Article

Smarter, Not Harder: A Toolbox Approach to Enhancing Self-Control

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Abstract

According to common sense, successful self-control requires "willpower." Psychology often models willpower as the effortful inhibition of temptation impulses—a process theorized to require sufficient motivation and resources. This article challenges the centrality of willpower in self-control. Instead, successful self-control relies on a variety of strategies beyond effortful inhibition: diminishing the influence of immediately available rewards and bolstering motivation toward more abstract, distant rewards. Furthermore, self-control is better conceived as a "toolbox" of strategies; success entails finding the tools that work best for a given individual at a given time. In other words, improving self-control is not about becoming stronger, but rather about becoming smarter. This approach has policy implications and suggests priorities for research.

Keywords

self-control, inhibition, willpower, toolbox approach

Tweet

As new research indicates, successful self-control does not require willpower, but rather various skills (i.e., a "toolbox") that can be taught and mastered. Learn what works. #Work smarter, not harder.

Key Points

- Self-control failures may underlie many consequential life outcomes and some of society's most pressing issues: obesity, substance abuse, inadequate retirement savings, academic underachievement, and violent behavior.
- Although many assume that successful self-control requires willpower—the ability to resist temptation with mental fortitude—recent research questions this assertion.
- Successful self-control is instead a toolbox of skills to reduce the impact of immediate temptations and to motivate behavior to achieve more abstract, distant outcomes.
- Skillful use of the strategies toolbox appears associated with more successful self-control outcomes.
- Preliminary findings illustrate teaching and mastering the toolbox, introducing innovative ways to enhance the self-control of both children and adults.

Introduction

Immediately available rewards often tempt people to engage in behavior that undermines their goals, values, and best-laid plans. For example, dieters indulge in calorie-laden foods despite their desire to lose weight, smokers light up cigarettes in opposition to their intentions to quit, and consumers spend frivolously in conflict with their financial savings goals. These self-control failures are implicated in some of society's most pressing issues, including obesity, substance abuse, inadequate retirement savings, academic underachievement, violent behavior, and relationship conflict (e.g., W. Mischel et al., 1989; Moffitt et al., 2011; Tangney et al., 2004; Thaler & Shefrin, 1981). Given its pervasive impact, both researchers and policymakers alike have sought to better understand how to improve self-control (e.g., Duckworth et al., 2018; Fox & Sitkin, 2016; Rothman et al., 2015).

To this end, this article challenges a common belief: that successful self-control requires willpower—the ability to resist temptation with mental fortitude. Instead, those most successful at self-control use various alternative strategies that help diminish the impact of immediate temptation and bolster motivation toward more abstract, distant rewards. Self-control is a "toolbox" of strategies, and success entails finding the tools that work best for a given individual at a

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given time. Thus, rather than becoming "stronger," people need to become "smarter" about self-control.

What Is Self-Control?

Self-control conflicts typically manifest as choice dilemmas between smaller-immediate versus larger-delayed rewards (Ainslie, 1975; W. Mischel et al., 1989; Thaler & Shefrin, 1981). In these situations, self-control entails prioritizing the larger-delayed over smaller-immediate outcomes. Formally, self-control subordinates concrete and local motivational concerns in favor of more abstract and global concerns (Fujita, 2011; Rachlin, 2000). The immediacy and tangibility of locally available rewards, however, often tempt people to indulge. Improving self-control requires finding ways to dampen the allure of these immediate rewards and motivate people instead to pursue more valued ends.

One common source of confusion is that the term self-control refers both to outcomes (i.e., was the individual successful at overcoming temptation?) and the processes that give rise to outcomes (i.e., how did the individual overcome temptation; see Fujita, 2011). The present study distinguishes these by referring to the outcome as self-control, and the process as a self-control strategy or tool. Many tools support self-control. The discussion of tools begins, however, by focusing on the one most commonly used synonymously with self-control—"willpower."

Does Willpower Promote Self-Control?

Willpower is generally a poorly defined concept. Psychology most closely associates it with *effortful inhibition*: the intentional resisting of undesired thoughts, feelings, and behavior (e.g., Hofmann et al., 2009; Muraven & Baumeister, 2000). As an example, consider the classic Stroop effect in which people view various color words (e.g., "GREEN") and try to identify the *color* of the font in which words are written (Stroop, 1935). When the meaning of the word does not match the font color (e.g., "GREEN" written in red font), people must inhibit their habitual tendency to read the word (i.e., "green") and direct their attention instead to the font color (i.e., "red"). This process is challenging and often leads to slower reaction times and mistakes.

Self-control researchers have suggested that people employ inhibition to combat immediate temptations. For example, when dieters encounter palatable yet high-calorie foods, they might attempt to inhibit thoughts and feelings that encourage them to eat those foods (e.g., Hofmann et al., 2007; Stroebe et al., 2013). Critically, converging evidence from behavioral and neuroimaging research suggests that inhibition requires enough motivation and resources to implement (e.g., Heatherton & Wagner, 2011; Hofmann et al., 2009; Muraven & Baumeister, 2000). Thus, any restriction of one's cognitive resources may impair one's ability to inhibit undesired mental content. Indeed, situational and individual differences that diminish one's ability to counter cravings evoked by food cues—such as contextual cognitive load (e.g., Ward & Mann, 2000) and limited working memory capacity (e.g., Hofmann et al., 2008)—demonstrably predict over-eating. More broadly, factors that disrupt or limit one's ability to engage in effortful inhibition—including time pressure, distraction, intoxication, stress, and fatigue—are associated with poor self-control (Baumeister & Heatherton, 1996; Heatherton & Wagner, 2011; Hofmann et al., 2009).

The appeal of modeling effortful inhibition as the essence of self-control may stem from the assumption that self-control requires mental fortitude. The commonplace metaphor of an angel on one shoulder and a devil on the other fighting for control over an individual's decisions suggests that self-control is difficult and that one must stay strong in the face of temptation. Inhibition captures how challenging this process can be and appeals to notions of mental strength—the stronger one is at stamping out the proverbial devil, the more likely one should succeed at self-control. Moreover, it highlights the vulnerability of this process to disruption, thus providing an explanation as to why people at times feel "weak" and succumb to temptations.

Nevertheless, according to growing evidence, effortful inhibition does not play *the* central role in self-control (e.g., de Ridder et al., 2012). Comprehensive, rigorous, and large-scale assessments of people's cognitive inhibition abilities, for example, do not predict real-world self-control outcomes (Eisenberg et al., 2019). Similarly, ecological momentary assessments indicate that the experience of conflict—a necessary precondition to and marker of inhibition—does not predict successful in vivo self-control (Ent et al., 2015; Hofmann et al., 2012; Milyavskaya & Inzlicht, 2017). Process-tracing methods—such as mouse-tracking—that assess decision dynamics in real time also question the central role of inhibition (Stillman et al., 2017). For example, effortful inhibition models predict that people will first be attracted to temptations and then correct this initial tendency, once the slower inhibition process initiates. Yet, this pattern primarily characterized those who were more likely to fail; the most successful self-controllers were pulled immediately toward the larger-later reward. Thus, rather than describe those who are successful at self-control, effortful inhibition appears to describe those who are the least successful.

A Toolbox of Mental and Behavioral Strategies

We might note that the encouragement to those with poor self-control to "use willpower" is akin to telling a person to build a house with a pile of wood. The vagueness of the term provides very little insight into what willpower is and what tools they might use to help them. Without more specific

instructions, such exhortations to improve self-control are likely to fail.

Rather than willpower, one can enhance self-control by implementing a variety of tools that activate alternative psychological mechanisms that help people resist immediate temptation in favor of more valuable long-term outcomes. Multiple taxonomies classify such strategies (e.g., Duckworth et al., 2018; Gillebaart & de Ridder, 2015; W. Mischel, 2014). This section takes a broad, inclusive approach, focusing on tools that cut across these taxonomies to highlight strategies that promote self-control.

This review is necessarily selective and meant to highlight the diversity of strategies that have been documented. We divide these tools into two categories: those that rely on changing the way people attend to and mentally represent tempting stimuli (i.e., mental strategies) and those that rely on exploiting or manipulating features of the situation (i.e., behavioral strategies). We restrict our review to strategies that are under the individuals' control because our interest in this article lies in tools that can be self-initiated. Thus, we do not discuss strategies that rely on external actors or institutions to implement (i.e., nudges; Thaler & Sunstein, 2008).

Mental Tools

Attentional strategies. Recognized by Aristotle in the third-century BC, redirecting attention is one of the most fundamental tools in the self-control toolbox. Diverting attention away from immediate temptations reduces their "pull," enhancing a person's ability to prioritize more valued outcomes. One can redirect attention to promote self-control in two ways: *externally*, toward other stimuli in the environment or *internally*, by changing the internal focus of one's thoughts (e.g., fantasizing about something else).

Perhaps the best-known illustration of these strategies comes from Mischel and colleagues' research on delay of gratification, in which children must choose between one preferred treat now versus two preferred treats later. Although all children who participate in the task would like the larger, delayed reward, they are tempted to choose the immediately available, smaller reward.[1] Several studies (W. Mischel et al., 1972, 1989) diverted children's attention away from the treats in front of them, either by giving them the option to play with a toy (i.e., redirecting attention externally) or by cueing them to think fun thoughts (i.e., redirecting attention internally); both enhanced their ability to exercise self-control. Since then, studies with children (Miller & Karniol, 1976; Peake et al., 2002; Sethi et al., 2000), adults (e.g., Sheppes et al., 2009), and even non-human primates (Evans & Beran, 2007) document the benefits of redirecting attention for delay of gratification, persisting at a boring task, and regulating negative emotion.

Where a person redirects attention may critically determine the success of this strategy. For example, cueing children in delay of gratification paradigms to think about something sad *reduced* their ability to wait for the larger reward (W. Mischel et al., 1972). Thus, redirecting attention to negative internal or external stimuli may undermine self-control, given people's strong tendency to avoid aversive experiences. Thus, the target of redirected attention needs careful consideration.

Mental reframing strategies. Mental reframing strategies change people's cognitive representations to influence how they act and feel (Fujita, 2011; Kross & Ayduk, 2017; W. Mischel et al., 1972).[2] Mental reframing promotes self-control success for both children and adults, including reducing food and cigarette cravings (Fujita & Han, 2009; Giuliani et al., 2013; Kober et al., 2010), enhancing focus and performance on academic tasks (Leroy et al., 2012), and facilitating delay of gratification (Fujita et al., 2006; W. Mischel & Baker, 1975).

Despite infinite ways to mentally reframe a stimulus to alter its meaning, the most effective for self-control may be those that enhance psychological distance—how near or far an experience is on various dimensions, such as time, space, social relationships, or hypotheticality (Kross & Ayduk, 2017; W. Mischel & Rodriguez, 1993; Trope & Liberman, 2010). Psychological distance often prompts people to engage in *high-level construal*—a mental reframing that focuses people on the abstract, global implications of a decision. Activating high-level construal can involve cueing someone to consider the implications of having a cigarette *later* versus now (Kober et al., 2010) or to think about *why* versus how to accomplish a given action, such as maintaining good relationships (Freitas et al., 2004; Fujita & Han, 2009). These more abstract mental reframings promote self-control in a variety of contexts, ranging from food choice to physical endurance (e.g., Fujita & Carnevale, 2012).

Language also can activate mental reframings that enhance psychological distance—specifically, by changing the pronouns people use to refer to themselves during introspection. Directing adults to use *distanced self-talk*—reflecting on the self using their own name and non-first-person (e.g., "you" or "she") rather than first-person pronouns—facilitates healthy food choices (e.g., Furman et al., 2020). Comparable effects occur in children. In one study, cueing 4- and 6-year olds to refer to themselves using their own name (e.g., "Is Dani working hard?") or as a fictional character, such as Batman (e.g., "Is Batman working hard?"), led them to persevere longer on a boring but important task (White et al., 2017).

Finally, another type of mental reframing comes from how a person thinks about self-control itself. To the extent that people believe that self-control is fixed (i.e., something you have or not, which cannot improve) or limited (i.e., becomes depleted with effort), they may struggle to implement self-control, particularly in situations where it feels

hard. However, people who believe that self-control is malleable (i.e., can improve) and not limited (i.e., can always be used) may fare better. Several correlational and experimental studies support this perspective, illustrating that malleable and not-limited beliefs about self-control promote the self-control strategies, self-control success, and well-being (Job et al., 2015; Mukhopadhyay & Johar, 2005; also see, Tamir et al., 2007).

Behavioral Tools

Whereas mental strategies rely on the mind to redirect attention or generate reframings that promote self-control success, a second type of self-control tool relies on changing the way people interact with their environments.

Precommitment strategies. One behavioral strategy binds decisions in advance to promote more desirable, long-term behavior that aligns with self-control goals (Ariely & Wertenbroch, 2002). By making decisions when "cooler heads" prevail, people are less likely to be influenced by factors in the "heat-of-the-moment" that tend to encourage indulgence. Precommitment strategies can take various forms (see in the following) and effectively increase self-control in, for example, adhering to behaviors required for health screenings (Trope & Fishbach, 2000) and avoiding vices, such as cigarettes or junk food (Milkman et al., 2008; Wertenbroch, 1998).

C*hoosing in advance* involves deciding ahead: for example, placing one's lunch order at the start of the day (Milkman et al., 2008). This increases the likelihood of choosing a healthy salad, rather than a fried chicken sandwich, which might be much more tempting when lunchtime rolls around. These tools take advantage of psychological distance, by anticipating the self-controlled choice people want to make and "locking" themselves into that decision when temptations have less influence.

Self-imposed punishments are a commitment device that involves a costly penalty to the self if they fail to make a self-controlled choice. For example, not meeting a paper deadline might force a donation from people's bank accounts to political groups whose views are antithetical to their own. The threats of these punishments motivate people to forgo temptations and enhance self-control (Ariely & Wertenbroch, 2002; Trope & Fishbach, 2000; Wertenbroch, 1998).

Finally, *temptation bundling* involves pairing "should" behaviors, which promote a long-term self-control goal, with more enjoyable "want to" behaviors, which are instantly gratifying (Milkman et al., 2014; see also work on *success-contingent rewards*; Trope & Fishbach, 2000). For instance, college students who were encouraged or required to listen to an engaging audiobook exclusively while working out at the gym exercised more often than students in a control condition (Milkman et al., 2014). These gratifying behaviors offset some of the costs of forgoing temptation and make it easier to prioritize long-term outcomes (Trope & Fishbach, 2000; Woolley & Fishbach, 2016).

Situational modification strategies. As their name implies, these strategies involve modifying elements of a person's environment to reduce temptations and make self-control easier (Duckworth et al., 2016). This can involve *selecting* a situation that enables self-control success—for example, choosing to study in the library instead of in the dorm, surrounded by friends; or, it can involve *modifying* aspects of one's situation to reduce temptation or distractions and promote self-controlled behavior—for example, putting one's phone in another room during dinner time to resist the temptation to check it.

Similar to attentional strategies, situational modifications strategies change people's attention—but by manipulating aspects of the environment. They may also restrict the available choices altogether (Duckworth et al., 2016). Together, these processes promote self-control success. Both selecting and modifying aspects of one's situation are associated with enhanced self-control outcomes—people with higher self-control report deliberately avoiding situations that they expect to introduce self-control challenges (Ent et al., 2015) and instructing college students to use situational modifications increases attainment of their study goals (Duckworth et al., 2016).

Toward a Toolbox Approach of Self-Control

Several empirically supported mental and behavioral strategies facilitate self-control. However, the research literature has thus far largely studied these tools in isolation. Remarkably little research has examined how they work in tandem, and whether certain combinations of tools are more or less effective for different people in different situations. Addressing this issue in the future represents a priority because self-control success may hinge on being able to flexibly use multiple tools to navigate the varied and diverse self-control challenges that life presents (e.g., Bonanno & Burton, 2013; Cheng, 2001; Fujita, 2011; W. Mischel & Shoda, 1995; Scholer et al., 2018). Just as attempting to use a hammer to accomplish every job around the house may yield suboptimal results, a single self-control tool likely will not work consistently across people and situations. Rather, whether a self-control tool is effective or not depends on the person implementing the tool, the nature of the implementation situation, and the tool selected to manage the self-control challenge. In this vein, the ability to shift flexibly between different strategies—for example, redirecting attention in high-intensity situations but using mental reframing in low-intensity ones—may be more adaptive than rigidly relying

on only one (e.g., Cheng et al., 2014; Sheppes et al., 2014; Troy et al., 2013). Thus, maximizing a person's ability to successfully exert self-control requires that people have access to and knowledge of the full range of self-control tools available to them (e.g., MacGregor et al., 2017; H. N. Mischel & Mischel, 1983; Nguyen et al., 2019).

Policy Recommendations

This synthesis aimed to demonstrate that (a) deficits in self-control underlie a variety of consequential life outcomes, (b) lay assumptions about willpower being the *key* determinant of self-control are unsupported, and (c) self-control conceptualized as a toolbox of strategies can target specific mechanisms that underlie the ability to advance one's long-term interests. Building from these conclusions, we encourage policy-minded officials and scientists to address the five following priorities.

Priority 1: Educate the public about self-control: Myths abound about self-control. In contrast to the common assumption that willpower is the key to self-control, a more fruitful, evidence-based concept views self-control as a constellation of learnable, pragmatic skills. Conveying this is an essential first step for children and adults alike.

Priority 2: Prioritize research on how strategies work together. Despite recognizing that multiple strategies facilitate self-control, extant research overwhelmingly studies how individual strategies operate in isolation. Thus, we lack a firm understanding of how different strategies work together for different people in different situations. Advancing such knowledge promises substantial translational implications.

Priority 3: Identify ways to facilitate strategy deployment. Choosing and deploying self-control strategies in the "heat-of-the-moment" is challenging (e.g., W. Mischel et al., 1989). Facilitating implementation may rely on several promising methodologies, such as implementation intentions—plans that link a specific, anticipated cue with a goal-directed response (e.g., "If it is 9:30 am, then I will take my vitamin"; Gollwitzer, 1999; Patterson & Mischel, 1975) and the development of habits (e.g., Wood & Rünger, 2016). However, more work needs both to examine how these methodologies work with clusters of self-control strategies and to identify new methods of facilitating self-control.

Priority 4: Develop and evaluate "toolbox" interventions. Currently, several nascent research programs train educators to teach school-aged children how to use the tools that scientists have identified as facilitating self-control (Hoffmann et al., 2020; John Templeton Foundation, n.d.). These programs adopt a metacognitive approach: teaching people about the science underlying emotion and self-control; this assumes that if a person understands how these processes work—and has tools to help regulate their thoughts, feelings, and behavior—they will draw on this knowledge in daily life to help meet their goals. As proof of concept, such approaches have promising preliminary evidence (Reyes et al., 2012).

Priority 5: Expand intervention development approaches. The self-control intervention efforts consist of programs to bolster this capacity in school-aged children. Children may effectively learn this knowledge more indirectly through activities that develop more general skills (e.g., learning to play a musical instrument, karate or ballet classes, organized sports). Another potential lever may be the media. For example, Sesame Street's Cookie Monster has begun to explicitly model self-control strategies—like redirecting attention—to help him resist temptations (i.e., his beloved cookies). Research should evaluate these alternative approaches and compare them to direct curricular instruction. More work is also needed to examine how to enhance self-control in other demographics such as college students, middle-aged persons, and older adults.

Conclusion

The chief aim of this article is to dispel the notion that enhancing self-control requires willpower. Instead, resisting temptation may benefit from skillfully deploying various strategies. Not only is this toolbox approach to self-control supported by empirical research, it identifies how to propagate and disseminate this knowledge to the more general public via policy. Given the centrality of self-control in so many of society's most pressing problems, we believe that advancing this toolbox approach holds great promise in addressing many challenges to people's valued goals.

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Notes

1. Watts et al. (2018) controversially claimed that they failed to replicate the finding that preschool delay of gratification predicts various life outcomes (Shoda et al., 1990). Re-analyses of Watts and colleagues' data, however, dispute this conclusion and suggest that delay of gratification indeed predicts consequential outcomes (Falk et al., 2020; Michaelson & Munakata, 2020).

2. Although we use the term mental reframing, this process is alternately referred to as reconstrual, reinterpretation, cognitive change, and reappraisal in the literature. Importantly, we use mental reframing to refer to psychological processes that change the meaning of a stimulus, distinguishing this term from framing effects in the judgment and decision literature, which focus on how different presentations of decisions (e.g., emphasizing gains vs losses) can impact people's responses.

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