However, the following studies focus on the role of mental contrasting in the interpersonal domain because the need to develop and sustain strong, healthy relationships has been shown to be a fundamental and important human motive (Baumeister & Leary, 1995).

### *Getting to Know an Attractive Stranger*

One cannot reap the benefits of a romantic relationship unless the effort is made to encounter that special person. Mental contrasting has been shown to guide prudent goal pursuit in regard to getting to know an attractive stranger (Oettingen, 2000). Female college students were ostensibly given the chance to get to know a random volunteer whose picture they were given. In reality, all of the participants saw the same picture of "Michael S.," a model from a catalogue who had previously been rated as very attractive. In regard to getting to know this attractive stranger, participants were assigned to one of three conditions: mental contrasting, indulging, or dwelling. One week later, commitment to getting to know Michael S. was assessed in terms of participants' eagerness to get to know him, and frustration and anticipated disappointment if they failed to do so. When participants positively fantasized about getting to know Michael S. and elaborated on obstacles standing in the way (mental contrasting), they adjusted their commitment in line with their expectations for both measures of commitment; that is, when their expectations were high, they were eager and committed strongly to getting to know Michael S., and when their expectations were low, they let go of getting to know Michael S., thus becoming open to pursue other relationships. Those who indulged in a positive future or dwelled on the present obstacle did not adjust their commitment to getting to know Michael S. according to their expectancies.

Other beneficial effects of mental contrasting on interpersonal relationships have been demonstrated in areas such as conciliatory behavior in the aftermath of a

transgression (Schrage & Oettingen, 2015), exerting tolerance and social responsibility (Oettingen, Mayer, Thorpe, Janetzke, & Lorenz, 2005), seeking and giving help in academic and patient–nurse relationships, respectively (Oettingen, Stephens, Mayer, & Brinkmann, 2010), going abroad and exploring new cultures (Oettingen et al., 2001), and solving idiosyncratic interpersonal conflicts (Oettingen et al., 2001). There is also robust evidence that mental contrasting improves prudent self-regulation in various other domains, such as health (e.g., reducing cigarette smoking; Oettingen, Mayer, & Thorpe, 2010), achievement (e.g., improving teacher-rated math scores: Oettingen et al., 2001; improving teacher-rated language scores: Oettingen, Hönig, & Gollwitzer, 2000), and life management (e.g., combining work and family life: Oettingen, 2000; enrolling in a vocational program: Oettingen et al., 2005).

## Mechanisms

Missing from our discussion so far is the empirical analysis of how mental contrasting works. As shown by the studies we report in the following section, mental contrasting produces changes in implicit cognition, energization, and responses to setbacks, which in turn predict selective goal pursuit and effective behavior change.

### *Cognitive Processes*

#### STRENGTH OF ASSOCIATION BETWEEN FUTURE AND REALITY

A. Kappes and Oettingen (2014) measured the strength of associations between the future and reality using a primed lexical decision task (Neely, 1977), hypothesizing that the effects of mental contrasting would be mediated by the strength of the association between the future and reality. One study used an acute stress paradigm, in which participants were tasked with describing their professional skills in front of a camera, and were told that the content would be evaluated by human resource experts. Participants first reported their expectations of success; they then fantasized about giving a good presentation and identified an important obstacle standing in their way, summarizing each aspect (positive future and obstacle of reality) in one word. Participants were then assigned to one of three conditions: a mental-contrasting condition, a reverse-contrasting condition, or a control condition (positive and negative thoughts regarding an irrelevant situation). Unlike the reverse-contrasting and control conditions, mental contrasting led to expectancy-dependent future-reality associations, which mediated performance; that is, when expectations were high, mental contrasting led to strong future-reality associations; when expectations were low, future-reality associations were inhibited. The strength of the future-reality associations in turn predicted participants' success in describing their professional skills in front of the camera.

These results were replicated via affective and behavioral, as well as self-reported and other-rated, measures of performance. Interestingly, when mental-contrasting participants were told that their goal was completed, the future-reality associations vanished. This finding is in line with research showing that cognitive, affective, and behavioral effects of goal striving disappear once a goal is reached (Förster, Liberman, & Higgins, 2005; Masicampo & Baumeister, 2011; McCulloch, Fitzsimons, Chua, & Albarracín, 2011).

## STRENGTH OF ASSOCIATION BETWEEN REALITY AND INSTRUMENTAL MEANS

Mental contrasting also modulates the strength of associations between obstacles of reality and the means to overcome or circumvent the obstacles (i.e., instrumental means). Using the design and procedure described earlier, A. Kappes, Singmann, and Oettingen (2012) demonstrated that when expectations of success were high, mental contrasting strengthened the cognitive association between obstacles of reality and instrumental means, whereas when expectations of success were low, this association was weakened. Importantly, the associations between obstacles of reality and instrumental means mediated goal pursuit, as indicated by actual behavior (e.g., skipping the elevator and taking the stairs in favor of a fitness goal).

## OBSTACLE IDENTIFICATION

To test whether mental contrasting leads to expectancy-dependent identification of relevant obstacles, a task-switching paradigm (for a review, see Kiesel et al., 2010) was used. Specifically, implicit obstacle categorization was measured in the context of being accepted at a competitive graduate school (A. Kappes, Wendt, Reinelt, & Oettingen, 2013). Goal pursuit was indicated by the degree to which participants felt responsible for getting accepted into the desired graduate school (Cantor, Norem, Niedenthal, Langston, & Brower, 1987; Oettingen et al., 2001). Mental contrasting (vs. reverse contrasting and control) was found to foster implicit obstacle identification in line with expectations, and this pattern of results mediated the effects of mental contrasting on goal pursuit.

*Motivational Processes*

## ENERGIZATION

As for motivational mediators, Oettingen and colleagues (2009) investigated whether energization underlies the effects of mental contrasting on goal commitment and performance. Energization was again measured using a reliable physiological indicator, systolic blood pressure (SBP; Wright, 1996). After participants indicated their expectations of resolving an important interpersonal issue, they were instructed to mentally contrast or indulge with regard to this concern. In addition to SBP, participants' commitment to resolve the issue was measured by asking them to rate how disappointed they would be if their concern was not resolved. For both change in SBP and goal commitment, mental-contrasting participants displayed greater expectancy dependence than those in the indulging condition. Importantly, the effects of mental contrasting on goal pursuit were mediated by energization, as indicated by SBP. Other studies substantiated these findings, using SBP measures, as well as self-reported feelings of energization. Taken together, energization was shown to be an important mechanism, responsible for the effects of mental contrasting on behavior change (see also Sevincer, Busatta, & Oettingen, 2014).

*Responses to Setbacks: Negative Feedback*

Extracting useful information from negative feedback allows people to identify problems and adjust their behavior accordingly (Audia & Locke, 2003), and it promotes the acquisition of abilities and skills (Ball, Hoyle, & Towse, 2010; Nussbaum & Dweck, 2008). However, people often refrain from processing such information because it

is self-threatening, whereas they readily process positive feedback because it is self-affirming (Sedikides & Green, 2009). Mental contrasting has been shown to enable participants to process useful information contained in negative feedback in line with expectations of success (A. Kappes, Oettingen, & Pak, 2012). More specifically, when prospects were promising, mental contrasting enabled participants to use this negative feedback for plan formation, while protecting and maintaining their sense of competence. However, when prospects were grim, mental contrasting decreased the processing of negative feedback, as well as the self-view of competence and future outlook, thereby enabling disengagement and freeing up space to pursue more promising projects. Participants who indulged in the desired future or dwelled on the reality were insensitive to negative feedback whether or not they perceived their goal pursuit as feasible. When prospects are high, mental contrasting enables people to effectively process goal-relevant information entailed in setbacks, even when it is critical, while simultaneously preserving their sense of competence.

In summary, mental contrasting changes behavior via cognitive and motivational processes that are outside of awareness, and via responses that reap the benefits of negative feedback. Specifically, it modulates the strength of the associations between future and reality, as well as between reality and instrumental means, and it changes whether the reality is classified as an obstacle. It also energizes people and heightens constructive responses to setbacks.

### **Spontaneous Mental Contrasting**

Since mental contrasting has an impact on selective goal commitment and performance, it seems meaningful to investigate which variables affect the spontaneous use of mental contrasting. Just like induced mental contrasting, spontaneous mental contrasting predicted selective goal pursuit as assessed by self-reported and observed indicators. This finding was replicated across domains (interpersonal, academic, and professional), contexts (in the laboratory, online), cultures (Germany and the United States), and samples (university students and online users).

#### *Context Variables*

##### SAD MOOD

Because sad mood encourages problem solving and alludes to a need for changing the status quo, it should promote mental contrasting more than does happy or neutral moods. To test this idea, H. B. Kappes, Oettingen, Mayer, and Maglio (2011) used a series of mood inductions (e.g., reading a text, imagining oneself in a hypothetical scenario, listening to music, experiencing a real event, or being exposed to incidental information). Regardless of how mood was induced, sad mood promoted self-initiated mental contrasting more than did neutral or happy mood. However, mood did not affect the predictive relation between mental contrasting and expectancy-dependent goal pursuits. These findings support the notion that sad mood can help people to initiate and use self-regulation strategies that lead to wise goal pursuits.

In order to investigate further variables that predict spontaneous mental contrasting, Sevincer and Oettingen (2013) developed a content analytic measure to observe spontaneous mental contrasting in people as it occurs in their stream of thought while

writing about an important wish. The following studies were conducted using this coding scheme.

#### ANTICIPATION OF GOAL-RELATED ACTIONS

The prospect of having to garner resources for goal-directed action in the near future was found to be a context variable that predicted spontaneous mental contrasting: Compared to participants who were not given a prompt that action is impending, participants who thought about their wish of being admitted to graduate school, while anticipating having to write a relevant essay directly afterward, were more likely to spontaneously use mental contrasting (Sevincer & Oettingen, 2013). Given this finding, it may also be possible that people who indicate pressing wishes in the near (vs. distant) future will be more likely to initiate mental contrasting.

#### *Person Variables: Cognition, Self-Regulation Skills, and Implicit Theories*

First, because mental contrasting demands more mental effort compared to indulging (Achtziger, Fehr, Oettingen, Gollwitzer, & Rockstroh, 2009), people who have a high need for cognition (i.e., people who tend to engage in and enjoy effortful processing; Cacioppo, Petty, & Kao, 1984) may be more likely to spontaneously use mental contrasting. Second, because mental contrasting leads to the regulation of goal pursuit, people who report having high (vs. low) self-regulation skills (Baumeister & Heatherton, 1996; Tangney, Baumeister, & Boone, 2004) may also be more disposed to use mental contrasting. Considering that trait self-control was found to be linked to affective well-being and life satisfaction (Wilhelm, Luhmann, Fisher, Vohs, & Baumeister, 2014), it seems fruitful to teach mental contrasting as an avenue through which people can develop their self-control. Finally, people's implicit theories (Dweck & Leggett, 1988) may affect their self-regulatory thought: Those who were made to believe that intelligence is a product of the environment and can be changed for the better (incremental theory) focused more on the desired future (mental contrasting or indulging), whereas those who were made to believe that intelligence is due to genetic factors and cannot be changed (entity theory) focused more on the present reality (reverse contrasting or dwelling; Sevincer, Kluge, & Oettingen, 2014).

#### *Cultural Variables: Social Norms*

In tight cultures, social norms are firmly imposed, whereas in loose cultures, going against the norm is tolerated (Triandis, 1989). Since people in tight cultures are more constrained by social roles and obligations in pursuing their goals than those in loose cultures, their goals should be guided by their culture rather than by their expectations. On the other hand, people in loose cultures should have greater flexibility in selecting their goals, thus making mental contrasting relevant and useful (Oettingen, 1997).

While the reported studies elucidate *whether* and *how* people use mental contrasting, they simultaneously demonstrate how relatively few people spontaneously use this strategy: Only 15% of the participants used mental contrasting (averaged across all three studies; Sevincer & Oettingen, 2013). To encourage people to benefit from mental contrasting regardless of their contextual, person, and cultural variables, a more guided metacognitive approach to engage in mental contrasting was developed.

## **Mental Contrasting as an Intervention**

As an intervention, mental contrasting should support people in prioritizing between projects that should and should not be tackled, thereby freeing up valuable resources for other, more promising endeavors. By enabling people to separate the wheat from the chaff, mental contrasting should also support them in finding integrative solutions, for example, when negotiating tasks that demand perspective taking and cooperation.

### *Mental Contrasting Supports Management of Everyday Life*

Oettingen, Mayer, and Brinkmann (2010) tested whether teaching mental contrasting as a metacognitive strategy enhances flexible decision making and effective time management during everyday life. Middle-level managers in the health domain were randomly assigned to two conditions: In one condition, they were taught mental contrasting; in the other condition, they were led to indulge in solving everyday wishes and concerns. Two weeks after the intervention, participants in the mental-contrasting (vs. indulging) condition had managed their time better and had less difficulty making decisions. Such prudent pursuit of everyday goals should also help in finding integrative solutions when dealing with others.

### *Mental Contrasting Facilitates Integrative Bargaining*

Kirk, Oettingen, and Gollwitzer (2011) investigated the role of mental contrasting in an integrative bargaining task, “New Car,” developed by the Dispute Resolution Research Center at the Kellogg School of Business. Here, partners (seller and buyer) can arrive at agreements that are beneficial to both if they find trade-offs on aspects of a car deal that are more important to one partner than to the other. Mental contrasting promoted finding more integrative solutions and therefore produced higher joint profits compared to the indulging, dwelling, or no-strategy modes of thought. In addition, mental contrasting led to heightened equity of achieved profits. The results show that mental contrasting can help people find creative and cooperative solutions in negotiation settings.

The reported studies have shown that teaching mental contrasting as a metacognitive intervention can help people prioritize which goals to pursue and which ones to let go. However, when disengagement is not advisable or feasible, mental contrasting can also be taught to help people wholeheartedly pursue a desired future by ensuring that they hold high expectations of success. High expectations can be guaranteed in one of three ways: (1) strengthening expectations of success via positive feedback, (2) asking for idiosyncratic feasible wishes, and (3) providing feasible tasks. The following three studies provide examples of each of these approaches to ensuring high expectations of success.

### *Mental Contrasting Heightens Creative Performance*

The first way to ensure high expectations of success is by strengthening them via positive feedback. In two studies (Oettingen, Marquardt, & Gollwitzer, 2012), participants received positive or moderate bogus feedback regarding their creative potential. Afterwards, they were assigned to a mental contrasting, indulging, dwelling, or control conditions with respect to performing on a creativity test. Participants in the mental contrasting condition who received positive feedback about their creative potential performed

better on the creativity task than did mental contrasting participants who received moderate feedback. They also performed better than participants in the indulging, dwelling, and unrelated contrast conditions, regardless of bogus feedback type. These findings demonstrate that mental contrasting can translate high expectations from positive feedback into strong performance.

### *Mental Contrasting Improves Health Behavior*

The second way to ensure high expectations of success is by asking for idiosyncratic, feasible wishes. Johannessen, Oettingen, and Mayer (2012) invited dieting students to identify a dieting wish that they deemed both important and attainable within a 2-week period. Students were then taught either mental contrasting or indulging in thoughts and images about their dieting wish, or they did not receive an intervention. After 2 weeks, participants in the mental contrasting condition reported having consumed fewer high-calorie foods, more low-calorie foods, and fewer calories overall than those in the indulging and control conditions. These benefits in the diet domain transferred to the exercise domain: Students who used mental contrasting also reported having exercised more.

These health benefits were also observed in particularly vulnerable individuals, such as overweight, middle-aged fishermen of low socioeconomic status, for which mental contrasting promoted physical activity (Sheeran, Harris, Vaughan, Oettingen, & Gollwitzer, 2013), and among patients with type 2 diabetes, for which mental contrasting improved diabetes self-management (Adriaanse, de Ridder, & Voorneman, 2013). By helping individuals identify wishes that they deemed attainable, mental contrasting was shown to trigger goal-pursuit.

### *Mental Contrasting Increases School Performance*

The third way to ensure high expectations of success is by providing feasible tasks. A. Gollwitzer, Oettingen, Kirby, Duckworth, and Mayer (2011) taught mental contrasting of a feasible academic task to German and U.S. schoolchildren in low-income neighborhoods. As early as second grade, teaching mental contrasting promoted academic performance in terms of language acquisition, and these findings were replicated in U.S. fifth graders. Apparently, mental contrasting can be taught to, and effectively applied by, young children to solve feasible academic tasks even in larger classroom settings, without leaving a child behind.

Thus, these three lines of studies reported above demonstrate that individuals can be taught mental contrasting not only to select between feasible and unfeasible future endeavors but also as a strategy to vigorously pursue their feasible wishes.

## **MENTAL CONTRASTING WITH IMPLEMENTATION INTENTIONS**

As described earlier, whereas mental contrasting strengthens the implicit association between obstacles of reality and instrumental means (A. Kappes, Singmann, et al., 2012; Oettingen, 2012), explicit planning in the form of implementation intentions or “If situation X, then I will perform goal-directed response Y!” (Gollwitzer, 1999) should strengthen these implicit associations even more. By instigating automatic action control when the specified situation is encountered, implementation intentions have proven to be

highly effective in fostering goal attainment, with hundreds of studies showing a medium to large effect ( $d = 0.61$ ; for a meta-analysis, see Gollwitzer & Sheeran, 2006).

On the other hand, mental contrasting provides the prerequisites for the effects of implementation intentions by fostering energization and goal commitment (Sheeran, Webb, & Gollwitzer, 2005). Moreover, mental contrasting helps to identify one's personal obstacles that then can be used for the if-part of the implementation intention, and it helps one to understand the means to overcome the obstacles that then can be used for the then-part. Thus, mental contrasting and implementation intentions are complementary strategies, and are therefore combined in a self-regulatory tool called mental contrasting with implementation intentions (MCII).

## **MCII as an Intervention**

### *MCII Facilitates Insights and Integrative Behavior*

To extend the previously reported finding that mental contrasting promotes integrative bargaining more than indulging, dwelling, and no mode of thought, Kirk, Oettingen, and Gollwitzer (2013) used the same bargaining task to test the impact of MCII versus mental contrasting and implementation intentions alone. MCII led to more joint gains than using either mental contrasting or implementation intentions alone, and this effect was mediated by cooperative planning. Apparently, MCII favored the insights needed for finding integrative solutions, and it did so more effectively than did mental contrasting or implementation intentions alone.

### *MCII Breaks Bad Habits*

MCII also helped to break bad habits more than either strategy alone. College students plagued by unwanted snacking habits were more successful in reducing them after they engaged in MCII compared to mental contrasting or forming implementation intentions alone. The MCII students also gained clarity about their individual obstacles that impeded mastering their unwanted habits (Adriaanse et al., 2010).

### *MCII Benefits Romantic Relationships*

To test whether MCII can ease insecurity-based behaviors, students involved in romantic relationships were asked to name a specific insecure behavior they wanted to attenuate. They then applied MCII, a reverse contrasting control strategy, or no strategy (Houssais, Oettingen, & Mayer, 2013). After a week, participants in the MCII condition (vs. the control conditions) had more effectively reduced their insecure behaviors and reported increased commitment to the relationship. In another study, MCII was found to benefit couples by increasing their initiation of communication about a sensitive topic (Cachia, Thorson, & Oettingen, 2016). Thus, MCII was effectively shown to both reduce *and* enhance behaviors that promote beneficial relationship outcomes.

## **Summary**

MCII was found to benefit self-regulation in other life domains as well. In the health domain, for example, MCII fostered physical activity and intake of fruits and vegetables

in middle-aged women (Stadler, Oettingen, & Gollwitzer, 2009, 2010), promoted regular exercise and weight loss in stroke patients (Marquardt, Oettingen, Gollwitzer, Sheeran, & Liepert, 2016), and heightened mobility in chronic back pain patients (Christiansen, Oettingen, Dahme, & Klinger, 2010). In the academic and professional domains, it improved time management in low-income working mothers who attended a vocational program (Oettingen, Kappes, Guttenberg, & Gollwitzer, 2015), improved homework completion in children both at risk and not at risk for ADHD (Gawrilow, Morgenroth, Schultz, Oettingen, & Gollwitzer, 2013) and benefited attendance and academic performance in fifth graders from low-income backgrounds (Duckworth, Kirby, A. Gollwitzer, & Oettingen, 2013).

Taken together, mental contrasting, by itself and in combination with implementation intentions, can be effectively taught as a metacognitive strategy that people can use on their own to successfully change their behavior. It has been shown to be effective for people of all age groups from diverse nations—spanning the United Kingdom, the United States, the Netherlands, and Germany—and from different social backgrounds, from university students to individuals belonging to minority groups and those from disadvantaged areas. It seems evident that mental contrasting and MCII can be used ubiquitously to help people successfully manage their tasks and improve their everyday lives and long-term developments (see also *www.woopmylife.org*).

## CONCLUSION

Let us now come full circle and revisit Jeanne, whom we met at the beginning of the chapter. We saw how, even as time went by, Jeanne's dreams of running her own jewelry company remained just that—a dream. This chapter has revealed that positively fantasizing about our desired futures will relax us, which, although pleasant at the moment, will sap our energy required to actually go after these dreams. Considering the *Zeitgeist* of optimism and positive thinking that has permeated our culture, Jeanne's situation is far from unique.

When we find ourselves in the shoes of Jeanne, dreaming about a desired future, yet find that we lack the impetus to go after it, we are becoming satisfied with our fantasies. Only by combining our fantasies with the resisting reality (mental contrasting) can we come to realize that we may not want to simply sit and enjoy these mental images. Rather, to make our dreams come true, we must actively surmount the obstacles on the way. When we feel that we *can* overcome these obstacles, we become energized to pursue our goals; when we feel that we *cannot* overcome these obstacles, we are liberated from our unrealistic dreams to pursue and realize more feasible endeavors. Following from this concept, mental contrasting and MCII were developed as time- and cost-effective metacognitive strategies, improving all aspects of our lives, from health and achievement to interpersonal relationships.

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## CHAPTER 32

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# The Role of Self-Regulation in Financial Well-Being

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The fact that consumers have struggled in recent years to regulate their spending to be able to save for important financial goals (e.g., retirement savings, children's education, health expenses or a nest egg) has been extensively documented both in the academic (Baumeister, 2002; Benartzi & Thaler, 2013) and the managerial literatures (Manning, 2000; McKinsey Global Institute, 2008). Evidence of this failure comes in the form of greater credit card debt, increasing delinquencies, and plummeting savings rates.

Financial decision making at the level of an individual or a household is challenging for several reasons. First, consumers make a series of *distributed decisions*—an aggregation of a large number of spending decisions, each of which might not seem consequential at the disaggregate but are potentially devastating at the aggregate (Herrnstein & Prelec, 1993). Second, the ultimate goal underlying financial management (be it retirement savings or children's education) is typically very distant. Given the temporal distance, the importance and relevance of the goal is often difficult to imagine. In the language of researchers in the multiple-self-paradigm of decision-making research (Hershfield, et al., 2011; Thaler & Shefrin, 1981; van Gelder, Hershfield, & Nordgren, 2013), saving for retirement requires the individual in the present, to empathize with his or her own future self many years from now. This empathy is inherently very low. Third, the advent of modern payment technologies such as electronic wallets and mobile payments makes it very easy for consumers to spend (Liu, Zhuo, Soman, & Zhao, 2012) in an era in which impulsive behaviors are facilitated by easy availability of products and ease of purchasing (Roberts, 2014). Fourth, there are inherent difficulties in determining normatively the right answers to questions such as how much one should save for retirement, the right trade-off between risk and return for investments, or the percentage of discretionary savings that should go toward education accounts. There is too great a level of uncertainty

(e.g., what constitutes a good retirement account depends on the cost of living index and inflation at that time) and heterogeneity in tastes and preferences (e.g., consumers may vary widely in terms of the consumption basket and the lifestyle they seek after retirement) to be able to determine the “right” amount.

Perhaps the most fundamental framework from psychology that helps us understand consumer spending and savings behavior is the theory of goal setting and goal pursuit (Bandura, 1988; Locke & Latham, 2002; Shah, Kruglanski, & Friedman, 2003; Vohs, Baumeister, & Tice, 2008). The theory of goal systems adopts a cognitive approach to motivation. Goal concepts are not only represented in this theory by knowledge structures, but they also possess distinctly motivational contents that determine their manner of functioning. Indeed, goal systems theory posits that the explicit or implicit goals are fundamental drivers of much of consumer behavior. In a separate stream of research in the judgment and decision-making tradition, researchers have shown that providing individuals with a specific, concrete, and measurable goal can improve their levels of motivation toward achieving a particular task (Heath, Larrick, & Wu, 1999). In the world of financial management, goals are, unsurprisingly, central to effective performance.

Our goal in this chapter is to (1) review relevant research in the domain of financial decision making, (2) understand this research in the context of a framework of self-regulation, and (3) review a list of corrective measures in the context of this framework that can improve self-regulation. We first provide a brief overview of the process of self-regulation and deconstruct the model onto specific processes. Next, we discuss each process in detail and review relevant literature that helps us better understand the process. Finally, we review research designed to help people make better financial decisions.

## OVERVIEW OF SELF-REGULATION

*Self-regulation* is a term used to define a set of psychological and perceptual processes by which individuals work toward the achievement of goals and objectives by keeping them on track and minimizing distractions or impulses. The central framework that explains self-regulation in the field of psychology is the Carver–Scheier model (Carver & Scheier, 2001).

The self-regulation model can be understood by drawing an analogy with *speed governors*—devices that for decades have been used in fuel-based engines and power plants to keep the speed of the engine constant (e.g., a cruise control device on a car that keeps the speed constant). Consider, for example, a motor-driven lawn mower that has to navigate over a large tract of grass that varies in its thickness and resistance. If the motor received a constant supply of fuel, the lawn mower would get slowed down and lose its effectiveness on encountering a thick patch of grass. However, if a governor is installed on the motor, its system of gears can sense the increased load on the engine and hence increase the supply of fuel to the motor, so that speed and effectiveness are not compromised.

This simple example of a governor or cruise control serves as a good metaphor for self-regulation models. Note in particular the underlying processes of the mechanism. First, the operator of the lawn mower or a car needs to determine a target rate of operation (say, speed). Second, there needs to be in place a feedback mechanism that is able to detect deviations from this target. Third, when this deviation is noted, it should set off a

corrective action that changes performance by adding more resources. Finally, this feedback and correction loop has to be dynamic and keep the performance on track until the eventual goal has been achieved and the user has switched off the entire system.

The Carver–Scheier model—the psychological equivalent of the mechanical governor—is illustrated in Figure 32.1, in the broader context of the need for self-regulation.

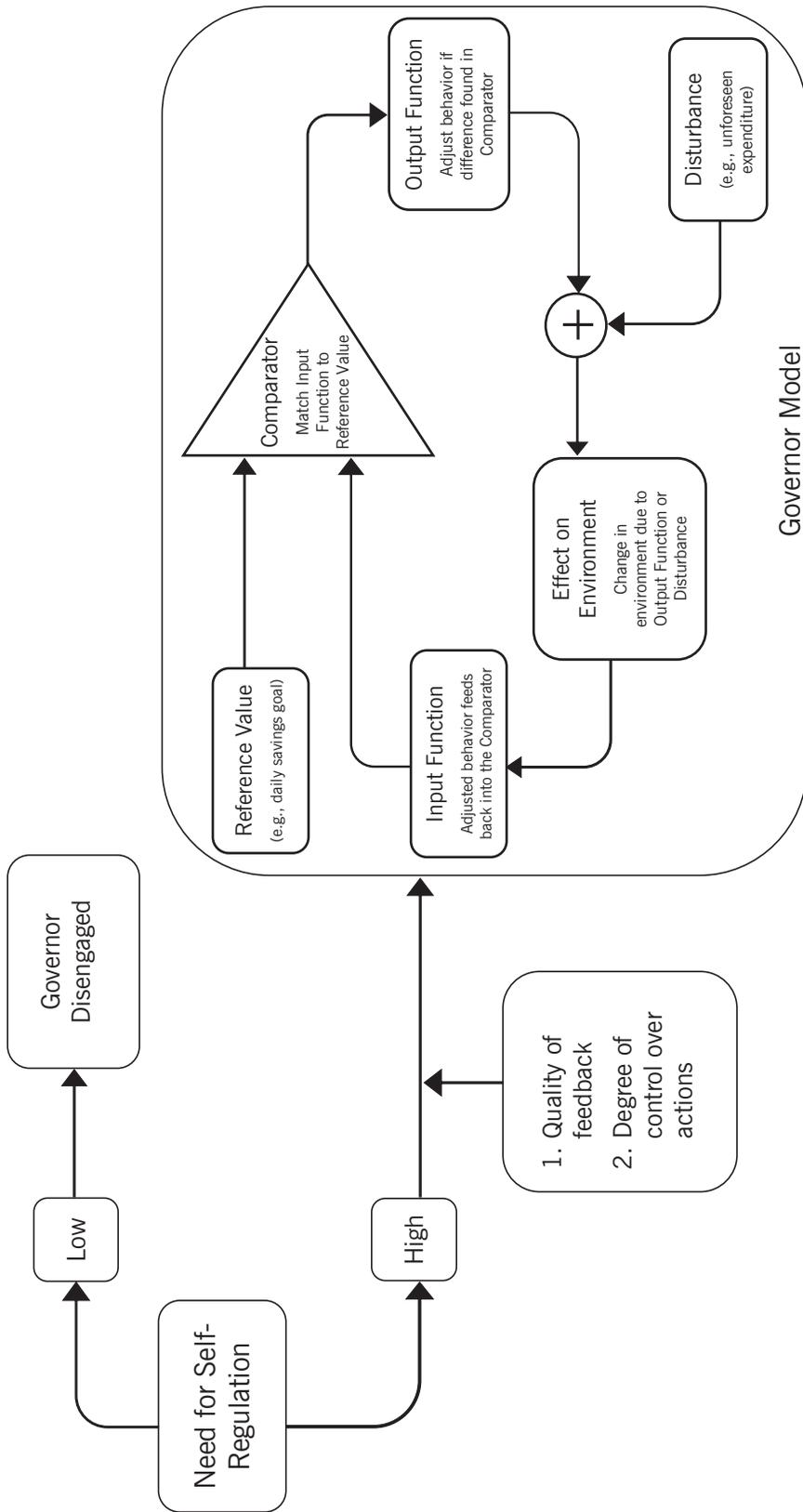
We illustrate the model in the domain of financial decision making with a specific example. Consider the decision to save for retirement. For most individuals, this decision is not automatic and routine, but is often triggered by important life events such as marriage, the birth of children, or the death of elderly relatives. More generally, the need to save for the future and hence to self-regulate current consumption might be driven by empathy for the future self (Hershfield, et al., 2011). If the need for self-regulation is high, the individual will need to impose the proverbial governor on his or her spending.

Consider an individual who has decided to set aside \$1,000 each month toward retirement savings. In the language of the model, the \$1,000 is the *reference value* (see also Heath et al., 1999, who define goals as reference values). The actual amount that this person saves in a given month is referred to in the model as a *comparator*. Discrepancies between the comparator and the reference value trigger an action referred to as the *output function*. Imagine that the consumer saves only \$500 in a given month, resulting in a discrepancy of \$500. This discrepancy might generate specific action—for instance, a tightening down in discretionary spending in a subsequent month to compensate for the discrepancy. This has an effect on the environment and results in a revised input behavior; and the cycle of discrepancies and corrective actions continues repeatedly.

Note that this model of self-regulation assumes a static goal—if the reference value is too high, then this pattern of discrepancies and corrective action might never result in successful regulation. What happens when goals are dynamic and change with time? In relatively recent research, Wang and Mukhopadhyay (2012) propose an extension of the self-regulation model in which consumers can adjust goals over time through feedback achieved on the feasibility of the goal. Their model, called the TOTAL (test–operate–test–adjust–loop) model, still utilizes the same basic processes that the Carver–Scheier model uses.

The successful use of the self-regulation mechanism for spending is moderated by two important contextual variables. The first variable is the quality and measurability of the feedback. In a mechanical governor on a lawn mower, the feedback comes in the form of added load on the motor and consequently its reduced speed. Both of these are easy to measure. In the world of financial decision making, an individual needs to be able to monitor spending accurately and be able to determine the variance of spending levels with the reference value. As we discuss later, several factors may hinder this process, including poor memory for expenses using certain payment mechanisms (Liu et al., 2012; Soman, 2003), poor memory for small expenses (Gourville, 1998), not accounting in-process payments charged to credit cards (Soman, 2001), and mismatches between budgeting periods and credit card billing cycles (Soman & Lam, 2002). The presence of these factors could weaken the effectiveness of the self-regulation mechanism.

A second moderator of the effectiveness of self-regulation has to do with the degree of control that individuals have on potential corrective actions. For instance, imagine that an individual realized that he or she needs to curb consumption in certain product categories. However, in the era of easy payment mechanisms and direct billing of services, the individual is unable to actually take corrective actions. For example, the monthly Netflix



**FIGURE 32.1.** Self-regulation of financial decisions.

and other leisure memberships are automatically billed to his or her credit card or bank account, and the perceived effort required to reverse these arrangements might be large. In this case, the feedback loop will work, but it might not result in any specific action.

## FUNDAMENTAL SELF-REGULATION PROCESSES

As is evident from the description of the self-regulation model, there are four fundamental processes that form the building blocks of self-regulation. These include goal pursuit, the development of a measurement (metering) system, actual monitoring and feedback mechanisms, and the triggering of corrective actions. We next describe each set of processes in the context of financial decisions and summarize some of the key research in these areas.

### Goal Pursuit

Goal pursuit can be viewed as two distinct processes: (1) goal setting, which involves processes deliberating the goal and setting a specific target, and (2) goal striving, which is concerned with the methods or tactics by which the goal will be achieved. One popular model—the Rubicon model of goal pursuit (Heckhausen & Gollwitzer, 1987)—breaks down the entire process of goal pursuit into four distinct stages: (1) predecisional, (2) postdecisional, (3) actional, and (4) postactional. Self-regulation enters at the postdecisional stage, in which the goals have been formulated, and the individual is beginning to take actions that will determine the success of goal pursuit. At this point, the consumer moves from a deliberative mindset, in which he or she is considering the goal and deciding whether to commit to it, to an implemental mindset, in which he or she is looking at methods to accomplish the goal (Gollwitzer, Heckhausen, & Steller, 1990).

In the context of self-regulation, goal setting enables people to define an acceptable level of performance to which they need to adhere (Bandura, 1988; Latham & Locke, 1991). However, multiple goals associated with the same means have been found to result in dilution of the association between the means and the individual goals (Zhang, Fishbach, & Kruglanski, 2007).

Goals can range on two dimensions—their level of *achievability* (i.e., how easy or challenging the goal is) and their *specificity* (i.e., how concrete or abstract the goal statement is). An example of a concrete goal might be to “set aside \$1,000 every month in your savings account”; an example of an abstract goal might be to “maximize savings.”

Easy goals typically result in higher satisfaction but lower productivity, while very challenging goals can result in dissatisfaction and high productivity (Locke & Latham, 1990). Challenging goals also have the potential to create a “what the hell” effect (Cochran & Tesser, 1996; Soman & Cheema, 2004); this occurs when people violate one of their goals, which causes them to become demotivated and negative. As a consequence, their future performance suffers, with the result that they are worse off than people who had no goals.

When goals are challenging, the specificity of the goal moderates goal pursuit and hence eventual success (Latham & Locke, 1991; Mento, Locke, & Klein, 1992; Mossholder, 1980). When the goal is clearly defined, people work harder to reach it because there is an objective evaluation of success or failure. However, in the case of abstract

goals, the ambiguity involved in the evaluation of results allows people to give themselves the benefit of the doubt; consequently, they do not strive as hard as when the goal is specific (Latham & Locke, 1991).

In financial well-being, the challenges that interfere with goal achievement range from those of computation and comprehension to uncontrolled spending. While one end of this spectrum of problems can easily be remedied by the use of technology or engaging a financial planner, the other end of the spectrum involves the psychology of the consumer and behavioral changes that are not remedied so easily.

Once the goal is set, the next step is to implement the choices that will take the person toward the goal. With savings goals, the assumption is that once a savings goal is set, consumers will implement the right actions that lead them to attain their goals. Indeed, much research has shown that people who undersave would have liked to save more, and people who overspend on indulgences report that they had not planned to do so (Thaler & Benartzi, 2004). The fact that human behavior diverges from plans has often been referred to in the literature as the intention–implementation gap (Thaler & Shefrin, 1981), which can be explained through Thaler and Shefrin's dual-process model. This model conceptualizes individuals as an organization having two sets of agents; a *planner* who is concerned with lifetime utility, and a series of *doers* who exist only for one period. According to this model, the farsighted *planner* determines the long-term goal but is dependent on the doers to accomplish the goal. Conflicts exist because the *doers* are myopic (selfish and live in the present) and hence have no incentive to comply with the planner (also see Soman et al., 2005).

### Measurement and Metering

The term *mental accounting* is used to describe a set of processes that individuals use to track, measure, and organize their expenses and receipts. In the broadest sense, mental accounting describes the cognitive processes that individuals and households use to track and manage expenses, to ensure they keep spending under control (Thaler, 1985, 1999).

Mental accounting can be best explained by considering the example of Mr. X, who buys a ticket to a cricket game. When investing in (or prepaying for) a particular endeavor, he creates a mental account for that endeavor and allocates the disutility of the payment to this account. This account will stay open until Mr. X has completed the endeavor and obtained some benefits (i.e., watched the game). The mental account can then be closed after being credited with the value of this benefit (Prelec & Loewenstein, 1998; Thaler, 1985, 1999).

One important ingredient of mental accounting is the manner in which the monetary outcome is evaluated using the value function from prospect theory (Kahneman & Tversky, 1979). A second ingredient involves the assignment of incomes, expenses and activities to specific accounts / categories (Heath & Soll, 1996; Shefrin & Thaler, 1988). A third ingredient relates to the scope and the life of each mental account (Read, Loewenstein, & Rabin, 1999). In particular, accounts can be defined narrowly (at the level of a single transaction) or more broadly (at the level of a spending category; Heath & Soll, 1996; Soman, 2001). In the case of Mr. X, the expense and consumption of the cricket game are narrowly framed in one account. More generally, expenses can be grouped and accounted for in different spending categories (e.g., food, entertainment, travel), and spending in each category could be governed by budgets. Likewise, funds could also be divided into categories (e.g., assets, current income), and funds from a

particular category might be considered to be relatively more appropriate for certain types of expenses (O'Curry, 2001). Finally, mental accounts can be defined with a fixed temporal life (e.g., monthly budgets, Heath & Soll, 1996), or can extend over a period of time (Gourville & Soman, 1998).

In the domain of self-regulation, the process of mental accounting can be used to explain the manner in which people set and use budgets (Heath & Soll, 1996). The first step in the process is the determination of appropriate spending categories (Henderson & Peterson, 1992) and the appropriate time horizon over which budgets are evaluated (typically on a monthly basis). Once the accounts are in place, individuals need to track and account for all of their expenses. Tracking expenses requires two processes. First, individuals need to notice the expense (booking), and second, they need to assign it to the appropriate category budget (posting) based on similarity (Heath & Soll, 1996).

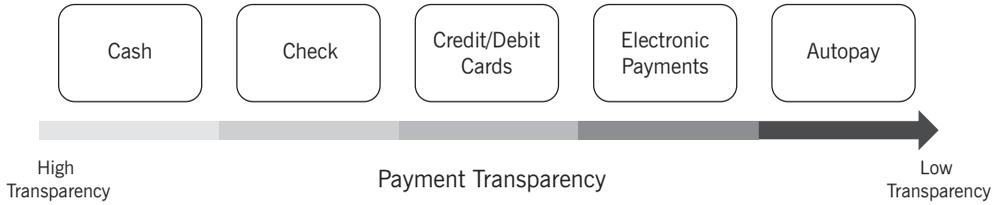
Budgets serve as a self-control mechanism in a world in which we assume that booking and posting processes are perfect, and that an individual has the ability to keep a running total of the expenses in every category. Once a budget limit for a category has been reached, people typically stop consumption in that category. Note the parallels between this process and the speed governor on our lawn mower. In both cases, there is a reference value (a desired speed for the lawn mower and, here, the budget limit), ongoing feedback (through gears in the lawn mower and, here, through booking, posting, and tallying of expenses), and a discrepancy that triggers resulting action (changing the lawn mower's fuel supply and, here, stopping consumption).

Unsurprisingly, the strict use of the budgeting model leads to some inflexibility because it does not allow individuals to increase or decrease budgets at their whim. Although this is a good practice when people are attempting to control expenses in certain categories, it can also result in them missing out on opportunities to maximize satisfaction. Another interesting impact of budgeting on consumption is overconsumption or underconsumption in a certain category (Heath & Soll, 1996). Because budgets are set before consumption, there is rarely sufficient information to predict expenditure accurately. This results in people creating larger or smaller budgets than required, and because their budgets direct their expenditure in that category, they tend to overconsume (in the case of larger budgets) or underconsume (in the case of smaller than required budgets).

### **Actual Monitoring and Feedback Mechanisms**

Note that the analogy of the budgeting model of financial self-regulation to the speed governor on the lawn mower is dependent on the booking, posting, and tallying processes being perfect. However, much behavioral research shows that this is not the case.

In research on the effects of payment mechanisms on spending behavior, Soman argues that the cognitive demands imposed by the Heath and Soll (1996) model are high. Soman (2001) proposed an alternative to their prospective accounting method—retrospective accounting. Rather than relying on a “surplus budget” measurement in a given category as an input into a purchase decision, Soman believes that an individual contemplating a purchase is more likely to ask, “Have I spent a lot on items like this one in the recent past?” If the response is “yes,” the individual might decide to not purchase; if it is “no,” he or she will purchase. This process implies that the cognitive processes of categorizing, determining the evaluation period, booking, posting, and tallying are all done retrospectively rather than a priori. This brings processes relating to memory, salience, and motivation into account.



**FIGURE 32.2.** Payment mechanisms and their relative transparency levels to the consumer.

As a concrete example, small day-to-day expenses are less likely to be remembered than larger, big-ticket items after a temporal delay. Likewise, the payment mechanism used to make a purchase also has an impact on the memory and hence the likelihood of an additional expense. Until some years ago, using checks and cash were the norm, and this made expenses salient because people rehearsed the payment amount while writing out a check or counting out money (Soman, 2003). However, in today's predominantly cashless society, people use cards, electronic payments, or autopay for their transactions, none of which provide them with immediate feedback or constraints (other than the credit limit) that make the expense salient. This causes reduced transparency in such transactions and results in increased consumption (Soman, 2003).

The payment transparency spectrum, as illustrated in Figure 32.2, shows the changing levels of transaction salience as we move from cash to autopay payment methods. The more transparent a payment mechanism, the more likely it will be remembered in the future.

### Corrective Actions

How can individuals better self-regulate their finances? As our conceptual development indicates, two sets of interventions help people better self-regulate their spending. First, interventions that increase the need for self-regulation increase the likelihood that the “money governor” is employed in the first place. Second, conditional on the need for self-regulation, interventions that (1) amplify the impact of a savings goal, (2) highlight goal progress, (3) improve metering and monitoring, (4) highlight the discrepancy between reference value and actual performance, and (5) make corrective action easy, allow the individual to exert better self-regulation.

## INTERVENTIONS TO FACILITATE CORRECTIVE ACTIONS

We review below a number of findings from recent research that provide examples of interventions and techniques that generate better financial outcomes through the avenues of enhancing the need for self-regulation and enhancing the effectiveness of the self-regulation apparatus.

### Using Image Rendering to Increase Empathy

Individuals may fail to activate their need for self-regulation and attain their retirement goals because they cannot relate to their future selves (Hershfield et al., 2011). Very often,

more urgent financial goals (e.g., saving for a vacation or children's education) compete with retirement savings goals. Compared to saving for retirement, individuals can imagine how these more timely goals benefit their current or near-present circumstances. Not being able to relate to their future selves reduces motivation to save for retirement and allows other financial goals to take priority. In their research, Hershfield and colleagues (2011) found that people allocated more money toward their retirement savings when they are presented with age-progressed photographs of themselves. Presenting participants with photo renderings of their older selves helps them imagine what their future self would be like, thus changing their reference value. This allows them to overcome their present bias when faced with a disturbance, and make decisions that would benefit their future self.

### **Setting Fewer Goals**

Individuals usually have multiple savings goals that require attention and action. Because it is not always possible to work toward all these goals simultaneously, they end up prioritizing some goals over others. In some cases, they also find that these financial goals are conflicting in nature, so that they may have to decide, for example, between saving for retirement and their child's education. The problem with such a situation is that in their desire to balance such conflicting goals, they may end up in a deliberative mindset, which could prevent them from deploying effort to implement these goals. Presenting individuals with one goal rather than many goals makes them more likely to move from a deliberative mindset to an implemental mindset (Soman & Zhao, 2011).

Looking at this from the perspective of the Carver–Scheier model, we can see that ensuring that a person has fewer goals to work toward provides more efficiency for the feedback loop. The smaller number of goals allow for easy tracking of goal achievement and deviations, without challenging cognitive resources that would have been spread too thin.

### **Having Visual Reminders of Goals**

A large body of research indicates that having salient and vivid goals facilitates goal striving. Visual reminders that induce guilt about consumption of savings can help reduce such instances and increase goal achievement. As a specific example, Soman and Cheema (2011) found that participants were less likely to open envelopes of money if a picture of the participant's children was printed on a paper envelope in which the earmarked savings were kept. Placing a picture of the participant's children served as a visual reminder of what the money was intended for, as well as the consequences of spending the money (i.e., less money for the children) on unrelated items.

### **Peer Effects**

Field experiments (Kast, Meier, & Pomeranz, 2012) indicate that participating in self-help groups can improve savings rates. In these experiments, individuals meet on a weekly basis to report on their savings progress, hear about the progress of their peers, and have the opportunity to share useful financial information. To isolate the mechanisms behind the improved savings rates, experiments were conducted using text messages that simply reminded participants of their progress and the progress of their peers. These text

message experiments pointed out that regular feedback on one's progress, as well as peer comparisons, helped improve goal attainment.

However, peer comparisons may not always be helpful. A particular field study, (Beshears, Choi, Laibson, Madrian, & Milkman, 2015) found that upward social comparisons can discourage low-income individuals from participating in retirement savings programs. Knowing that their higher-earning peers are saving more than themselves actually highlights their relative income status and could demotivate individuals from saving. However, peer comparisons can be beneficial for individuals with similar income levels because they provide two levels of comparison in the Comparator—(1) against their own reference value and (2) against their peers—thus motivating individuals to avoid negative deviations from their goals.

### **Sending Goal Reminders**

One of the main hurdles to cross while budgeting and saving is to ensure that the goal is salient. Individuals often forget to contribute to their savings goals because they are pre-occupied with completing other tasks, or they spend their money before they remember to set aside the amount they intended to save. Sending reminders helps to make saving foremost in the mind (Karlan, McConnell, Mullainathan, & Zinman, 2010) and have been shown to be effective in helping individuals attain their goals.

### **Labeling and Partitioning**

Labeling and partitioning of money is another way to provide individuals with concrete goals and reference values. When money is labeled or partitioned, individuals have visual cues, as well as mental accounts associated with each of them, thus allowing them to use the feedback loop effectively and stay on course.

The behavioral life-cycle (BLC) model (Shefrin & Thaler, 1988) shows that labels affect the use of resources, thus violating the economic concept of money being fungible. According to the BLC model, funds are more likely to be saved if they are transferred to mental accounts that are less tempting. There is greater temptation to spend from some accounts than from others, and there exists a hierarchy among such accounts: Cash and checking accounts are most tempting, followed by liquid asset accounts (e.g., savings accounts), then home equity accounts, and finally, the least tempting of all, future income (e.g., retirement savings).

Labeling money reduces the temptation to use that particular amount on unrelated purchases (Heath & Soll, 1996), as does physically partitioning money (Cheema & Soman, 2008). Labeling ("earmarking") money by separating it into envelopes also helped significantly to increase savings among construction labourers in India (Soman & Cheema, 2011). In their study, Cheema and Soman (2008) used envelopes to physically partition money and found that less money was spent when money was physically partitioned. Partitioning reduced the temptation to overspend by creating decision points. Individuals were forced to contemplate whether their actions moved them toward their goal or caused them to deviate from it. This is similar to a reference that Zelizer (1997) makes about "tin-can" accounting, in which household members separate cash into multiple tin cans, and label them for different uses.

An extension of labeling is the process of budgeting, by which the money set aside for various accounts is tracked.

## Preventing Imperfect Recall

Until recently, the primary use of cash for transactions gave people the opportunity to keep a track of the money they had in their wallets, and to plan their expenses accordingly. With the proliferation of cashless forms of payment, people have been found to have much lower recall ability for transactions they just completed when they used credit cards compared to cash (Soman, 2001). This imperfect recall of expenditures naturally has some very serious consequences in our current cashless society.

To help people avoid the pitfall of spending without being aware of their expenditure levels, Poddar, Ellis, and Ozcan (2015) made the expenditure more salient by reminding people of their monthly spending and their total current debt on the card, and printing this information on the payment slip received at the end of the transaction. This resulted in a significant reduction in overall spending when compared to the status quo.

## Overcoming the Intention–Implementation Gap

The intention–implementation gap can be overcome through different types of interventions. In the Thaler and Shefrin (1981) model, if the *planner* uses a precommitment strategy to circumvent the *doer's* decision choices, the organization (person) will be able to reach the end goal successfully. For example, a person trying to save money for retirement can choose to have a certain amount deducted from his or her salary, before the person even sees it in his or her bank account. In this way, the person is not tempted to use that money in the present, for an impulsive or unforeseen expense, thus circumventing the *doer* in him- or herself, and allowing the farsighted *planner* to achieve the goals the person has set for him- or herself.

## Automatic Enrollment

In the United States, many firms are moving away from providing pension plans and are implementing defined contribution retirement savings plan instead. While this shift gives employees more control over how much they want to save for retirement, it has led to a decrease in retirement savings rates (Benartzi & Thaler, 2013).

In the setup stage of defined contribution retirement savings plans, each employee has to put in some effort, and make a few decisions: (1) Sign up for the program; (2) choose his or her own savings rate; and (3) decide on his or her investment mix. In order to complete this successfully, individuals need to determine how the program fits with their overall retirement savings goals, as well as their savings goals within the contribution program. Because this involves multiple, complex decisions, inertia usually comes into the picture, and it may leave individuals in a deliberative mindset. As a result, the default behavior for many individuals is not to participate in defined contribution retirement savings plans.

Automatically enrolling individuals into a retirement savings plan has been shown to significantly increase participation rates (Choi, Laibson, & Madrian, 2004; Madrian & Shea, 2000). And once enrolled, individuals tend to remain in the program. With automatic enrollment, less deliberation and self-regulation is required from the individual because a default contribution rate has been chosen for him or her, and savings amounts are automatically deducted from the individual's regular paycheck.

While the setting of a goal has its advantages, the process of arriving at what the goal should be is often cognitively exhausting. Autoenrollment and defaults help to

create reference values and set goals, which makes planning and goal achievement less effortful.

### **Adjusting Behavior Using Precommitment**

The downside of automatic enrollment is that savers tend to stick with the default contribution rate, which is typically set to a very low rate (Madrian & Shea, 2000). Savers who stick to the default rate typically do not save as much money as those who actively choose a higher contribution rate. Thus, saving behavior still needs to be adjusted to ensure that financial goals are being met. The Save More Tomorrow program (Thaler & Benartzi, 2004) uses a precommitment strategy to increase savings rates by letting individuals precommit to increasing their saving rates whenever they receive a salary increase. This circumvents the dilemma between the farsighted planners, who know they should save more when their salary rises, and the myopic doers, who may not act because of inertia.

Precommitment strategies help individuals protect their savings from disturbances: Once the money is committed to a goal, it gets tagged under a certain mental account, and becomes less tempting to access in the case of a disturbance. This also allows individuals to skip the constant self-monitoring that is required by the feedback loop, allowing them to achieve their goals in a less stressful manner.

## **CONCLUSION**

In this chapter, we have looked at why people find it so difficult to maintain their finances in the black, and the different models that could play a role in helping them overcome their myopia. As is evident from the literature on which we have elaborated, self-regulation has a very important role to play in helping people maintain financial prudence. While there are multiple techniques that can help people circumvent temptation and achieve their financial goals, these techniques are usually applicable only to some areas of financial planning. While techniques such as autoenrollment, precommitment, and viewing photos of their older selves help people avoid their present bias and invest for the future, other techniques, such as making expenses salient, and labeling, help prevent people from over-consuming or eating into other budgets when they do not have to do so.

When we look at transactions that occur on a daily basis, it is mostly self-regulation that is key to ensuring that people manage their finances and keep their long-term interests in mind. One of the advantages of the Carver–Scheier self-regulation model is that it can be easily adapted to different aspects of planning and budgeting. In the case of budgeting, the model can be used to (1) set actionable financial goals that are specific and challenging, so that people can work toward definitive outcomes; (2) create budgets to work with, so that it is less easy to deviate from goals; (3) regularly post transactions to ensure that “depletion” of the account will restrict impulse purchases; and (4) adjust future actions based on feedback from earlier transactions.

We also looked at how different goal strategies affect how people set financial targets for themselves, and how the number of goals can change their mindsets and their ability to achieve their targets. An interesting aspect in all this is the role that technology is playing and will continue to play in the future. Whether it is creating default savings rules, making goals more salient, getting people to compete with their peers, or even just

receiving a reminder to make a payment, technology can make self-regulation easier, which in turn can ensure higher levels of compliance toward goals to which people commit and higher levels of goal achievement.

The use of a self-regulation framework is particularly useful to applied researchers and scientists who are interested in developing interventions to help people better manage their finances. Its utility lies in providing them with specific mechanisms whose effectiveness can be improved through suitable behavioral interventions!

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