BEHAVIORAL ECONOMICS AND SOCIAL POLICY

Designing Innovative Solutions for Programs Supported by the Administration for Children and Families

TECHNICAL SUPPLEMENT: COMMONLY APPLIED BEHAVIORAL INTERVENTIONS

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Authors: Lashawn Richburg-Hayes, Caitlin Anzelone, Nadine Dechausay (MDRC), Saugato Datta, Alexandra Fiorillo, Louis Potok, Matthew Darling, John Balz (ideas42)

Submitted to:
Emily Schmitt, Project Officer
Office of Planning, Research and Evaluation
Administration for Children and Families
U.S. Department of Health and Human Services

Project Director: Lashawn Richburg-Hayes
MDRC
16 East 34th Street
New York, NY 10016

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Commonly Applied Behavioral Interventions

The Behavioral Interventions to Advance Self-Sufficiency (BIAS) project aims to learn how tools from behavioral economics, which combines insights from psychology and economics to examine human behavior and decision-making, can improve programs that serve poor and vulnerable people in the United States. The BIAS project is sponsored by the Office of Planning, Research and Evaluation of the Administration for Children and Families (ACF) within the U.S. Department of Health and Human Services.

The full report that introduces the BIAS project — Behavioral Economics and Social Policy — describes the initiative’s early work in three sites.¹ In partnership with state agencies, the BIAS team uses a method called “behavioral diagnosis and design” to delve into problems that program administrators have identified, to diagnose potential bottlenecks that may inhibit program performance, and to identify areas where a relatively easy and low-cost, behaviorally informed change might improve outcomes.

This Technical Supplement to the full report presents a description of behavioral interventions that have been commonly researched in studies outside of the BIAS project. The supplement is intended to give a broader sense of the universe of behavioral interventions that have been evaluated and have demonstrated some efficacy.²

Literature Review

The BIAS team reviewed studies in the larger field of behavioral science that developed and applied behavioral interventions in eight areas: charitable giving, consumer finance, energy/environment, health, marketing, nutrition, voting, and workplace productivity. The review focused primarily on field studies rather than lab experiments because such studies were deemed to be most relevant to the BIAS project. The team then categorized the interventions by type.

The review identified 12 interventions that were widely cited in 291 studies.³ The 12 interventions are discussed below, with definitions and examples of how they have been applied. They are summarized in Table TS.1, ranked by the frequency with which they are evaluated in the studies under review, with number 1 the most frequently studied.⁴

¹ Richburg-Hayes et al. (2014).
² The Appendix of the full report (Richburg-Hayes et al., 2014) contains a glossary of select behavioral terms. While some of those terms overlap with those presented in this supplement, the current document reflects the interventions that were evaluated most often in the 291 studies that are reviewed here; some definitions may differ slightly, as they reflect the particular intervention that was studied.
³ Some of the studies included more than one behavioral intervention, while others did not include a behavioral intervention from the 12 listed types. As a result, the total number of studies evaluated by intervention type does not equal 291 in Table TS.1.
⁴ Examples are intended to provide a clear description of the behavioral intervention studied in the literature. Not all examples are drawn from the domains included in Table TS.1 and listed in the bibliography.
## Table TS.1: Examples of Behavioral Interventions

<table>
<thead>
<tr>
<th>Rank</th>
<th>Type</th>
<th>Frequency*</th>
<th>Example</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Reminders</td>
<td>73 papers, appearing in 6 domains</td>
<td>A regular text-message reminder to save money increased savings balances by 6 percent (Karlan, McConnell, Mullainathan, and Zinman, 2010).</td>
</tr>
<tr>
<td>2</td>
<td>Social influence</td>
<td>69 papers, appearing in 8 domains</td>
<td>Homeowners received mailers that compared their electricity consumption with that of neighbors and rated their household as great, good, or below average. This led to a reduction in power consumption equivalent to what would have happened if energy prices had been raised 11-20 percent (Allcott, 2011).</td>
</tr>
<tr>
<td>3</td>
<td>Feedback</td>
<td>60 papers, appearing in 5 domains</td>
<td>A field experiment provided individualized feedback about participation in a curbside recycling program. Households that were receiving feedback increased their participation by 7 percentage points, while participation among the control group members did not increase at all (Schultz, 1999).</td>
</tr>
<tr>
<td>4</td>
<td>Channel and hassle factors</td>
<td>43 papers, appearing in 8 domains</td>
<td>Providing personalized assistance in completing the Free Application for Federal Student Aid (FAFSA) led to a 29 percent increase in two consecutive years of college enrollment among high school seniors in the program group of a randomized controlled trial, relative to the control group (Bettinger, Long, Oreopoulos, and Sanbonmatsu, 2009).</td>
</tr>
<tr>
<td>5</td>
<td>Micro-incentives</td>
<td>41 papers, appearing in 5 domains</td>
<td>Small incentives to read books can have a stronger effect on future grades than direct incentives to get high grades (Fryer, Jr., 2010).</td>
</tr>
<tr>
<td>6</td>
<td>Identity cues and identity priming</td>
<td>31 papers, appearing in 3 domains</td>
<td>When a picture of a woman appeared on a math test, female students were reminded to recall their gender (Shih, Pittinsky, and Ambady, 1999).</td>
</tr>
<tr>
<td>7</td>
<td>Social proof</td>
<td>26 papers, appearing in 5 domains</td>
<td>Phone calls to voters with a “high turnout” message — emphasizing how many people were voting and that that number was likely to increase — were more effective at increasing voter turnout than a “low turnout” message, which emphasized that election turnout was low last time and likely to be lower this time (Gerber and Rogers, 2009).</td>
</tr>
<tr>
<td>8</td>
<td>Physical environment cues</td>
<td>25 papers, appearing in 5 domains</td>
<td>Individuals poured and consumed more juice when using short, wide glasses than when using tall, slender glasses. Cafeterias can increase fruit consumption by increasing the visibility of the fruit with more prominent displays, or by making fruit easier to reach than unhealthful alternatives (Wansink and van Ittersum, 2003).</td>
</tr>
<tr>
<td>9</td>
<td>Anchoring</td>
<td>24 papers, appearing in 3 domains</td>
<td>In New York City, credit card systems in taxis suggested a 30, 25, or 20 percent tip. This caused passengers to think of 20 percent as the low tip — even though it was double the previous average. Since the installation of the credit card systems, average tips have risen to 22 percent (Grynbaum, 2009).</td>
</tr>
<tr>
<td>10</td>
<td>Default rules and automation</td>
<td>18 papers, appearing in 4 domains</td>
<td>Automatically enrolling people into savings plans dramatically increased participation and retention (Benartzi and Thaler, 2004).</td>
</tr>
<tr>
<td>11</td>
<td>Loss aversion</td>
<td>12 papers, appearing in 7 domains</td>
<td>In a randomized controlled experiment, half the sample received a free mug and half did not. The groups were then given the option of selling the mug or buying a mug, respectively, if a determined price was acceptable to them. Those who had received a free mug were willing to sell only at a price that was twice the amount the potential buyers were willing to pay (Kahneman, Knetsch, and Thaler, 1990).</td>
</tr>
<tr>
<td>12</td>
<td>Public/private commitments</td>
<td>11 papers, appearing in 4 domains</td>
<td>When people promised to perform a task, they often completed it. People imagine themselves to be consistent and will go to lengths to keep up this appearance in public and private (Bryan, Karlan, and Nelson, 2010).</td>
</tr>
</tbody>
</table>

*The eight domains are charitable giving, consumer finance, energy/environment, health, marketing, nutrition, voting, and workplace productivity.
1. Reminders

The use of reminders involves prompting program participants by supplying a specific piece of information to make it noticeable and to increase the chances that participants will act on that information.

Reminders can have dramatic effects on behavior, such as encouraging people to get critical medical tests, quit smoking, and pay their bills on time. In all these cases, the individual must remember to take several steps in order to follow through on an intention, and it is easy to forget or neglect to take one of those steps. A timely reminder may prevent this problem. A simple, regular text-message reminder to save money, for example, increased savings balances by 6 percent in a randomized controlled trial.

Practitioners can deliver reminders through multiple channels. The context of the problem should determine the format and timing of the reminder. For example, consider a reminder regarding a deadline. If it is delivered too close in time to the deadline, it might not provide the individual with enough time to prepare; if delivered too far in advance, it may be forgotten before the deadline arrives.

2. Social Influence

Social influence can be used to directly or indirectly foster a particular type of behavior through direct or indirect persuasion.

Comparing an individual’s conduct with that of peers, neighbors, or friends is an effective way to change behavior. For example, sending mailers to households comparing neighbors’ electricity consumption and rating each household as great, good, or below average led to a reduction in power consumption equivalent to what would have resulted if energy prices had been raised 11 to 20 percent, with effects twice as large for those who were initially using the most electricity. Similarly large effects have been found for water consumption, where comparison with neighbors’ usage curbed consumption far more than providing basic or general facts on how best to reduce water use.

This approach should originate with a person known to the individual who is the target of the desired behavioral change (for example, a friend, family member, or teacher) or, if not known personally, a well-known personality (like a celebrity or a public official). The person who is trying to influence the behavior establishes the guidelines for socially appropriate and inappropriate conduct. The effect need not be conscious, as in the case of children mimicking their parents’ behavior.

3. Feedback

Providing ongoing information — or feedback — to individuals about their behavior is a way to make that information salient and allow the individuals to evaluate their own behavior and change it.

Providing feedback at regular intervals makes it easier for individuals to monitor and regulate their behavior. People are sometimes shocked by how much weight they gain during the holidays or by how little money they have left in their bank account at the end of the month because they have not received any regular feedback about the behavior that led to those outcomes. Receiving feedback on progress toward goals, at regular intervals, helps individuals to meet those goals. For example, a field experiment in California provided individualized feedback about participation in a curbside recycling program. Households that were receiving feedback increased their participation by 7 percentage points, while the control group, which received no feedback, experienced no increase.

4. Channel and Hassle Factors

A channel factor can make a behavior easier to accomplish; a hassle factor makes a behavior more difficult to accomplish.

Seemingly trivial tasks like waiting in line, filling out a form, or mailing an envelope can have outsized effects — they often halt progress altogether, increasing the chance that someone will drop out of a program midway, or fail to enroll in the first place. Eliminating these “hassle factors” — for example,
by waiving the need for a required form — can have a disproportionate effect compared with their cost. Alternatively, “channel factors” can be added that smooth the path to action; for example, including a map with an appointment notice precludes the need to look up directions.

One field experiment vividly showed the power of channel and hassle factors. The decision about attending college has high stakes, but the hassle of filling out forms, especially related to financial aid, may discourage people from applying to college. Providing personalized assistance to families of high school seniors completing the Free Application for Federal Student Aid (FAFSA) form led to an 8 percentage point increase in college enrollment for two consecutive years among the program group relative to the control group in a randomized controlled trial.10

5. Micro-Incentives
Micro-incentives are small monetary payments (or fines) that are used to reward (or discourage) particular types of behavior.

Conventional economics predicts that a small monetary or material incentive would not induce a change with large consequences. In contrast, behavioral economists have found that payments of small magnitude can have substantial effects. For example, offering a minor reward, such as raw lentils and a metal plate, induced parents in one study to bring their children to a vaccination appointment.11

Micro-incentives can be used in a variety of ways. First, in cases where an individual is genuinely ambivalent about the available choices, micro-incentives may be as powerful as larger, more traditional incentives by giving a reason to prefer one choice over another. Second, micro-incentives can provide short-term rewards to address long-term problems. That is, the promise of future rewards for activities completed in the present is reinforced with small, immediate rewards. Finally, micro-incentives can assist in increasing the comprehension of complex processes, which is a difficult cognitive task. They provide a signal that the activity is important, and may be used to reward behavior that the individual might not associate with the desired long-term outcomes. For example, small incentives to read books can have a stronger effect on future grades than direct incentives to get high grades.12

6. Identity Cues and Identity Priming
Identity cues represent a person’s connection to a social identity. Identity priming is the attempt to influence behavior by highlighting a particular identity cue that is aligned with the targeted behavior.

Every person carries multiple identities. The same person can be a wife, mother, lawyer, and gardener. Each identity may carry different goals, and people make decisions with reference to the identity that is most active at the time. Reminding people (even inadvertently) of an aspect of their identity induces them to act in ways that fit in with the goals and internalized stereotypes associated with that aspect of themselves.13

For example, researchers have found that women do worse on mathematics tests if “primed” to recall their gender because of the stereotype that women are less proficient at math.14 In another example, Asian students performed better academically when their racial identity was primed. In the case of Asian women, both effects have been observed — suggesting that identity is malleable and can be activated in different ways.15 It is therefore useful to stress aspects of identity that have positive connotations while avoiding highlighting those that may evoke negative stereotypes in communications about or publicity for programs.

7. Social Proof
Social proof is descriptive, factually accurate information about how peers behave in a similar situation.

Most individuals make efforts to conform to their perception of social norms, or behavior that is established by others as a cue for one’s own behavior. Being informed of what that norm is (“people in this area

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11 Banerjee et al. (2010).
12 Fryer, Jr. (2010).
13 Steele (1997).
14 Shih, Pittinsky, and Ambady (1999).
15 Shih, Pittinsky, and Ambady (1999).
recycle” or “people in this area turn off lights when they leave the room”) can therefore change behavior. Additionally, information about others’ behavior is useful because people often have incorrect beliefs about the prevalence of various types of behavior. This happens because some activities are highly visible, while others are private. People often believe that their own behavior is more common than it really is, or vice versa.

Social influence and social proof are both subcategories of a “social norm” intervention. Social proof interventions are descriptive — they explain what other people do, without instructing program participants what to do or how to behave. In contrast, social influence interventions are persuasive — a peer tells the program participants to behave in a particular way, or the actions of peers are used to compare behavior in order to persuade program participants to change their own behavior. Social proof interventions and social influence interventions are often combined, as when, for instance, the program participants are told, “Everyone is doing this, and you should do it also.”

The effectiveness of using social norms to change behavior suggests that interventions should call attention to peers who act in the desired way, rather than emphasizing how many people do not follow the desired behavior. For example, a field experiment that tested the impact of phone calls on voters’ behavior found that the “high turnout” message — emphasizing how many people were voting and that that number was likely to increase — was more effective in getting people to vote than a “low turnout” message, which emphasized that election turnout was low last time and likely to be lower this time.16

8. Physical Environment Cues

These cues reflect specific physical features of an environment that affect intuitive or subconscious decision-making.

People are regularly faced with a number of decisions that they must make. The active consideration of every potential choice would take a very long time and is not realistic. Thus, people often rely on habit and convenience to make choices. A person might eat everything on his plate even if he is not hungry (the plate with food being the physical environment cue), or he might follow a standard route to work even if a better alternative route is available, out of habit. By manipulating physical environment cues, programs can have an impact on the choices people make. Simple modifications to physical space can change people’s minds even if they are not cognizant of the change.17

For example, one study found that individuals poured and consumed more juice when they were given short, wide glasses to use versus tall, slender glasses.18 The physical environment cue was the size and shape of the glass.

9. Anchoring

Anchoring is the intentional selection of a reference point that is designed to make nearby (or easily accessible) alternative choices more or less attractive.

Sometimes people make decisions based on contextual factors that may or may not be obvious. People often “anchor” thoughts to a reference point — and that reference point can be relatively easy for practitioners to change.19 For example, in 2009, credit card systems in New York City taxi cabs began suggesting a 30, 25, or 20 percent tip. Before these systems were installed, the average tip was only 10 percent. When passengers anchored their decision about tipping to a reference point of 20 to 30 percent, they began to think of 20 percent as the low-range tip, even though it was double the previous average. In the months afterward, average tips rose to 22 percent.20

16 Gerber and Rogers (2009).
17 Thaler and Sunstein (2008).
18 Wansink and van Ittersum (2003).
20 Grynbaum (2009).
10. Default Rules and Automation

Default rules automatically set up a desired outcome without requiring any action to be taken.

The most common decision people make is simply to not decide.\(^{21}\) Defaults are the outcome when an individual is not required to take any action or make any decision. Defaults can be designed to nudge people in a desired direction. By taking advantage of automation—that is, making a particular choice automatic, thereby requiring no action on the part of the individual—default options can do the work that the individual would otherwise have to do.

For example, making enrollment in a savings plan the default option—which automatically enrolls people into the plan without requiring them to do anything—can dramatically increase participation and retention in the plan.\(^{22}\)

11. Loss Aversion

Interventions based on loss aversion highlight the loss that a person may experience as the result of a given action or transaction (or for not acting), rather than describing gains.

The prospect of a loss has much more motivational force than equivalently sized gains.\(^{23}\) This has two implications for design. First, where possible, programs should be designed to minimize losses that would tend to discourage desired behavior. For example, the “Save More Tomorrow” 401(k) plan is designed such that the employee’s contribution rates are increased automatically after the employee receives a pay raise.\(^{24}\) Second, many situations can be presented as either a loss or a gain. Outcomes framed as losses drive behavior more strongly than do outcomes framed as gains.\(^{25}\) That is, people will do more to avoid a loss than to experience a gain.

12. Public/Private Commitments

In interventions that emphasize commitments, participants pledge to carry out specified behavior or take actions that are necessary to achieve a specific goal.

If a person makes a promise to perform a task, she often completes it—even if she only made the promise to herself. People believe they are consistent and will go to lengths to maintain this belief and appearance in public and private.\(^{26}\) Initial pledges might start small, and small pledges can turn into large ones.

Marketing professionals often ask for a trivial commitment in order to induce a “momentum of compliance” that leads to larger, later commitments. For example, sales people will try to take small orders as they know such orders will likely turn into repeat business. Pledges may also be self-imposed or requested by a third party. This need to maintain consistency by following through on a commitment can help with overcoming self-control problems. Well-designed pledges are specific and actionable, to minimize the overburdening of mental resources needed to achieve goals that require complex behaviors.\(^{27}\)

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\(^{21}\) Samuelson and Zeckhauser (1988).
\(^{22}\) Benartzi and Thaler (2004).
\(^{23}\) Kahneman and Tversky (1979).
\(^{24}\) Benartzi and Thaler (2004).
\(^{25}\) Hochman and Yechiam (2011); Janowski and Rangel (2011).
\(^{26}\) Cialdini (2008).
\(^{27}\) See Ciakdini (2008).
Charitable Giving


**Consumer Finance**


**Energy / Environment**


**Health**


Marketing


Nutrition


**Workplace Productivity**


REFERENCES


