

Using Vividness Interventions to Improve Financial Decision Making

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Abstract

Prior policy work has effectively eased some financial problems that Americans face: Automatic enrollment in retirement saving accounts has drastically increased the number of workers who participate in defined contribution retirement plans. Yet, such choice architecture interventions cannot always be implemented, and even when they can, they are beholden to whatever decisions the choice architect made and, in any case, may not go far enough in helping maximize financial well-being over time. Additional interventions thus need to complement already successful choice architecture ones. Namely, because many financial decisions involve trade-offs between present and future selves, with the present self often being prioritized, this review highlights interventions that make the future self more vivid to decision makers. We discuss the theoretical background underlying such interventions, the factors that may make vividness interventions more or less effective in policy contexts, and possible future directions for researchers and policy makers.

Keywords

future self, vividness, policy interventions, financial decision making, retirement

Tweet

How best to complement choice architecture? Make the future self more vivid.

Key Points

- Choice architecture is effective at changing behavior but not always easy to implement, so other, complementary, interventions are needed
- Financial decisions involve trade-offs between present and future selves, and the present self gets prioritized
- Making the future self more vivid can help people make sounder financial decisions
- Interventions should focus on making the future self (a) more visually vivid or (b) more imaginatively vivid

Introduction

Whether budgeting, repaying debt, saving for college, or guaranteeing lifetime income after retirement, many people face difficulties surrounding their financial well-being. For some examples, approximately one in three Americans feel that being able to meet their financial obligations is their biggest financial worry (Rawes, 2014); the percent of student loans moving to delinquency has increased over the last several years (Federal Reserve Bank of New York, 2018);

parents saving for college are currently on track to cover only about 29% of future college costs (Fidelity Investments, 2016); about 4 in 10 Americans have less than US\$10,000 in retirement savings (Singletary, 2018); and only about 50% of households who are saving for retirement are on track to meet their retirement goals (Munnell, Hou, & Sanzenbacher, 2018).

Insights from the behavioral and brain sciences, however, have steadily been helping to address some of these issues. Social psychologists and behavioral economists, for instance, have implemented programs meant to bridge the gap between what everyday consumers say they want to do (e.g., save more for retirement) and what they actually do (e.g., fail to take advantage of employer-sponsored 401(k) plans). One notable application—the Save More Tomorrow program (SMT; Thaler & Benartzi, 2004)—employed automatic escalation (in which workers' contributions are automatically raised by a given percentage alongside pay raises) to increase retirement plan contributions. By one estimate, across the companies that have used SMT, auto-escalation has boosted annual savings by approximately US\$7.4 billion (Benartzi &

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Thaler, 2013). Relatedly, in a natural field experiment, when a large employer used automatic enrollment in its 401(k) enrollment procedure, plan participation more than doubled for new employees (from around 37% participation before automatic enrollment was implemented to 86% participation afterward; Madrian & Shea, 2001). Such programs rely on *choice architecture*, which designs decision-making contexts to encourage optimal decision making (Thaler & Sunstein, 2008).

Why Vividness?

Despite the success of choice architecture interventions in the financial decision-making space, their effectiveness is limited in at least two ways. First, choice architecture can only be successful to the extent that it can actually be implemented. For example, to make participation in a company 401(k) the default opt-out option, there first has to be a company 401(k) in which workers can participate. Yet, 35% of American workers over the age of 22 do not have access to an employer-sponsored 401(k) plan because they are not offered or eligible for one (Martin, 2018). Second, such interventions are beholden to whatever options the choice architect implemented, without consulting the workers; some may object to this libertarian paternalism (Sunstein & Thaler, 2003). Third, when 401(k) participation is framed as an opt-out decision, the default contribution rate has been set at 3%, so plan participation may be high, but most workers fail to increase their contributions beyond 3%, a rate that will most likely result in an underfunded retirement (Beshears, Choi, Laibson, & Madrian, 2009).

These limitations come with the territory: Part of what makes choice architecture interventions so effective is that they do not attempt to change people's underlying psychology. Rather than trying to counteract people's natural biases toward undervaluing the future, for example, choice architecture interventions take *advantage* of these biases by setting 401(k) rate increases to occur at some point in the future.¹ But, not counteracting psychological biases also means that such biases may remain in place in settings when choice architecture (a) is not possible or (b) fails to go far enough to make a meaningful difference.

Furthermore, more traditional policy approaches, such as providing tax incentives (Chetty, Friedman, Leth-Petersen, Nielsen, & Olsen, 2014) and matching contributions for savings programs (Duflo, Gale, Liebman, Orszag, & Saez, 2006) are expensive to implement—with relatively low returns on investment compared with choice architecture interventions (Benartzi et al., 2017)—making them potentially unsustainable in the long run (e.g., employer-sponsored pension plans). In addition to being costly, these traditional approaches rely on monetary incentives that serve as extrinsic motivation to

encourage savings behavior. As demonstrated through health interventions, monetary incentives (i.e., extrinsic motivation) are often not associated with long-term behavioral change and may even decrease “drive” over time to sustain beneficial behaviors (John et al., 2011; Mogler et al., 2013).

Accordingly, to maximize optimal financial decision making (to help people behave in a way that is in accordance with their wishes), other types of interventions may be needed that can either complement or substitute for standard choice architecture and traditional policy interventions. Because many of the most important financial decisions involve present–future trade-offs (e.g., wanting to spend discretionary income today rather than save it for the future), we focus here on interventions meant to change the way that people think about their future selves, the very selves that eventually benefit from or get punished by present-day decisions.

Specifically, this article reviews interventions that enhance how vividly such future selves are perceived. We thus define *vividness interventions* as any sort of interventions that aid people in visualizing or imagining themselves in the future. The following sections discuss the theoretical background underlying such interventions, the factors that may make vividness interventions more or less effective in policy contexts, and possible future directions.

Theoretical Background

Many important financial decisions involve consequences that play out at different points in time: spending now on a brand new, high-definition TV necessarily means less money for future spending (and saving). Such decisions (saving for retirement, saving for college, spending within one's budget) are hard decisions to make, precisely because the present has a more powerful influence on emotions than the prospect of some uncertain future outcome (Dunn, Brackett, Ashton-James, Schneiderman, & Salovey, 2007). Indeed, a large body of research has found that many individuals not only discount the value of future rewards but do so at a rate that is excessive; that is, people make decisions that contradict what people believe they should do, which they often later regret (Frederick, Loewenstein, & O'Donoghue, 2002).

Connecting to Future Selves

Understanding the relationship between different selves helps to explain excessive discounting.² When people consider their distant future selves, in theory, they may think of them as if they are other people (Hershfield & Bartels, 2018). Along these lines, people think about their future selves similarly to the ways that they think about others: They ascribe more dispositional traits to the future self and are predisposed to view the future self from a third-person perspective (Pronin

& Ross, 2006). Likewise, similar regions of the brain activate when thinking about others compared with thinking about future selves (Ersner-Hershfield, Wimmer, & Knutson, 2009). If the future self is thought of as another person, then making sacrifices for this future person may feel similar to making sacrifices for other people in the present. This proposition may feel especially painful if an emotional connection to that future self is lacking (much in the same way that making sacrifices for others could feel undesirable without pre-existing emotional connections to them). But, just as feeling close to others increases the likelihood of making decisions that benefit them (Berkowitz & Daniels, 1963; Schwartz, 1970), feeling close to the future self may motivate decisions that benefit that future self.

If the future self is considered another person, then it may be useful to draw on interventions that have encouraged people to help others. Along these lines, providing identifying details of charity recipients can boost donations. Indeed, in explaining this effect, Jenni and Loewenstein (1997) echo Thomas Schelling's (1968) original sentiment that increasing the vividness of a charitable recipient evokes empathic and sympathetic concerns. That is, increasing vividness of a charity recipient may boost charitable giving by increasing the emotional connection felt by the potential giver. By extension, if people treat their future self as if it is another person, then providing vivid depictions of the future self may enhance the emotional connection between present and future selves. Accordingly, a heightened emotional bond with the future self may cause the present self to feel greater responsibility for the outcomes experienced by the future self.

Failures of Imagination

When deciding on a course of action, decision makers naturally weigh the pains and gains felt in the present moment (Pronin, Olivola, & Kennedy, 2008). Shortsighted decisions may thus partially result from a failure to fully imagine the subjective experience of one's future self. Neuropsychologically, as well, when imagining future events, activity in brain regions associated with introspection positively correlate with patient behavior in financial domains (Mitchell, Schirmer, Ames, & Gilbert, 2011). In other words, the more individuals can simulate their internal experience when imagining future situations, the less they discount future rewards.

When people vividly think about the subjective experience of the future self, they can more easily integrate pains and gains for both their present and future selves into the decision-making process. Consequently, the pains of delaying a reward in the present may not loom quite as large as the future gains. What was previously construed as a painful experience is now a more pleasant endeavor. Thus, making future selves more vivid may also increase patience by promoting imagination of the future self's subjective experiences and integrating the anticipated gains into the decision process.

Prior Vividness Interventions

Despite a strong theoretical basis for personalized vividness interventions increasing patience in long-term financial decisions,³ relatively few studies field-test such interventions. The following section overviews these interventions, in both laboratory and field settings.

Financial Choices

One of the first tests of a vividness intervention in financial decision making (Hershfield et al., 2011) proposed that interacting with a future self would increase emotional connection with the future self and, consequently, promote savings behavior. Participants interacted with realistic computer renderings of their future selves (avatars of an age-progressed vs. current-aged self) using immersive virtual reality hardware. Those who interacted with their future selves were more likely to delay present monetary rewards and indicated greater intentions to save for retirement compared with a control group that simply interacted with their present selves. Enhanced connectedness with the future self did explain the effect of the vividness intervention on savings behavior.

In an extension of this work, students from economically diverse backgrounds who were enrolled in financial education course were randomly assigned to view an age-progressed avatar or a current-aged avatar (Sims, Bailenson, & Carstensen, 2015). Again, participants who viewed their future selves allocated more to savings in a hypothetical task. Furthermore, a subset of participants repeatedly viewed their avatars throughout the course (by building their online profile pages). Compared with students who viewed the current-aged avatar, those who viewed their future selves received higher scores on a financial education quiz at the end of the course. Interacting with a vivid future self may not only promote motivation to save but also motivation to *learn how to* save, for individuals from a wide range of economic backgrounds.

Finally, a recent field study (Shah, Hershfield, Gomez, & Fertig, 2018) asked thousands of Mexican citizens to spend time vividly imagining their distant selves (via a Mad Libs-style intervention in which people thought about the interests, desires, and lifestyles of their future selves) before making a decision about whether to sign up for automatic saving accounts. Although about 1% of customers signed up for the automatic savings program in a neutral control condition, this low-tech vividness intervention resulted in an approximately 3% take-up rate.

Because savings interventions comprise a small portion of all vividness interventions to date, we next highlight vividness interventions in other domains that similarly require patience in the present to reap distant benefits.

Health

To ensure a physically healthy future self, people must refrain from present indulgences and also increase healthy physical activity. Making the future self vivid may help improve prudent choices in the present. In one recent test of this idea, participants were randomly assigned to interact with either a weight-reduced future self or their present self, by looking into a dressing mirror in a virtual fitting room (Kuo, Lee, & Chiou, 2016). Those who interacted their weight-reduced future self ate less ice cream in a subsequent taste test.⁴

However, as in the financial domain, virtual reality is not the only way to increase the vividness of the future self. A recent study, for example, randomly assigned participants to simply write about either a near self (3 months in time) or a distant future self (20 years in time; Rutchick, Slepian, Reyes, Pleskus, & Hershfield, 2018). Participants who thought about a distant future self—making it more vivid than usual—exercised more in the days following the intervention compared with participants who thought of a near future self (already vivid).

Ethical Decisions

Similar to financial and health domains, ethical shortcomings often result from succumbing to temptation in the present. Specifically, one reason people make ethical transgressions is that they fail to integrate future consequences into their decisions. That is, people often neglect the possible future dilemmas caused by their present unethical choices. Accordingly, enhancing the vividness of the future self may decrease the likelihood of unethical decisions in the present. In an initial test of these ideas, participants who were asked to vividly consider their future selves showed more support for ethical negotiation strategies compared with a control group that simply elaborated on the future (Hershfield, Cohen, & Thompson, 2012). In follow-up work, undergraduates who interacted with a 40-year old version of themselves in an immersive virtual reality environment were less likely to cheat on a subsequent task (van Gelder, Hershfield, & Nordgren, 2013).

Following this lab work, a field experiment (van Gelder, Luciano, Weulen Kranenberg, & Hershfield, 2015) tested whether vividness interventions could ameliorate delinquency in school. High school students in the Netherlands were randomly assigned to either interact with an avatar of their future self (treatment) or their current self (control). For a week, students in the treatment condition received texts from an avatar of their future self (e.g., “Imagine and briefly describe what you do on a day like today in exactly three years from now . . .”). The high school students who interacted with their future self reported significantly less delinquent and antisocial behavior than those who interacted with their current self.

Policy Considerations and Contextual Factors

Interventions have increased vividness through two methods: first, by making the future self more visually vivid (e.g., through age-progressed renderings) and second, by making the future self more imaginatively vivid (e.g., through written and verbal exercises). The mechanisms at play in both types of interventions may operate in tandem: Visual interventions, for example, may also make the future self easier to imagine. Both aspects should matter to decision makers: We echo the novelist Karl Knäusgaard (2015), who acknowledged that there were academic topics he could “account for,” but really knew nothing about (e.g., the Holocaust) until he spent time reading about them and more thoroughly imagining their existence. Once these topics were more real in his imagination, they were also more vivid to him, and he therefore cared more deeply about them. People may similarly be able to “account” for their future selves (i.e., by knowing their future selves will exist) but have a difficult time taking action to help these distant selves until prompted to consider them in more vivid ways.

Whichever mechanism is at play, however, the takeaway for policy makers is that the future self can become more vivid to decision makers by making it (a) more visually vivid and (b) more imaginatively vivid. These insights should be of use not only to policy makers working for agencies that deal with financial decision making (e.g., the Consumer Financial Protection Bureau) but also to lobbyists who work on behalf of the financial services industry: After all, helping consumers with their saving and budgeting provides benefits to both those consumers *and* the agencies who serve them.

Nonetheless, the body of work that has led to these conclusions is certainly nascent. Thus, to maximize the effectiveness of such interventions and to keep costs low relative to benefits, policy makers should consider research that explores how the context of the policy problem affects the design of the vividness intervention. Although research has only tangentially touched on such contextual factors, we speculate on the major ones below and offer suggestions where future research is needed.

Age of Decision Maker

Vividness interventions have appeared across demographic factors, but such interventions may have heterogeneous effects across different types of people. The age of the target group, for example, may determine efficacy. Older people perceive greater overlap between their present and future selves (Löckenhoff & Rutt, 2017), and appeals to the future self may be most effective for individuals with high pre-intervention levels of perceived overlap between selves (Bryan & Hershfield, 2012). Could it be the case, then, that older adults—who perceive a high degree of overlap between

present and future selves—would be the most likely to be affected by a vividness intervention?

On the opposite end of the spectrum, children as young as 3 years old also conceptualize their future selves (Atance & Meltzoff, 2005; Chernyak, Leech, & Rowe, 2017; Metcalfe & Atance, 2011). Having preschoolers draw pictures of future selves and describe future experiences heightened performance on planning tasks (Chernyak et al., 2017). Although such work has been confined to laboratory settings, integrating vividness interventions into early childhood educational contexts could improve long-term decision making in children. If vividness interventions can persistently alter intrinsic motivation and prospective abilities, intervening early could have downstream benefits (Cunha & Heckman, 2007). Taken together, future work should examine when vividness interventions are effective for different subpopulations across the life span.

Environmental Factors

A potentially relevant contextual difference for vividness interventions is the perceived reliability of future environments: How likely is it that a promised reward (e.g., an investment return) will actually materialize in the distant future. Such factors may affect a child's ability to delay gratification (Kidd, Palmeri, & Aslin, 2013):

Consider the mindset of a 4-year-old living in a crowded shelter, surrounded by older children with little adult supervision. For a child accustomed to stolen possessions and broken promises, the only guaranteed treats are the ones you have already swallowed. (p.110)

This developmental theory likely applies to adults as well. For example, if the targeted adults do not believe in the reliability of financial institutions, attempting to promote long-term savings with vividness interventions may be ineffective without establishing trust in financial institutions.

Which Future Self?

Policy makers also need to understand *which* future self should be made vivid for a given intervention. One area for future investigation involves the cognitive distinction between nearer and more distant future selves. Vividness of a future self, and therefore connection to that self, may be harder to achieve for a distant future self than a nearer future self. As a consequence, the vividness intervention for financial goals benefiting a distant future self (e.g., retirement savings) may need to be more heavy-handed than an intervention for a near future self (e.g., saving for a vacation or home); connection between the present and future is harder to achieve as the future becomes more distant (Löckenhoff & Rutt, 2017). The further the temporal distance between the present and future self, the more difficult it becomes to have empathy for the future self, relate to the future self, pay

attention to the future self, and concretely imagine the future self, all factors that humanize and connect to the future self (Haslam & Bain, 2007; Hershfield et al., 2011). Therefore, a writing task may suffice to induce vividness between a current and nearer-term future self, whereas visual representations of the future self may more effectively induce vividness of a very distant future self in retirement.

Decontextualized Versus Contextualized Future Selves

Finally, some prior interventions in research settings have displayed a future self that is simply older (i.e., without context or *decontextualized*), whereas others have highlighted a specific, contextualized future self. Notably, a contextualized future self must be an attainable future self to promote sustained aspirational behavior (Oettingen & Mayer, 2002; Oyserman, Bybee, Terry, & Hart-Johnson, 2004). People must, in other words, have a reasonable plan to guide them from their present selves to their imagined future selves (Oyserman et al., 2004). Inequality in access to opportunity translates to disparities in the overlap between ideal and attainable future selves: Some people have an ideal future self in mind and have the opportunities to achieve this outcome, but many others possess an ideal future self with no feasible way of becoming that future self. As such, we caution against assuming a vividness intervention that highlights a wealthy, healthy, righteous future self will be equally effective for individuals from different backgrounds. Instead, policy makers should first use qualitative research on the target group (i.e., asking about an attainable future self in general and for a given subgroup), and then balance these factors when designing a vividness intervention.

Conclusion

The behavioral and brain sciences have made great progress toward helping people make better long-term decisions in the financial domain, especially through interventions that remove friction points for decision makers (via choice architecture changes). Such interventions, however, have limits in part because they cannot always be implemented, and even when they can, they do not always go far enough. As a result, other types of interventions need to complement these already successful ones. Because so many financial decisions rely on trade-offs between present and future selves, interventions that specifically make the future self more vivid can help people better connect with the distant self who is ultimately beholden to present-day decisions. The science supporting such interventions is admittedly nascent, with many promising avenues for researchers and policy makers alike to pursue. Nonetheless, this growing body of work suggests that policy makers may be able to aid financial pursuits by putting into place exercises that make the future self more vivid to decision makers.

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Notes

1. This point is also relevant to other interventions that do not specifically rely on choice architecture but do try to change behavior by taking advantage of psychological biases rather than changing them. Ashraf, Karlan, and Yin (Ashraf, Karlan, & Yin, 2006), for example, gave individuals the option to sign up for a “commitment savings device,” in which any contributions to savings accounts would be locked up until a savings goal was reached. Account balances were 81% higher for participants who had been given this savings product compared with those who had not. Here, as in the Save More Tomorrow program (SMT) program, researchers did not increase the motivation to save but did use existing psychology (the recognition that saving may be difficult) to help people save more.
2. A longer review (Hershfield & Bartels, 2018) highlights various theories that consider the relationship between present and future selves (continuity theories, self-as-other theories, and failure of imagination theories). To remain focused on policy relevance, the present article draws from aspects of these different accounts.
3. Taylor and Thompson (1982) observed that concrete descriptions and pictorially illustrated information were weakly persuasive. However, they also note that vivid information that is *personally relevant* may have positive effects on judgment.
4. We interpret these results cautiously as the sample size was relatively small.

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