THE PSYCHOLOGY OF THINKING ABOUT THE FUTURE

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CHAPTER 7

Fantasy about the Future as Friend and Foe

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"I wish that my SAT scores would finally arrive. My score will definitely be over 1200; I will be in the 80th percentile! I'll get into all my favorite colleges. My parents and I will tour schools, and in the fall my best friend and I will enroll in our favorite one together. Finally, I'll start living my own life, separate from my parents, in college—a dream comes true!"

What will happen to our prospective college student when the actual scores become available online? Will they match up with his expectations? How will he feel, what will he tell his friends, and what will he tell his family? Did the positive thinking help him study hard for the test? Will they help him enjoy the feeling of accomplishment if his scores are high, and attenuate the negative feelings if his scores are low? Or will the opposite happen—did his positive fantasies about the future hamper his efforts to study? And will they detract from his joy in the case of good news and heighten the negative feelings if the news is dire?

In the present chapter, we attempt to answer these questions for our hypothetical student, investigating the role of positive future fantasies in situations in which we need only to wait (e.g., for our SAT scores), as well as in situations in which we must take action to achieve our goals. As pleasant as they feel in the moment, positive fantasies can be a substantial handicap when it comes to realizing these fantasies in actuality. Such flights of fancy bring up feelings of accomplishment that mimic the real thing, in turn prompting feelings of relaxation and sapping the energy needed to achieve the fantasies in the first place. Why, then, are humans so prone to fantasizing about the future, if doing so in fact reduces the chances of achieving our fantasies, as well as harming our future well-being? In an attempt to answer this question, we must look at the roots of positive fantasies. Our dreams about the future stem largely from our needs—whether physiological or psychological.

Turning to Fantasy Realization Theory, we then describe a self-regulation strategy and its underlying mechanisms and processes, which, when put into practice, has been found to counterbalance the energy-sucking effect of positive fantasies and translate them into action. The primary facet of this strategy is called *mental contrasting,* which juxtaposes future fantasies with thoughts about the real, current obstacles in their way, in such a fashion that highlights the direction in which to act and at the same time energizes people to take the steps needed to fulfill their fantasies. The technique of mental contrasting has been found to affect behavior change in various life domains (e.g., achievement, health, interpersonal relations). We discuss the theoretical basis for and research behind mental contrasting, as well as the nonconscious mechanisms mediating its effects. A large body of research has accumulated showing that mental contrasting, with and without the supplemental strategy of if–then plans (also known as implementation intentions) has substantial short-term and long-term effects, helping people gain insight into their lives and constructively shape their long-term development without outside guidance from coaches and counselors, drawing only from what is within themselves.

Positive Fantasies about the Future

Positive fantasies about the future are defined as thoughts and images arising in the mind's eye depicting desired future events (Oettingen & Mayer, 2002; Oettingen, 2012). They are different from beliefs and expectations, as clearly articulated by William James (1890/1950): "Everyone knows the difference between imagining a thing and believing in its existence, between supposing a proposition and acquiescing in its truth" (p. 283). James's distinction between believing and imagining pertained to events of the past or the present. Following his reasoning, Oettingen and Mayer (2002) have differentiated between two kinds of thinking about the future: beliefs (expectancy judgments) that assess the likelihood of an event's occurrence and images (fantasies) that portray future events themselves as they appear in the mind. Positive expectancy judgments are beliefs that a desired event is likely to occur or an undesired event will not occur. Positive fantasies about the future, in contrast, are mental images of desired future events occurring or of undesired events not occurring. Positive fantasies differ from what Lewin (1926) and Mahler (1933) called *Zauberdenken* (i.e., thoughts depicting actions and events that violate known natural laws). Under this distinction, a positive future fantasy would not include the ability to fly or have other supernatural powers, for example. They are ultimately grounded in what is generally possible and, instead, more closely resemble what Klinger (1971, 1978) named "daydreams," that is, thoughts pertaining to immediate or longer range desires, including activities instrumental to attaining that desired future (Oettingen & Mayer, 2002).

The first type of future-oriented thinking, beliefs in the form of expectations or judgments of future probability, can be further separated into several different categories: self-efficacy expectations (beliefs or judgments that one will be able to perform a certain behavior leading to a desired outcome; Bandura 1977), outcome expectations (that a certain behavior will lead to the desired outcome; Bandura, 1977), general expectations (that a certain outcome will be achieved; Oettingen &

Mayer, 2002), and generalized optimism (the belief that one's own future will be positive; Scheier & Carver; 1985; Carver & Scheier, Chapter 11, this volume). Each kind of positive expectation about the future has been found to predict high effort and success in attaining future goals across a wide variety of life domains (e.g., Maddux & Kleiman, Chapter 9, this volume; Schunk & DiBenedetto, Chapter 8, this volume). Positive expectations have also been linked to greater well-being (Carver & Scheier, Chapter 11, this volume). The reason for this predictive relationship is that people calculate their expectations about the future based greatly on their past experiences. A student who has passed a difficult exam, for example, is likely to expect that she or he can pass similar exams in the future as well.

In contrast to positive expectations, the second type of future-oriented thinking, fantasies, are detached from an individual's past experiences (Oettingen & Mayer, 2002). An aspiring musician may, for example, vividly dream about giving an excellent performance in front of a packed audience despite never having done so before.

Positive fantasies about the future also differ from goals and plans, which involve a commitment or intention to act or behave in a way that moves one toward attainment of one's desired future state (Gollwitzer, 1999; Ajzen & Fishbein, 1969; Klinger, 1975; Locke, Shaw, Saari, & Latham, 1981). For goals and plans to emerge, people must judge an envisioned future to be attainable or avoidable (Atkinson, 1957; Gollwitzer, 1990; Kruglanski et al., 2015). The formation of goals and plans greatly fosters effort, increasing the likelihood of successfully attaining those goals (Gollwitzer, 1999; A. Kappes & Oettingen, 2014), benefiting people's well-being (Emmons, 1996). In contrast, positive fantasies do not involve a commitment or intention to act or behave in a certain way. They also do not necessarily require a judgment that the imagined future is attainable.

Thus defined, positive future fantasies resemble other terms in other chapters of this volume and elsewhere, including episodic future thinking (Atance, Chapter 4, this volume), mental simulations of future events (Szpunar & Schacter, Chapter 3, this volume; Taylor, Pham, Rivkin, & Armor, 1998), mind-wandering into the future (task-unrelated thoughts; Smallwood & Schooler, 2006), and prospection (Gilbert & Wilson, 2007), in that they all describe vivid, detailed depictions of personally relevant future events in one's conscious stream of thought. Positive future fantasies differ from these concepts, however, in that they exclusively depict the future in a positive and idealized way.

Positive Future Fantasies and Emotion

Waiting for Good News: Happy Now, Disappointed Later

When required to wait for an important unknown outcome, positive thoughts and images make people feel worse in the case of unfortunate news and less happy if the news is good. Indeed, in a recent study, law students who displayed more positive emotions and foresaw a better outcome while awaiting their results on the bar exam experienced greater denial and were more devastated when they later found out they had failed. They were also less happy when they received good news. If the news was bad, the students were also less ready to remedy their low scores—another way positive fantasies can be harmful (Sweeny, Reynolds, Falkenstein, Andrews, & Dooley,

2016). In a study of elderly adults, those who envisioned their future selves as more happy than their present selves similarly reported being less happy when assessed later on, potentially because they did not consider the inevitable uncomfortable realities of aging and were thus unprepared and consequently more disappointed when they hit (Cheng, Fung, & Chan, 2009). Another study of elderly adults likewise found a predictive relationship between foreseeing future happiness and worse health and lowered longevity in the future (Lang, Weiss, Gerstorf, & Wagner, 2013).

Even when positive fantasies reference a future that does not affect one's own life and are not influenced by one's actions, they still predict more disappointment later on. In a study of soccer fans, for instance, when participants positively fantasized about their favorite team winning the next game, they were more disappointed when the team lost than fans who entertained thoughts of a possible defeat. When participants' favorite team won, those fans who had positively fantasized and those who allowed for negative fantasies showed no difference in their levels of happiness or relief (Wagner, Sevincer, & Oettingen, 2017).

It therefore makes sense that, when required to wait for an important but unknown outcome (e.g., awaiting the answer to a job interview), people consciously desire to cultivate ambivalence (having both positive and negative thoughts and feelings toward the same event or outcome). Strategically generating ambivalence over future outcomes rather than swinging into sheerly positive or sheerly negative thoughts is a way to protect ourselves from suffering ill emotions in case of failure (Reich & Wheeler, 2016). Ambivalence as a strategic protection is particularly pronounced when uncertainty is high. In the case of the law students in the study by Sweeny and colleagues (2016), attenuating purely positive thoughts about the future and increasing thoughts of ambivalence, though uncomfortable in the moment, may have resulted in less painful emotions when the hoped-for future failed to materialize.

Why do positive fantasies about the future predict high disappointment and little remedial action when the eventual outcome is revealed to be negative? Primarily because such exclusively positive thoughts and images lull us into a false sense of security. We mentally experience the future success, even if not yet achieved, much the same way as the success itself. But while doing so eases the agony of the uncertain present and relieves us of having to contemplate potential defeat, when defeat then occurs, people may be even more devastated and respond with disbelief and denial instead of taking the necessary steps to remedy the situation. This assessment is backed up by previous research showing that people often brace themselves to prevent from being taken aback by unforeseen failure (Sweeny, Carroll, & Shepperd, 2006; Shepperd, Falkenstein, & Sweeny, Chapter 12, this volume). The pain associated with waiting pays off once the news arrives, whether negative or positive, either through lowering disappointment or heightening relief, respectively.

Waiting for Better Times: Pleasure Now, Depression Later

Positive fantasies about the future not only result in negative emotions in the moment when the outcome is eventually revealed but also predict harm in overall mental health. In recent studies, the more positive people's fantasies were, the less depressed they were in that moment, but the more depressed they became over

time (Oettingen, Mayer, & Portnow, 2016). These predictive relations, which held for up to 7 months, have been found in adults and in children, measured both through semiprojective methods, in which researchers prompt study participants to imagine the future after being given the first lines of a scene, and through diary methods, in which participants must pause throughout the day when beeped and record their spontaneous thoughts and images of the future and their valence. The results also suggest that positive fantasies about the future relate to low mental health by predicting lower effort and, therefore, lower success, which in turn predicted greater depressive affect.

So far, we have focused on consequences of positive fantasies about the future, both emotional and behavioral, in situations in which people had to wait for something largely or entirely out of their control such as waiting for results of an exam (after having taken the test), waiting to get older, waiting for the final score of a soccer game, or waiting to hear back from a potential employer after a job interview. It is clear that in such situations that are out of one's control, positive thinking comes at a cost. Although pleasant in the moment, when negative feedback or an undesirable outcome hits, positive fantasies result in heightened negative affect and less engagement in efforts to remedy the situation.

Positive Future Fantasies and Action

Are positive fantasies about the future similarly detrimental when it comes to situations in which one's actions can influence the outcome? The power of positive thinking is a popular topic in the self-help literature, a large body of which asserts that positive thinking alone is predictive of success in any situation (Byrne, 2006; Galvan, 2012). This potent message has permeated society: Wishing, willing, and doing are seen as intrinsically linked, with positive visualization inciting us to action, ultimately solving our concerns and fulfilling our deepest fantasies (Carnegie, 1948/1984).

Despite what popular culture tells us, a multitude of studies shows that positive thinking alone is detrimental in terms of what action we take (or do not take), as well as how we cope with negative feedback. In a study of women enrolled in a weight-reduction program, for example, Oettingen and Wadden (1991) found that the more positive the participants' fantasies of success were, the less weight they lost when assessed 3 months and 1 year later. In fact, participants with the most highly positive fantasies—those who pictured themselves looking ideally slim and beautiful, or who dreamed about easily resisting temptation—lost 24 pounds less than those who also allowed negative images to surface. The researchers used a semiprojective method to measure the level of positivity of the women's fantasies, asking participants to complete short stories that could turn out either negatively or positively. After filling in the story with their projections about the future, participants then estimated how positive or negative their projections made them feel. Importantly, participants' positive expectations of weight loss based on past dieting experience predicted more success in losing weight, speaking to the distinction between positive fantasies and expectations and their different relationships with the future. Other studies of health have produced similar results, such as one finding that the more positively hip replacement surgery patients fantasized about a swift recovery, the less well they were able to move their new joints, the fewer stairs

they could walk, and the less well their general recoveries went as judged by the physical therapists (Oettingen & Mayer, 2002).

Findings about the deleterious predictive relation of positive fantasies and health outcomes extend to the realm of academics. In one study, the more positively college students fantasized about getting a good grade on an exam, as measured via a semiprojective method, the worse they actually performed (Oettingen & Mayer, 2002). It's not just college students, either. In another set of studies, participants included a group of ethnically diverse, economically disadvantaged women enrolled in a business skills program at a vocational school in New York City, displayed similar patterns of behavior (H. B. Kappes, Oettingen, & Mayer, 2012). Expectations of success and achievement fantasies were assessed via an adapted version of the semiprojective method used in the earlier study of college students (Oettingen & Mayer, 2002). Participants were provided with the beginning lines of four scenarios and asked to imagine themselves in these situations. One scenario, for instance, read: "You took your first test as a Business Skills Program student, and your teacher graded them last night. Now you're sitting in class, the teacher walks in and starts to hand the tests back. She puts your test in front of you . . ." Participants wrote down all the thoughts and images that sprang to mind and answered questions gaging the general positivity of their responses. Fantasies and expectations predicted grade-point average (GPA) and attendance, albeit in opposite directions. That is, positive fantasies predicted a lower GPA and more days absent, whereas positive expectations predicted a higher GPA and fewer days absent. Attendance significantly mediated GPA, such that women who missed more days of class also received a worse GPA. Two further studies teased apart these results, involving similar samples of students enrolled in vocational education programs. In these studies, students' expectations were "empty"—that is, students had just entered the program and had no experience on which to base their expectations about how well they might do. Unlike in the first study, expectations predicted performance only when participants were able to look back at relevant past performance. Positive fantasies, free thoughts and images independent of one's past experiences, in contrast, were a predictor of low effort and success across all three studies.

Unsurprisingly, the effects of positive fantasies in health and academic contexts also seem to apply to interpersonal relationships. In a study involving students with crushes on another student, Oettingen and Mayer (2002) found that the more positively students fantasized about getting together with the person of their desire, the less likely they were to actually start a romantic relationship with that person. In the professional sphere, university graduates who fantasized about an easy transition into work life earned less money and received fewer job offers 2 years later. Tellingly, the more positive their fantasies, the fewer job applications they had sent out, suggesting that positive future fantasies lead to low success via reduced effort.

Perhaps most interestingly, the observed effects of positive future fantasies appear to play out not just in individuals, but also on a societal level. A content analysis study revealed that high concentrations of positive fantasies about the future contained in presidential addresses and newspaper articles strongly predicted later economic downturn, as indicated by decreases in the gross domestic product, employment rate, and the Dow Jones Industrial Average (Sevincer, Wagner, Kalvelage, & Oettingen, 2014).

Mechanisms

How could this be? Why are positive fantasies detrimental to future actions and outcomes, despite being so pleasant and comforting in the moment? Reframing the question may reveal the answer. That is, are positive fantasies a barrier to action precisely because they are so pleasant and comforting? Indeed, this appears to be the case: Positively fantasizing about a desired future may make people feel accomplished temporarily, the fantasy coming replete with all the emotional, cognitive, and behavioral consequences of achievement in one's mind. The premature experience of success diminishes the drive to translate fantasy into reality through action.

MENTAL ATTAINMENT

The energy-sapping effects of positive future fantasies are not necessarily always a problem. In two experiments (Sciarappo, Norton, Oettingen, & Gollwitzer, 2015), college students were instructed to fantasize positively about a hypothetical scenario: being rewarded with a large sum of money. In the two control groups, participants either did not receive any fantasy inductions or were instructed to question whether receiving the money would in fact be so pleasurable after all. Afterward, the students had to choose between receiving a small sum of money right away versus a larger sum later on. Students in the positive fantasy group volunteered to wait for the larger sum more happily than students in both control groups. The results suggest that positive fantasies made students more patient and able to wait for their wished-for future. This is likely because they had already attained their wish, if only in their minds, and thus acted as if they had already received a large sum of money. Indeed, this appeared to be the case when researchers measured nonconscious affect as an indicator of mental attainment (H. B. Kappes, A. Kappes, & Oettingen, 2015).

RELAXATION

Positive fantasies about the future are relaxing. Unfortunately for daydreamers, however, relaxation is not conducive to fulfilling one's fantasies and aspirations (Brehm & Self, 1989; Oettingen, 2012). In a study attempting to determine whether positive fantasies indeed lower people's energy, researchers induced two groups of women to generate either positive or questioning fantasies about how cool it would be to wear exciting high-heeled shoes (H. B. Kappes & Oettingen, 2011). Participants in the positive fantasy group were subsequently less energized physically, as measured by their systolic blood pressure (SBP; Wright, 1996) than those in the questioning condition. These findings showing direct physiological effects of positive fantasies were bolstered by two further experiments measuring energy subjectively via questionnaires.

CHALLENGE

When wish fulfillment is easy (e.g., people living in a large city choosing to dine at an Italian rather than a French restaurant), it doesn't take much investment of

time and energy to fulfill one's fantasies. People can follow their whims, guiding them in the moment (i.e., ideo-motor action; James, 1890/1950). When wishes are complex and harder to realize, however, positive fantasies become a problem due to their energy-sapping effects. In support of this hypothesis, H. B. Kappes, Sharma, and Oettingen (2013) found that positive fantasies did not influence people's charitable behavior when giving was easy (low resources were requested) but did when giving was hard (high resources were requested). When giving was hard, requiring substantial resources, positive fantasies (vs. control thoughts) caused participants to interpret the request as overly demanding, making college students more stingy, whether the donation was one of time, energy, or money. No such response was observed when giving was easy and few resources were requested.

Origins of Positive Future Fantasies

Positive expectations are based on people's past experiences (Bandura, 1977; Oettingen & Mayer, 2002; H. B. Kappes, Oettingen, & Mayer, 2012). Where do positive fantasies come from then? H. B. Kappes, Schwörer, and Oettingen (2012) reasoned that the function of positive fantasies is to fulfill deficient states when these deficiencies cannot be easily reached or remedied. That fantasy in general stems from a state of deficiency or deprivation, which triggers behavior to remedy the deprivation, has long been established (Hull, 1943; McClelland, 1985). Thus one might argue that one function of positive future fantasies is to end a state of deprivation by satisfying a need. If positive fantasies are about fulfilling needs, then instilling a state of deficiency, and along with it the concordant need to fill that deficiency, should induce positive fantasies revolving around filling the deficiency and eliminating the need.

Under that premise, H. B. Kappes, Schwörer, and Oettingen (2012) set out to test the idea that positive future fantasy arises out of deficiency or need. The researchers induced thirst by offering student participants dry salty crackers to eat under the guise of participating in a taste test. Half of the participants were kept thirsty; the other half were allowed to satisfy their need by drinking water. All participants were then asked to fantasize about the ending of a relevant scenario about drinking water, as well as about the ending of an irrelevant control scenario about giving advice to a friend. Semiprojective measures were used. Results showed that in the thirst condition versus the no-thirst condition, in which participants had access to plenty of water, participants fantasized more positively about quenching their thirst in their responses to the relevant scenario. In the irrelevant scenario, the positivity of the fantasies did not differ between conditions.

This pattern has also been found for psychological needs, including the desire for meaning in life, relatedness, and power. People with a stronger need generated more positive fantasies about the future in response to relevant scenarios than participants with weakly felt needs, regardless of what need was assessed. Content analyses of participants' responses also supported Oettingen and Mayer's (2002) contention that the self-reported positivity of generated fantasies closely relates to the degree to which people idealize the content of those fantasies (H. B. Kappes, Schwörer, & Oettingen, 2012).

Positive fantasies thus appear to keep people "in the field" (Lewin, 1926) when a need cannot be satisfied at the present moment. This supposition was further

supported by Oettingen and Mayer (2002), who found that students who indulged in positive fantasies about getting together with their "crush" were more likely to passively wait until the crush discovered them rather than actively approach the adored persons; that way, they silently nourished their positive fantasies instead of getting involved and risking a definite, potentially negative answer in which their love is not reciprocated. Positive fantasies are seductive. But like temptresses of myth, they sap the hero's energy and waylay him on the path to his desire.

Positive Future Fantasies: Summary

The difference in the effects of positive thinking about the future in terms of positive expectations versus positive fantasies can be illustrated by their different origins: Whereas expectations are based on a person's performance history, the roots of fantasies lie in a person's needs, stemming from states of deficiency. Although such fantasies can ward off depressive symptoms in the short term, sustained over time they can lead to low energy and effort, rendering them a risk factor for depression in the long term, as people withdraw from the world and retreat entirely into fantasy. This state of cycling into extended fantasy and depression is not inevitable or irreversible, however. Positive fantasies can even become a protective factor against depression in the long run, when supplemented with a healthy dose of reality.

Mental Contrasting of Positive Future Fantasies

Mental Contrasting: Principle

Ironically, positive fantasies sap the energy needed to fulfill them. But fantasies aren't entirely worthless: They give us something to strive for and provide direction for our actions. We wanted to find a strategy that allows people to harness their fantasies and that, instead of sapping their willpower, fosters the energy needed to bring those fantasies to life. Fantasy Realization Theory (FRT; Oettingen, 1997, 2000, 2012) proposes mental contrasting as such a strategy. Mental contrasting triggers active goal pursuit by juxtaposing positive future fantasies with potential obstacles of present reality. When positive fantasies are mentally contrasted with current obstacles in this way, instead of producing feelings of relaxation, they trigger the energy needed to overcome the identified obstacles standing in the way of the desired future, increasing their likelihood of attainment. When an obstacle can potentially be overcome, people become energized and put in the effort needed to fulfill their wishes. When an obstacle cannot be overcome, people have different options: They can attenuate their wish, delegate actions to others or to a more opportune time, or let go of the fantasy and refocus their efforts elsewhere. All of these options help people to invest their energy in more promising endeavors in light of insurmountable odds.

Mental contrasting involves three steps: (1) defining an important wish; (2) engaging in the fantasy by specifying and imagining the best possible outcome, and (3) identifying a central inner obstacle standing in the way of that outcome and imagining that obstacle. For example, a person might identify a wish to jog

vigorously 7 days a week. After completing that first step of wish identification, second she would imagine herself fulfilling that scenario and the great feelings of fitness that come with it. Third, she would identify and imagine her tiredness after work as her own personal obstacle. If she perceives her after-work tiredness as surmountable, she will stick to the exercise schedule she set for herself; if she perceives it as insurmountable, she can modify her wish (e.g., "exercise over the weekend when I am less tired"), tackle it at a later time (e.g., "when I have finished my paper"), or let go of that particular wish and redirect her efforts (e.g., switching to yoga at home). She can also attempt to circumvent the obstacle entirely by preventing it from occurring (e.g., "I will refrain from watching shows at night to get to bed in time"). Mental contrasting thus supports individuals in prioritizing their pursuits, helping them pursue wishes that are desirable and feasible and tackle the obstacles in their way, and adjust or let go of those wishes that are less desirable, have too many costs, or are simply unrealizable.

Three Further Modes of Thought

Despite its utility, the vast majority of people do not use mental contrasting as their predominant mode of thought in daily life (Sevincer & Oettingen, 2013). FRT describes three other, less desirable modes of thought: reverse contrasting, indulging in future fantasies, and dwelling on present obstacles. Reverse contrasting, as the name implies, means the opposite of mental contrasting; that is, imagining reality and its attendant obstacles first, then fantasizing about the desired future. Switching the order of imagined scenarios fails to anchor positive fantasies with the subsequent images of reality and prevents people from accurately recognizing the obstacles in the way of their dreams. This mode of thought, therefore, does not lead to behavior change, even though the content is the same as in mental constrasting. Indulging in fantasies and dwelling on obstacles also predictably do not lead to behavior change, as indulging ignores the obstacles that energize the person, whereas dwelling ignores the positive fantasies that provide the direction to act.

Mental Contrasting and Behavior Change

Achievement, Health, and Interpersonal Relations

Studies have shown that mental contrasting fosters behavior change across life domains, including academic and professional achievement, health, interpersonal relationships, and physical and mental well-being. Mental contrasting has been used as a highly effective strategy enabling students to learn a foreign language (Oettingen, Hönig, & Gollwitzer, 2000; A. Gollwitzer, Oettingen, Kirby, Duckworth, & Mayer, 2011), to improve in math (Oettingen et al., 2001), to study abroad (Oettingen et al., 2001), and to enroll in vocational training (Oettingen, Mayer, Thorpe, Janetzke, & Lorenz, 2005). Mental contrasting also heightened the odds of finding integrative (win–win) solutions (Kirk, Oettingen, & Gollwitzer, 2011), and successful decision making in everyday life (Oettingen, Mayer, & Brinkmann, 2010). In the domain of health, mental contrasting has helped students take steps toward

reducing or stopping smoking (Oettingen, Mayer, & Thorpe, 2010), increased physical exercise in overweight men of low socioeconomic status (SES; Sheeran, Harris, Vaughan, Oettingen, & Gollwitzer, 2013), and helped patients with Type 2 diabetes cope with daily life (Adriaanse, de Ridder, & Voorneman, 2013). In the social realm, mental contrasting has been found to foster interpersonal relations and lead to effective conciliation (Oettingen et al., 2001; Schrage, Schwörer, & Oettingen, 2017). It facilitated getting to know an attractive stranger, heightened tolerance, and taking responsibility for members of an outgroup (Oettingen et al., 2005). In addition, it promoted help seeking in college students and help giving in emergency care nurses (Oettingen, Stephens, Mayer, & Brinkmann, 2010).

Mechanisms

Mental contrasting is a conscious imagery strategy that affects nonconscious cognitive processes, motivation, and responses to feedback. By instigating these processes, mental contrasting fosters behavior change outside of conscious awareness, sidestepping the difficult task of conscious self-regulation.

NONCONSCIOUS COGNITION

The success of mental contrasting is undergirded by three cognitive processes taking place outside of awareness, which in turn predict its behavioral effects. First, mental contrasting induces people to interpret reality as an obstacle when the obstacles are perceived as surmountable. Two studies, using a task-switching paradigm (Kiesel et al., 2010), showed that mental contrasting led participants to nonconsciously recategorize their self-generated words of present reality as obstacles, an effect not seen in other thought modes such as reverse contrasting. This recategorization of reality words as obstacles predicted heightened effort and success in participants' attainment of their desires. In a third study, the authors found that mental contrasting of feasible wishes facilitates the discovery of other relevant obstacles on the way (A. Kappes, Wendt, Reinelt, & Oettingen, 2013).

At the same time, mental contrasting strengthens the associative links between the desired future and reality and the obstacles therein, an effect that again manifests in behavior. A. Kappes and Oettingen (2014) asked students to give a video presentation describing the professional and personal attributes they believed made them successful job candidates and were told that human resource experts would later judge the quality of their presentations. Before the students started to present, the researchers instructed them to either mental contrast, reverse contrast, or think about irrelevant content, and then measured their nonconscious associative links via a primed lexical decision task (Neely, 1977). More than the participants in the control groups, those in the mental contrasting condition evinced strong future-reality associative links when they saw their obstacles as surmountable and weak links when they saw their obstacles as insurmountable. Importantly, the strength of these nonconscious associative links predicted the quality of participants' performances in their presentations.

In another study, A. Kappes and Oettingen (2014) induced in participants a wish to excel on an upcoming creativity test, after which half received positive feedback and the other half received negative feedback. All participants engaged in mental contrasting. In participants who received positive feedback, mental contrasting lost its energizing power, and the participants no longer showed the strong implicit associative links because the wish had been fulfilled. The results are in line with past studies showing that when people are under the impression that they have achieved their desires, they stop striving (Masicampo & Baumeister, 2011; McCulloch, Fitzsimons, Chua, & Albarracin, 2011).

Finally, mental contrasting strengthens the associative link between one's obstacle and the behavior instrumental to overcoming that obstacle. This linkage between the obstacle and the behavior related to overcoming it predicted increased fantasy-directed action. A. Kappes, Singmann, and Oettingen (2012) showed that, when obstacles were seen as surmountable, mental contrasting facilitated a strong associative link between obstacle and action. When obstacles were seen as insurmountable, mental contrasting weakened the associative link. The mental link between obstacle and action induced by mental contrasting manifested behaviorally in action and successful performance—in this particular study, by participants' choosing to use stairs instead of the elevator to fulfill their wish of becoming fitter.

NONCONSCIOUS ENERGY

Alone, positive future fantasies engender relaxation and low energy (H. B. Kappes & Oettingen, 2011). After employing mental contrasting, the level of subsequent energization depends on the obstacle and whether it is surmountable or not; that is, whether expectations of success are high or low (Oettingen et al., 2009). Energization level, as measured by SBP (Wright, 1996) and by subjective reports of energy, mediated the effects of mental contrasting on efforts for wish fulfillment. A series of other experimental studies measuring SBP supported the described pattern of results (Sevincer, Busatta, & Oettingen, 2014; Sevincer & Oettingen, 2015).

COPING WITH SETBACKS

Dealing with setbacks in a way that fosters resilience is pivotal to leading a happy and constructive life (Nussbaum & Dweck, 2008; Dweck & Yeager, Chapter 18, this volume). However, people often interpret setbacks as failure and resist processing the important information contained in negative feedback. Mental contrasting helps people to constructively deal with setbacks in two ways: It fosters the processing of information contained in setbacks, and it protects against a loss of subjective competence.

When university students participating in a study saw obstacles as surmountable (high expectations of success), students who engaged in mental contrasting readily processed the valuable information inherent in negative feedback after encountering a setback and used the information learned to calibrate and reform plans to help them reach their desire (A. Kappes, Oettingen, & Pak, 2012). Students' subjective sense of competence was also sustained. In contrast, when students viewed

obstacles as insurmountable, they distanced themselves from negative feedback, and their sense of competence diminished, freeing them up to engage in more promising endeavors. No such effects were observed in the control groups of students who engaged in other relevant modes of thinking about the future, such as indulging in fantasies and dwelling on obstacles. Positive feedback was not found to have any effect across conditions, on either information processing or subjective confidence level.

Mental Contrasting of Negative Future Fantasies

So far, we have almost exclusively dealt with positive fantasies about the future, reporting studies showing that mentally contrasting positive future fantasies with potential obstacles of present reality helps promote effort and success in a variety of life domains. Frequently, however, people also harbor negative fantasies about futures they fear. Sometimes these fears may be justified, whereas other fears may be unjustified. Studies have shown that mental contrasting can be applied to affect behavior change also in the case of such negative fantasies, helping people overcome both justified and unjustified fears. In a study of people whose fears were justified—in this case, regular smokers afraid of dying from lung cancer—mentally contrasting negative visions of the future with positive aspects of reality helped them confront that fear and resulted in more immediate efforts to stop smoking (Oettingen, Mayer, & Thorpe, 2010). In a study of people with the unjustified fear of losing job opportunities to immigrants, mentally contrasting enabled them to lose that fear, leading to more tolerance and willingness to integrate with immigrants (Oettingen et al., 2005).

Spontaneous Mental Contrasting

To measure whether people spontaneously use mental contrasting when thinking about the future, Sevincer and Oettingen (2013) asked participants to freely think about an important personal wish and to write down their thoughts and images. Using content analysis, participants who wrote about the desired future followed by the present reality were classified as mentally contrasting, those who wrote about the future only as indulging, those who wrote about the present reality only as dwelling, and those who wrote about the reality followed by the future as reverse contrasting. Just as participants who were instructed to mentally contrast, those who engaged in mental contrasting spontaneously scored higher on selective goal pursuit as measured by self-reported commitment and observed performance. In line with prior research showing that people tend to think positively about the future (Shepperd, Falkenstein, & Sweeny, Chapter 12, this volume), indulging in fantasies was the predominant mode of thought, and only a minority of participants (10–20%) used mental contrasting spontaneously.

The variation in spontaneous thought mode depends on a combination of situational and person variables. Situational variables include cognitive fatigue (Muraven & Baumeister, 2000), which, studies have shown, decreases the likelihood of mental contrasting (Sevincer, Schlier, & Oettingen, 2015), potentially because

of the tactic's high cognitive demands (Achtziger, Fehr, Oettingen, Gollwitzer, & Rockstroh, 2009). Mood has also been shown to affect the likelihood of spontaneous mental contrasting. H. B. Kappes, Oettingen, Mayer, and Maglio (2011) hypothesized that because sad mood indicates the presence of a problem (Schwarz & Bless, 1991), and because mental contrasting has been found to be an effective problem-solving strategy, participants in a sad (vs. happy and neutral) mood should be more likely to mentally contrast, which was borne out in the study results.

Mental contrasting has been associated with specific person attributes relating to how people think about and consider the future. For example, people who view the future as something that can be changed and improved (those with an incremental vs. entity theory; Dweck, 1999) were more likely to use mental contrasting (and indulging; Sevincer, Kluge, & Oettingen, 2014). In addition, people who are well self-regulated in their academic pursuits and in everyday life in general, as indicated by their high self-reported self-regulation skills, above-average school grades, high need for achievement, and high need for cognition, have been found to be more likely to engage in mental contrasting (Sevincer, Mehl, & Oettingen, in press). Taken together, the findings suggest that people who see the future as malleable and worthwhile and those who are well self-regulated use mental contrasting, which likely has a reciprocal effect, in turn allowing them to attain their goals and master their everyday lives.

Mental Contrasting as an Intervention

The evidence thus far presented has established mental contrasting as a promising intervention that can translate to realizing wishes of any kind. When applied as a metacognitive strategy, that is, one inducing people to think about their own thoughts (Flavell, 1979), mental contrasting (vs. indulging) has been shown to foster effective and easy decision making that experimental participants have brought back to improve their everyday lives. In a study involving middle managers, followed up after being taught the strategy, managers in the mental contrasting group described their daily lives as easier when it came to making their decisions, managing their time, completing some tasks, and delegating or letting go of others (Oettingen, Mayer, & Brinkmann, 2010). In another study, researchers instructed student participants in mental contrasting (vs. indulging, dwelling, or no instructions) before having them play a game (borrowed from behavioral economics) involving negotiating the selling and buying of a car. Participants who engaged in mental contrasting found more win–win solutions as a team and treated their negotiation partners more fairly (Kirk et al., 2011). Other studies involve behavior change in health (e.g., Sheeran et al., 2013; Adriaanse et al., 2013) and education (e.g., A. Gollwitzer et al., 2011; see Oettingen, 2012, 2014, for summaries).

Most of the intervention research discussed thus far has involved mental contrasting of a variety of wishes, those possible to fulfill and those that involved insurmountable obstacles. By mental contrasting, people figured out which wishes were desirable and feasible and thus which to pursue and which ones to let go. Sometimes, however, there are few opportunities for wish fulfillment but also no alternative options. For example, a person might be asked to change his or her

health habits for medical reasons, a schoolchild needs to learn basic math, or a family member needs to take care of his or her relative. In such cases, in which disengagement is not possible or advisable, the only option is to forge ahead with the task. Intervention strategies should aim to teach people to find a wish that is feasible and an obstacle that is surmountable, fostering pursuit of rather than letting go of their desired futures. Thus the first step in teaching people to mentally contrast in the real world is to select those wishes that are feasible, but still challenging.

Establishing High Expectations of Success

High expectations of success are found in feasible wishes and surmountable obstacles. Because expectations of success are grounded in past performance, they should be easily movable in domains in which people do not have much prior experience (Bandura, 1977; H. B. Kappes, Oettingen, & Mayer, 2012). In two experiments, Oettingen, Marquardt, and Gollwitzer (2012) told students that their creative potential was either high or moderate prior to the participants' taking a creativity test that they had been primed to want to do well on. After they were told their (bogus) potential but before taking the test, students were randomly assigned to a mental contrasting, indulging, or dwelling group. Students in the mental contrasting group who were told that they had high creative potential and thus had high expectations of success performed more creatively on the test compared with students told they had moderate potential. Students in the mental contrasting condition also scored as more creative compared with those in the indulging, dwelling, and content control conditions, irrespective of whether they were told their creative potential was high or moderate.

In a group context, high expectations of success can be instilled if participants are given tasks solvable by all members of the group. A. Gollwitzer et al. (2011) employed this premise with second and third graders at a German elementary school from low-income families to help them learn English. Students were given a list of English words and asked to learn them over the next 2 weeks, when there would be a short quiz with prizes. The children were then taught how to mentally contrast or to merely think positively about excelling in the quiz. Mental contrasting (vs. indulging) led to better performance on the language quiz.

Another strategy for eliciting high expectations of success is instructing people to identify not just any important wish, but an important wish that they can fulfill. That way people will be able to generate only an internal personal obstacle that is controllable. In a study of students who wished to eat more healthily, for instance, students were instructed to mentally contrast an attainable but challenging wish related to dietary changes and a specific obstacle within their control—such as the urge to eat chocolate cake rather than an uncontrollable obstacle such as the presence of cake at a friend's birthday party. In this way mental contrasting cuts through excuses. In this particular study, participants in the mental contrasting group ate fewer calories and exercised more than those in the control groups. The effects of the mental contrasting intervention focusing on diet spontaneously transferred to exercising behavior (Johannessen, Oettingen, & Mayer, 2012).

Mental Contrasting: Summary

In mental contrasting, combining positive future fantasies with images of the obstacles standing in the way of realizing the future triggers nonconscious cognitive and motivational processes, as well as response to negative feedback, which then predicts prioritization and sustained behavior change (see Oettingen, 2012, 2014, for summaries). People rarely engage in mental contrasting spontaneously. Instead, they use other, one-sided modes of thought and especially prefer to indulge in positive fantasies about the future. Mental contrasting interventions have been shown to improve people's time management and to help them deal better and more effectively with chronic illnesses, achieve higher academic and professional success, and increase commitment to romantic relationships.

Mental Contrasting with Implementation Intentions

Sometimes people have obstacles that are surmountable but are particularly hard to deal with (e.g., impulsive behavior, strong emotions, an ingrained habit). Although mental contrasting builds nonconscious associative links between the obstacle and the behavior instrumental to overcoming the obstacle (A. Kappes, Singmann, & Oettingen, 2012), it might be helpful to add a complementary strategy that strengthens this associative link even further.

Implementation intentions, also known as if-then plans, have been found to be such a strategy (Gollwitzer, 1999, 2014; Gollwitzer & Crosby, Chapter 17, this volume), strengthening the association between a specific obstacle and the relevant goal-directed action instrumental to overcoming it. Implementation intentions provide specific instructions to oneself in the form: "If situation *X*, then I will perform goal-directed behavior *Y*!" plans.

Research has shown that implementation intentions effectively foster goal pursuit ($d = 0.65$; meta-analysis by Gollwitzer & Sheeran, 2006). However, there are prerequisites for the strategy to be effective. First, people must be firmly committed to the overarching goal (Sheeran, Webb, & Gollwitzer, 2005). The situation in the *if* part of the construction must also describe a situation relevant to goal pursuit (e.g., an obstacle), and the behavior in the *then* part must support goal attainment. Research thus far has examined the effects of implementation intentions, whereby participants received instruction from researchers who guided them to enter relevant content in the *if* parts and *then* parts of their if-then plans (e.g., Gollwitzer, 2014; Gollwitzer & Sheeran, 2006; Armitage, 2004). But the strategy of implementation intentions should be of even greater importance if it could be implemented by participants independently. To do so, people need to be able to identify the content of the *if* part and the *then* part on their own, and they need to satisfy the necessary conditions on their own. That is where mental contrasting comes in. The strategy, as described earlier in this chapter, instigates determined goal commitment and pursuit. It also helps identify the situation for the *if* part (obstacle) of implementation intentions, as well as helping people identify the instrumental action for the *then* part of the plan (behavior necessary to overcome the obstacle) in promoting visualization of the obstacle. Therefore, mental contrasting was combined with implementation intentions into a strategy called MCII (Oettingen, 2012, 2014; Oettingen & Gollwitzer, 2010).

MCII as an Intervention

To test the additive value of combining mental contrasting with implementation intentions, as opposed to using the strategies by themselves, Kirk, Oettingen, and Gollwitzer (2013) conducted an experiment again using a negotiation game borrowed from behavioral economics to measure success. Students taught how to use MCII generated more integrative or win-win solutions than those who used mental contrasting or implementation intentions alone. Students in the MCII condition also demonstrated more perspective taking and cooperation. In other studies testing the strategy in the health domain, MCII enabled students to get rid of bad snacking habits more effectively than mental contrasting or implementation intentions alone. By creating insight into their wishes, outcomes, and obstacles, mental contrasting prepared people to generate valid if-then plans (Adriaanse et al., 2010).

Studies in diverse groups of participants, using a variety of controls, have repeatedly demonstrated the effectiveness of MCII as an intervention that works across a wide array of life domains. In the domain of fitness, participants who employed MCII engaged in regular physical exercise over a period of 4 months (Stadler, Oettingen, & Gollwitzer, 2009), consumed more fruits and vegetables over a period of 2 years (Stadler, Oettingen, & Gollwitzer, 2010), and ate less red meat over 5 weeks (Loy, Wieber, Gollwitzer, & Oettingen, 2016). MCII also helped increase physical exercise and weight reduction in patients who had had strokes over a period of 1 year (Marquardt, Oettingen, Gollwitzer, Sheeran, & Liepert, in press), and increased physical capacity in patients with chronic back pain over 3 months (Christiansen, Oettingen, Dahme, & Klinger, 2010).

In the academic domain, MCII supported medical residents in studying for their exams and helped them manage their time (Saddawi-Konefka et al., 2017). The same effects in time management and performance were observed in working mothers from low-income backgrounds instructed in MCII, who achieved success in attending vocational education (Oettingen, H. B. Kappes, Guttenberg, & Gollwitzer, 2015). Other studies have shown that the strategy increased the quality and quantity of homework as judged by the parents of children at risk for attention-deficit/hyperactivity disorder (ADHD; Gawrilow, Morgenroth, Schultz, Oettingen, & Gollwitzer, 2013) and that it helped high school students solve practice tasks over summer vacation for an upcoming standardized test (Duckworth, Grant, Loew, Oettingen, & Gollwitzer, 2011). Attendance and course grades improved in middle school children from low-income backgrounds instructed in MCII (Duckworth, Kirby, A. Gollwitzer, & Oettingen, 2013). When applied to the domain of interpersonal relationships, MCII increased commitment to the relationship and decreased insecurity-related behaviors (Houssais, Oettingen, & Mayer, 2013) and helped couples talk about sensitive topics (Oettingen & Cachia, 2016).

MCII: Summary and Dissemination

MCII has shown benefits in both children and adults and across SES and culture. Intervention studies have been conducted face-to-face or online showing benefits, irrespective of which modes of delivery were used. Indeed, two recent studies (Kizilcec & Cohen, 2017) found that MCII delivered as an 8-minute online intervention to

a total of 17,983 people who had enrolled in massive open online courses (MOOC) increased completion rates by 32 and 15%, respectively. Interestingly, these effects were observed in participants of individualist, but not of collectivist, cultures, and only when the obstacle was related to an everyday obligation, but not to uncontrollable obstacles such as lack of time or practical barriers. In participants from individualist cultures who also generated controllable obstacles (everyday obligation), MCII improved the course completion rate by 78%. These findings highlight the most important takeaways for successful adoption of MCII: that the person must wholeheartedly embrace the wish and that the obstacle to overcome must be surmountable. Fulfilling an individualist wish (course completion) in a collectivist culture may present formidable obstacles and even lead to disengagement from the individualist wish rather than engagement because the chosen obstacle must also be something in one's personal control (see Oettingen, 2014). People can deploy MCII in everyday life in four simple steps, taking just a moment of calm and uninterrupted time. Once learned, it can be applied on one's own, without guidance from others, making it a self-sustainable, practical strategy to help people take control of their lives. MCII has been disseminated under the acronym *WOOP,* which stands for *Wish, Outcome, Obstacle, Plan* (for the dissemination of MCII or WOOP, see *www.woopmylife.org* and the WOOP app).

Conclusion

Positive fantasies can be a soothing friend in the moment, but over time and when wish fulfilment is challenging, they can easily turn into a foe by making people feel complacent and sapping the energy needed for fantasy realization. Mentally contrasting positive fantasies with a clear sense of reality can cause the foe to become a friend again, the fantasy revealing the necessary direction for acting toward wish fulfillment, and the anticipated obstacles providing energy instead of sapping it. Returning to our hopeful college student mentioned at the beginning of the chapter, considering his personal, inner obstacles would have balanced out his fantasies and spurred him to action when there was still plenty of opportunity to study and prepare. More preparation would have ensured him the best possible score, with all the beneficial consequences that go along with it, including less disappointment when the results come in.

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