

Self-Control

A Function of Knowing When and How to Exercise Restraint

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ABSTRACT—*To successfully pursue a goal in the face of temptation, an individual must first identify that she faces a self-control conflict. Only then will the individual exercise self-control to promote goal pursuit over indulging in temptation. We propose a new model that distinguishes between the problems of conflict identification and those of conflict resolution. We then review research on the factors that influence conflict identification and those that determine conflict resolution.*

KEYWORDS—*self-control; goals; temptation*

In Plato's *Protagoras* (ca. 380 BC), Socrates asks how it is possible that one lacks command over oneself and experiences *akrasia*, the state of acting against one's better judgment (Plato, 1986). With the advent of experimental psychology, the question of *akrasia* has endured as the question of self-control: How does one pursue a goal offering larger long-run benefits when it conflicts with a temptation offering greater immediate rewards? We propose that success in self-control is contingent jointly on identifying conflict between temptation and "better judgment" and on successfully implementing self-control strategies.

Of course, identifying conflict is not always a central issue. One could imagine the diabetic diner facing a delicious dessert on the plate before her, but knowing that having that dessert could trigger dangerous insulin levels; she should not have it. In this case, her capacity to invoke self-control strategies (e.g., Baumeister, Bratslavsky, Muraven, & Tice, 1998; Metcalfe & Mischel, 1999) determines her likelihood of resolving the conflict in favor of the goal to stay healthy (and alive). Under many circumstances, however, recognizing conflict may not prove this obvious. For example, if one does not have insulin concerns, having a single dessert alone will but trivially affect one's health even though having dessert regularly could prove detrimental. Thus, the dieter considering a highly caloric dessert for a single

occasion (e.g., her birthday) is less likely to identify conflict with goal pursuit than is the dieter considering dessert for multiple occasions, even when both are aware of the caloric content. The likelihood of self-control success would therefore depend jointly on (a) identifying self-control conflict and (b) invoking effective self-control strategies.

A TWO-STAGE MODEL: IDENTIFICATION AND RESOLUTION

We present our model of self-control in Figure 1. As shown, individuals facing temptation first must determine whether there is a conflict between indulging and pursuing higher-order goals (Stage 1). If and only if individuals identify self-control conflict will they implement self-control strategies to promote goal-pursuit over indulgence in temptation (Stage 2). Alternatively, individuals may fail to identify the conflict (Stage 1) or fail to exercise self-control (Stage 2). Although the outcomes are similar, the etiologies of the two instances of indulgence are distinct and therefore consequential for improving goal pursuit.

In what follows, we first direct attention to the determinants of conflict identification. We argue that relatively subtle cues in the environment determine conflict identification by influencing how individuals perceive choice opportunities. We then argue that upon identifying self-control conflict, conflict resolution depends on the effectiveness of self-control strategies. These strategies create asymmetric shifts in motivational strength, facilitating goal-related behavior while inhibiting pursuit of temptation. Importantly, the processes of conflict identification and resolution are not necessarily conscious and deliberative. Rather, they also involve nonconscious, energy-efficient processes.

The First Stage: Conflict Identification

While much psychological research has focused on the implementation of self-control strategies, success at self-control depends first on conflict identification. The probability of identifying self-control conflict decreases as the cost associated with a single indulgence in temptation decreases. We have coined the term "epsilon-cost temptation" to describe situations in which

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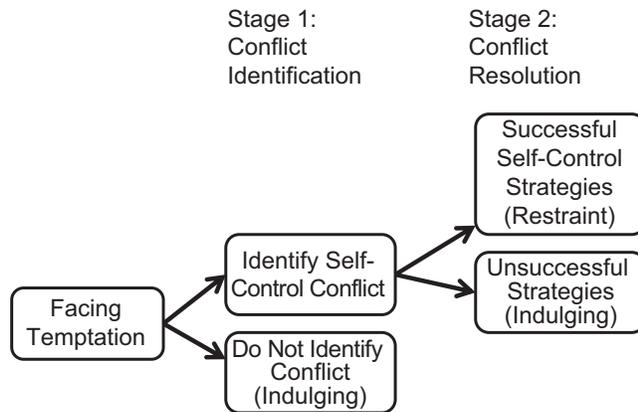


Fig. 1. The two-stage model of self-control. In the face of temptation, individuals either identify self-control conflict or not. If and only if they have identified conflict, they use self-control strategies to promote goal pursuit.

the cost of a single indulgence, or unit consumption cost, is negligible but that of extended consumption may prove serious—for instance, cookies for the dieter or cigarettes for the smoker. (In calculus, epsilon denotes a trivially small quantity, which in aggregation may yield a relatively large quantity.) Epsilon-cost temptation is common in modern life and poses the problem of conflict identification.

When facing epsilon-cost temptation, conflict identification depends on whether individuals frame the temptation as a single opportunity to act in isolation or as one among many opportunities (Myrseth & Fishbach, 2009). For example, if a tempting chocolate is perceived in isolation, then there are trivial costs associated with indulgence, and the individual will not identify conflict between indulging and maintaining more important dieting and health goals. However, if the temptation is perceived in relation to multiple future action opportunities, then the individual may identify self-control conflict. Notably, the individual could still perceive actions in the future to be different from those in the present (e.g., “I’ll have chocolate now, but later I’ll stay clear”). Thus, to identify self-control conflict it is also necessary that the individual perceives the present action as similar to future ones (e.g., “If I have chocolate now, I’ll likely also have it again in the future”). Overall, the frame necessary for conflict identification meets two conditions:

- a) Width: The individual sees multiple opportunities together
- b) Consistency: The individual expects to act similarly across multiple opportunities

Considering multiple opportunities together helps individuals identify the self-control conflict because it makes the aggregate cost of multiple epsilon-cost temptations more apparent. For example, Read, Loewenstein, and Kalyanaraman (1999) asked participants to make a series of choices (one for each week) between two kinds of lottery tickets, one offering the prospect of larger, delayed rewards and the other that of smaller, immediate

rewards. The choices thus represented potential self-control dilemmas. The authors found that participants choosing multiple tickets at once (i.e., the wide frame) preferred the tickets with larger delayed rewards more than did those choosing each ticket individually (i.e., the narrow frame).

In our research, we demonstrate that wide frames are effective because they promote conflict identification. In one study, we measured consumption of potato chips among health-conscious participants. Before deciding how much to eat, participants noted the date either on a calendar that used a grid to separate the days in the month and that marked the date of the experiment, or on a calendar with no grid and no special marking of the experiment date (see Fig. 2). The former calendar induced a narrow frame, because the experiment date appeared separated from the others, while the latter imposed a wide frame because there was no visual separation. Accordingly, participants consumed more chips when the calendar induced a narrow frame than they did when the calendar induced a wide frame. Importantly, participants in the narrow (vs. wide) frame also indicated that they were experiencing less self-control conflict during consumption, and this lack of experienced conflict, in turn, mediated their increased consumption of chips (Myrseth & Fishbach, 2009).

A wide frame is necessary for identifying self-control conflict, but it is not sufficient. In addition, individuals need to expect to make the same choices every time they face the conflict between the goals and the temptations. Research by Fishbach and colleagues points to two possible “dynamics” (i.e., choice patterns) that individuals can expect to follow when they consider a sequence of actions involving potential goal pursuit and conflicting temptation: They can follow a pattern that highlights the goal or one that balances between the goal and temptations (Fishbach, Dhar, & Zhang, 2006; Fishbach & Zhang, 2008). When highlighting the goal, individuals choose goal pursuit and employ self-control strategies to forego temptation. However, when balancing goal and temptation, individuals follow a pattern of choosing “first temptation, then the goal,” thus postponing goal pursuit in favor of instant gratification. Specifically, when balancing, individuals do not see themselves as making the same choice in the future; they choose to indulge presently without giving up on the goal. In other words, when balancing, individuals do not identify self-control conflict.

To demonstrate this point, Fishbach and Zhang (2008) manipulated the presentation of healthy carrots and unhealthy chocolates; the foods either were presented apart in two separate bowls or together in the same bowl. Presenting the options separately induced a perception of the foods as conflicting, thereby prompting a choice sequence that highlighted the goal of eating healthy, whereas presenting them together induced a perception of complementarity, prompting a choice sequence that balanced between the goal of eating healthy and enjoying a tempting chocolate. Accordingly, the percentage of participants that chose carrots over chocolates increased when the options were presented apart (vs. together) and prompted highlighting.

Sun	Mon	Tue	Wed	Thu	Fri	Sat
			1	2	3	4
5	6	7	8	9	10	11
12	13	14	15	16	17	18
19	20	21	22	23	24	25
26	27	28	29	30	31	

A Narrow-Frame Calendar

Sun	Mon	Tue	Wed	Thu	Fri	Sat
			1	2	3	4
5	6	7	8	9	10	11
12	13	14	15	16	17	18
19	20	21	22	23	24	25
26	27	28	29	30	31	

A Wide-Frame Calendar

Fig. 2. Example of calendars prompting a narrow versus wide frame of consumption opportunities. In the narrow-frame calendar, dates are separated by gridlines and the current date (of the experiment) is highlighted, encouraging days (and thus, consumption opportunities) to be seen in isolation. The wide-frame calendar discourages this perception with its lack of gridlines or special marking of the current date.

This is because individuals who highlight choose goal pursuit for present and future opportunities instead of choosing indulgence now and postponing goal pursuit for later. Importantly, we can conclude that a presentation format helps individuals identify a self-control problem if it causes their actions to be more closely associated with the strength of their goal (e.g., how much they would like to lose weight). Indeed, only when the healthy and unhealthy options were presented apart and prompted highlighting was participants' concern with weight watching positively associated with the healthy choice of carrots over chocolates. Specifically, in this condition, individual differences in the strength of the weight-watching goal predicted healthy food choice (Fig. 3).

The Second Stage: Conflict Resolution

To the extent that a self-control conflict is identified upon presentation of temptation, the individual is likely to exert self-control efforts. Our research on counteractive control theory describes the process by which individuals offset the influence of temptation on goal pursuit (Fishbach & Trope, 2005; Myrseth, Fishbach, & Trope, 2009; Trope & Fishbach, 2000). According to this theory, self-control involves asymmetric shifts in motivational strength, namely an increase in motivation to pursue a goal and a reduction in motivation to pursue temptation. Such asymmetric shifts may be of conscious, deliberative nature or they may involve nonconscious, implicit strategies that promote individuals' long-term interest without requiring conscious awareness or effort.

We summarize the various self-control strategies in Table 1. As shown, some behavioral strategies act on the choice opportunities themselves while other psychological strategies act on the representation of the choice opportunities. For example, individuals employ behavioral strategies when they choose to make rewards contingent on undergoing uncomfortable (but

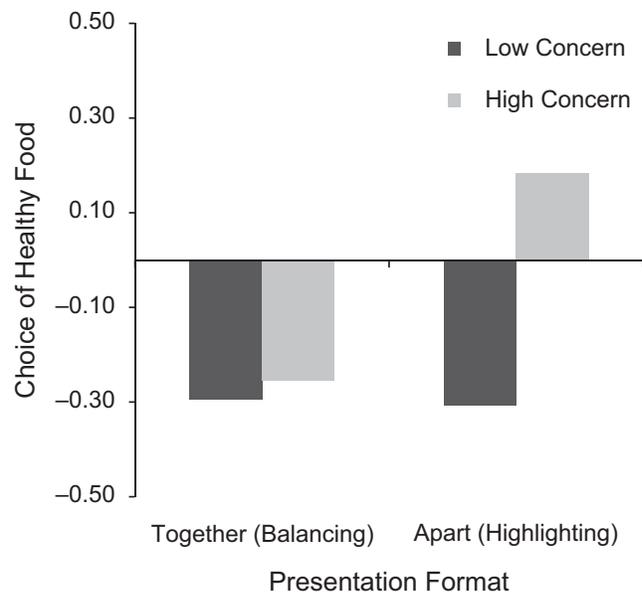


Fig. 3. Choice of healthy carrots over tempting chocolates as a function of whether the options were presented together (balancing) or apart (highlighting) and the level of participants' concern with weight watching.

TABLE 1
Self-Control Strategies and Corresponding Responses to Temptations and Goals

Strategy	Response to temptations	Response to goals
Changing the choice situation	Self-imposed penalties	Self-imposed rewards
	Pre-commitment to forgo Avoidance	Pre-commitment to pursue Approach
Changing the psychological meaning of choice options	Devaluation	Bolstering
	Cool and abstract construal	Hot and concrete construal
	Setting low expectations Inhibition	Setting high expectations Activation

helpful) medical tests and make penalties contingent on failing to do so, in order to counteract the temptation to avoid a test. As the cost of undergoing such tests rises, individuals increase the benefits contingent on goal attainment or penalties contingent on failure, thereby maintaining their motivation to pursue the uncomfortable activities (Fishbach & Trope, 2005). Another behavioral strategy involves precommitment to pursue goals and avoid temptations. While grocery shopping, for example, the dieter might foresee the problem of having tempting sweets available in the kitchen and thus purchase fruits instead. People also facilitate avoiding temptations and approaching their goals by maintaining physical distance from tempting objects and ensuring proximity to objects associated with goals (Thaler & Shefrin, 1981).

Behavioral self-control strategies act directly on the physical availability of opportunities. In addition, individuals employ self-control strategies that act on the psychological representation of goals and temptations. For example, individuals experiencing self-control conflict may counteractively bolster their evaluation of goals and dampen their evaluation of temptation. Myrseth et al. (2009) found that health-conscious individuals facing a choice between health bars and unhealthy chocolates evaluated the chocolates as less appealing than the health bars before choosing between the two, but this difference diminished after they had made a healthy choice (see Fig. 4). By asymmetrically evaluating healthy and unhealthy options, these individuals promoted goal pursuit. Notably, self-control yielded an effect on valuation that cancelled out that of post-decisional dissonance (as dissonance theory would predict increased liking for the selected option after choosing; Festinger, 1957).

Individuals further promote goal pursuit by adopting a concrete representation of goals but an abstract representation of temptations, as concrete representations facilitate action tendencies more than do abstract or vague ones. For example, in a study on the regulation of academic goals, students formed concrete behavioral plans to facilitate pursuit of their academic goals (Gollwitzer & Brandstatter, 1997). In another study on delay of gratification, children resisted the temptation to eat a marshmallow by thinking about it as an abstract cloud, thus cooling its appetitive influence (Mischel, Shoda, & Rodriguez, 1989). Individuals also may set low expectations for pursuing temptations and expect instead to devote time and energy to their

goals. For example, students in one study planned to devote little time for leisure but much for academic pursuits; these (often optimistic) expectations served as performance standards, increasing individuals' tendency to act on their goal and forgo temptation (Zhang & Fishbach, 2009).

Individuals' nonconscious evaluations exhibit a similar pattern of asymmetric shifts: The value of the goal is boosted while the value of the temptation is dampened when they conflict (Fishbach & Shah, 2006). For example, subliminally presenting the temptation-related word "party" slowed down categorization of positive words relative to negative words (e.g., "flower" vs. "ugly"). This pattern indicates negative evaluation of temptation. Similarly, subliminally presenting the word "study" (goal-related) slowed down categorization of negative words relative to positive words, thus indicating positive evaluation of goals (Fishbach, Zhang, & Trope, 2009).

In addition, implicit counteractive control entails changes in the accessibility of goals and temptations. Individuals shore up their goals by activating goal-related constructs in response to interfering temptations and by inhibiting temptation-related constructs in response to goal-related cues. For example, a study on college students demonstrated that subliminally presenting

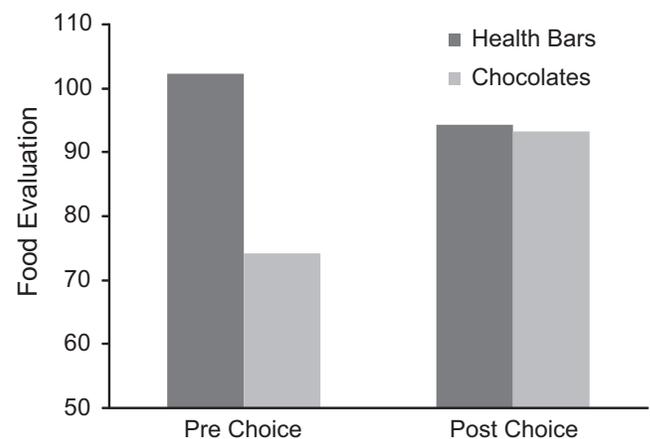


Fig. 4. Counteractive evaluation of healthy versus tempting food options prior to versus after choosing. Evaluations are of the appeal of the foods and of how much participants would like to eat them. The health bars are initially higher because, prior to the choice of food, counteractive self-control processes boost the value of the goal-related health-bars and dampen the value of the tempting chocolates. After the choice, counteractive processes are no longer activated, and so the difference dissipates.

the word “television” reduced the time students took to subsequently recognize the goal-related word “study,” and conversely presenting the word “study” increased the time students took to subsequently recognize the word “television” (Fishbach, Friedman, & Kruglanski, 2003).

Notably, individuals apply the aforementioned self-control strategies to the extent that they have identified a self-control conflict. Specifically, self-control is elicited only when important goals are perceived to conflict with temptations and when external mechanisms are not in place to ensure goal pursuit (Fishbach & Trope, 2005). That is, the perception that temptation threatens goal pursuit (Stage 1) is necessary to activate subsequent self-control strategies.

IMPLICATIONS

The two-stage model of self-control postulates that individuals in the face of temptation first either do or do not identify conflict between temptation and goal pursuit and then, if they have identified the conflict, draw on self-control strategies to promote goal-pursuit. This model implies that remedies for overindulgence should focus not just on self-control strategies, such as setting rules and improving discipline, but also on facilitating identification of self-control conflict. For example, the dieter faced with the opportunity to indulge in sweets should think about similar future consumption opportunities and avoid thinking about the temptation in isolation. Similarly, the smoker should not consider the question of having one cigarette alone but consider instead the prospect of regularly smoking, to activate self-control strategies associated with quitting. This analysis further implies that policy makers should consider measures aiding individuals to avoid framing tempting opportunities as isolated or “special.”

While we have mostly discussed examples of self-control problems from the domains of food and health, the questions of conflict identification and resolution also are applicable to a range of other domains. Examples include impulsive spending (vs. saving) and selfish (vs. prosocial) behavior. The fashionista might feel tempted to purchase a new handbag every time she passes the boutique window, but her ability to identify conflict with saving goals might activate her self-control strategy to briskly move on. Alternatively, in the domain of cooperation, a student might feel tempted to free-ride on her study group. Nonetheless, her ability to see such behavior as conflicting with her ethics might allow her to steer clear from temptation by activating positive thoughts about cooperation.

We conclude that the problems of self-control may not be mere problems of acting against one’s better judgment but also problems of determining better judgment in the first place. Better understanding the etiology of self-control success could lay the groundwork for further remedies against excessive indulging.

Recommended Reading

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- Myrseth, K.O.R., Fishbach, A., & Trope, Y. (2009). (See References). Explores the relationship between the availability of a temptation and its evaluation.
- Rachlin, H. (2000). *The science of self-control*. Cambridge, MA: Harvard University Press. Provides an alternative perspective on wide versus narrow frames.
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