ideas42

Changing Behavior to Improve People's Lives

A practical guide

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About ideas42

We're a non-profit looking for deep insights into human behavior—into why people do what they do—and using that knowledge in ways that help improve lives, build better systems, and drive social change. Working globally, we reinvent the practices of institutions, and create better products and policies that can be scaled for maximum impact.

We also teach others, ultimately striving to generate lasting social impact and create a future where the universal application of behavioral science powers a world with optimal health, equitable wealth, and environments and systems that are sustainable and just for all.

For more than a decade, we've been at the forefront of applying behavioral science in the real world. And as we've developed our expertise, we've helped to define an entire field. Our efforts have so far extended to 40 countries as we've partnered with governments, foundations, NGOs, private enterprises, and a wide array of public institutions—in short, anyone who wants to make a positive difference in peoples' lives.

Visit ideas42.org and follow @ideas42 on Twitter to learn more about our work. Contact us at info@ideas42.org with questions.

About the Authors

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⟫ INTRODUCTION

Governments, nonprofit organizations, and philanthropies devote enormous resources to efforts to improve people's lives in areas ranging from poverty to smoking and obesity to global warming.

One can place the strategies for solving social problems in two broad categories: technological and behavioral. For example, solutions to reduce global warming include the development and diffusion of solar, wind, and energy-efficient technologies, and also efforts to induce consumers to conserve on electricity and gas usage in their homes.

Many, if not most, technological solutions ultimately depend on individual behavior. Energy-efficient hybrids or electric cars are of little use if drivers don't buy them. The birth control pill, invented in the 1950s, provided a breakthrough technological solution for providing effective contraception to hundreds of millions of people. But effective use of the pill requires that it be taken for three weeks with a break for the fourth. For many users, this regimen, with its irregular routine, was more difficult to follow than taking the pill every day. The behaviorally informed solution was to include a fourth week of placebos.[1] (You might think that we have ignored a third broad category of markets and other systems. But these too involve a mixture of something akin to technology—the policy intervention in changing a system—and individuals' behavioral responses to it.)

Professionals, no less than the rest of us, are participant-observers in the social world. Although many of us have strong intuitions about the levers for changing behavior, our intuitions are often wrong. Some important developments in the past decades have helped identify common intuitive errors and build behavioral strategies based on empirical evidence. These decades have seen:

> ▸ *advances in the fields of social psychology,* the psychology of judgment and decision making (JDM), and behavioral economics;

> ▸ *the emergence of human-centered design,* with its emphasis on immersing oneself in the beneficiaries' experiences through ethnography, rather than making assumptions about their experiences from a distance;

> ▸ *improvements in evaluating whether particular strategies work,* based on randomized controlled studies and other empirical methods.

This essay focuses on the role of behavior change in improving individual and social outcomes. Our framework is based on the work of ideas42—an organization that uses insights from behavioral science to design scalable solutions for social impact. We will cover the first four parts in this essay:

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[1] Birth control pill FAQ: Benefits, risks and choices. (n.d.). Retrieved August 23, 2018, from http://www.mayoclinic.org/healthy-lifestyle/birth-control/in-depth/birth-control-pill/art-20045136
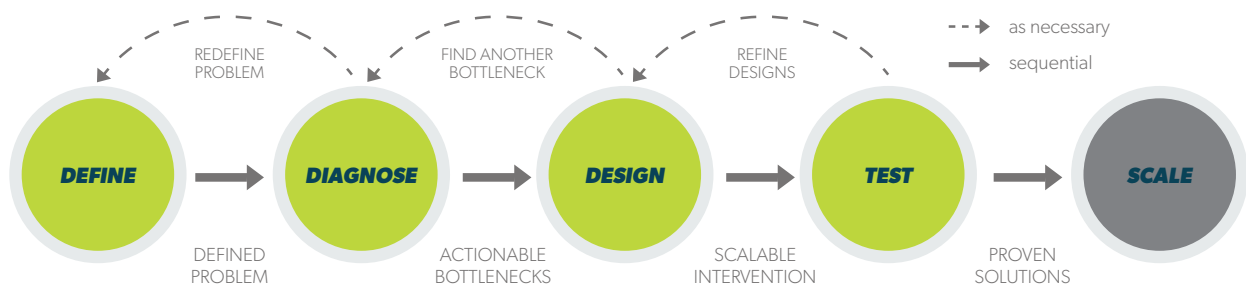
1. **Defining** the problem to be solved and the intended outcome of an intervention, and sketching an approach or strategy for solving it,

2. **Diagnosing** barriers that prevent beneficiaries or other stakeholders from acting according to the strategy,

3. **Designing** interventions to influence their behavior in positive ways, and

4. **Testing** the efficacy of the intervention and iterating to improve its impact.

While we focus on individual behavior, groups play important roles in influencing behavioral change; indeed, one important lever of behavioral change involves individuals' psychological identity with peers. But in the end, it is the behavior of individual members of the group that will improve outcomes.

>> *DEFINE:*
Identify the problem and intended outcome

We use the *define* section as an opportunity to review the framework for problem-solving strategies in general, not just those that end up focusing on behavior change. Note that our use of language around solving 'problems' is simply shorthand for any efforts to reach a positive outcome, even if the status quo is not necessarily thought of as 'problematic.' We embrace Gerald Lopez's broad definition of problem solving as "perceiving that the world we would like varies from the world as it is and trying to move the world in the desired direction."[2]

We illustrate the problem-solving framework using the unfortunately pervasive problem of infant diarrhea in developing countries.

What's the problem you are trying to solve, for whom is it a problem, and why is it important?

A simple answer might be:

▶ Infant diarrhea is the leading cause of child malnutrition and the second leading cause of young children's deaths in developing countries.[3]

But it's worth noting that people often begin by defining the problem in terms of a particular solution, for example:

▶ The effluent from unsanitary latrines leaks into the water supply; or

▶ Parents are reluctant to use oral rehydration therapy (ORT) to treat infant diarrhea.

Repeatedly asking "*why* is this a problem?" is likely to lead to a broader problem statement that opens up a broader range of solutions.

Determining the causes of the problem

If we're wrong about the causes of the problem, we may end up with a useless solution. In the mid-19th century, it was generally believed that cholera was caused by bad air. Solutions included avoiding sleeping in drafts and (for whatever reasons) temperance in eating and drinking. It was not until Dr. John Snow drew on epidemiological evidence to conclude that the London cholera epidemic was being spread through contaminated water that a useful solution emerged.[4]

Understanding the causes of a problem is important. But a problem-solver should not limit solutions to those that address a problem's so-called "root causes." Malaria is caused by a mosquito-borne

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[2] Gerald P. Lopez, Lay Lawyering, 32 U.C.L A. L. Rev. 1,2 (1984)

[3] Diarrhoeal disease. (n.d.). Retrieved August 23, 2018, from http://www.who.int/news-room/fact-sheets/detail/diarrhoeal-disease

[4] John Snow. (2018). In *Wikipedia.* Retrieved from https://en.wikipedia.org/w/index.php?title=John_Snow&oldid=855448058

parasite, but (at least for now) it may be far more effective to distribute bed nets treated with pesticide than try to kill all the mosquitoes.

In the example of infant diarrhea, the root of the problem, as with cholera, is water-borne diseases. We'll look at possible solutions below.

Identifying the beneficiaries and their needs

In our example, the answers are pretty clear: the beneficiaries are infants and their families; their fundamental need is for the children to be well. Often, however, the answer is not so obvious, and might require hours of systems analysis, expert interviews, and stakeholder ethnography to determine. Consider the problem(s) of homelessness, with possible beneficiaries including a diverse range of homeless people—individuals, families, veterans, people with physical and mental ailments—and residents and businesses adversely affected by them.

Identifying possible approaches to solving the problem

Which seem plausible in terms of factors such as scope, timeframe, risks, and budget?

Here are several approaches that a human-centered, strategic process may have generated, all responsive to the causes of the problem. We note how they might or might not call for changes in individual behaviors:

1. Create better filtration or chemical treatment in the water supply. If this is done by the government or other organization before the point of transfer, it would require no behavior change on the part of intended beneficiaries.

2. If water is carried from the source in jugs (rather than delivered by plumbing), squirt a dose of chlorine in each jug, relying on the agitation on the journey home to diffuse the decontaminant.[5] This requires that a liquid chlorine product be made available at the source.

3. Prevent the bacteria or parasite from sewage from contaminating drinking water sources in the first place. This calls for building latrines away from water sources and for residents using them.

4. Use oral rehydration therapy for children who become ill. This requires providing and families using oral rehydration solution (water with small amounts of sugar and salt and supplemental zinc) where needed.

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[5] Dispensers for Safe Water. (n.d.). Retrieved August 23, 2018, from https://www.evidenceaction.org/dispensersforsafewater/
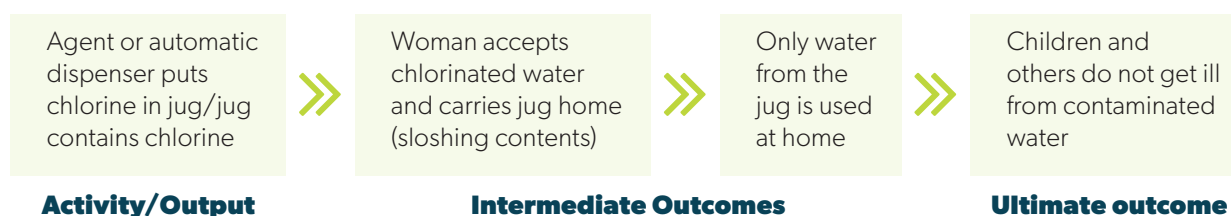
Eliminating approaches that seem implausible or weak under the particular circumstances

For example, the first approach assumes a more or less single source of the water supply, which may not be the case in our village; or the engineering may be too expensive.

For those approaches that remain:

▸ *Describe your intended outcome, i.e., what constitutes success;*

▸ *Draft a theory of change or logic model,[6] i.e. what activities must be engaged in by whom to achieve the outcome;*

▸ *What barriers do you foresee to implementing the strategy? Which of those barriers involves changing someone's behavior?*

▸ *What stakeholders might act to facilitate or impede the strategy?*

▸ *How would the strategy affect and be affected by the broader system in which the problem exists?*

For example, the intended outcome of the second approach (squirting a drop of chlorine solution into the jug) is that children never become ill in the first instance. A simple theory of change or logic model would look like this:

Agent or automatic dispenser puts chlorine in jug/jug contains chlorine	»	Woman accepts chlorinated water and carries jug home (sloshing contents)	»	Only water from the jug is used at home	»	Children and others do not get ill from contaminated water
Activity/Output		**Intermediate Outcomes**				**Ultimate outcome**

▸ **Activities and outputs** are things done and delivered *by* the implementing organization, e.g. providing a chlorine compound at the water source. (The difference between activities and outputs is unimportant.)

▸ **Intermediate outcomes** are steps taken by actors *beyond* the implementing organization—by the women who pick up the jugs and carry them home, and by anyone else who uses water in the household.

▸ The **ultimate outcome** is the strategy's success of avoiding illness.

Asking about ***barriers*** at each stage—whether intrinsic or caused by other stakeholders or other systemic factors—will be important to designing around them to ensure the strategy's success.

With respect to activities and outputs, does the organization have the capacity to produce, or cause someone else to produce, the output regularly for the indefinite future or some determinate

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[6] For present purposes, we use the terms interchangeably.

period? Among other things, this requires that it have a dependable supply of chlorine solution—not necessarily a given in some regions.

With respect to the outcome, if a woman won't squirt the chlorine solution into the jug —perhaps because she sometimes forgets or even believes that it is harmful—or if the household also uses water from other sources, then we will not achieve the ultimate outcome.

The theory of change for each of the other interventions is different, with each having its own advantages and also possible barriers. The ethnographic aspects of human-centered design are essential here. For example, an outsider might assume that people would prefer to use latrines than defecate in open areas, but an understanding of the practice of open defecation might indicate that it is based on considerations of safety and culture. (Ethnography can also be valuable in understanding the *causes* of problems, not just how to better design a solution. For example, it was only through observation that medical workers discovered that makeshift cholera treatment camps in Haiti were dumping contaminated refuse in a nearby creek, thus exacerbating the spread of cholera throughout the population.)[7]

Identifying behavioral aspects of your theory of change

Many efforts to improve outcomes begin implementing a solution at this stage, but those solutions may fail because of human behavior. This paper focuses specifically on aspects of a strategy that involve changing people's behavior. At each step of the theory of change, we ask whether an action must be taken (or avoided) by your intended beneficiaries or by stakeholders (e.g., parents, teachers, neighbors, employers) who might become providers of a program, product, or service. For instance, sick children are the beneficiaries of our ORT strategy, but most of the behaviors that affect their outcomes are taken by the children's mothers or caregivers (as well as by those who influence opinions about ORT).

It's important to articulate exactly what behaviors are necessary for our strategy to be effective. Each of these is a *target behavior.* For example, target behaviors in the 'water jug chlorination' strategy include:

▸ woman squirts chlorine solution into water jug
▸ only water that is chlorinated is used at home

In identifying these target behaviors, we must clearly state the intended action rather than a presumed driver of the action (which is often our first instinct). For example, if we stated the first target behavior as, "woman understands value of chlorine," we'd be presuming that understanding the value of chlorine is the root driver of chlorine usage. Or, if we stated the target behavior as, "woman learns about water purification," then we'd be presuming that education is the solution.

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[7] Watch: new documentary tells the story behind MASS Design Group's cholera clinic in Haiti. (n.d.). Retrieved August 23, 2018, from https://archinect.com/news/article/149969477/watch-new-documentary-tells-the-story-behind-mass-design-group-s-cholera-clinic-in-haiti

>> *DIAGNOSE:*
Hypothesize barriers to target behaviors relevant to your strategy

Introduction: Transition from define

To recap, in the Define step, we (should) have answered the following questions:

▸ What's the problem you are trying to solve, for whom is it a problem, and why is it important?

▸ What are the causes of the problem?

▸ Who are the beneficiaries, and what are their needs?

▸ What are some possible approaches to solving the problem, and which seem plausible in terms of factors such as scope, timeframe, risks, and budget?

▸ What is your intended outcome (i.e., what constitutes success)?

▸ What is your theory of change?

▸ What barriers do you foresee to implementing the strategy?

▸ What stakeholders might act to facilitate or impede the strategy?

▸ How would the strategy affect and be affected by the broader system in which the problem exists?

▸ What are the behavioral aspects of your theory of change?

▸ What are the *target behaviors* required for your strategy to work?

This section focuses on the last of these, ***target behaviors,*** with a particular emphasis on barriers to those behaviors that are essential components of a policy maker's theory of change.

Each specific behavior that is necessary for the strategy to succeed should be treated separately. Let's take a new example: suppose that we want to improve people's fitness by inducing them to exercise at gyms. Our strategy may involve many non-behavioral components (e.g., siting, financing, and building the gym, ensuring adequate parking or transit options, etc.). But it also requires three specific behaviors on the part of prospective gym-goers: they have to (1) join the gym, (2) go to it, and (3) exercise effectively when they are there.

Using a hypothetical gym-goer, Sally, we'll focus on the second target behavior, *going to the gym*.

Decision-Action Map

First, let's make a decision-action map of the target behavior. As shown in the schematic from ideas42 below, a **decision-action map** is a chronological chart of the various decisions and actions an individual might take that lead to her performing the target behavior. Drawing a decision-action map is the first step in diagnosis.

A **decision** is any choice about a future course of action. For example, you might choose to go on a diet. That decision will require many future decisions about what to buy in the store, what restaurants you'll choose to patronize, and what to order.

Actions are the steps an individual must take to follow through on a previously made decision—for example, ignoring the snacks in the pantry, not taking seconds at dinner, eating slowly. Sometimes the decision and action will be indistinguishable—for example, you decide to eat or not eat a piece of candy as you're walking past the bowl.

For each decision, we'll consider what factors might influence it; for each action, we'll consider what steps are necessary for it to be taken.

Example of a decision-action map: Going to the gym

Let's continue with the fitness initiative by looking at the decision-action process of going to the gym.

▸ In order to "go to the gym," Sally must first decide to go. That decision—indicated by the diamond shape—is distinct from the action of following through on that decision, which is indicated by the rectangular shape.

| Gym? | --- Yes ---▸ | Go to gym |

▸ Just because Sally has *decided* to *go to the gym* doesn't mean that she won't require further decisions as well as actions in between. Mapping them in greater detail can help us understand where and how her path from deciding to go to the gym to actually doing it might get interrupted. So, with the help of ethnographic interviews and observation, we hypothesize that once she decides to go to the gym, she will also have to decide what time to go. In order to actually *go to the gym,* she will also have to set her alarm, wake up, and get to the gym.
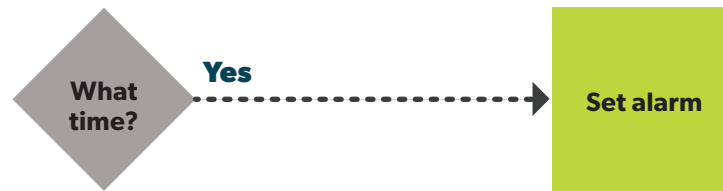
Based on our experience, ethnographic observation, and consideration of barriers, we prioritize the decisions and actions that are most important to engaging in the target behavior, and we add them to the decision-action map. Note that deciding what to include in the decision-action map takes some judgment. It is also often iterative, because we come back to it after further diagnosis to add or subtract steps. *We start with a simple decision-action map and add to it rather than creating a detailed process map.*
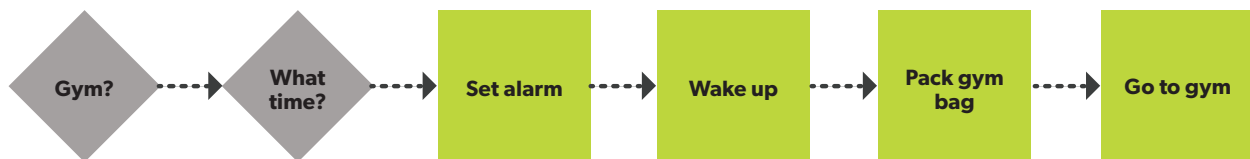
Now, we have a plausible sequence of steps that Sally would take to arrive at the target behavior, from initial intention to final action.

Behavioral barriers

The remainder of the Diagnose process is dedicated to generating hypotheses about likely barriers that could impede the target behavior. Barriers arise from features of Sally's context that prevent a decision or action from being taken. Such *contextual, or situational, features* might be features of the physical environment, including items, people, or processes with whom Sally may be interacting; or aspects of her current situation (including her emotions, level of fatigue, mood, etc.). Contextual features are distinct from attitudes and beliefs, which are not necessarily specific to the situation, and to which we'll return in the Design phase.

For example, a contextual feature may be a *decision barrier* if it causes beneficiaries to

▸ avoid making an active choice at all, i.e., thoughtlessly following the default or most obvious option;

▸ fail to pay attention to important choices;

▸ overweight the option that their peers prefer even if it's not optimal for them.

Similarly, a contextual feature may be an *action barrier* if it causes beneficiaries to

> ▸ forget to take a critical action;
>
> ▸ be deterred by a small hassle and decide to do something else;
>
> ▸ procrastinate to the point of missing a deadline for the action.

Although it's not possible to anticipate every way in which a decision or action may become a barrier, we can do our best to anticipate major barriers, which will immediately inform how we design and test our initial strategies (the next section of this essay).

The following questions are designed to surface potential barriers.[8] We'll start with decisions and follow with actions.

Decision barriers

To help surface possible decision barriers, we examine the context surrounding each decision from five *perspectives*:

> **1.** Moment of choice
>
> **2.** Angle on the choice
>
> **3.** Field of choice
>
> **4.** Consequences of the choice
>
> **5.** Value (of the consequences) of the choice

Each perspective implies a number of questions, which we list below with examples from our gym initiative. These perspectives and questions are not presented as a classification scheme into which behavioral barriers must be accurately placed but rather designed to help generate more hypotheses. (It's entirely possible that the same barrier will arise from more than one perspective, or different observers would think of the same barrier from different perspectives.)

1. Moment of choice

> ▸ Does the choice present itself at a propitious moment? (For example, is Sally busy or distracted? Does she have enough time to evaluate the choice completely?)
>
> ▸ Where is the decision being made?
>
> ▸ Who are the people around Sally when the decision is made?
>
> ▸ Is the decision being made through a specific medium (e.g., on a form, on a website, in Sally's head, etc.)? Does that medium present any sort of friction? Does that friction disproportionately favor some options over others?

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[8] Note that we are focusing on barriers here, but in rare cases we may find a contextual feature that actually facilitates the target behavior. In these cases, we would note such possible contextual features during the diagnosis stage and consider boosting them in the design phase.

▸ Could there be a failure to choose in the first place? Could the decision not be salient enough so that Sally fails to think about it at a time when she could make an active choice?

For example, we've hypothesized that the best time for Sally to go to the gym is before work in the morning, requiring that she decide to set an alarm the night before. If she's so tired that she doesn't even consider whether she wants to go to the gym the following morning (and instead goes straight to sleep), she has missed her moment of choice to go to the gym and therefore will not set the alarm to wake up earlier than usual.

She might also be extra-motivated to go the gym the following day depending on her context when she makes the decision. For example, she might have friends over who told her about the marathon they are training for. Or perhaps she feels guilty by just having finished a large and unhealthy serving of dessert. The converse might be true here too: she might make less healthy choices around unhealthy friends or family members who are acting unhealthily.

2. Angle on the choice

▸ How is Sally thinking about the choice?

▸ What does Sally think the choice is *about*?

▸ Are there multiple ways the choice could be represented? (e.g., *whether* to go to the gym vs. *how* to go to the gym?)

▸ Does the choice affect someone else? For example, did she decide to go to the gym only as a favor to a friend who wants company there? Or does she want someone's company?

▸ Does the choice reflect a certain identity Sally aspires to associate with (or reject)?

For example, for some, going to the gym is about staying healthy; for others, it's about being perceived by herself or others as the type of person who goes to the gym. For some, it might simply be about the challenge and achievement of lifting successively heavier weights, running longer and faster on the treadmill, etc. Some people might go to the gym because they paid for a membership, and they would feel bad not going. Others might go so as not to disappoint a friend or family member whom they promised they would make an effort to get in shape. Yet others may be choosing between going to a gym and exercising at home. This perspective is important because we, as designers, may be taking a different angle on the choice so might miss what really matters to the beneficiaries of our program. In this example, if the choice is about keeping a promise to a family member, then we may incorporate a social influence element into the design of our solution whereas if the choice is about achievement, we may incorporate peer comparison.

If a subject is thinking about his or her choice as part of a larger goal, or as part of a new regimen she is seeking to implement, the desired outcome can become a **purpose.** In general, people are more likely to work towards a goal-oriented task when the goal is salient in their minds. Thus, being reminded of a goal increases a person's motivation to follow through with it.

For example, people tend to save more money when they're reminded *why* they wanted to save money in the first place. In an experiment run in the Philippines, Bolivia and Peru, clients who got a generic reminder to save more only increased savings by 6 percent. But when that reminder included a note about the items they said they were saving money to purchase, savings increased 16 percent.[9]

In Germany, only 12 percent of people are registered to donate their organs upon their death, while in culturally-similar Austria, 99 percent of people are registered. Why? Austrians are automatically registered as organ donors but may "opt out" and become unregistered at any time. Germans, by contrast, are unregistered by default and have to "opt in" if they wish to register as donors.[10]

Such **default bias** derives its power from a variety of sources, including:

▸ people's belief that a default represents policy makers' or peers' sound judgment (so-called "social proof");

▸ a (perhaps irrational) preference for the status quo;

▸ inertia, laziness, or procrastination.

3. Field of choice

▸ What options are in the choice set?

▸ What options are top of mind?

▸ What is the first option to which Sally is exposed?

▸ Which options are most frequently noticed?

▸ Are there options in the choice set that Sally doesn't perceive to be there?

We should consider what is in our subject's option set. Although we might think she's deciding between (a) going to the gym and (b) sleeping in, she might actually be considering other options. For example, suppose that Sally gets a text message from her friend who asks if she wants to wake up early to go to breakfast with her the following morning—the same morning she was considering

[9] Karlan, D., McConnell, M., Mullainathan, S., & Zinman, J. (2016). Getting to the Top of Mind: How Reminders Increase Saving. *Management Science, 62*(12), iv–vii, 3393–3672.

[10] Johnson, E. J., & Goldstein, D. (2003). Do Defaults Save Lives? *Science, 302*(5649), 1338–1339. https://doi.org/10.1126/science.1091721

waking early to go to the gym. Her choice set has now changed and includes a third option: (a) waking up early / going to the gym / not having breakfast; (b) waking up early / not going to the gym / having breakfast; (c) not waking up early / not going to the gym / not having breakfast. So even if we're reasonably confident she will choose the gym over sleeping in on most days, we need to consider that she won't go to the gym if she's often being asked to go to breakfast with friends.

Besides thinking about what is in the choice set, we must also consider whether any options appear more or less desirable because of some unconscious behavioral phenomenon. One such phenomenon is the **primacy effect,** which refers to the higher saliency (and thus likelihood to be chosen) of an option that is seen or experienced *first* by a decision maker. For example, being listed first on a ballot has been shown to increase a candidate's odds of winning by 2.5 percent.[11] Along similar lines, items that you most *recently* saw may be particularly salient.

Similarly, the **frequency effect** characterizes the higher likelihood of us preferring options that we've been exposed to more often than others. The most obvious example in everyday life is brand and product advertising. The effect is so pervasive that it works even when the decision maker is completely unaware—through the phenomenon known as the **mere exposure effect.**

Large decision sets that cause **choice overload** can demotivate choice altogether (**choice aversion**) or lead people to use simplifying strategies that lead to suboptimal decisions. Consider the challenge of sorting through all the options for a health insurance plan: each plan contains information about all the different medical procedures and drugs it covers at what rate and with what copayments, along with which doctors and hospitals are "in" vs. "out of network." The challenge of sorting through all the plans to find the right coverage can confound even well-informed people and lead to their relying on inaccurate or suboptimal simplifying strategies or abandoning the selection process altogether.

4. Consequences of the choice

▸ How are the options evaluated?

▸ Do beneficiaries understand the features of each option?

▸ What are peers whose judgments she values (or fears) perceived to be doing?

▸ Are the long-term consequences of an option as salient as the immediate effects?

When Sally is deciding to go to the gym, she might be focused more on the short-term consequences of going (getting up early, the aches of exercising) than the long-term consequences (losing weight, better health, improved self-esteem). It's also possible that Sally is simply unaware of the cumulative health consequences of missing successive days of exercise.

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[11] Miller, J. M., & Krosnick, J. A. (1998). The Impact of Candidate Name Order on Election Outcomes. *The Public Opinion Quarterly, 62*(3), 291–330. As a result, in some jurisdiction, the sequence of candidates is randomized.

Sometimes, a decision maker may not clearly understand the consequences of a choice, or may not be able to compare the consequences of options easily. For example, prospective car buyers are far more likely to choose a fuel-efficient vehicle when average consumption is displayed as "gallons per 100 miles" than "miles per gallon". (Most people rank an improvement from 34 to 50 MPG as saving more gas than an improvement from 18 to 28 MPG, even though the latter saves twice as much. People tend not make this error when presented with fuel efficiency expressed in gallons used per 100 miles.)[12] Meanwhile, printing the cost per unit directly on the price tag of items at a supermarket allows price conscious shoppers to choose the less expensive brand of the same item even when packages are of differing total price and quantity. Common fee structures and interest rates in the home mortgage market have had similar effects.

» Information about Risks

Risk tends to be better comprehended when related to a person's experience. For example, one news site commonly communicates odds in terms of the probability of missing a field goal from various yard lines.

But access to accurate information does not always improve behavior, especially when the information concerns **risks.** A study of warning labels on household items, such as bleach and drain openers, indicated that in the absence of vivid information about a risk, consumers will treat the risk as zero, but "when a risk information program forces them to focus on the probability that some rare injury will occur, they may treat the probability as if it were higher than its objective value because of the cognitive difficulties in making risky choices when the probabilities are extremely low."[13] Indeed, presenting low probability risks—e.g., "this water contains 5 parts per billion of arsenic" (a very small amount)—is likely to alarm people, causing various kinds of harms, without giving them any useful information at all. People may fixate on the bad outcome, in a way that will cause anxiety and distress without altering behavior or even improving understanding. Or, as Cass Sunstein notes: "People may attempt to deal with their fear by refusing to think about the risk at all."[14]

5. Value of the choice

▸ How are the options and their consequences valued?

▸ Does Sally assign the same value as the policy maker to some attribute of the options? Why (not)?

[12] Larrick, R. P., & Soll, J. B. (2008). The MPG Illusion. Science, 320(5883), 1593–1594. https://doi.org/10.1126/science.1154983.

[13] Viscusi, W. K., & Magat, W. A. (1987). *Learning about Risk: Consumer and Worker Responses to Hazard Information.* Harvard University Press. Retrieved from http://www.hup.harvard.edu/catalog.php?isbn=9780674436848; cited in Brest, P., & Krieger, L. H. (2010). *Problem Solving, Decision Making, and Professional Judgment: A Guide for Lawyers and Policymakers.* Oxford University Press.

[14] Sunstein, C. R. (2005). Laws of Fear. Cambridge University Press. https://doi.org/10.1017/CBO9780511790850; cited in Brest, P., & Krieger, L. H. (2010). *Problem Solving, Decision Making, and Professional Judgment: A Guide for Lawyers and Policymakers.* Oxford University Press.

▸ What is the perceived social norm? Is this choice perceived to be a common choice or some outlier behavior?

▸ How is the option framed? Is it framed as a loss or gain relative to the status quo?

It's entirely possible Sally isn't as interested in the health benefits of going to the gym as a policy maker might think she should be (i.e., she's happy with her current level of health). She also might value sleeping in more than the benefits of exercise if she often stays up late the night before.

Instead, Sally may most value complying with what she thinks is the norm among her peers. Such **social comparison** often influences how she values various options. For example, someone whose friends value fitness is more likely to value fitness than someone whose friends do not.

In some cases, correct perception of the norm isn't necessarily helpful, and we might want to draw our subject's attention away from it. For example, a campaign aimed at reducing drop-out among high school students most likely inadvertently did the opposite by normalizing the behavior through conspicuous advertisements highlighting the large number of students who did.[15]

People tend to treat the same choice quite differently depending on whether the outcome is framed as a gain or a loss. This is one of the implications of a psychological insight, termed **prospect theory,** that is described in the textbox. The starkest example of framing effects comes from Kahneman and Tversky where they present subjects a choice between two programs to combat an epidemic.[16] All participants were given this problem:

Imagine that the United States is preparing for the outbreak of a rare virus, which is expected to hit the United States next year and projected to kill 6,000 people. Two alternative programs to combat the disease have been proposed by the Department of Health and Human Services. One group was told that the exact scientific estimates of the consequences of the two treatment programs are as follows:

▸ If program A is adopted, *2,000 people will be saved.*

▸ If program B is adopted, *there is a one-third probability that 6,000 people will be saved and a two-third probability that no people will be saved.*

The other group was told that the exact scientific estimates of the consequences of the two treatment programs are as follows:

▸ If program C is adopted, *4,000 people will die.*

▸ If program D is adopted, *there is a one-third probability that nobody will die and a two-thirds probability that 6,000 people will die.*

[15] Nearly 7.5 Million U.S. Students are Chronically Absent, Missing 18 or More Days of School Each Year. (n.d.). Retrieved August 23, 2018, from https://www.adcouncil.org/News-Events/Press-Releases/Nearly-7.5-Million-U.S.-Students-are-Chronically-Absent-Missing-18-or-More-Days-of-School-Each-Year; Boost Up. (n.d.). Retrieved August 23, 2018, from http://dropoutprevention.org/mpdb/web/program/91

[16] Tversky, A., & Kahneman, D. (1981). The framing of decisions and the psychology of choice. *Science, 211*(4481), 453-458.

While the problem for the first group was framed in terms of gains, the same information was framed for the second group in terms of loss. Choices A and C are identical and certain. Choices B and D are also identical, but present uncertain outcomes. Participants in both groups were asked which program they would choose. The large majority in the first (framed) group made the risk-averse choice, A, while the large majority in the second (loss-framed) group made the risk-seeking choice, D.

To take a real-world example, when it used to be allowed, imposing a surcharge for paying with a credit card drove more purchasers to pay with cash than simply offering a discount for paying cash.[17] It's possible that gym-goers who view exercise as a way to not die sooner could be more motivated than those who view it as a way to lengthen their life. And, someone already in good shape might be more motivated not to lose their 'figure' than someone who has never been in their desired 'shape.'

An option framed as a loss is roughly twice as motivating as the same option framed as a gain. This phenomenon, which Amos Tversky and Daniel Kahneman termed **prospect theory,**[18] is reflected in the following graph.

The curve on the upper right of the reference point reflects the diminishing marginal subjective value of additional gains (e.g., dollars). The curve on the lower left reverses direction; it indicates that marginal losses incur steep negative subjective values.
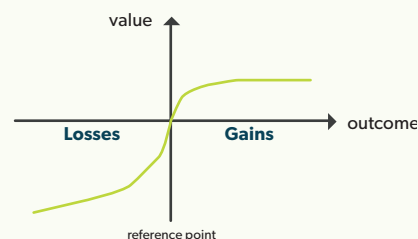
Two central insights of prospect theory are the **endowment effect** and **loss aversion.** The endowment effect captures the observation that people ascribe more value to an item that they own than the same item if they do not own it. In one classic experiment, participants who were given Swiss chocolate bars were unwilling to trade them for coffee mugs (of approximately the same retail value), while participants who were given the coffee mugs were unwilling to trade them for the Swiss chocolate bars.[19] One major explanation for the endowment effect is that humans are loss averse, and that giving up an item that one owns feels like a loss. The phenomenon of loss aversion is reflected in the fact that the "losses" curve in the prospect theory graph declines more steeply from the origin than the "gains" curve increases. That is, a loss of a particular amount feels worse than a gain of the same value feels good. The phenomenon is captured in the phrase "losses loom larger than gains."

People often behave differently as a result of loss aversion. For example, in one experiment in which teachers were given a bonus at the beginning of the school year and told that all or parts of it would be taken away if they didn't meet specified goals, their students performed two to three times better than teachers who were given the same conditional bonus at the *end* of the year. Indeed, the end-of-year-bonus teachers hardly performed better than teachers given no bonus at all.[20]

Prospect theory also has implications with respect to people's willingness to take risks. The shape of the upper right curve—in the domain of gains—represents risk aversion, while the shape of the lower left curve—in the domain of losses—reflects risk seeking. In areas like health, where risk perception can have an outsize impact on behavior, prospect theory can be especially consequential. Research by Alex Rothman and Peter Salovey shows that "detection behaviors", such as getting a mammogram or colonoscopy, are likely to be seen as risky, not because they actually pose a risk to a person's health, but because of the short-term risk of getting scary news about 'losing' our presently good health (e.g., having cancer).[21]

Action barriers

Just as with decisions, there are several perspectives from which to examine the context surrounding each action in the decision-action map, each one illuminating possible barriers.

1. Moment of action

2. Changing one's mind

3. Deferring the action

1. Moment of action

▶ Does Sally think of the action?

▶ Is there a narrow time frame, or window, for action? Does Sally forget about her previous decision?

▶ Is there a long delay between intention and action? Is Sally distracted?

▶ Is Sally under heavy cognitive load?

One of the most likely reasons an individual fails to act on a previously made decision is that she *forgets* to. I might intend to go to the gym tomorrow before work, but if I forget to set the alarm to an earlier time, I won't be able to act as I intended to. This poses a particular problem for behaviors whose action has to be taken in a narrow window for action—when there is only a short period in which Sally can act. The wider the window, the less likely Sally will forget to act as she intended. Having many things on one's mind (cognitive load) makes it not only more likely that Sally will forget to take an action but also more likely that she will be tempted by more appealing alternatives.

For example, Sally can presumably set her alarm any time between deciding to go to the gym and going to sleep, but if she needs to do laundry in order to have clean gym clothes, she has to remember to do the laundry at least an hour before going to bed. If she remembers to do the laundry 30 minutes before she wants to go to bed, she might decide that it's too late, and she'll consequently skip the gym the following day to do the laundry then.

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[21] Rothman, A. J., & Salovey, P. (1997). Shaping perceptions to motivate healthy behavior: The role of message framing. *Psychological Bulletin, 121*(1), 3–19.

Failures of memory are, for practical purposes, quite similar to failures of attention. Indeed, one of the best ways to not forget something is to use an external reminder to *draw your attention* to it. But being distracted from doing something because you have limited attention bandwidth is different than simply forgetting to do something (which can still happen even if you're not distracted at all).

2. Changing one's mind

▶ Is Sally consciously or unconsciously tempted to change her mind?

▶ Is she tempted by a foregone option? Or by a new option that precludes her original intention?

▶ When is the intention felt most weakly and most strongly? Does the intention to act wane after the decision is made?

The opportunities for Sally to change her mind about going to the gym abound. You can imagine her waking up to an alarm only to hit snooze because of how tempting it is to stay in bed, especially compared to getting up early to do something strenuous. Or she might be willing to get out of bed, but is her sore knee provides a justification for "taking a rest" today. Generally speaking, actions that come with some immediate cost—like going to the gym early in the morning—make it very likely that even the most well-intentioned actor will change her mind.

Sally might not be tempted by an option in direct opposition to going to the gym but rather by something else that displaces the gym, such as checking email (and then running out of time). Or she might be tempted to eat so large a breakfast that she'll have an upset stomach if she works out right away.

It could also be that the intention to go to the gym is in fact weakest in the early morning when just waking up in bed (where it's cozy and warm and she feels at her laziest). The fact that she then must act to go the gym the moment the alarm goes off could lead to inaction much more frequently than if she scheduled her gym-going later in the day.

» Commitments

Having aspirations, like exercising regularly, is one thing; making plans another—and then *sticking* to those plans a challenge of itself. All said, those who have made some sort of commitment to their earlier choice tend to have higher adherence to their earlier choice.

For example, appointments or work deadlines that are difficult to break—especially if the consequences are public—make changing one's mind about following through on them less likely. Decisions made via contract tend to be maintained, as well, even if a breach has no adverse effect on others or material consequences for oneself. In an experiment involving exercise by post-menopausal women, those who signed a contract specifying daily goals were significantly more likely to achieve their goals than women who had an identical walking program with no contract.[22]

Costs associated with a decision that have already been incurred reduce the likelihood of changing one's mind. Such ***sunk costs***—that is, time, effort, or money already invested in a course of action—can have a commitment-like effect on future behavior, even if it is economically irrational, and may lead to sub-optimal decisions. This is known as ***sunk cost fallacy.*** For example, people who pay for consultation on financial or business decisions are more likely to follow the advice the more they pay for it, even if it's bad advice.[23]

But sunk costs also can work in a positive direction to motivate behavior associated with decisions we want to follow-through on. Consider Alice, who pays a fee each time she goes to the gym, and Betty who has paid in advance for an annual gym membership. They each wake up one morning feeling tired and a bit hung-over from a late night out and would prefer to spend an extra hour in bed rather than exercising. For Alice, staying in bed is costless, while Betty may be motivated by the feeling that she's letting her membership go to waste (perhaps a tinge of loss aversion!). Though Betty's choice to go to the gym should—in the rational sense—have nothing to do with what she previously paid, it does, and the outcome is optimal from her subjective perspective.

3. Deferring the action

▸ Is Sally consciously or unconsciously tempted to defer her actions?

▸ Is Sally overly optimistic in predicting how long the action will take or about her ability to follow through?

▸ Do small barriers to completing the action have the potential to derail it completely?

▸ Does it feel difficult to get started on the action?

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[22] Williams, B. R., Bezner, J., Chesbro, S. B., & Leavitt, R. (2005). The Effect of a Behavioral Contract on Adherence to a Walking Program in Postmenopausal African American Women. *Topics in Geriatric Rehabilitation, 21*(4), 332.

[23] Gino, F. (2008). Do we listen to advice just because we paid for it? The impact of advice cost on its use. *Organizational behavior and human decision processes, 107*(2), 234-245.

While Sally might not be tempted by alternatives to going to the gym, she could still be prevented from following through on her gym-going intention by putting off actions that are necessary to going (e.g., renewing her membership to the gym, washing her gym clothes, packing her gym bag, etc.). Deferring action may be the result of insignificant barriers. Imagine that she is renewing her gym membership online but her credit card is in her purse in the other end of the house, so she decides she'll just finish signing up later.

Sally might also simply underestimate how long various decisions or actions along her decision-action path will take. She might be too optimistic about how long it will take her to pack her gym bag in the morning or how long driving to the gym will take. Or she might not anticipate how busy the gym itself might be and that she would have to wait to use the elliptical trainer, or that the yoga class would be full.

Diagnosing the 'Water jug chlorination' strategy for addressing infant diarrhea

Let's return to the strategy of disinfecting water to prevent infant diarrhea. We identified two target behaviors by the woman—let's call her Jane—In the household who is responsible for her family's water use:

1. squirts chlorine solution into jug

2. only water that is chlorinated is used at home

After ethnographic study in the field, we might come up with the following decision-action map for the first target behavior:
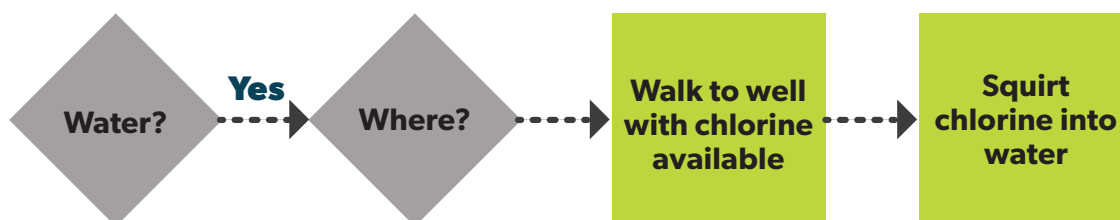
Using the guide above, we then consider each step separately, looking for contextual features that might impede Jane's progress at that step on the map.

You might brainstorm contextual features first and then consider how they might become barriers. Or, you might start with various behavioral phenomena (as described immediately below) to imagine possible barriers and their corresponding contextual features; it's up to you. Indeed, you might move back and forth, identifying contextual features and barriers, classifying the psychology that explains them, and then using that psychology to think of additional barriers that didn't initially come to mind. And, just as with forming the decision-action map, you will almost certainly confirm, disconfirm, and generate new ideas about barriers during follow-up ethnography in the field.

Acknowledging that we're repeating some ground covered above, here is a partial list of barriers, the psychology or behavioral phenomena that explain them, and the corresponding contextual features that give rise to the barriers in the first place.

Decision: Where to walk to get water

Possible barriers for: Moment of Choice

Habit: Preexisting habits may guide Jane to go to her usual well without even thinking about an alternative. *Contextual features include*: nothing in the environment prompts thinking about chlorine; the existing well might not have chlorine available; the usual well is on the way to some other destination so getting water there is automatic and convenient.

Possible barriers for: Angle on the Choice

Limited bandwidth: Jane may be under pressure to complete the task, and have insufficient bandwidth to focus on more than one requirement for the task, creating a tension between "Need to get water quickly" and "Need to get clean water." *Contextual features*: she is very busy and needs to complete errands quickly; if the child is already ill, then she may be even more strained for time; she would rather spend extra time doing other things for family than getting clean water; the well with dispenser may have a long line.

Discounting/present bias: Jane may be biased towards actions with short-term rewards, like getting to the well and back with the least effort, rather than long-term rewards, like having clean water. *Contextual features:* carrying a container of water is hard work so even a short extra distance matters; getting back sooner to do other things might be more important than water quality.

Possible barriers for: Field of Choice

Salience: The dispenser's presence is not made salient by ads or word of mouth or signage, so going to that well won't occur to her as an option. *Contextual features:* Jane doesn't pass by the well with the chlorine dispenser in her normal path/routine; she goes to the well but the chlorine dispenser is not visible.

'Knowledge': Jane doesn't ever think of the new chlorinated option, because it's not frequently referred to, and she doesn't know much about it. *Contextual features:* no one around her is talking about the chlorine-dispenser well.

Possible barriers for: Consequences of the Choice

Mental model: Jane has formed a mental model[24] to make sense of her experience of water obtained from the usual, non-chlorinated well that determines the water's acceptability

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[24] "A mental model is an explanation of someone's thought process about how something works in the real world. It is a representation of the surrounding world, the relationships between its various parts and a person's intuitive perception about his or her own acts and their consequences." https://en.wikipedia.org/wiki/Mental_model

based on her experience of its clarity and taste. If the non-chlorinated water tastes and appears acceptably clear, she infers from her mental model that she needn't change her behavior. *Contextual features:* the water she currently obtains is crystal clear and tastes good; taste and appearance has correlated with potability in the past.

Hassle factors: Jane might have gotten the impression that using the dispenser is going to be difficult, time-consuming, or otherwise inconvenient. *Contextual features:* the instructions for using the dispenser seem complex; she hasn't used a dispenser before; she has heard people talk about having problems with the dispensers; people talk more about the problems they have with the dispenser than they talk about the times it's worked smoothly; the dispenser has been well advertised, so she anticipates a long line.

Social norms: Jane has internalized the opinions or recommendations of others who recommend against the dispenser. *Contextual features:* an authority figure or someone in the community recommends against the dispenser; people in the community don't seem to be switching to the dispenser option.

Possible barriers for: Value of the Choice

Discounting/present bias: Jane places higher value on convenience than getting water that is chlorinated. *Contextual features:* getting water is already hard and time-consuming, and adding a step is unappealing; same contextual features to those brought up under 'Angle'.

Social influence: Jane may value taste more than safety. *Contextual features:* her family and others in her village often complain about the taste of chlorine, but no one talks about getting sick less often because they are drinking purified water.

Action: Walk to well with chlorine available

Possible barriers for: Moment of Action

Habits: Jane had intended to go to the chlorine-dispenser well, but based on habit walked to her usual well instead, without really thinking about it. *Contextual features:* the usual well is on the way to another errand, making a water stop automatic; carrying the same water container triggers habitual behavior (these contextual features are in common with 'Moment of Choice'); she intended to go to the dispenser well but started on her normal path, and once she's realized her mistake she decided that it wasn't worth turning around.

Forgetting/limited bandwidth: Jane intended to go to the different well but forgot or was distracted from remembering her intention when it was actually time to retrieve water. *Contextual features:* she didn't need water at the moment she learned about the new dispenser; a long delay between learning about the dispenser and the next trip to get water; she was busy with other tasks during the moment of action.

Possible barriers for: Changing One's Mind

Present bias: Jane intends to go to the dispenser well when she hears about it, but when she's leaving to get water a few days later she changes her mind. *Contextual features:* her usual well is closer; her friends join her on her journey to the well, and she does not want to interrupt this social ritual.

Tunneling: When it's time to get water, Jane decides that doing so will prevent her from fulfilling other responsibilities that now seem more pressing. *Contextual features:* the dispenser well is further or tends to have longer lines than Jane's usual well; Jane typically juggles many responsibilities, and suffers from a chronic scarcity of time.

Possible barriers for: Deferring

Procrastination: Jane hasn't given up on the dispenser but decides to put off going to the dispenser until next time she visits the well. *Contextual features:* there are no immediate, visible consequences of continuing to drink the normal, unpurified water; when it is time to collect water, she is tired and doesn't want to step out of her routine *today*.

Hassle factors: See 'Consequences of the choice'

Planning problems: When it is time to retrieve water, Jane realizes she didn't allocate enough time to go the further distance to the well with the dispenser. *Contextual features:* the location of the dispenser is less familiar; Jane does not really know the duration of the walk.

Action: Squirt chlorine from the dispenser into the water

Possible barrier for: Moment of Action

Limited attention: Jane come to the well, intending to use the dispenser but forgets and walks off without doing so. *Contextual features:* she is distracted by running into a friend, her child's tantrum, etc.; the line is long and people are asking Jane to hurry up.

Possible barrier for: Changing One's Mind

Social norms: Jane goes to the well with the dispenser but doesn't squirt the chlorine. *Contextual features:* Jane sees lots of other people using the well, but not using the chlorine dispenser.

Mental model: Jane sees the dispenser and decides it looks untrustworthy. *Contextual features:* it's labeled in an unfamiliar language; the dispenser looks dirty or worn out.

Availability bias: The user becomes worried about adverse effects of chlorine based on the conversations of other people around her. *Contextual features:* people in line are talking about how chlorine is poisonous and made someone they know sick, or that it made their water taste bad the last time they used it.

Hassle factors: Jane finds the dispenser difficult to use. *Contextual features:* the instructions are in a different language or are hard to understand; there's another well nearby.

Transition to Design

By the end of the Diagnose stage, we should have:

1. a complete decision-action map that leads up to the target behavior(s);

2. a list of decision and action barriers arising from the key subject's context that might impede her progress through the decision-action map.

Most of our focus in the Design stage will be on redesigning the context in a way that reduces its likelihood of impeding any of the decisions or actions on the map. In some cases, rather than redesign the context, we might instead opt to alter the decision-action map itself by, for example, circumventing a decision or action altogether.

⟫ *DESIGN:*
Develop strategies to address behavioral barriers

Introduction: Transition from Diagnose

The outputs of the Diagnose phase are descriptions of behavioral barriers, the contextual features that trigger or suppress them, and hypotheses about their psychological drivers. In the Design phase, we developed effective strategies for surmounting these barriers.

Though you should draw from others' successful and failed attempts to solve similar problems, it often requires some creativity to adapt them to your specific situation. You should set aside time as a team to *brainstorm* how you're going to solve the problem, even if your solution just *combines* existing solutions employed elsewhere.

Brainstorming

In a sense, each barrier represents a separate brainstorming challenge: "how will our subject surmount it?" Brainstorming is not to be confused with coming up with a single workable solution. Rather, it's the specific setting aside of time to go through a solution-idea-generating process.

Should you brainstorm even if you already have some workable ideas? The answer is almost always yes. Though you may have already come up with a reasonably effective solution or two, it's likely not the best. As Paul Brest and Linda Krieger explain, we "have a tendency to adopt the first plausible alternative that comes to mind, so long as it seems 'good enough.'" They continue:

> *even when a particular situation warrants giving more thought to possible solutions, we tend not to systematically consider a range of alternatives. We are constrained by cognitive, social and emotional, practical, and personal factors.... We tend to adopt this default ["first to mind"] solution, and, if we consider alternatives at all, they tend to be incremental, altering the stock solution in small ways rather than significantly broadening the range of potential solutions we consider.*[25]

The simplest brainstorming tool takes the form of a **'how might we' statement**, which combines the <u>problem</u> being solved for with a *constraining factor.* For example: "**how might we** <u>help Tom find Jerry</u> *without using his phone*?

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[25] Brest, P., & Krieger, L. (1994). On Teaching Professional Judgment. *Wash. L. Rev., 69,* 527..

   Creativity isn't just stimulated by taking time to brainstorm; it can also be enhanced by temporarily narrowing your brainstorming frame—that is, to brainstorm solutions for the same problem from multiple angles. Bob Sutton writes that "when options are limited, people generate more, rather than less, varied solutions—apparently because their attention is less scattered." Sutton, B. (2016, June 10). Want Some Creativity? Crank-up the Constraints. Retrieved August 23, 2018, from https://medium.com/stanford-d-school/want-some-creativity-crank-up-the-constraints-5728a988a635

While you're free to use any frameworks that come to mind, we suggest the following metaphor, which imagines behavioral barriers as physical ones. Just as with physical barriers, there are three general approaches one can take to surmount them in order to get to the 'target behavior' destination. You can:

1. lower or eliminate a barrier—by changing the contextual feature that gave rise to the barrier;

2. go around a barrier—by changing the subject's path to the target behavior (that is, change his decision-action map so that he doesn't need to make the particular decision or action to which this barrier is an impediment);

3. go over the barrier—by increasing the subject's motivation to overcome it.

So, for each barrier, plan a brainstorming session around each of the following questions:

1. How might we lower or eliminate this barrier for subjects?

2. How might we guide subjects around this barrier?

3. How might we motivate subjects to overcome this barrier?

Approaching each barrier from different angles (captured by the various how-might-we statements) is likely to yield a diverse set of alternative solution concepts.

» *Doing a brainstorm*

We don't have space for an in-depth description of ideation techniques but offer a few brief tips here. Studies show that the stereotypical, free-form group brainstorming we have all come to know is not as effective as more structured techniques.[26] The designers at ideas42 have found they're at their most productive when brainstorming individually first before coming together as a group to build and combine ideas. Whether alone, in a pair, or in a group, we encourage the following general 'guidelines' (loosely adapted from the Stanford d.school's brainstorming rules):

1. Defer judgment—if you don't like an idea (yours or someone else's), resist self-censoring or evaluating.

2. One conversation at a time—no talking over anyone else.

3. Build on the ideas of others—as Caroline O'Connor writes, "this leverages the perspectives of diverse teams and can be especially useful when you feel like you're stuck."

4. Stay on topic.

5. Encourage wild ideas—the absurd ones can often give you ideas for good (and more plausible) ideas that you wouldn't have thought of otherwise.

Whatever technique you use to frame your brainstorming, try to ignore others' solutions to similar problems. You can always consider them later, but right now they're likely to inhibit your own creativity.

After some initial brainstorming it may also be helpful to explicitly consider the psychology underlying the barrier you're trying to overcome, and then seed your brainstorming with interventions that may have applicability (see **Common interventions** below).

Common Interventions

In some of those cases, you might be successful adapting effective solutions used elsewhere. Here are some of them.

➤ *When the choice set is confusing or difficult to understand...*

Suboptimal behavior may be the result of not having the correct information, or of correct information not being presented in a way that's salient. To remedy this, policy makers can alter the **choice architecture** such that the information about the relevant dimensions of each option is provided in a timely and salient way. (Recall how changing fuel efficiency displays from miles per gallon to gallons per mile makes the better option more salient.)

[26] Lamm, H., & Trommsdorff, G. (1973). Group versus individual performance on tasks requiring ideational proficiency (brainstorming): A review. *European journal of social psychology, 3*(4), 361-388.
See also: Diehl, M., & Stroebe, W. (1987). Productivity loss in brainstorming groups: Toward the solution of a riddle. *Journal of personality and social psychology, 53*(3), 497.

Consider two ways that one might provide a the nutritional value of food products.

The Nutrition Facts chart provides more detail than the pie chart, but the latter is more likely to provide information to a busy shopper. For someone who does not know the meaning of the metrics, the "traffic light" color labeling of the pie chart also provides helpful information.

Policymakers may also wish to make what they believe to be the optimal choice the default option. The default phenomenon has been used effectively to increase employee savings under 401(k) plans, in which companies provide a match. A decade ago, employees had to fill out a form to enroll in a 401(k) program. The default was non-participation, and participation was low. In one case, flipping the default option to automatic enrollment so that an employee had to *choose* to opt out *increased the plan participation from 37.4 percent to over 85 percent.*[27]

Hired before automatic enrollment   *Hired during automatic enrollment*

Hired after automatic enrollment
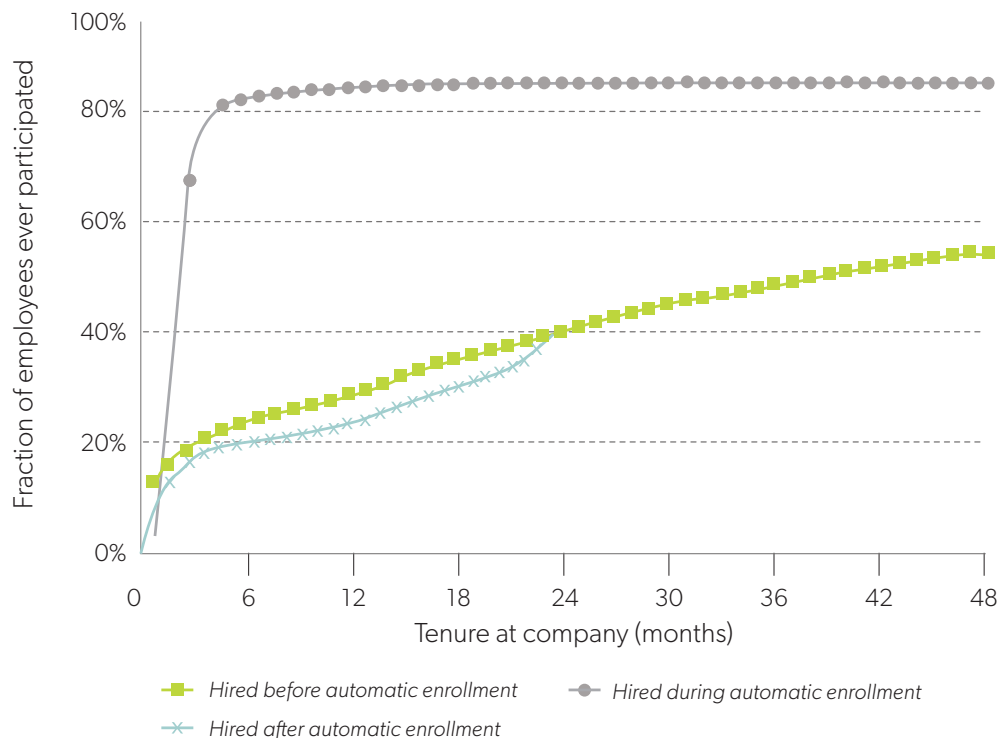
[27] By 2007, over *half* of U.S. employers employing more than 5000 employees implemented this design, up from 15% in 1999. Madrian, B. C., & Shea, D. F. (2001). The power of suggestion: Inertia in 401(k) participation and savings behavior. *The Quarterly Journal of Economics, 11*6(4), 1149–1187.

➤ When the choice set is large...

Just as confusion or complication can lead to indecision or suboptimal choice, so can simply having a large choice set.

Large choice sets can be made easier to navigate by grouping options. For example, some investment funds—rather than provide customers with a list of funds in alphabetical order—group them by risk level (low, moderate, high) and portfolio composition (primarily stocks, primarily bonds). Without limiting the total number of options available, this approach can limit the number of options that people actually have to consider.

A randomized experiment demonstrated the efficacy of personalized information in letters sent to seniors for Medicare Part D prescription drug plans in the U.S. The control group was simply given the address of the Medicare Plan Finder website where they would need to choose from among hundreds of plans. The treatment group received a letter showing which plans would minimize their cost given their specific treatment program. Even though the information was readily available freely on the website (and widely advertised), the additional step of providing the information directly resulting in *28 percent switching to more suitable plans* compared to 17 percent in the control group.[28]

In some cases, a computer program can recommend a smaller set of options based on user inputs, for example in choosing the most money-saving insurance plan vs. the one with the closest doctors in-network.

➤ When the subject is forgetful or distracted...

All of us are forgetful. We use to-do lists, calendars, and other devices to remind us when to do something—techniques that can be very helpful in lowering barriers during the moment of action.

Reminders have been effective in many situations where forgetfulness or lack of salience was a barrier to action—sometimes even more effective than financial incentives. In Uganda, experimenters trying to improve loan repayment rates compared the effect of (1) a hard cash reward, (2) a reduction in the future interest rate on the next loan taken, and (3) simple text

Increased Probability of repaying compared to Control

messages reminding debtors to pay their loans back on time. They found that the text messages were most effective.[29]

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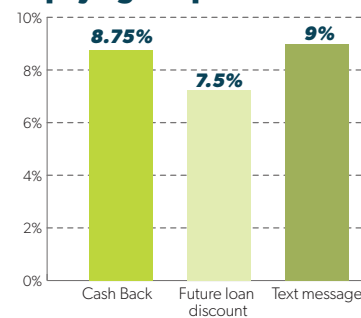
[28] Kling, J. R., Mullainathan, S., Shafir, E., Vermeulen, L. C., & Wrobel, M. V. (2012). Comparison friction: Experimental evidence from Medicare drug plans. *The Quarterly Journal of Economics, 127*(1), 199–235.

[29] Cadena, X., & Schoar, A. (2011). *Remembering to pay? Reminders vs. financial incentives for loan payments* (No. w17020). National Bureau of Economic Research.

Loan officers at a bank in Colombia received bonuses based on the repayment rates of their loans. The officers typically waited until just before their bonuses were about to be awarded to remind the overdue borrowers they were responsible that the interest on their loans was due. This left insufficient time to collect the outstanding interest. Regularly being reminded about their goals (e.g., how many borrowers they wanted to contact and how much they aimed to collect) prompted loan officers to do more regular collections. The reminder program **_significantly increased their productivity, reduced stress, and increased workplace satisfaction._**[30]

British civil servants were able to reduce no-shows of senior citizens to health appointments (with great costs to the British health system) by sending simple phone reminders immediately beforehand.[31]

Receiving simple text message reminders has increased the rate at which low-income students enroll in college courses by reminding them of the tasks necessary to enroll and connecting them with counselors to help make decisions.[32]

➤ **When there's friction between decision and action...**

Lessening **_friction_** on an action by providing information or assistance improves the likelihood that the subject will take the action. In a classic study, only 3 percent of participants who had agreed to get a tetanus shot followed through; but the rate **_increased to 28 percent_** among those who were given specific information about where and when to get the shots.[33]

In another example, a study in Morocco found that nearly 70 percent of households that received some assistance with administrative steps to get a piped water connection actually signed up for the service, compared to 10 percent who weren't given assistance.[34] The fewer steps involved in an action, the more likely the subject takes that action.

In a study of prospective college students, researchers found that having to complete a lengthy and complex financial aid form was a strong deterrent to attending college. By helping students fill in these forms, the researchers nearly tripled form submission rates and **_increased college enrollment rates by 29 percent._**[35]

[30] Cadena, X., Schoar, A., Cristea, A., & Delgado-Medrano, H. (2011). *Fighting Procrastination in the Workplace: An Experiment* (No. w16944). Cambridge, MA: National Bureau of Economic Research. https://doi.org/10.3386/w16944

[31] Dockery, F., Rajkumar, C., Chapman, C., Bulpitt, C., & Nicholl, C. (2001). The effect of reminder calls in reducing non-attendance rates at care of the elderly clinics. *Postgraduate Medical Journal, 77*(903), 37–39. https://doi.org/10.1136/pmj.77.903.37

[32] Benjamin L. Castleman, & Lindsay C. Page. (2013). *Summer Nudging: Can Personalized Text Messages and Peer Mentor Outreach Increase College Going Among Low-Income High School Graduates?* (No. 9). EdPolicyWorks Working Paper Series. Retrieved from http://curry.virginia.edu/uploads/resourceLibrary/9_Castleman_SummerTextMessages.pdf

[33] Leventhal, H., Singer, R., & Jones, S. (1965). Effects of fear and specificity of recommendation upon attitudes and behavior. *Journal of Personality and Social Psychology, 2*(1), 20–29.

[34] Devoto, F., Duflo, E., Dupas, P., Parienté, W., & Pons, V. (2012). Happiness on Tap: Piped Water Adoption in Urban Morocco. *American Economic Journal: Economic Policy, 4*(4), 68–99. https://doi.org/10.1257/pol.4.4.68

[35] Bettinger, E. P., Long, B. T., Oreopoulos, P., & Sanbonmatsu, L. (2009). *The role of simplification and information in college decisions: Results from the H&R Block FAFSA experiment* (No. w15361). Cambridge, MA: National Bureau of Economic Research. Retrieved from http://www.nber.org/papers/w15361

> ➤ *When the subject fails to take action due to lapses in self-control…*

Commitment strategies can help subjects stick to their plans. One of the oldest examples of a **commitment strategy** is Ulysses having his sailors tie him to the mast so he could not respond to the Sirens' temptations. In more recent times, a web-based service called StickK allows people to stake some money on commitments, such as quitting smoking. [36] The user signs a "commitment contract" and authorizes a credit card payment to a third party—for example, a cause they despise—unless a referee verifies that he or she has met the commitment.

Farmers in many developing countries tend to spend all the income from an annual or semi-annual harvest soon after they get paid, depriving them and their families of basic needs during the months that follow, including sufficient fertilizer needed to generate income for the next year. Recognizing that farmers were self-aware of this tendency, Saugato Datta and Sendhil Mullainathan proposed a financial product that allowed them to immediately deposit their harvest profit into an account from which a portion would be regularly released over the year to meet ongoing expenses.[37]

Poor families in the United States traditionally receive their monthly allocation of food stamps at the beginning of each month. Like the farmers described above, families often use most of the food stamps early in the month and have none left towards the end. Distributing food stamps two or four times a month has been shown to mitigate this self-control problem.[38]

Richard Thaler and Shlomo Benartzi designed a savings program called Save More Tomorrow (SMarT) in which employees committed in advance to allocate a portion of their future salary increases toward retirement savings. In one experiment with such a program, a high proportion of employees joined and remained in the program, and their average saving rates *increased from 3.5 percent to 13.6 percent over the course of three years.*[39] The program's success may also have been due to the increase in savings being automatic (cf. defaults) and out of the employees' consciousness.

Sometimes friction helps achieve the *target behavior.* Product designers sometimes insert extra friction into the signup process for a product or service (e.g., installing all the necessary components, customizing preferences) so that the customer has now incurred sunk costs that will make him likelier to be a customer in the future. The high psychological (and sometimes physical) costs of initiating into a fraternity or sorority can have a similar effect.

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[36] stickK. (n.d.). Retrieved August 23, 2018, from http://www.stickk.com/

[37] Datta, S., & Mullainathan, S. (2014). Behavioral Design: A New Approach to Development Policy. *Review of Income and Wealth, 60*(1), 7–35. https://doi.org/10.1111/roiw.12093;

[38] Gennetian, L., Seshadri, R., Hess, N., Winn, A., & George, R. (2011). Running out and acting out: Food stamp benefit cycles and school disciplinary events among Chicago Public School students. Working paper.

[39] Thaler, R. H., & Benartzi, S. (2004). Save more tomorrowTM: Using behavioral economics to increase employee saving. *Journal of Political Economy, 112*(S1), S164–S187.

## ➤ When social influence could be a motivating factor...

As social psychologist Robert Cialdini recommends, "if you want people to comply with some norm or rule, it is a good strategy to inform them (if true) that most other people comply."[40] For a more nuanced example of social influence, consider what might influence the moments of choice—e.g., turning on or off one's lights or taps—for household owners whose household has above-average electricity[41] or water[42] consumption. When high-usage households received notices comparing their usage with the neighborhood average, they significantly reduced their consumption.[43]

➤ When economic incentives or penalties could be a motivating factor...

Traditional policy strategies, such as penalties, taxes, incentives, and subsidies, are often deployed successfully to influence behavior. Many states' high taxes on cigarettes and a number of municipalities' taxes on sugar-sweetened beverages are good examples. Here are a few others:

In Glasgow, supplementing counseling by *paying* pregnant women not to smoke was three times more effective than counseling alone.[44] The head researcher responsible for this study, Linda Bauld, asserts that instead of stigmatizing them for smoking, it gave them a reward to make a positive life habit.

Similarly, in a study of a smoking cessation program for General Electric employees, the treatment group received cash incentives to quit—$250 for six months and $400 for 12 months—while the control group received no incentives. The treatment group had three times the success rate of the control—an effect that persisted even after financial incentives

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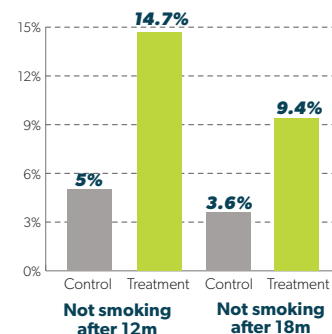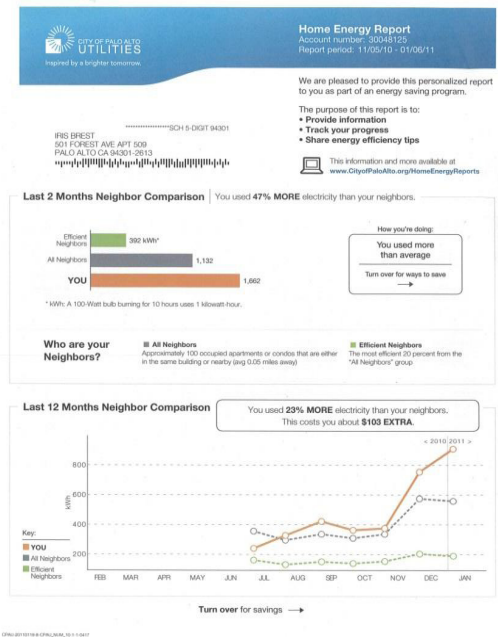
[40] Quoted in Thaler, R. H. (2015). *Misbehaving: The making of behavioral economics.* New York, NY: WW Norton.

[41] Allcott, H., & Mullainathan, S. (2010). Behavior and Energy Policy. *Science, 327*(5970), 1204–1205. https://doi.org/10.1126/science.1180775

[42] Ferraro, P. J., Miranda, J. J., & Price, M. K. (2011). The Persistence of Treatment Effects with Norm-Based Policy Instruments: Evidence from a Randomized Environmental Policy Experiment. *American Economic Review, 101*(3), 318–322. https://doi.org/10.1257/aer.101.3.318

[43] Allcott, H., & Mullainathan, S. (2010). Behavior and Energy Policy. *Science, 327*(5970), 1204–1205. https://doi.org/10.1126/science.1180775

[44] Tappin, D., Bauld, L., Purves, D., Boyd, K., Sinclair, L., MacAskill, S., ... Coleman, T. (2015). Financial incentives for smoking cessation in pregnancy: randomised controlled trial. *BMJ, 350,* h134–h134. https://doi.org/10.1136/bmj.h134. See also French hospitals to pay pregnant women to stop smoking. (2016, May 7). Retrieved August 23, 2018, from https://www.france24.com/en/20160507-france-hospitals-pay-pregnant-women-vouchers-stop-smoking-study

were discontinued after 12 months.[45] Paying individuals to quit other addictive drugs, lose weight, or manage chronic illness has also been effective, at least in the short term, if the reward is large enough and if the specific reward-triggering behaviors are clearly defined.[46]

The obverse of paying people to quit certain harmful behaviors is to incentivize positive behaviors, such as sending children to school or for check-ups or vaccinations.[47]

In a highly unusual program, officials in Richmond, California identified the individuals most responsible for violent crime, shootings and homicide, and initiated a program that paid these individuals up to $1,000 per month for nine months if they stayed out of trouble and participated in community service. Though only about half of participants fulfilled the requirements to receive payments, over the five years the program ran, the city experienced *a 76 percent reduction in homicides and 69 percent reduction in firearm assaults.*[48]

In rural Rajasthan, India, offering a bag of lentils to parents that brought their children to the free immunization clinic increased the percentage of fully immunized children from 18 percent to 39 percent.[49]

A team working to combat the rampant spread of HIV in Malawi noticed that only a third of people tested were picking up their HIV test results. Providing an incentive of 15 cents more than doubled this number. Raising the incentive to $3 *raised the pick-up rate to over 90 percent.*[50]
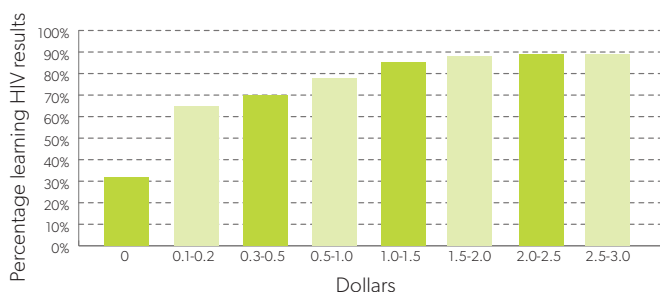
In 2014, 159 people contracted measles after a visit to Disneyland, leading public health officials to consider why such a significant portion of the population was unvaccinated. They soon realized that school policies allowing for people to be admitted to school on the condition that *eventually* the students would get vaccinated had allowed many to ultimately keep attending school for months unvaccinated. So California enacted legislation that both required students to be vaccinated regardless of personal belief and to have a specific plan for vaccine completion during

[45] Volpp, K. G., Troxel, A. B., Pauly, M. V., Glick, H. A., Puig, A., Asch, D. A., … Audrain-McGovern, J. (2009). A Randomized, Controlled Trial of Financial Incentives for Smoking Cessation. *New England Journal of Medicine, 360*(7), 699–709. https://doi.org/10.1056/NEJMsa0806819

[46] Carroll, A. E. (2017, December 21). Paying People to Be Healthy Usually Works, if the Public Can Stomach It. *The New York Times*. Retrieved from https://www.nytimes.com/2015/07/07/upshot/paying-people-to-be-healthy-usually-works-if-the-public-can-stomach-it.html

[47] See, e.g., Coady, D. (2003). Alleviating Structural Poverty in Developing Countries: The Approach of PROGRESA in Mexico.

[48] Richmond, California: Paying kids not to kill. (2016, May 20). Retrieved August 23, 2018, from https://www.cnn.com/2016/05/19/health/cash-for-criminals-richmond-california/; Motlagh, J. (2016, June 9). A radical approach to gun crime: paying people not to kill each other. *The Guardian*. Retrieved from https://www.theguardian.com/us-news/2016/jun/09/richmond-california-ons-gun-crime

[49] Banerjee, A. V., Duflo, E., Glennerster, R., & Kothari, D. (2010). Improving immunisation coverage in rural India: clustered randomised controlled evaluation of immunisation campaigns with and without incentives. BMJ, 340, c2220–c2220. https://doi.org/10.1136/bmj.c2220. The lentils were worth about US$1, about three quarters of one day's wage.

[50] Thornton, R. L. (2008). The Demand for, and Impact of, Learning HIV Status. *The American Economic Review, 98*(5), 1829–1863. https://doi.org/10.1257/aer.98.5.1829

the following six months. Within two years, the rate of students living in counties with vaccination rates below the rate necessary for herd immunity **_dropped from 36 to 1 percent._**[51]

It may seem obvious, but paying people to go to school, open a savings account, or take their medication does not work if they view the amount as insufficient. A study in which low-income patients in the Bronx and Washington were paid up to $280 a year to take HIV drugs daily failed to significantly improve adherence rates. Similarly, paying patients $25 to take H.I.V. tests and then another $100 to return for the results and meet a doctor also failed.[52]

Enhancing incentives with behavioral insights

The bonus scheme to Chicago-area teachers mentioned above provides an example of a financial incentive enhanced by an element of loss aversion.[53] There, teachers who received their bonus at the beginning of the year and were told that all or parts of it would be taken away at the end of the year if their students didn't meet specified goals were 2 to 3 times more successful than teachers given no performance incentive and more successful than those enticed with a traditional end-of-year bonus of the same amount.[54]

The power of sales taxes to reduce the consumption of alcohol is multiplied when the tax is displayed visibly rather than just added to the bill upon checkout, where it is subsumed into the total amount.[55] Moreover, by the time customers get to the checkout counter, it is difficult to undo the momentum leading to the purchase.

Probabilistic incentives can also be effective because people tend to overpredict their expected value. When doctors offered patients a reward of a lottery ticket (with a 1 percent chance of winning the maximum payoff of $100) for taking anti-stroke medication, **_the chance of a big payoff moved adherence from 80 percent to almost 100 percent._**[56]

Limits of incentives

Motivation can be defined as the intensity, direction, and persistence of an individual's efforts to satisfy his own needs or desires.[57] The preceding examples involve motivation derived from an

[51] After a Debacle, How California Became a Role Model on Measles. (2018, January 16). *The New York Times.* Retrieved from https://www.nytimes.com/2018/01/16/upshot/measles-vaccination-california-students.html?nytapp=true&_r=0

[52] McNeil Jr., D. G. (2017, December 21). Study That Paid Patients to Take H.I.V. Drugs Fails. *The New York Times.* Retrieved from https://www.nytimes.com/2015/02/25/health/cash-payments-fail-to-improve-hiv-drug-adherence-researchers-say.html. A study presented at the annual Conference on Retroviruses and Opportunistic Infections estimated that every prevented H.I.V. infection saved the taxpayer between $230,000 to $338,000.

[53] Fryer, R., Levitt, S., List, J., & Sadoff, S. (2012). *Enhancing the Efficacy of Teacher Incentives through Loss Aversion: A Field Experiment* (No. w18237). Cambridge, MA: National Bureau of Economic Research. https://doi.org/10.3386/w18237

[54] Hilton, S., Bade, J., & Bade, S., (2015). *More Human: Designing a World Where People Come First.* London: W.H. Allen), 36. Original study: Fryer, R., Levitt, S., List, J., & Sadoff, S. (2012). *Enhancing the Efficacy of Teacher Incentives through Loss Aversion: A Field Experiment* (No. w18237). Cambridge, MA: National Bureau of Economic Research. https://doi.org/10.3386/w18237

[55] Chetty, R., Looney, A., & Kroft, K. (2009). Salience and Taxation: Theory and Evidence. *American Economic Review, 99*(4), 1145–1177. https://doi.org/10.1257/aer.99.4.1145

[56] Volpp, K. G., Loewenstein, G., Troxel, A. B., Doshi, J., Price, M., Laskin, M., & Kimmel, S. E. (2008). A test of financial incentives to improve warfarin adherence. *BMC Health Services Research, 8*(1). https://doi.org/10.1186/1472-6963-8-272

[57] Based on Kemp, C. (2015). Rewarding Outcomes and the Impact on Motivation. Unpublished paper.

extrinsic source. Alternatively, people may be driven by **intrinsic** motivation when they engage in a behavior simply for its own sake. People's desire to express self-determination and to validate self-worth may underlie this type of motivation.

The dynamics of extrinsic and intrinsic motivators are complex and situational. Extrinsic motivators may be unproductive or even counterproductive in some circumstances. Cognitive Evaluation Theory, for example, asserts that the effects of an external reward ultimately are driven by how the reward affects the recipient's intrinsic needs to be self-determinant and competent. A reward may be perceived as overly controlling ("The director of the program to stop smoking/lose weight is forcing me to do things his way"). In addition, an individual may view incentives as questioning his competence ("If the program director trusted my ability to do what is necessary, then he wouldn't try to bribe me"). Thus, incentives sometimes can undermine higher-level interests, such as the desires to belong, be respected, and achieve one's highest potential.

The introduction of an economic reward or penalty also can backfire by eliminating the social forces already working in its favor. For example, when a daycare began assessing a penalty on parents for picking up their children late, it eliminated any of the guilt or social pressure that compelled parents to arrive on time. As a result, more parents simply opted to pay the fee, and those who were already showing up late began showing up later.[58]

Concept selection

Now comes the time to assess the relative merits of the selected strategies you've come up with. A useful approach to doing this is to sketch a mini theory of change, or logic model, for each, describing its inputs, outputs, and outcomes (with the outcome here being the defeat of the barrier in question, or—at least—the attainment of the target behavior in question). Then, you can evaluate each component one at a time:

▸ What empirical assumptions does your theory of change make? How much confidence do you have that each input leads to the output you've connected it to? (This might require further research or testing through prototypes or pilots later on.)

▸ Mentally simulate carrying out the activities necessary to implement the process. Have you missed anything?

▸ Consider what might go wrong in implementing each step—including possible resistance by other stakeholders or inertia in the system, the likelihood of problems arising, and what you would be reasonably able to do to mitigate the risk.

▸ Do a rough calculation of costs and benefits of implementing the concept.

▸ Eliminate the least effective concepts.

▸ Identify several of the most promising concepts and select one or more of them to test.

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[58] Gneezy, U., & Rustichini, A. (2000). A fine is a price. *The Journal of Legal Studies, 29*(1), 1-17.

Design and Diagnose Redux

It often is useful to share some of your Design concepts with the organization that will implement your strategy as a final check on implementation constraints. It's also useful to "re-diagnose" your new Design concepts in order to anticipate any new, unintended behavioral barriers that could emerge as a result of implementing your design (e.g., a new process step that adds hassles), including those for other actors in the delivery chain (e.g., front-line staff who may need to follow a new protocol). Sometimes new behavioral barriers may come to light only as you start working out all of the details of implementing your design. The more complex the design, the more critical this re-diagnosis step is.

Unintended consequences

As we mentioned above, the effectiveness of particular influence techniques often depends on contextual factors, ranging from the very local, such as the particular state of mind of the targeted individual, to the systemic. Consider these examples of well-intended design mechanisms backfiring:

▶ With the goal of encouraging farmers to reduce groundwater extraction, a local government subsidized efficient irrigation technology to decrease water evaporation. But farms that used the drip nozzles actually increased their water consumption by about 3 percent. Why did this happen? Farmers fell prey to the **licensing effect**. When they used the more efficient nozzles, they believed they were doing a good deed by saving water and so felt less obligated to use water conservatively. For example, farmers in one area responded to the subsidy by increasing the area of land they tilled or switching to more water intensive crops like soy.[59]

▶ Similarly, when the government of Kiribati subsidized coconut farming in order to draw fishers away from overfishing, it achieved its short-term goal: more commercial fishers shifted to farming coconuts. And indeed, incomes for coconut farmers increased substantially. But policymakers failed to account for the subsequent boom in *leisure* fishing that was the result of more disposable income— a 33 percent increase after the subsidy program was initiated. At the same time, higher local incomes led to investments in fishing technology that increased the efficiency of commercial fishing operations. Both unaccounted variables led to a further 17 percent decline in fish population.[60]

[59] Pfeiffer, L., & Lin, C.-Y. C. (2014). Does efficient irrigation technology lead to reduced groundwater extraction? Empirical evidence. *Journal of Environmental Economics and Management, 67*(2), 189–208. https://doi.org/10.1016/j.jeem.2013.12.002

[60] USAID. (2011, November). Systems Thinking in Conflict Assessment (pp. 24-25). Retrieved August 23, 2018, from https://pdf.usaid.gov/pdf_docs/pnady737.pdf

>> TEST:
Testing your designed intervention through prototyping

At this point, you will have concepts that are clearly linked to achieving key behaviors related to the success of your overall strategy and grounded in insights that emerged from your research of actors on the ground. Once you have selected the strategies you want to move forward, the next step is to test them using prototypes.

Prototyping turns your abstract strategies into something tangible that people can interact with. ideas42 builds prototypes not to create the perfect embodiment of its concept but to learn. "Building to learn" works in multiple ways. At the most basic level, it is a way to assess whether the members of your team are on the same page. You may think you have the same concept in mind, but until you give it shape, you won't uncover the nuances that you haven't articulated or understood. More significantly, prototypes provide an opportunity to get feedback from your beneficiaries and other stakeholders.

It's important to test early and often. The best way to test is to actually express the idea in some physical form, since asking people directly is less likely to produce useful information. For example, in designing the Kindle, Amazon famously built a room in which to watch people reading. It turned out that they do exactly what they say they *don't* do—switch hands while reading—which led to a key product design insight ('next page' buttons on both sides).[61] Having real users experience your prototypes to get feedback from the people you are designing for will tend to yield more information than asking someone if they like a concept by showing them a storyboard or having them watch a video.

Questions you may want to test include:

▸ **Are people really interested? Would they care about or use this?**

▸ **Will they do or use this design, given all other choices available?**

▸ **Does the solution meet the needs it was designed for?**

▸ **Does the solution have the desired effect while avoiding undesired outcomes?**

Let's use the same chlorine dispenser example. We could test a prototype with a few users by bringing a squirt bottle of chlorine to a water pump, making a simple sign, observing what people do, and potentially asking a few questions:

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[61] Pierce, D. (2016, April 13). Amazon's New Kindle Oasis Is the Fanciest-Pantsiest E-Reader Ever. *Wired*. Retrieved from https://www.wired.com/2016/04/amazons-kindle-oasis-fanciest-e-reader-ever/; How the Kindle was designed through 10 years and 16 generations. (n.d.). Retrieved August 23, 2018, from http://social.techcrunch.com/2017/11/20/how-the-kindle-was-designed-through-10-years-and-15-generations/

▸ To answer the first two questions above, we can observe whether people use our prototype squirt bottle. And, we could ask them some questions about their impressions and intentions.

▸ We can also answer the next two questions by observation. If people squirt too little or too much chlorine, we will know that a simple squirt bottle won't work. We could also ask people whether they obtain water from any other sources, how they wash dishes, and about any other behaviors that could cause water to become contaminated.

Unexpected outcomes are often more instructive than when your prototype works perfectly. An unexpected result of your prototype can inform you that (1) your initial insight was weak, (2) your insight was good, but the concept did not adequately embody your insight, or (3) your concept addressed different needs than you expected. The important thing is to be able to understand why it failed and to incorporate that understanding in your next iteration.

People are notoriously bad at predicting and remembering their own behaviors. The aim of a prototype is not to only evaluate ideas in a "thumbs up or down" manner but to study the ripple effects of their use. When interviewing subjects after testing a prototype, look for:

▸ comparisons to other things

▸ changes in their behavior, attitude or emotions

▸ projections ("I think Mary will want to use this because…")

▸ defensive positions, concern or denial

▸ new stories

These are the factors that tell us about how people are using and thinking about the product/service.

Testing in the field

After a prototype has been tested with some users, it's time to field-test it—that is, to actually implement it to test what happens. While getting feedback on a prototype from users is useful, it is not really a test of what people will actually do vs. what they predict they will do. Prototyping also doesn't tell us whether our design will *cause* the intended outcomes. These could be intermediate outcomes like take-up, or ultimate outcomes like a lower incidence rate of diarrhea.

You have doubtless heard the phrase that correlation does not necessarily entail causation. As a simple illustration, suppose you are feeling feverish and achy and go to the doctor, who prescribes pills; three days later you're feeling well again. Did the pills cure your illness or might you have gotten better anyway? What might have happened without the pills, or behavioral intervention, is called the *counterfactual*. The goal of evaluation is to test the hypothesis that the intervention caused the outcome against the counterfactual.

You may wonder why we have to go to all this trouble. If we simply compare what happens after our solution is implemented to what happens before, we may see better or worse outcomes because of some external factor. If those effects are larger than the effect of the solution we're testing, we would totally misread the impact of our solution. Without a careful evaluation, we could reject solutions that work, or worse, implement solutions that cause harm.

There are a number of excellent treatises on evaluation.[62] We plan only to skim the surface here through a few examples of the different approaches to evaluation used to test some of the interventions mentioned above. We will survey randomized controlled trials (RCTs) – the "gold standard"—as well as two alternatives to RCTs, which can be used when RCTs prove to be infeasible.

➤ *Randomization*

The randomized controlled trial (RCT), often called the "gold standard" of techniques for establishing causality, involves randomly assigning individuals to either receive the treatment or not. Random assignment can cancel out any potential differences between the two groups other than the fact that only one received the treatment, leaving the treatment as the most plausible explanation for any differences observed. The obvious advantage of this technique is that it does the best job at establishing causality.

How does the process of random assignment solve the problems inherent in matching? First, it eliminates our worry about "selection bias" – that the experimenter selected people for a behavioral intervention, or that people volunteered to participate, based on a preference for the intervention or the belief that they would benefit from it.

> ▶ For example, ideas42 evaluated the impact of behaviorally informed financial coaching dubbed a "Financial Health Check" (FHC). During an FHC, a coach helped the client set financial goals like saving and then set up automated transactions to achieve those goals. A credit union offered its customers the FHC by email and phone. Half of those who expressed interest in an FHC were randomly selected to receive one, and the other half were told that all available sessions had been booked. That group received some compensation and useful information. The test showed that the FHC increased savings for those who came into the session with no savings. Had we simply compared customers who took an FHC with those who didn't, we would have seen even better, but inaccurate, results. In that scenario, it's possible that those who chose to take an FHC were more concerned about their financial health so would have reached their savings and debt reduction goals even on their own.[63]

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[62] We highly recommend Paul Gertler, et al, Impact Evaluation in Practice (Washington, DC: World Bank, 2nd ed. 2010) both because of its quality, and because it is published under a Creative Commons Attribution license, which means that you can download, copy, and remix it.

[63] Schoar, A., Tantia, P. (2014). The Financial Health Check: A Behavioral Approach to Financial Coaching. *New America.* https://www.newamerica.org/asset-building/policy-papers/the-financial-health-check/

Second, and more fundamentally, given large enough control groups and treatment groups, people with salient characteristics are likely to end up in both groups, without the evaluator having to identify them. When you match people in the two groups, you necessarily must identify what you believe to be characteristics that could affect the outcome—for example, in the case of the obesity reduction program, their weight, health, sex, ethnicity, and poverty level. But you may not have thought of all the factors that could contribute to the outcome.

The power of RCTs is that the treatment and control groups are just as likely to have people with all the (unobservable) characteristics you didn't think of as well as those (observable characteristics) you did.

One might sometimes be concerned that it is unfair that some people should receive a promising treatment when others don't. But there may not be enough spaces in the program to accommodate everyone who wishes to participate, and random assignment can be a fair way of allocating scarce resources. More fundamentally, we often *do not know* if the program actually results in the hoped-for results, and an RCT is the best way to find out.

Many of the interventions mentioned above were validated through RCTs.

> ▸ The effects of having knowledge of peers' behavior with respect to power and water consumption were determined by randomly sending the information to some utility customers and not others, and subsequently comparing their consumption.[64]

> ▸ The effects of paying pregnant women not to smoke, and of General Electric's smoking cessation program for employees, were determined through RCTs.

> ▸ In testing the fertilizer delivery program in Kenya, farmers were randomly selected from a sample of parents of fifth and sixth grade children in sixteen schools in Kenya's Busia district. [65]

➤ *Before/After*

The before/after (also called pre/post) technique involves measuring a phenomenon before implementing the program and measuring it again afterward to see if it has increased, decreased, or stayed the same. In effect, the "before" group is the counterfactual—what would have happened in the absence of the program. Its advantage is that it is relatively easy to implement, since it only requires being able to measure the outcome at multiple time points. Its disadvantage is that the status of the group post-intervention may reflect factors other than the intervention and depends greatly on the window of time you choose to look at.

Before/after comparisons can provide useful indications of causation. But the evaluator must take account of changes in external circumstances that could have contributed to a different outcome

before and after the sampling period. Determining what these circumstances might be requires understanding the dynamics of the relevant social system. But there's always a possibility that the evaluator was not aware of an external factor that might have contributed to the outcome.

▸ One major study of the effect of defaults on employee participation in retirement plans relied on a before/after evaluation: "Before the plan change, employees were required to affirmatively elect participation in the 401(k) plan. After the plan change, employees were automatically and immediately enrolled in the 401(k) plan unless they made a negative election to opt out of the plan. Although none of the economic features of the plan changed, this switch to automatic enrollment dramatically changed the savings behavior of employees."[66]

➤ Matching

This technique involves comparing the group that receives your program to a group of people who did not receive your program but have been "matched" against the first group on a number of important relevant attributes. The idea behind matching is that if the people in the two groups are, on average, identical in all relevant characteristics but those in one group benefit from the program and those in the other group do not, the program itself is the only thing that can have caused the different outcomes. To determine which factors might be relevant, you need to identify the causes of the problem and the theory of change underlying the solution.

Compared to before/after, matching can help account for some alternative explanations for any effects the program seems to have. Its weakness is that participants may have been selected for the treatment group based on characteristics that affect their success ("selection bias") and that it is nearly impossible to match the two groups on every relevant characteristic; therefore, there may be relevant characteristics that you either haven't thought of or can't accurately measure.

▸ The observation that the default, when a person obtains a driver's license, has a significant effect on organ donations was mainly the result of matching countries, combined with multiple regression analysis that tried to control for known differences that could affect donations.[67] The authors noted that "there are many reasons preventing registered potential donors from actually donating. These include: families' objections to a loved one's consent, doctors' hesitancy to use a default option, and a mismatch with potential recipients, as well as differences in religion, culture, and infrastructure. To examine this, we analyzed the actual number of cadaveric donations made per million... using a multiple regression analysis with the actual donation rates as dependent measures and the default as a predictor variable ... [and controlled] for other differences in countries' propensity to donate, transplant infrastructure, educational level, and religion."

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[66] Madrian, B. C., & Shea, D. F. (2001). The power of suggestion: Inertia in 401(k) participation and savings behavior. *The Quarterly Journal of Economics, 116*(4), 1149–1187.

[67] Johnson, E. J., & Goldstein, D. (2003). Do Defaults Save Lives? *Science, 302*(5649), 1338–1339. https://doi.org/10.1126/science.1091721

The challenge of generalizability

Generalizability, or external validity, involves the prediction that an intervention implemented at one place or time will (or won't) work in a different place or time or with a different implementing organization. A number of factors can limit one's ability to generalize findings from one situation to another. For example, one should be cautious in extending a successful pilot program with voluntary participation to a broader program with mandatory participation. Understanding the mechanisms by which an intervention works is essential to predicting its generalizability in other contexts. Mary Ann Bates and Rachel Glennerster, from the Abdul Latif Jameel Poverty Action Lab (J-PAL), suggest a four-step framework for addressing this question:[68]

> **1** **Step 1:** What is the theory behind the program? That is, what are the mechanisms by which it works?

> **2** **Step 2:** Will these mechanisms operate in local conditions?

> **3** **Step 3:** How strong is the evidence supporting the necessary behavioral change?

> **4** **Step 4:** What is the evidence that the implementation process can be carried out well?

Generalizability is increased by the successful replication of a program in multiple environments. For example, the use of text message reminders to encourage low-income students to enroll in college courses was evaluated through a multi-site randomized controlled trial design, randomized at the student level to investigate the impact of these outreach strategies on students' postsecondary enrollment outcomes. Confidence in the generalizability of the intervention was increased because the "sites differ[ed] considerably in the extent to which students had access to college planning supports both during the school year and particularly in the summer."[69]

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[68] https://ssir.org/articles/entry/the_generalizability_puzzle

[69] Benjamin L. Castleman, & Lindsay C. Page. (2013). *Summer Nudging: Can Personalized Text Messages and Peer Mentor Outreach Increase College Going Among Low-Income High School Graduates?* (No. 9). EdPolicyWorks Working Paper Series. Retrieved from http://curry.virginia.edu/uploads/resourceLibrary/9_Castleman_SummerTextMessages.pdf

Lowering Arrests in NYC
## A Case Study in Behaviorally Designed Court Summonses

We conclude with a detailed case study of a project conducted by ideas42.

Every year, the New York Police Department (NYPD) issues hundreds of thousands of low-level tickets, known as summonses. Police officers use them for an array of non-arrestable offenses like jumping a turnstile, littering, or consuming alcohol in public. The tickets require defendants to attend court on an assigned date; failure to appear results in the issuance of an arrest warrant. That means for the 40 percent of New Yorkers who fail to attend their court date, a simple infraction leads to jail time, regardless of the type or severity of the offense. That's a problem for the individuals and the city alike.

ideas42 partnered with the NYPD and the Mayor's Office of Criminal Justice to answer this pressing question: Given the severe consequences of failing to appear in court, why are so many people risking their freedom over such small infractions?

Phase I: Defining the problem and developing a target behavior

While a broader problem-solving process would examine the degree to which summons-non-compliance might be symptomatic of other larger problems about crime or perhaps call into question the efficacy of this method of policing, ideas42's role in this case was quite specific: improve court attendance rates. This thus defined their target behavior. Traditional approaches to improving summons compliance might include increasing the penalty for missing the court date, educating the public about the severe consequences of not showing up, or increasing police enforcement. Rather than jump to these solutions, the ideas42 team used the methodology described above. The first step was to draw the simple decision-action map below:

```
Read          →     Decide to go     →     Go to
summons             to court                court
```
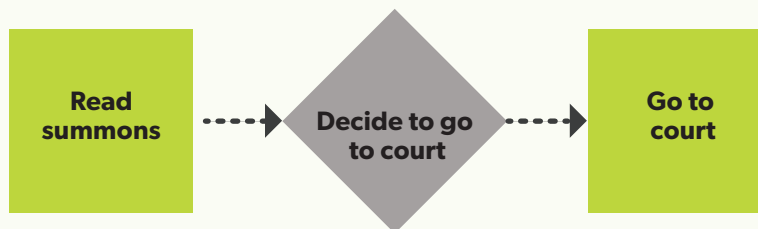
Phase II: Diagnosing barriers to the targeted behavior

Before interviewing summons recipients, the ideas42 team first identified key barrier hypotheses that they would then validate, disprove, or iterate on in the field. Below are four of the 30 generated hypotheses, along with some corresponding evidence they would look for to support each hypothesis.

➤ *Hypothesis 1:* **Forgetfulness (as a barrier to going to court)**

There's usually a long time between the issuance of the summons and the court date. The team hypothesized that many people simply *forget* their court date.

Evidence needed: Do people say they forgot the date? Do they express frustration about the delay between summons and the court date?

➤ *Hypothesis 2:* **Avoidance of Negative Experiences (as a barrier to deciding to go to court)**

Going to court is an uncomfortable and unpleasant experience. One can wait a full day to see a judge, only to be disappointed by a harsh judgement; a court visit might make defendants feel like they are criminals. Therefore, ideas42 hypothesized that people would try to avoid thinking about the summons entirely. In psychology, this is described as the **ostrich effect.**

Evidence needed: What are people's expectations of court? Do people say they avoided thinking about the court summons? Do people associate going to court with being labeled as a criminal?

➤ *Hypothesis 3:* **Present-Bias (as a barrier to deciding to go to court)**

Almost everyone prioritizes comfort in the present, even at the expense of great inconvenience at some future date. Psychologically this is known as **present bias.** In terms of a summons, this means that smaller immediate costs of spending a day in court (missing school, time off work, paying for childcare, etc.) loom much larger than the large long-term costs of skipping court (jail time). ideas42 hypothesized, that when forced to make this trade-off, people choose the option that is convenient now and underestimate the long-term negative impact of an arrest.

Evidence needed: Do people focus more on the costs of attending court than the benefits? Do they seem concerned about the negative consequences of failing to appear in court?

➤ *Hypothesis 4:* **Social Norms (as a barrier to deciding to go to court)**

People's behavior is often influenced by the actions of their peers: If you see friends and family acting a certain way, you are likely to follow their example. ideas42 hypothesized that people think other similarly situated members of their community are unlikely to go to court, and therefore they choose to also skip their court date.

Evidence needed: Does skipping court seem "normal?" How many of their friends and family members have skipped court in similar circumstances?

Using these hypotheses, ideas42 set about crafting interview guides that would allow it to uncover how people think about the summons process, without biasing them to respond in a certain way. For example, instead of asking "Do you find court unpleasant?" it's helpful to begin with open ended questions: "Did you attend court for any of these tickets? Could you describe your experience?" or "How are people usually treated in court?"

Phase III: Investigating diagnosis hypotheses in the field

The ideas42 team met with over 50 people, most of them struggling on the edge of homelessness, dealing with multiple summonses for low-level offences.

One of the first people ideas42 met was Lauren, a middle-aged nursing student currently living in a homeless shelter. She received a summons for jumping the turnstile: she needed to get to class and couldn't afford the fare. She wondered, *"Why am I getting this [summons] when there are much more serious issues out there?"* When asked why people don't show up to court, she explained,

> *"You're viewed like a criminal—court doesn't take into account the person's life and what they are going through... Most people don't go to court because they have more serious things to worry about than metrocard violations... [the charge] is foolish! They have other things to do and if they go it's going to get dropped anyway."*

Zander shared a similar story.

> *"I would have gone to court, but I didn't want to miss a day of work... The court date was the same day as my first day at CVS... I already passed a background check and I didn't want to have to tell them about a new [court-related] thing... I tried calling the courts after to see how I can take care of it, but they told me I would be arrested if I came in."*

Daniel, a twenty-year-old from Manhattan, drew a blank when thinking about his summons:

> *"I don't remember what it said. I just remember thinking 'no, I'm not going.' I didn't even read it... It was completely ridiculous that they gave me a ticket for walking through the park [at night]. I was not going to walk down the creepy alley to go around the park."*

Later, when reflecting about his court date, Daniel gave several other reasons he didn't want to go:

> *"It was last Monday, that was the day I was supposed to go. And in my head, I thought, 'Oh I have to go to court' and I got nervous."*

He went on: *"Anything can happen. I heard about times when the consequence was just way too extreme."* He had no idea failing to appear in court meant that a warrant would be issued for his arrest.

Perhaps the most interesting aspect to all these people's experiences is that while all were unwilling or unable to attend court, they all offered the same advice: attend court. When asked what she would tell a friend in her position, Lauren said *"I would tell them to go to court. Don't risk collections or getting a bench warrant… Dispute it in a professional way. Show that you did nothing wrong and they will drop the case."* Zander agreed: *"Nine times out of ten they will just throw it out or make you pay a small fine."* Even Daniel agreed: *"I know it's super annoying to have to go through the court system for anything that's minor, but just go through it and get it over with."*

Phase IV: Homing in on a behavioral diagnosis

Looking at the social norms hypothesis, the team found very limited evidence that people based their decision on whether to attend court on others' behavior. On average, our subjects thought that about half of people would show up (which is fairly close to the actual 60 percent appearance rate). In the end, after weighing this evidence, ideas42 concluded that social norms should not feature as a core component of the design.

When checking if people were forgetting their court date (potentially because of having lost or thrown away the summons), the team found that about half of the people interviewed expressed frustration over the long delay between the ticket issuance and the court date. As a man in his early twenties explained,

> *"My intention was to go and fight it because I knew it wasn't right. But this was back in May and [the court date] was in August. I lost the paper and forgot about it…"*

However, forgetfulness was only one of several reasons why people didn't attend court. Many people, like Zander working at CVS, remembered their court dates yet were unable to go because of day-to-day commitments. For Chloe, the problem was childcare: *"I remembered the day and I deliberately did not go. I had to take care of my 5 kids that day, I wasn't going to take them to court with me."*

Failing to appear results in the issuance of an arrest warrant, but many interviewees didn't know that. In the moment, with present responsibilities weighing on them, people seemed to assume that there would be no severe long-term consequences. Daniel, who was ticketed for walking through the park at night, is a perfect example: he remembered his court date and considered going, yet decided against it. Other first-time summons recipients echoed this sentiment: "*I figured it would just go away and disappear because [the offense] was not a big deal… I wasn't worried because the officer did not explain that it would turn into a warrant.*" Daniel corroborated observations from others interviewed: people were not always aware of the consequences of failing to appear.

Finally, many of those interviewed made the decision not to appear in response to perceptions of injustice.

▶ One woman felt personally targeted: *"They were just looking for someone to pick on…. maybe they didn't like me. Maybe they were racist, I don't know."*

▶ Others did not feel their behavior warranted a ticket: *"Why did you give us a ticket? We were just hanging out in a park."* and *"What is this for? What did I even do?"*

▶ A third group expressed disbelief at the severity of the punishment: *"I thought it was stupid to go to court for something so minor like spitting… going through that many hours just to see a judge for a little pink ticket? That's too much. That's really unfair."*

Having gathered these insights, the team finalized its behavioral diagnoses, identifying three main barriers:

1. **People forget to appear**, as a result of the long lag time between receiving a summons and attending court (1-3 months, on average).

2. People reactively choose not to appear, due to **perceptions of unfairness.**

   These perceptions may take a variety of forms:

   a. People in an emotional state react to the negative experience of receiving a summons, and immediately rip it up or throw it away.

   b. People do not think they should have been issued a ticket for the offense or feel the offense is too minor to require a court appearance.

   c. People feel personally targeted or that the entire system is unjust.

3. People choose not to appear because the (financial or psychological) **costs of attending court seem to outweigh the consequences of failing to appear.**

   Depending on the individual, this perception could be driven by one or more of the following reasons:

   a. People lack awareness of, and underestimate, the consequences of failing to appear in court.

   b. Fear and uncertainty about the court experience leads people to overestimate the (admittedly frustrating) pains of attending court.

   c. More immediate costs (missing work, spending time in court, paying the fine) are top of mind, and outweigh the larger future consequences of arrest.

   d. People expect they will be disrespected or treated like a criminal in court.

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Phase V: Designing evidence-based solutions
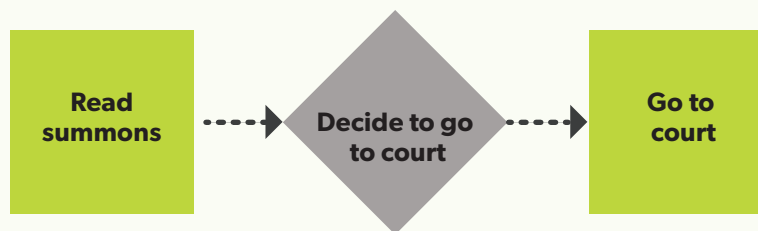
➤ **Action: Reading the summons**

The first action of reading the summons was not found to be impeded by any significant barriers, so the team had to design for barriers around the decision to go to court as well as attending after the decision was made.

➤ **Decision: Deciding to go to court**

The best point of intervention to overcome barriers for this action would be the summons form itself. In partnership with the NYPD, the ideas42 team began its redesign. The initial focus was on simplifying language while drawing attention to the actions the person needed to take. Further, the summons needed to encourage the recipient to feel personally responsible for taking the appropriate actions. After many iterations, the team settled on the final design, which saw the following changes compared to the original summons:

A. Simplified Contact Info: In order to draw the recipient's attention to other, more critical pieces on information, the only personal information the defendant's copy of the summons displays is their name and date of birth: just enough information to make the ticket feel personally relevant.

B. Main Call to Action: The new ticket prominently features the court appearance date, time, and location at the top of the ticket, where people are more likely to notice it.

C. Explanation of Consequences: Directly under the call to action, the ticket prominently explains the negative consequence of not showing up to court—information that was completely omitted in the original design.

D. Explanation of Charge: The personal language ("you are charged") connects the defendant with the charge. While unlikely to relieve any feelings of injustice, this language may help people consider that the information on the ticket is personally relevant to them, encouraging them to read and assume responsibility for taking the required actions.

E. Additional Resources: A clear source of additional information (a phone number and website) are prominently placed so that defendants who might fail to act due to uncertainty or confusion have an alternative, clear default action.

F. Next Steps: The header on the back of the summons provides clear instructions on what steps the defendant must take to resolve the ticket. It not only presents court attendance as the default first step, it also reminds defendants that this is a necessary precursor for them to be able to plead their case. This is meant to alleviate feelings of injustice, suggesting that court is a place where cases are heard, not simply a place where sentences are passed down.

➤ *Action:* **Going to court**

The team now had to design for getting defendants to follow through on their intention to come to court, sometimes months later.

Their solution was a series of text-message reminders to both (1) prompt people to plan for their upcoming court date and (2) help keep the consequences of failing to appear salient so that they would be less likely to change their minds in the meantime. The reminders needed to give people enough time to adjust their schedule but not be sent so far in advance that they might forget their court date once again.

In considering their options, the team decided to send four messages around the assigned court date:

1. The first would be sent a week in advance, giving sufficient of time to make necessary arrangements (scheduling time off work, finding options for childcare, etc.).

2. The second message would be delivered three days in advance: still enough time for defendants to change their plans or reschedule their court date as appropriate.

3. The third message arrived the day before their court date, reminding them to attend court at the following day at the appropriate time.

4. Finally, in case people failed to attend court, they were sent a final message the day after their court day to explain their options for resolving the warrant before facing arrest.

Given this structure, the crucial step was crafting each message, balancing the different themes each message might include. The team designed and tested three different sets of text message reminders.

Consequence messages

The first set of messages emphasized the consequences of failing to appear and provided information about what to expect on their court date.

PRE-COURT CONSEQUENCES MESSAGES

7 days before court	*3 days before court*	*1 day before court*
Helpful reminder: go to court Mon Jun 03 9:30AM. We'll text to help you remember. [Show up to avoid an arrest warrant.] Reply STOP to end texts. www.mysummons.nyc	Remember, you have court on Mon Jun 03 at 346 Broadway Manhattan. [Tickets could be dismissed or end in a fine (60 days to pay).] [Missing can lead to your arrest.]	At court tomorrow at 9:30AM [a public defender will help you through the process.] [Resolve your summons (ID##########) to avoid an arrest warrant.]

Plan-making messages

The second set of messages prompted people to develop a plan for how they would attend court. Similar messages encouraging people to plan ahead have been used to encourage people to vote on election day and attend free flu shot clinics.

PRE-COURT PLAN-MAKING MESSAGES

7 days before court	*3 days before court*	*1 day before court*
Helpful reminder: go to court on Mon Jun 03 9:30AM. [Mark the date on your calendar and set an alarm on your phone.] Reply STOP to end messages. www.mysummons.nyc	You have court on Mon Jun 03 at 346 Broadway Manhattan. [What time should you leave to get there by 9:30AM? Any other arrangements to make? Write out your plan.]	You have court tomorrow for summons ID##########. [Did you look up directions to 346 Broadway Manhattan?] Know how you're getting there? Please arrive by 9:30AM.

Combination messages

This third set of messages combined elements from both sets above, both highlighting consequences and prompting people to make a plan.

COMBINATION MESSAGES

7 days before court

Helpful reminder: go to court Mon Jun 03 9:30AM. We'll text to help you remember. Show up to avoid an arrest warrant. Reply STOP to end texts. www.mysummons.nyc

3 days before court

You have court on Mon Jun 03 at 346 Broadway Manhattan. What time should you leave to get there by 9:30AM? Any other arrangements to make? Write out your plan.

1 day before court

Remember, you have court tomorrow at 9:30AM. Tickets could be dismissed or end in a fine (60 days to pay). Missing court for ########## can lead to your arrest.

Message after a missed court date

In addition to the pre-court reminders ideas42 sent the following message for a missed court appearance, letting recipients know that while warrant was issued, they won't be arrested for it if they clear it at the court.

SENT AFTER A FAILURE TO APPEAR

[Since you missed court on Jun 03 (ID##########),
a warrant was issued.]
[You won't be arrested for it if you clear it at 346 Broadway Manhattan.]
www.mysummons.nyc

ideas42 then tested each style of message on summons recipients.

Phase VI: Test Results

The new design was first tested simply by comparing court attendance of those who were given a summons right before and after the use of the new forms in the spring and summer of 2016). The number of people who failed to appear decreased by 13 percent. (Using 2015 statistics, this would have reduced the total number of warrants issued by over 17,000 (from a baseline of 96,696 warrants). (See Appendix C). This is a huge success, from a simple redesign.

A more rigorous test of the interventions was done through a randomized controlled trial. As part of the summons issuance, police officers were required to gather defendant phone numbers. Then, summons recipients were randomly selected to receive one of the sets of text message reminders or, in a comparison group, receive no messages at all. To identify the most promising text-message messages, ideas42 compared court attendance rates across the various text message groups against the comparison group.

The text message campaign was launched alongside the release of the improved summons form. Receiving any of the pre-court messages increased court attendance by 20 percent. The combination messages, using elements of both consequences and plan-making, was the most effective, increasing court attendance by 26 percent. Combined with the message sent for afterwards to those who failed to appear, the number of outstanding warrants one month later had fallen 32 percent. This was in addition to the 13 percent reduction achieved by redesigning the summons form.

Conclusions

This project is an excellent example of how even small tweaks to a program can achieve great impact at scale. It is remarkable that simple, low-cost interventions like redesigning a form can increase court attendance for 17,000 New Yorkers annually, and that four simple text messages can decrease the number of warrants issued by nearly one third. At less than one cent ($0.0075) per message, the cost of sending all summons recipients three messages would be less than $6,000 each year, a low price compared to the high personal and societal costs of arresting thousands of individuals for failing to appear in court to defend against minor, non-arrestable offenses.

➤➤ *CONCLUSION:*

A word on the ethics of influence[70]

. . . .

With the knowledge in this essay and the power to act on it through policies or programs you implement comes special responsibility. The techniques of influence examined heretofore are orthogonal to the ends for which they are used. In their book, *Nudge*, Richard Thaler and Cass Sunstein give the example of Carolyn, who can determine how food is displayed in the cafeterias of a large school system. Without restricting students' choices, the order in which foods are placed, whether they are at eye level, and other display variables can have a large effect on what the students eat. Carolyn might arrange the food:

- ▸ to encourage healthy choices that make the students better off;
- ▸ to facilitate students' choosing the items that they would probably choose anyway;
- ▸ to maximize profits to the cafeteria;
- ▸ to maximize bribes from food suppliers to Carolyn; or
- ▸ randomly.

As policymakers continue to explore the techniques of influence, it is worth noting some recurring concerns about its underlying political premise, which Thaler and Sunstein term *libertarian paternalism*: "the idea that it is both possible and legitimate for private and public institutions to affect behavior while also respecting freedom of choice, as well as the implementation of that idea." The interventions examined in this paper are paternalistic in the sense that they try "to influence choices in a way that will make choosers better off, as judged by themselves," but libertarian in the sense that they aim to ensure that "people should be free to opt out of specified arrangements if they choose to do so."[71] The concept has been criticized on a number of grounds, which we mention here with our brief responses:

- ▸ Libertarian paternalism is an insidious use of government power because, by not regulating conduct directly, it does not mobilize the same sort of focused opposition as hard regulatory policies. *But* when there is no "neutral" way to structure a choice, policy makers might as well choose frames and defaults that are most likely to achieve citizens' interests or, where there is no apparent conflict, the public interest. In any event, a democratic government should be transparent to its citizens about its use of choice architecture.

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[70] Portions of this section are based on Brest, P., & Krieger, L. H. (2010). *Problem Solving, Decision Making, and Professional Judgment: A Guide for Lawyers and Policymakers*. Oxford University Press.

[71] Thaler, R. H., & Sunstein, C. (2008). *Nudge: Improving decisions about health, wealth, and happiness*. New Haven: Yale University Press.

▶ Libertarian paternalism encourages citizens' passivity and manipulates their choices rather than seeking to educate them to be better decision makers. *But* the literature on debiasing is not optimistic about the possibilities for countering biases, and the pervasiveness of bounded rationality means that even very thoughtful individuals will make many decisions by default, even if the default choice is suboptimal.

▶ Policy makers using behavioral interventions are subject to their own biases and to corruption, partiality, and narrow-mindedness. Choice architecture offers the same opportunities for influence by special interests as any regulation. *But* the deliberative decision making that underlies good policymaking provides safeguards against biases.

▶ Policymakers' choice of defaults, or even about what information to provide individuals, may assume an unjustified homogeneity of interests. Maybe there are individuals who would genuinely prefer to have more cash today than to save for retirement. *But* as long as it isn't onerous to override the defaults, why shouldn't policymakers choose defaults that they believe to be in individuals' or society's best interests? And if governments do not provide all the information that individuals need to make a decision based on their own interests, people have access to other sources of information.

There are no simple solutions to these problems of choice architecture. For example, Thaler and Sunstein offer an alternative to manipulating defaults that, in some circumstances, may obviate some of them and improve people's decision-making processes: *mandated choice*. Suppose that you can't obtain a driver's license without specifying whether or not you wish to be an organ donor. Suppose that an employer cannot hire you until you have specified what, if any, retirement savings plan you want to enroll in. Mandated choice doesn't work in all circumstances, and it doesn't obviate the inevitability of framing—consider Carolyn's cafeteria. But, when it is feasible, it nudges citizens to deliberate about important choices rather than nudging the choice in a particular direction—perhaps the ideal sort of libertarian paternalism in a deliberative democracy.

Even so, to expect every citizen to consciously consider every forgone option in every regulated aspect of their lives is not good policy either. Simply put, policymakers must often choose on behalf of those they make and develop policy for. The gravity of this responsibility is also why we hope this essay has left you not only with practical tools and knowledge to more effectively solve social problems but also with a different understanding of the role behavior has in social problems altogether—from defining how they affect people's lives to developing solutions that are more likely to actually work when implemented on the ground.

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