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## 19

### Going Beyond the Motivation Given: Self-Control and Situational Control Over Behavior

*Yaacov Trope and Ayelet Fishbach*

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A basic theme running through much of the social psychological literature is the idea that the immediate situation is a powerful determinant of human behavior. Inspired by Kurt Lewin's (1935) field theory, social psychologists have sought to demonstrate that a wide range of human behavior, socially desirable as well as undesirable, is under the control of immediate situational forces (Asch, 1952; Cartwright, 1959; Milgram, 1963). Indeed, the field of social psychology has been defined as the study of situational determinants of thought, feeling, and action (Ross & Nisbett, 1991). Research on automaticity has provided a new impetus to the study of situational control over behavior (Bargh, 1990, 1994; Bargh & Chartrand, 1999; Wegner & Bargh, 1998). This research suggests that situational cues can govern behavior without being consciously processed and without making a deliberate choice of an appropriate course of action. Situational cues that have been consistently and frequently associated with certain goals acquire the capacity to directly elicit these goals and thus directly control action.

The strong influence an immediate situation can exert over behavior poses a self-control problem when this influence is in conflict with long-term goals (Ainslie, 1992; Loewenstein, 1996; Metcalfe & Mischel, 1999; Mischel, 1974; Mischel, Shoda, & Peake, 1988; Rachlin, 1995, 1996, 1997; Shoda, Mischel, & Peake, 1990). People may want to act according to their long-term goals. They may also have the prerequisite knowledge, skill, and opportunity. Nevertheless, short-term motives, especially those that are automatically triggered by the immediate stimulus situation, may prevent people from pursuing their long-term goals. For example, a student may want to study for an important exam, know how to study for the exam, and possess the required materials. Nevertheless, a television show may be sufficiently tempting to pre-

vent the student from studying for the exam and achieving his long-term academic goals.

Our question in this chapter is how people protect their long-term goals against temporary, situationally elicited motives. We propose that when short-term motives threaten the attainment of long-term goals, people proactively employ counteractive self-control strategies—strategies that are designed to offset the influence of short-term motives on behavior. Counteractive control is often an intentional process of committing to long-term goals and eliminating tempting alternatives. For example, before an exam, a student may deliberately decide to study in the library rather than at home to avoid the temptation to view her favorite television show. Counteractive control may also be an unconscious process. The temptation to watch television may automatically bring to mind thoughts about the student's goal to do well on the exam and associated achievement and self-fulfillment values, which in turn may boost her motivation to study.

This chapter describes a program of research on these counteractive control strategies. We start with a general characterization of the counteractive control process. Next, we describe research on specific counteractive control strategies, what activates them, and how they help overcome immediate temptations. Finally, we describe research bearing on the goal-directedness, flexibility, and implicitness of counteractive self-control.

## Counteractive Self-Control

People face a self-control problem when they perceive a conflict between the short-term and long-term outcomes of an action (Loewenstein, 1996; Mischel, 1974; Mischel, Shoda, & Rodriguez, 1989; Rachlin, 1996). For example, the discomfort that is often associated with dieting, physical exercise, or undergoing a medical test is a price people have to pay to attain their long-term health goals. Similarly, suppressing a desire to retaliate may be necessary to prevent an interpersonal conflict from escalating, and foregoing immediate social and material gains may be necessary for achieving long-term academic aspirations. In general, unfulfilled immediate wishes and desires are the short-term costs of pursuing long-term goals. Short-term costs may thus pose a threat to long-term goals. Counteractive control theory (CCT) posits that self-control efforts serve to overcome such threats. According to this theory, short-term costs affect action via two paths (see figure 19.1). Directly, these costs act to decrease the likelihood of acting according to long-term goals. Indirectly, however, short-term costs elicit counteractive control efforts, which, in turn, act to increase the likelihood of this action. As a result, the actual choice of a preferred action may remain unaffected by its short-term costs.

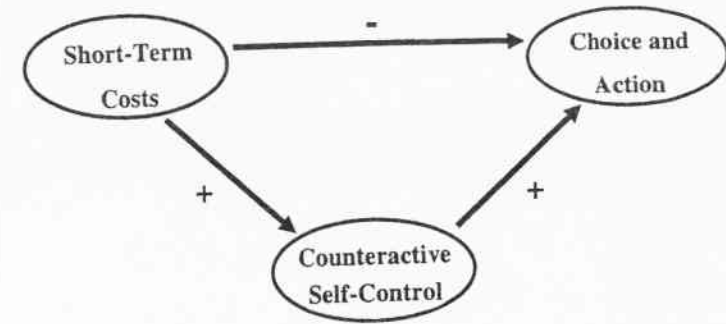


Figure 19.1 The influence of short-term outcomes on choice and action.

For example, the possibility of being tempted to watch television before an exam may lead students to bolster the value of the exam or even impose on themselves various penalties for failing to study for the exam. When uninteresting television shows are expected, the perceived threat to studying will be small, and little or no counteractive control will be exercised. However, when one's favorite television show is expected, the greater threat to studying may elicit more intensive counteractive control efforts. As a result, a student expecting a favorite television show may study as much as a student who does not expect such a show. In itself, the attractiveness of a television show acts to diminish the motivation to study. However, the counteractive control efforts elicited by the anticipated pleasure of watching one's favorite show may prevent this anticipated pleasure from actually affecting the time one devotes to studying.

CCT assumes that people exert counteractive control efforts as means to the end of achieving their long-term goals. Three hypotheses follow from this means-end assumption: First, counteractive control is goal dependent. People will exert more counteractive control when short-term motives threaten important rather than unimportant long-term goals. Furthermore, once a long-term goal is achieved, counteractive control will cease. Second, counteractive control is flexible. Counteractive control will be exercised when it determines whether or not long-term goals will be achieved. Little or no counteractive control will be exerted when short-term motives are weak and thus easy to resist or very strong and thus impossible to resist. Greater counteractive control will be exerted when the strength of short-term motives is at an intermediate level, because at this level counteractive control determines whether long-term goals will be achieved. Third, counteractive control is substitutable. Counteractive control will be exerted when it is necessary for achieving one's long term goals. When other, external means of control are in place, counteractive self-control will cease.

## Counteractive Self-Control Strategies

A wide range of self-control strategies have been proposed in the literature on delay of gratification (Mischel, 1984; Mischel, Cantor, & Feldman, 1996), implementation of intentions (Gollwitzer, 1990, 1999; Gollwitzer & Bayer, 1999; Gollwitzer & Brandstatter, 1997; Kuhl, 1982, 1986; Kuhl & Beckmann, 1985), and control over impulsive behavior (Baumeister, Bratslavsky, Muraven, & Tice, 1998; Baumeister & Heatherton, 1996). We distinguish between strategies that change the choice situation and those that change the subjective meaning of the situation. People may change the choice situation in several ways: They may impose on themselves penalties ("side bets") for failing to act according to their long-term goals (Ainslie, 1975; Becker, 1960). These self-imposed penalties may then serve as external deterrents against failure to pursue long-term goals. For example, one may be willing to pay a relatively large cancellation fee for missing a painful medical test. By itself, the expected pain increases the likelihood of failing to actually take the test and having to pay the cancellation fee. Simple economic considerations (minimizing expected monetary penalties) should therefore lead people to impose on themselves a relatively small fee to the extent that the medical test is more painful. CCT predicts, however, that the more painful a test is expected to be, the higher the cancellation fee people will be willing to pay.

Another way in which people may change future choice situations is by making rewards contingent upon acting according to their long-term interests. Instead of receiving a reward unconditionally, people may prefer to receive it only if they act according to their long-term interests. For example, people may prefer to receive a bonus for actually completing a painful but subjectively important medical test rather than for merely agreeing to do it. By making penalties and rewards contingent on performing an activity, people precommit themselves to the activity (Brickman, 1987). People may precommit themselves more directly by eliminating action alternatives and thus making a decision to act according to their long-term interests irreversible (Ainslie, 1975; Green & Rachlin, 1996; Rachlin & Green, 1972; Schelling, 1978, 1984; Strotz, 1956; Thaler, 1994; Thaler & Shefrin, 1981). For example, people may eliminate opportunities to cancel an appointment for a painful medical test to ensure that they actually take the test.

Other counteractive control strategies change the psychological meaning of future choice situations. People may selectively attend to, encode, and interpret information about future situations so as to bolster the value of long-term goals and discount the aversiveness of short-term costs (Mischel, 1984). The value of long-term goals may be enhanced by linking the attainment of these goals to self-standards. Failure to pursue long-term outcomes is then construed as a violation of one's values and a threat to one's sense of self-worth and determination (Bandura, 1989). In addition, people may bolster

the value of attaining long-term goals by elaborating upon what makes attainment of these goals important (Beckmann & Kuhl, 1984; Kuhl, 1984). For example, in trying to decide whether to undertake a medical test, people may think of how undertaking the test may help them detect and prevent potential health problems. Counteractive control may also aim to discount short-term costs. People may try to attenuate the anticipated aversiveness of short-term costs by focusing on the abstract, "cool" properties of these costs rather than on their concrete, "hot" properties (Metcalf & Mischel, 1999). People may also try to regulate their mood so as to improve their ability to cope with short-term costs (Trope & Neter, 1994). For example, people may seek mood-enhancing experiences to buffer the anticipated unpleasantness of a medical procedure.

We conducted a series of studies to demonstrate some of these counteractive control strategies and their influence on behavior (Trope & Fishbach, 2000). Several of these studies are described below.

### *Self-Imposed Penalties*

One study (Trope & Fishbach, 2000, Study 1) examined the monetary penalties participants imposed on themselves for possible failure to undertake an activity that had long-term benefits but short-term costs. The short-term costs were either small or large, and the question was how these costs affected the magnitude of self-imposed penalties. Participants were offered an opportunity to take a test of the influence of glucose intake on their cognitive functioning. The feedback from the test was described as very useful, but as requiring abstinence from food containing glucose (e.g., candy, bread) for either a short period of time (6 hours) or a long period of time (3 days). Before deciding whether to take the test, participants were asked to indicate the amount of money they would be willing to pay (if any) as a penalty for failing to complete the test. This payment was said to cover expenses caused by canceling the test session.

Consistent with CCT, the results showed that participants set higher penalties for failure to complete a long period of abstinence than a short period of abstinence. In itself, a long period of abstinence increases the likelihood of failure and thus the likelihood of having to pay the monetary penalty. Economic considerations should have led participants to impose on themselves a smaller penalty when a longer abstinence period is required. The reverse pattern of preferences we found is indicative of counteractive control. Participants apparently used the penalties to ensure that the abstinence did not prevent them from obtaining the useful feedback regarding their eating habits. A long period of abstinence threatened participants' ability to complete the test, and it was in an attempt to counteract this threat that participants

imposed on themselves relatively high monetary penalties. This finding thus provided the first experimental evidence for what economists call side bets (Becker, 1960), namely, the voluntary attachment of a monetary fine for failure to act according to long-term preferences.

### *Self-Imposed Contingencies for Receiving a Bonus*

The study described above examined participants' willingness to make a penalty contingent on completing an unpleasant medical test. Another study (Trope & Fishbach, 2000, Study 2) examined participants' willingness to make a bonus contingent upon completing such a test. Participants were offered an opportunity to take part in a study on the risk of heart disease that included a cardiovascular test. Participants were told that the test was highly diagnostic and that they would receive an explanation of the results. The test was described as involving either a low or high degree of physical discomfort. The high-discomfort test required an hour of arduous exercise during which several hormone samples would be taken by a nurse. The hormone sampling was described as "rather painful" and the overall test procedure as strenuous and unpleasant. The low-discomfort test required an hour of relaxation (reading a paper or book while lying on a bed) during which a number of hormone samples would be taken by a nurse. The hormone sampling was said to be unpainful and the overall test procedure easy and comfortable.

Participants were told that they would be able to receive a bonus (extra credit hours) for taking part in the study. They were further told that the bonus would be available before and after taking the test, but for administrative purposes were asked to indicate exactly when they preferred to receive it. Choosing to receive the bonus before the test meant no obligation to actually take it, whereas choosing to receive the bonus after the test made the bonus contingent on completing the test. We assumed that imposing such a contingency would reflect a self-control strategy designed to ensure that the test was actually completed. We therefore predicted that participants would prefer the bonus to be contingent on completing the test when the test involved a high (rather than low) level of discomfort.

The results confirmed this prediction. Participants could earn the bonus without having to take the cardiovascular test. Nevertheless, they preferred to make the bonus contingent on performing the test, particularly when the test was expected to be highly unpleasant. In imposing on themselves this contingency, participants risked losing the bonus, but at the same time they also motivated themselves to complete the arduous cardiovascular test. Like self-imposed penalties, self-imposed contingencies for receiving a reward changed the choice situation so as to counteract the influence of short-term costs and, thus, maintain a high probability of acting according to long-term goals.

### *Bolstering the Subjective Value of an Activity*

The preceding two studies demonstrate that people sometimes change the immediate situation to ensure that it does not prevent them from pursuing their long-term interests. We now turn to a different form of counteractive control, namely, bolstering the value of acting according to one's long-term interests. People may bolster the value of an activity by thinking about it as important, interesting, and likely to yield useful outcomes. CCT predicts that the greater the temporary unpleasantness of an activity, the more likely people are to bolster its value. Moreover, unlike dissonance theory, CCT predicts that people will bolster the value of an activity before engaging in it. Two studies tested this prediction.

*Evaluative Bolstering of an Unpleasant Test* To test this prediction, participants were offered an opportunity to take a test of the influence of glucose intake on their cognitive functioning (Trope & Fishbach, 2000, Study 3). As before, the test was described as requiring abstinence from glucose-containing food for either a short period (6 hours) or a long period (3 days). After receiving a description of the test, but before indicating their decision, participants rated the usefulness of the test results, the importance of taking the test, the importance of the study, the importance of participating in scientific research, and the extent to which the study was interesting. These ratings were designed to assess bolstering of the subjective value of the test.

Across these different ratings, participants evaluated the test more positively when the test required 3 days of glucose abstinence than when it required only 6 hours of glucose abstinence. Consistent with CCT, then, participants bolstered the value of the offered test when it was expected to cause high rather than low levels of physical discomfort.

This study also assessed participants' intention to actually take the test. A path analysis tested the hypothesis that counteractive control prevented the physical discomfort of the test from diminishing participants' willingness to actually undertake the test. Consistent with this hypothesis, the analysis revealed opposite direct and indirect effects of abstinence duration on participants' intention to take the test (see figure 19.2). Specifically, in itself, a long versus short period of abstinence acted to decrease participants' willingness to take the test. This negative direct effect of abstinence duration on intention was offset by its positive indirect effect via bolstering of the value of the test. Specifically, a long versus short period of abstinence elicited bolstering of the value of the test. Bolstering the value of the test, in turn, increased participants' willingness to actually undertake the test. Thus, via counteractive bolstering, a long versus short period of abstinence acted to increase willingness to undertake the test. As a result, the overall (unmediated) effect of abstinence duration on intention to take the test was negligible ( $\beta = -.05$ ), indicating

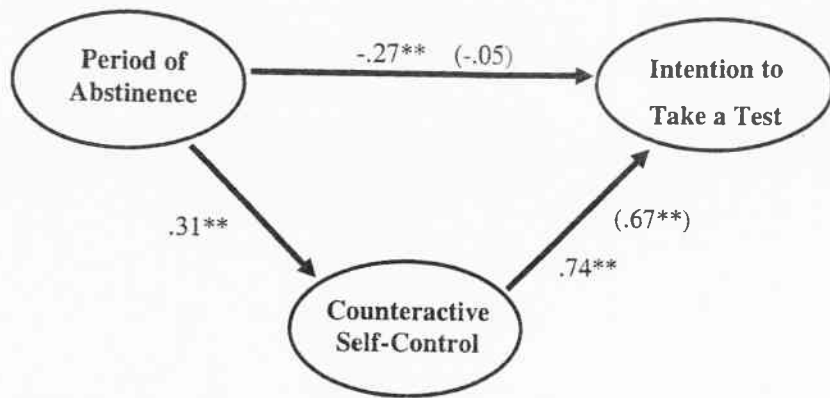


Figure 19.2 Path model of the influence of period of abstinence on intention to take a test. Numbers in parentheses are zero-order standardized betas.  $**p < .05$  (Trope & Fishbach, 2000, Study 3).

that the longer abstinence requirement did not weaken participants' intentions to take the test.

*Evaluative Bolstering of Studying When Social Motives Are Primed* A potential obstacle to acting according to long-term interests is thinking about tempting alternatives. A student may want to focus on her studies, but thoughts about the pleasure of spending time with friends might somehow be primed and undermine her motivation to study. However, to the extent that the exam is important, the priming of competing social motives may intensify self-control efforts and thus help the student maintain a high level of motivation to study. Instead of reducing the motivation to study, priming of competing social motives may enhance the motivation to study and thus enable the student to prepare for the exam and even perform well on it.

These predictions were tested in a real-life setting (Trope & Fishbach, 2000, Study 5). Our participants were students taking a midterm exam in an introductory psychology course. Social motives were primed by asking the students to answer a series of open-ended questions regarding their social life 1 week before the exam. These questions were followed by questions regarding the value and importance of the exam. We examined how priming of social motives affected the students' evaluation of the importance of studying and the students' grades on the midterm exam. It was hypothesized that the priming of social motives before the exam would lead students to boost the subjective value of studying for the exam, which should, in turn, act to prevent the priming of social motives from lowering the students' grades on the midterm exam.

Consistent with this hypothesis, we found that students attached greater importance to the exam when social motives were primed than when social motives were not primed. Moreover, path analysis indicated that this evaluative bolstering helped students' performance on the exam. As can be seen in figure 19.3, social priming produced a negative direct effect on grades. Thus, in itself, social priming impaired performance on the exam. However, this negative direct effect of social priming was counteracted by its positive indirect effect. Specifically, social priming led participants to bolster the value of studying. Bolstering the value of studying, in turn, predicted relatively high grades on the exam. Thus, social priming acted to increase participants' grades on the exam via counteractive bolstering of the value of studying. This positive indirect effect of social priming cancelled its negative direct effect, so that, overall, social priming did not impair participants' performance on the exam.

The results of this study suggest that it is necessary to take into account self-control processes in predicting the motivational and behavioral consequences of priming a motive. When the primed motive threatens the attainment of long-term goals, people may engage in counteractive control that shields these goals against the primed motive. In the present study, the priming of social motives before an exam threatened participants' ability to study for an exam. In response to this threat, participants boosted the value of studying. Instead of weakening the motivation to study, the priming of social motives strengthened the motivation to study. This, in turn, prevented the priming of social motives from impairing participants' performance on the exam.

Together, these studies provide initial evidence for some of the counteractive control strategies people employ when they anticipate situations that pit

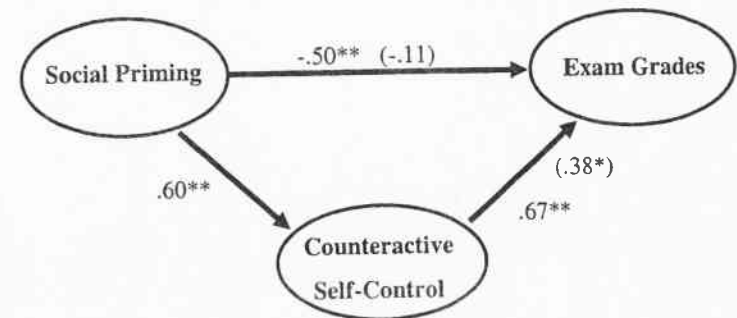


Figure 19.3 Path model of the influence of social priming before an exam on grades. Numbers in parentheses are zero-order standardized betas.  $*p < .07$ ;  $**p < .05$  (Trope & Fishbach, 2000, Study 5).

short-term outcomes against long-term goals. These strategies proactively change the motivational givens of the situation so that it does not threaten the attainment of long-term goals. The greater the short-term costs and the resulting temptation to abandon long-term goals, the more likely people are to exercise counteractive control and, as a result, remain committed to pursuing their goals. Self-imposing incentives for pursuing long-term goals is an example of how people proactively change future situations. Our studies suggest that such proactive changes enable people to be under situational control without having to relinquish their long-term goals. Moreover, our studies show that counteractive control annulled but did not reverse the effect of short-term cost on behavior. In other words, counteractive control did not produce overcorrection, a greater likelihood of engaging in the more unpleasant activities. It seems that participants exerted the amount of self-control that was just sufficient to offset the influence of short-term costs on their decisions. As discussed below, this is consistent with the present view that counteractive control is a goal-directed process—a means to the end of ensuring the attainment of long-term goals.

### The Goal-Directedness of Counteractive Control

CCT assumes that counteractive control efforts are means to the end of attaining long-term goals. An alternative view is that these efforts have intrinsic value. According to this alternative view, encountering short-term costs creates a challenge for the individual—a challenge that invigorates attempts to overcome the influence of short-term costs, regardless of one's long-term goals (Atkinson & Birch, 1978; Brehm & Self, 1989; Brehm, Wright, Solomon, Silka, & Greenberg, 1983; Wright & Brehm, 1984). CCT differs from this interpretation in positing that counteractive control efforts have no inherent value, that the motivation to exert such efforts derives entirely from their instrumental value in ensuring the attainment of long-term goals. Our findings that counteractive control actually helps people attain their long-term goals is consistent with the present means-end analysis. But more critical to this analysis is the assumption that counteractive control efforts depend on people's long-term goals and whether they can be achieved. Several implications follow from this goal-directedness assumption: First, counteractive control will be exercised when long-term goals are important rather than unimportant. Second, counteractive control will be exercised before rather than after achieving long-term goals. Third, counteractive control efforts will be exercised when they are necessary for achieving long-term goals. The research described below tests these implications of the goal-directedness assumption.

### *Goal-Dependent Counteractive Control*

According to CCT, the temporary unpleasantness of an activity will elicit self-control efforts only when failure to perform the activity threatens the attainment of an important long-term goal. The study on the self-imposed contingencies for receiving a reward tested this hypothesis (Trope & Fishbach, 2000, Study 2). Recall that in that study participants were offered an opportunity to take a cardiovascular test that was described as involving either a low or high degree of physical discomfort. Participants could receive a bonus for taking part in the study, and the question was whether participants would make the bonus contingent on completing the cardiovascular test.

The importance participants placed on good health was assessed before they received the information about the cardiovascular test. As described earlier, participants were generally more interested in making the bonus contingent on completing the test when the test was more unpleasant. However, this was true only for participants to whom health was important. Participants to whom health was not very important tended to choose according to what simple economic considerations would prescribe, namely, accepting the bonus before rather than after completing the test, particularly when the test was expected to be very unpleasant. This finding demonstrates the goal dependence of counteractive control. Short-term costs do not elicit counteractive control unless they threaten important long-term goals.

### *Goal Completion and Counteractive Control*

The CCT goal-directedness assumption states that counteractive control serves the purpose of enabling people to pursue their long-term goals. Hence, short-term costs should elicit counteractive control before rather than after an opportunity to pursue their long-term goals. This prediction was tested in the study on counteractive bolstering of the value of studying for an exam in response to priming of competing social motives (Trope & Fishbach, 2000, Study 5). Before an exam, bolstering the value of studying may help students better prepare for the exam. After the exam, studying is no longer a goal, and bolstering its value can only reduce the dissonance created by what students had to sacrifice in order to prepare for the exam (Aronson, 1997; Cooper & Fazio, 1984; Festinger, 1957; Shultz & Lepper, 1996). According to CCT, then, the priming of social motives should lead students to bolster the importance of studying before performing the exam, but not after performing it.

As described above, the subjective value of studying before the exam was more positive when social motives were primed than when these motives were not primed. After the exam, however, the subjective value of studying was low regardless of whether or not social motives were primed. Thus, par-

ticipants bolstered the value of studying before the exam, when studying served participants' goals: but they did not bolster the value of studying after the exam, when studying no longer served participants' goals. Consistent with the CCT goal-directedness assumption, these findings suggest that counteractive control is exercised only when it is instrumental for achieving long-term goals.

### *Nonmonotonic Effects of Short-Term Costs on Counteractive Control*

CCT predicts that the effect of short-term costs on counteractive control is nonmonotonic. As short-term costs increase, counteractive control efforts would also increase. However, the short-term costs might reach a level beyond which people may feel unable to resist their influence, and counteractive control efforts will accordingly decrease. Thus, when the short-term costs of an activity are very low, people may feel capable of undertaking an activity without exerting self-control efforts. When short-term costs are extremely high, people may feel incapable of undertaking the activity even if they exert self-control efforts. It is only when the short-term costs of an activity are moderate that counteractive control efforts determine whether or not the activity would be undertaken. Moderate costs should, therefore, elicit a relatively high level of counteractive control efforts. For example, bolstering of the value of a medical test should be an inverted U-shaped function of the anticipated discomfort of the test. Initially, increasing levels of expected discomfort should intensify counteractive bolstering. However, beyond a certain point, such self-control efforts should diminish (see Atkinson & Feather, 1966; Brehm & Self, 1989; Kukla, 1974, for similar predictions regarding effort exertion in skill-related tasks).

To test these predictions, participants were offered an opportunity to take a diagnostic test of their cognitive functioning at night (Trope & Fishbach, 2000, Study 4). Participants were informed that the test consisted of several parts, all of which would be administered over the telephone on one of the following two nights. To vary the level of discomfort of performing the test, participants were told that the test would take place at either a convenient time (9:30 p.m.), a moderately inconvenient time (12:30 a.m.), or an extremely inconvenient time (3:30 a.m.). Two forms of self-control were assessed: One was bolstering the value of the test. The other was attaching emotional significance to performing the test. This form of self-control reflected the emotional gratification participants expected to experience if they perform the test.

As predicted, both the subjective value of the test and its emotional significance increased from 9:30 p.m. to 12:30 a.m., but then decreased from

12:30 a.m. to 3:30 a.m. (see figure 19.4). On both indices of counteractive control, the 12:30 a.m. test received higher scores than either the 9:30 p.m. or the 3:30 a.m. tests, which were not different from each other. Counteractive control was thus a nonmonotonic, inverted U-function of lateness of testing hour.

This study also assessed participants' performance of the test at the three different hours of the night. In itself, lateness should impair test performance. Indeed, performance was worst at 3:30 a.m. However, performance at 12:30 a.m. was as good as performance at 9:30 p.m., suggesting that the greater counteractive control in anticipation of the 12:30 a.m. testing prevented the lateness of the testing hour from impairing performance.

Together, these counteractive control and performance data support the goal-directedness assumption of CCT. Performing a test at midnight is much less convenient than performing it in the early evening. This, however, did not diminish interest in the midnight test. On the contrary, participants attached greater importance and emotional value to performing the midnight test than the early evening test. These self-control efforts prevented the midnight testing hour from impairing participants' performance. However, when the test was scheduled at an extremely inconvenient hour (3:30 a.m.), the attempts to boost the value of the test weakened, and performance drastically dropped. As predicted by the CCT goal-directedness assumption, then, self-control efforts were an inverted U-shaped function of the unpleasantness of the test. Initially, higher levels of unpleasantness intensified self-control efforts. Such efforts were apparently perceived as instrumental for test performance. However, when the unpleasantness of the test became too extreme to be compensated for by self-control efforts, these efforts lost their instrumental value and were no longer employed.

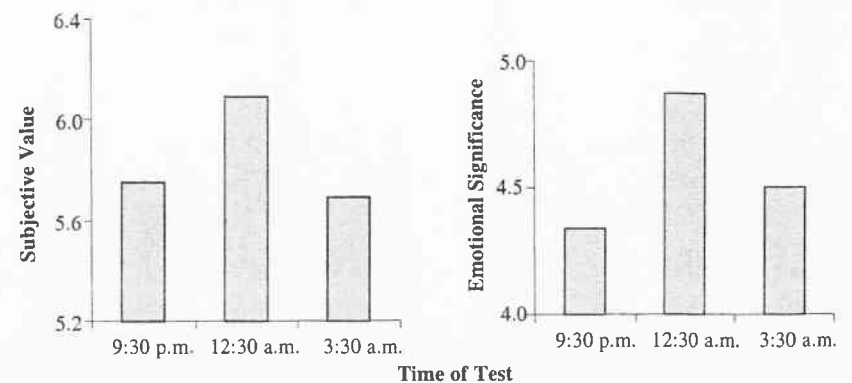


Figure 19.4 Subjective value and emotional significance of test by time of test (Trope & Fishbach, 2000, Study 4).

## *Positive Mood as a Resource*

The preceding findings regarding nonmonotonic counteractive control are related to those obtained in research on the mood-as-a-resource hypothesis (see Trope, Ferguson, & Raghunathan, 2001; Trope & Neter, 1994; Trope & Pomerantz, 1998; see also Aspinwall, 1998; Aspinwall & Taylor, 1997; Reed & Aspinwall, 1998). According to this hypothesis, positive mood serves as a buffer against the immediate emotional cost of negative but diagnostic feedback and thereby facilitates the seeking and processing of such feedback. In our terms, the use of mood as a resource is a counteractive control strategy designed to overcome the immediate short-term costs of processing negative feedback. Most relevant here, one of Trope and Neter's studies examined the extent to which participants attend to positive information about themselves (and thus boost their mood) before receiving new feedback about themselves. This study found that when positive feedback was expected, participants made little effort to self-induce a positive mood. Attempts to self-induce a positive mood intensified when more negative feedback was anticipated. However, when the offered feedback was very negative and, therefore, too hard to accept, attempts to self-induce a positive mood declined. Consistent with the nonmonotonic counteractive control effect found by Trope and Fishbach (2000), these results demonstrate that attempts to self-induce a positive mood were most intense when they could determine one's feedback-seeking decision, namely, when the offered feedback was moderately negative.

Trope and Neter (1994) and Trope and Pomerantz (1998) also found that positive mood indeed increases people's interest in receiving feedback about their weaknesses in important performance domains. Importantly, Trope, Gervy, and Bolger (2003) found that this mood-incongruent information search was conditional on the usefulness of the offered feedback. When the feedback was diagnostic of an important ability, participants who were in a positive mood preferentially solicited and extensively processed feedback regarding their weaknesses. However, when the offered feedback was nondiagnostic or when it pertained to an unimportant ability, participants who were in a positive mood preferred to receive feedback regarding their strengths rather than their weaknesses. Apparently, when the offered feedback was not very useful, participants were primarily motivated to maintain their positive mood and, therefore, preferred to hear positively valenced rather than negatively valenced information.

Raghunathan and Trope (2002) extended the test of the mood-as-a-resource hypothesis to the processing of health-related persuasive messages (see also Aspinwall, 1998). Their studies assessed how mood (positive, neutral, or negative) influenced people's recall and acceptance of information regarding the health risks and benefits associated with their caffeine consumption habits. These studies found that people in a positive mood, com-

pared to people in a neutral or negative mood, not only selectively seek but also better remember and accept negatively valenced information—information that specifies the health risks associated with their caffeine consumption habits. This processing strategy dampened participants' positive mood, but at the same time enhanced their willingness to give up unhealthy habits.

In sum, the studies reviewed in this section provide consistent support for the goal-directedness assumption of counteractive control. People exert counteractive control efforts when the attainment of important long-term goals is threatened, when attaining long-term goals is difficult but not impossible, and when counteractive control can contribute to attainment of these goals. Counteractive control thus seems to be a goal-directed process that serves to shield long-term goals from the influence of the immediate stimulus situation.

## The Substitutability of Counteractive Control

Self-control is not the only means for overcoming the influence of the immediate situation. Sometimes an individual's long-term goals coincide with those of other persons, groups, or organizations. Employers may want their employees to undergo medical tests, parents may want their children to eat healthy food, and team members may expect each other to act cooperatively. Under such circumstances, social agents may use social control to ensure that individuals pursue their long-term goals. Social control may take various forms, including social monitoring, explicit requests, and social and material incentives. The question, then, is how these various forms of social control affect counteractive self-control. For example, we found that people self-impose higher penalties for failure to take an aversive test than a nonaversive test. Will the aversiveness of the test have the same effect on self-imposed penalties when taking the test is socially rewarded? Will higher temporary costs lead people to value an activity more positively when the activity is socially prescribed?

According to the CCT means-end analysis, counteractive control is an active process that helps individuals pursue long-term interests. The implications regarding the effect of social control are straightforward: In the absence of social control, counteractive self-control will be exercised because it determines the likelihood of pursuing long-term goals. In the presence of social control, counteractive self-control may become superfluous, as social control may be sufficient to maintain a high probability of acting according to long-term goals. Social control may thus substitute for self-control.

Consider, for example, the effects of social control on self-imposed penalties. In the absence of social control, people will self-impose higher penalties for failure to choose an activity with long-term value to the extent that the

activity has short-term costs. Such penalties, in turn, will increase the likelihood of choosing the activity and will thus offset the impact of short-term costs. In contrast, when social control is exercised, self-imposed penalties will no longer be used as a counteractive self-control measure. That is, people will not set higher penalties for failure to perform an activity that has high short-term costs.

To test these substitutability predictions, Fishbach and Trope (in press) offered participants an opportunity to take a "cognitive test" and receive detailed feedback regarding their cognitive abilities. Participants were told that the test would be administered over the telephone the following night. The short-term cost of taking the test was varied by scheduling the test at either a convenient time (9 p.m.) or an inconvenient time (1 a.m.). Social control was varied by either offering or not offering a payment (\$20) for taking the test. To assess self-imposed fines, participants were asked to indicate the amount of money they were prepared to pay as a cancellation fee if they failed to complete the test. To participants who were offered a payment, it was also made clear that, in addition to the cancellation fee, they would not receive the \$20 payment if they failed to complete the test. Evaluative bolstering was assessed by asking participants to rate the importance of the test, its informativeness, the extent to which they expected to benefit personally from taking the test, and the extent to which they expected taking the test to be unpleasant. Finally, participants were asked to decide whether they actually intended to take the test.

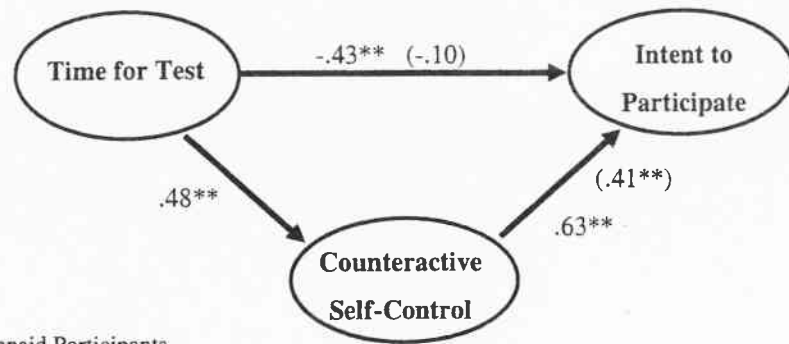
Analysis of the self-imposed fines yielded the expected effect of payment for the test and inconvenience of the test. Replicating our earlier findings, the fines unpaid participants imposed on themselves were higher when the time of the test was inconvenient than when it was convenient. The higher penalty for failure to complete the inconveniently scheduled test indicates a counteractive attempt to overcome the influence of the temporary inconvenience of the test. In contrast, the fines paid participants imposed on themselves were unaffected by the inconvenience of the test. This finding suggests that payment eliminated the need to use the fines as a self-control strategy. In this respect, social control substituted for counteractive self-imposed penalties.

Analysis of participants' evaluations of the offered test also yielded the expected effect of the payment for the test and the convenience of the test. Unpaid participants evaluated the inconvenient test more positively than the convenient test, indicating counteractive evaluative bolstering of the value of the inconvenient test. In contrast, the evaluations by paid participants showed a more conventional effect of the inconvenience of the test, that is, a less positive evaluation of the inconvenient test than the convenient test. These participants apparently allowed the inconvenience of the test to diminish their evaluation of the test. Again, the promised payment substituted for evaluative bolstering of the inconvenient test.

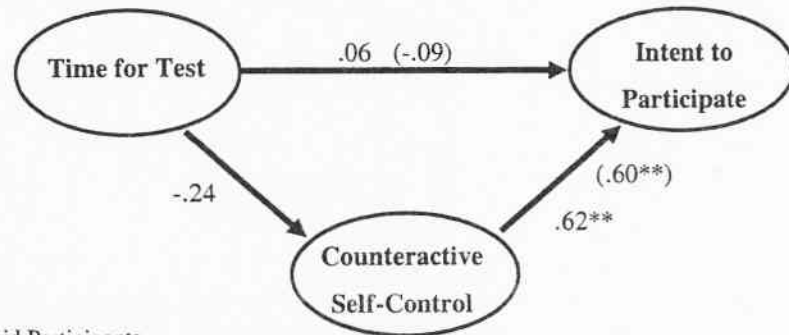
Turning to the behavioral intention data, we found that, overall, payment significantly increased participants' interest in taking the test. This finding suggests that payment was an effective means of control over participants' decisions. More important, participants were no less interested in performing the 1 a.m. test than the 9 p.m. test. This finding, in conjunction with the finding that paid participants evaluated the 1 a.m. test more negatively, suggests that the payment prevented the negative evaluation of the 1 a.m. test from diminishing interest in the test. External control thus enabled the participants to maintain their interest in taking the test despite its temporary unpleasantness. In the absence of external control, the unpaid participants were apparently able to overcome the influence of the temporary unpleasantness of the 1 a.m. test by exercising counteractive self-control.

Path analyses of the behavioral intention data support this assumption (see figure 19.5). In these analyses, counteractive control (indexed by the self-imposed penalty and evaluative bolstering combined) served as a mediator. Considering first the unpaid participants, a negative direct path from lateness of the test to intention to take the test indicated that, in itself, lateness of the test acted to diminish these participants' willingness to take the test. However, the analysis also yielded a positive indirect path from lateness to counteractive control and from counteractive control to willingness to take the test. This path indicated that participants exercised greater counteractive control when considering the 1 a.m. test, which, in turn, offset the influence of the lateness of the test on participants' willingness to take the test. The path diagram for paid participants showed a marginal negative indirect path from lateness of the test to counteractive control and from counteractive control to willingness to take the test. This indirect path indicated that the lower evaluation of the 1 a.m. test acted to reduce the motivation to take the test. However, a null direct path from lateness to intention indicated that this reduced motivation did not affect participants' willingness to take this test. The payment was apparently sufficient to overcome the negative impact of lateness on participants' motivation.

Fishbach and Trope (in press) obtained similar results when the short-term costs of taking a test were the amount of time it required and its expected dullness and when social control was instituted by presenting the test as mandatory (rather than optional) or by monitoring whether the test was actually performed. The results of these studies are consistent with the CCT substitutability assumption. The temporary unpleasantness of an activity is an immediate cost that tempts people to avoid activities that have long-term value. In the absence of socially instituted means for overcoming this temptation, people try to ensure that they undertake the unpleasant activity by exercising counteractive self-control. Social controls help guarantee that an activity with long-term value is undertaken despite its temporary unpleasantness. Counteractive control efforts under these circumstances are superfluous, and



Unpaid Participants



Paid Participants

Figure 19.5. Path model of the influence of lateness on intention to take a test. Numbers in parentheses are zero-order standardized betas.  $**p < .05$  (Fishbach & Trope, in press).

people can allow the short-term costs of an activity to reduce their evaluation of the activity without reducing the likelihood of undertaking the activity. Self-control and social control are thus substitutable in that self-control is exercised only in the absence of social control.

### Resource-Dependent Counteractive Control

Our research shows that people do not engage in counteractive control unless it is necessary for protecting their long-term interests. Counteractive control is exercised only when there is a threat to important long-term goals, when these goals are achievable, before rather than after the achievement of these

goals, and when social controls are absent. One possible reason for this selectivity is that counteractive control is an effortful process. By definition, the immediate unpleasantness of an activity makes it unattractive. The counteractive control strategies needed to overcome this immediate tendency—convincing oneself that the activity is worthwhile and precommitting oneself to undertaking it—may require considerable cognitive and emotional resources. People are therefore unlikely to use such resources unless they are necessary for attaining their long-term goals.

Consistent with this analysis, research on ego depletion by Baumeister, Muraven, and their colleagues found that exercising self-control in one task depletes a person's ability to exercise self-control in a subsequent task (Baumeister et al., 1998; Baumeister, Heatherton, & Tice, 1994; Leith & Baumeister, 1996; Muraven, Tice, & Baumeister, 1998). Self-control in these studies apparently came at the expense of participants' emotional resources. It is possible, however, that ego depletion occurs only as a result of actual exposure to temptation. The question, then, is whether counteractive control exercised proactively—before exposure to temptation—is also resource dependent. A related question is whether counteractive control depends on cognitive resources, not only emotional resources. We conducted two studies to address these questions (Fishbach & Trope, 2002).

One study examined counteractive control by high school students before or after an important matriculation exam. Our earlier research shows that people exert more counteractive control before rather than after an academic exam (Trope & Fishbach, 2000). We predicted, however, that this should depend on students' cognitive resources. To test this prediction, we administered to students a questionnaire assessing evaluative bolstering of the value of studying either 1 week before or 1 week after the exam. Students responded to the questionnaire under either cognitive load (holding in memory a seven-digit number) or no cognitive load. The questionnaire included a variety of questions regarding the importance of studying and getting high grades.

Participants' answers to these questions were combined into an overall index of evaluative bolstering. Under no load, we found greater evaluative bolstering of studying before the exam than after the exam. However, under load, evaluative bolstering before and after the exam did not significantly differ. It seems, then, that cognitive load interfered with students' ability to bolster the value of studying before an exam. Under cognitive load, students were unable to motivate themselves to study when studying could determine their performance.

More relevant to the question of resource-dependent counteractive control is how cognitive load affects people's responses to increasing short-term costs of an activity with long-term benefits. The signature of counteractive control is that when an activity serves long-term goals, it is valued more positively

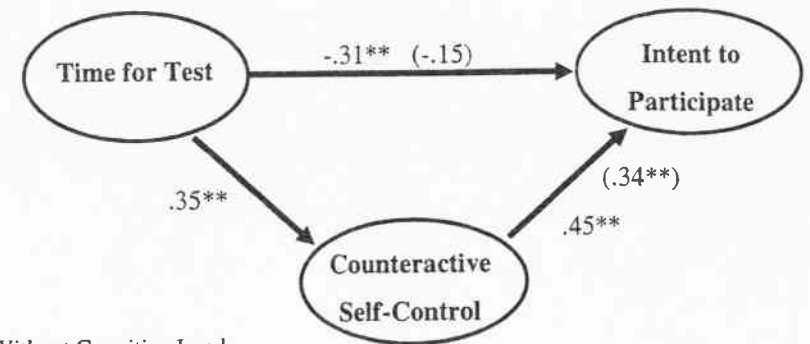
when it has high rather than low short-term costs. If counteractive control is a resource-dependent process, then cognitive load should eliminate this positive relationship between short-term costs of an activity and the tendency to evaluate the activity more positively. Moreover, our earlier research shows that counteractive control actually helps offset the influence of short-term costs on people's decisions (Trope & Fishbach, 2000). Cognitive load should therefore diminish people's ability to resist the influence of short-term costs on their decisions.

We used the late-night testing paradigm (Trope & Fishbach, 2000, Study 4) to test these predictions. Participants were offered an opportunity to take a cognitive ability test, to be administered over the telephone, at either a convenient time (8 p.m.) or an inconvenient time (1 a.m.). The lateness of testing is a temporary inconvenience that should elicit evaluative bolstering of taking the test. Evaluative bolstering was assessed by asking participants to respond to a questionnaire regarding the importance of taking the test, the importance of feedback from the test, and a variety of study-related self-standards. The questions were answered either under cognitive load (silently counting even numbers) or under no cognitive load. After responding to this questionnaire, participants indicated their interest in actually taking the test.

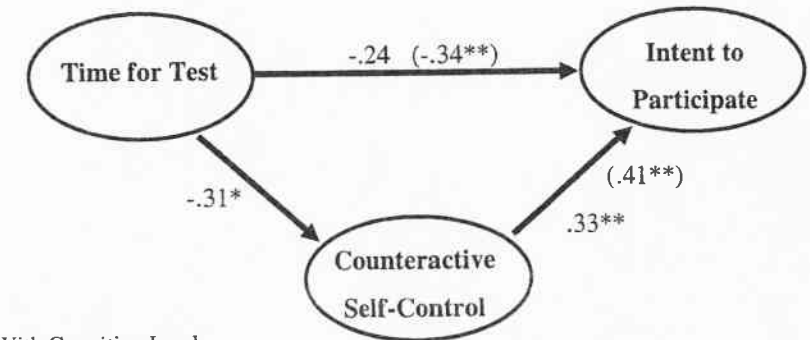
As before, we combined participants' responses into an overall index of evaluative bolstering. The results from the no-load condition replicated our earlier findings; that is, the test was evaluated more positively when it was scheduled for 1 a.m. than for 8 p.m. This positive relationship between lateness of the test and the subjective value of taking it is indicative of counteractive control. The opposite pattern of results emerged under cognitive load: that is, the 8 p.m. test was evaluated more positively than the 1 a.m. test. Here, inconvenience reduced the attractiveness of taking the test. This standard effect of inconvenience indicates that cognitive load eliminated counteractive control. Under load, participants seemed unable to convince themselves that taking a very late night test was highly valuable.

Turning to the intention data (see figure 19.6), the results for the no-load condition showed that lateness of testing did not reduce participants' willingness to take the test. Path analysis showed that this null effect reflected the operation of counteractive control. Specifically, in itself the lateness of the test acted to reduce willingness to take it, as indicated by the negative direct path from lateness to intention to take the test (controlling for evaluative bolstering). However, this negative direct effect was offset by a positive indirect path from lateness to evaluative bolstering and from evaluative bolstering to intention to take the test. As in our earlier research, then, counteractive control prevented inconvenience from affecting intentions to take a diagnostic test.

A different pattern of results was obtained for the cognitive-load condition. Here, lateness of testing did reduce participants' willingness to take the test.



Without Cognitive Load



With Cognitive Load

Figure 19.6 Path model of the influence of lateness on intention to take a test, in the absence and in the presence of cognitive load. Numbers in parentheses are zero-order standardized betas. \* $p < .07$ ; \*\* $p < .05$  (Fishbach & Trope, 2002).

Path analysis showed that this effect was partially mediated by the evaluation of the test. Specifically, lateness decreased test evaluation, which in turn diminished willingness to take the test. Controlling for this negative indirect effect of lateness on intention, the negative effect of lateness on intention became insignificant. Thus, under cognitive load, participants evaluated the inconvenient test more negatively, and this negative evaluation undermined their willingness to actually take the test.

Together, the results of these studies demonstrate the dependence of counteractive control on cognitive resources. Temporary unpleasantness of an activity naturally deters people from undertaking it even when it serves their long-term interests. When people possess cognitive resources, people are able to convince themselves that this activity is particularly valuable. The more

unpleasant the activity, the harder they try to reach such conviction. This, in turn, enables them to actually undertake the activity. However, when processing resources are limited, people seem less capable of exercising such counteractive control strategies. Instead, temporary unpleasantness of an activity simply reduces its attractiveness. People's ability to resist the influence of short-term costs is reduced, and their willingness to actually undertake the activity is undermined.

## Implicit Counteractive Self-Control

The preceding research suggests that at least some forms of self-control involve deliberate reasoning. People may consciously consider their long-term goals, assess the threat short-term costs pose for these goals, evaluate alternative counteractive self-control strategies, and implement the one that seems the most effective. Evaluative bolstering, for example, would reflect, then, a conscious attempt to overcome the influence of short-term costs by selectively attending to information that emphasizes long-term goals. It is possible, however, that intentional self-control is sometimes supplemented and even supplanted by more implicit forms of self-control. Long-term goals are often in conflict with immediate, situationally elicited motives. Over time, people may acquire effective counteractive strategies for resolving such conflicts (Metcalfe & Mischel, 1999; Mischel, 1974; Mischel et al., 1988; Rachlin, 1995, 1997; Shoda et al., 1990). With frequent and successful applications of counteractive control strategies, people may develop efficient ways of anticipating certain self-control problems, accessing appropriate counteractive control strategies, and applying them proactively. Counteractive control may thus become a well-practiced skill, and at least some forms of counteractive control may require very little conscious intention.

In the simplest form of counteractive control, exposure to short-term costs may automatically activate one's long-term goals and thus prevent these costs from affecting one's behavior. For example, exposure to tempting food may activate a restrained eater's weight-watching goals, which in turn may enable the restrained eater to overcome the temptation. Some, if not all, of the steps in this process may be performed without conscious intention. Importantly, subliminal exposure to food may be sufficient to activate weight-watching goals. Exposure to tempting food may thus unconsciously boost rather than undermine the restrained eaters' resolve. Moreover, the enhanced accessibility of weight-watching goals may persist over time. As a result, initial subliminal exposure to tempting food may improve the restrained eaters' resistance to subsequent temptations. The logic here is similar to that of the priming effect in Trope and Fishbach (2000, Study 5). As described above, this study found that priming social goals before a midterm exam enhanced

students' evaluation of the importance of the exam, which in turn improved the students' performance on the exam. In general, by activating an individual's long-term goals, exposure to immediate temptation may produce implicit inoculation, making the individual more resistant to subsequent temptation.

Initial evidence for implicit counteractive self-control has been obtained by Fishbach, Friedman, and Kruglanski (2003). These studies suggest that subliminal presentation of a construct representing a potentially obstructive temptation facilitates the activation level of a construct representing a potentially obstructed goal. For example, one of these studies (Fishbach et al., Study 1) used participants' self-reported goals and temptations to obtain goal-temptation pairs such as "study-basketball." This study found that goal-related keywords (e.g., *study*) were more quickly recognized following subliminal presentation of temptation-related keywords (e.g., *basketball*) than following subliminal presentation of temptation-unrelated primes (e.g., *chocolate*). Interestingly, this effect was asymmetrical; that is, whereas goal recognition was facilitated by temptation primes (e.g., academic targets were facilitated by procrastination primes), temptation recognition was inhibited by goal primes (e.g., procrastination targets were inhibited by academic primes). Subsequent studies found that temptation-goal activation was independent of available cognitive resources (Fishbach et al., Study 2), more pronounced for successful self-regulators (Studies 3–4), and increasing with subjective importance of a goal (Study 4). It seems, then, that implicit self-control develops over the course of successful implementation of self-control and, like explicit counteractive control, depends on the subjective importance of the overriding goal.

In still another study, temptation-related cues were supraliminal but incidental aspects of the situation (Fishbach et al., 2003, Study 5). In this study, restrained eaters were observed in three situations: a room with popular fatty foods (temptation prime), a room with weight-watching magazines (dieting prime), and a room with general interest magazines (neutral prime). These priming stimuli were allegedly irrelevant to the purpose of the experiment. It was found that priming the temptation to consume fattening food, like priming the goal of dieting, facilitated recognition of *diet* in a subsequent lexical decision task. Moreover, when offered a gift, participants in the fattening food and in the diet prime conditions preferred to get an apple rather than a chocolate bar, whereas participants in the neutral condition preferred chocolate. Finally, participants in the fattening food prime condition expressed greater willingness to avoid tempting food than participants in the dieting and the neutral prime conditions.

These findings suggest that counteractive boosting of long-term goals (e.g., dieting) and the resulting resistance to temptation (e.g., fatty food) may be implicit processes. It is possible, then, that counteractive self-control is a dual-process mechanism. This mechanism may operate in an explicit mode—intentionally, consciously, and effortfully—but it may also operate in an im-

PLICIT mode—unintentionally, unconsciously, and uneffortfully. How are the two modes of counteractive control related? Does the implicit mode precede the explicit mode? Does the implicit mode substitute for the explicit mode? Do the two modes of counteractive control occur simultaneously? These are important questions for future research on self-control.

## Conclusion

Self-control problems arise when the immediate situation elicits short-term wishes and desires that are in conflict with long-term goals. People may prefer to pursue their long-term goals and may possess the prerequisite skills and freedom of choice. Nevertheless, they may be uncertain that this is what they will actually do. People may suspect that in the actual situation they will be unable to resist the temptation posed by the immediate outcomes. Counteractive control strategies are designed to enable people to act according to their long-term goals despite the short-term costs of such action.

This chapter reviewed research on the antecedents, consequences, and process of counteractive control. Some counteractive control strategies change the choice alternatives, whereas others change the subjective evaluation of the alternatives. People may change the choice alternatives by attaching a punishment or reward to their choices or by precommitting themselves to the preferable alternative and thus eliminating others. The subjective value of the choice alternatives may be changed by bolstering the value of acting according to long-term goals and linking such action to emotional gratification and central self-standards. Counteractive control thus proactively changes the motivational givens of the situation in favor of pursuing long-term goals. With counteractive controls in place, the situation can exert strong and even automatic influence over behavior without jeopardizing individuals' long-term interests.

The signature of counteractive control is that it increases the value of acting according to long-term goals to the extent that such action has high short-term costs. Without counteractive control, an action becomes less attractive when it is associated with high short-term costs. The sacrifices that are required by dieting, exercising, or studying ordinarily reduce the attractiveness of engaging in these activities. Our research shows that counteractive control acts to increase the attractiveness of such activities in direct proportion to their temporary unpleasantness. As a result, counteractive control helps maintain a high probability of pursuing long-term goals despite the short-term costs this may entail. This enables people to set long-term goals and formulate plans for achieving them with a sense of assurance that they will not be tempted to deviate from their plans in a way they will later regret.

Our research also shows that counteractive control is a flexible, goal-directed process. First, people seem to exercise counteractive control when short-term costs threaten their ability to pursue important rather than unimportant long-term goals. Second, counteractive control is exercised before but not after performing the preferred activity. Before performing an activity, counteractive control could help participants choose and carry out the activity, whereas after performing the activity, counteractive control ceases to have instrumental value and could only reduce dissonance and regret (Aronson, 1997; Cooper & Fazio, 1984; Festinger, 1957). Third, counteractive control efforts are an inverted U-shaped function of short-term costs. When short-term costs are very low, counteractive control is unnecessary. When these costs are very high, counteractive control is insufficient. It is only at intermediate levels of short-term costs that counteractive control determines whether long-term goals will be pursued. It is therefore at this level that counteractive control efforts are maximally exerted. Finally, counteractive control is substitutable. People's exposure to short-term outcomes does not occur in a social vacuum. Social interactants, groups, and organizations may institute incentives, sanctions, and rules that are designed to help individuals overcome temptations. People seem sensitive to such alternative means of control. Counteractive control is exercised when it is necessary for achieving long-term goals. When other, external means of control are in place, counteractive control ceases.

The flexibility and goal directedness of counteractive control strategies does not necessarily mean that the use of these strategies is always based on conscious deliberation. Like any knowledge, counteractive control strategies may be automatized after being repeatedly and successfully employed in resolving previous self-control problems. As a result, people may exercise very little conscious control in carrying out some or all of the steps in counteractive control. People may identify the threat to their long-term goals, use a self-control strategy (e.g., evaluative boosting of long-term goals), and consequently pursue their long-term goals more vigorously without being aware of the relationships among these steps or consciously intending to carry them out. People may be aware of the threat to their long-term goals and aware of their self-control efforts, without realizing that it is the threat that caused the self-control efforts. A student may attribute his preoccupation with an upcoming exam to the importance of the exam itself rather than to situational temptations not to study for the exam. In general, people may see their biased evaluations and precommitments as reflecting the inherent value of the available options rather than as means to the end of overcoming the threat posed by short-term outcomes. Our research has been primarily concerned with the conscious and deliberate aspects of counteractive control. Examining the less conscious aspects of counteractive control and how they relate to conscious

aspects of counteractive control remains an interesting topic for future research.

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