STEVE SHU & ANDREW LEWIS

NUDGING DEMOCRATIZED

A GUIDE
TO APPLYING
BEHAVIORAL
SCIENCE

INCLUDES «INSIDE NUDGING»

Nudging Democratized

A Guide to Applying Behavioral Science – Chapter 1 Excerpt
(For Educational Uses Only at Cornell Tech)

Steve Shu & Andrew Lewis

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1
BEHAVIORAL SCIENCE CENTERED DESIGN IS THE NEW BLACK

People love to debate design, whether they have even thought about what design really means or what it should mean. Design permeates the senses, micro interactions between things and people, and culture. But how does one define design?

Rather than trying to define design, let's first contemplate design by taking a look at what some others think about the recently launched, much-awaited Apple Watch. For example, in an article in Fortune magazine (Leaf 2015), a number of accomplished designers shared their thoughts about misunderstandings about design and the Apple Watch. Comments included:

- "[The biggest misconception is] that it's about making things pretty."
- "The mistaken belief that we need design for everything."
- "The mistake is attributing to design a cerebral quality that is not necessarily there…"
- "…Apple missed an opportunity to redefine why the tiny screen is on our wrist at all."
- "…I don't think [the Apple Watch] simplifies my life."

- "[The Apple Watch] was a good try. Let's see what comes next."

What about people I know? When I asked my teenage son what he thought about the Apple Watch, although he does not have one (but plays with it extensively every time we go to the Apple Store), he thought it was a big success; it was very cool. Another behavioral scientist I work with quite closely (and a design aficionado I might add) surprised me by telling me he loves his Apple Watch; it makes the weather conditions easily accessible and provides simplified alerts regarding upcoming meetings so that his phone doesn't need to be out. Personally, I would find it hard to displace my current watch, an heirloom from my father that I treasure and keep with me at all times.

Based on these very limited accounts, the definition of design seems to reside in the eye of the beholder. Design often aspires to more than visual beauty. Design can provide utility, support emotional needs, and redefine relationships.

Let's zoom in on the topic of design and utility for a moment by thinking about a coffeepot. What are some purposes of a coffeepot? Well for one thing, some people like coffeepots to hold multiple servings of coffee, say four to ten servings. Coffeepots might be designed to minimize heat escaping, thus keeping the coffee warm. And some people like coffeepots to look nice, say if the coffeepot is used to serve guests.

Now consider Carelman's Coffepot for Masochists (ImpossibleObjects.com n.d.), the core concept of which is also referenced in the book, *Design of Everyday Things* (Norman 2014). The coffeepot looks like it can satisfy most of the purposes mentioned above. Can you get coffee out of it though without burning your hands? How much do you love your coffee?

Although one can probably get coffee out of the coffeepot, and one might even be able to get coffee out without burning their hands, the design makes it hard to use. The design gets in the way of a typical, primary function for a coffeepot. The design burns most people.

How much do you love your coffee?

Figure 1.1: Carelman's Coffeepot

So is Carelman's Coffeepot for Masochists wrong? I find the design both hilarious and ingenious. A lot of thought went into the design, with obvious purposes to make it both funny and extremely memorable.

Accidental Versus Deliberate Behavioral Architecture

Let's change gears to consider another design example, loosely based on an employer that I was working with and related to processes for getting their employees to save for retirement. Employer processes for getting employees to save vary substantially. For example, some employers may automatically enroll employees into retirement plans and assign them a default savings rate (often as a percentage of pay) and investment mix unless the employee actively decides to opt out or change their elections. Other employers may make blank forms available so that employees can enroll if they both choose to do so and make positive selections. Yet other employers make retirement savings enrollment an opt-in process, yet quick and easy.

The employer I was working with chose to use a flavor of this latter approach. I say flavor because I'll make a case that that while the spirit and intentions of the approach are good, the

detailed design has issues. Take a look at the next figure to get a flavor of their approach.

Should we design choice processes certain ways just because we can?

Select what percentage of your income you wish to contribute each month toward retirement savings

1%   2%   3%   4%   5%   6%   7%
○   ○   ○   ○   ○   ○   ○

Figure 1.2: Illustration of Accidental Architecture

I think the employer created this form mostly because they could; they didn't think deeply enough about what they were trying to achieve and connect those goals with behavioral science and design. They wanted to make selections easy, so they implemented a fill-in-the-bubble approach to having employees select the desired percentage of income to contribute to retirement savings.

Let's look more closely at this design relative to goals. Now without going into a lot of details (we'll cover a related example in Chapter 2), one can make a pretty strong case that in the United States, employees on average should be saving at least ten percent of their pay toward retirement (Benartzi and Lewin 2012). If the employer wants to support the goal of getting employees to save at least ten percent (which they did want), then how does this design support that goal? For example, if a person wants to save ten percent or more, the design doesn't even support this type of entry by the user.

Now let's also briefly examine this design relative to behavioral science research. On the one hand, studies have shown that primacy influences choice, e.g., items first on a list

tend to get chosen more often (Mantonakis, et al. 2009). So this raises a question whether people will tend to select 1% as their option more often than they should, especially since we tend to read from left to right in the US. Additionally, studies in other areas suggest circumstances where biases such as edge aversion (e.g., aversion to the choices at the extreme ends) and middle bias (e.g., focusing on the choice in the center) (Attali and Bar-Hillel Summer 2003) might play a role. Perhaps 4% percent might end up being a bias point. Finally, should the design even have seven choices at all? Setting the proper contribution rate might seem more complicated to employees than it should be, and the employer may find the people failing to sign up due to complexity and choice overload issues (Iyengar 2011).

So while the employer wants to implement an easy design and have their employees achieve good outcomes (i.e., secure retirements), hasty design can lead to accidental design, which in turn, can get in the way and burn users like Carelman's Coffeepot.

To get out of the accidental design business, we need to think deliberately about design architecture, and preferably behavioral architecture. Choice architecture was a term coined by Richard Thaler and Cass Sunstein in their book, *Nudge: Improving Decisions About Health, Wealth, and Happiness* (Thaler and Sunstein 2008). In the introduction to their book, they relate the case of administrators in a city school system reconsidering how to arrange the food in the cafeterias where kids eat. To help illustrate this, look at the following figure and put yourself in the administrators' shoes. Assuming you couldn't change the menu itself, where would you physically place the desserts? How should you decide where the healthy food should go?

Consider how we should place food in the serving area.
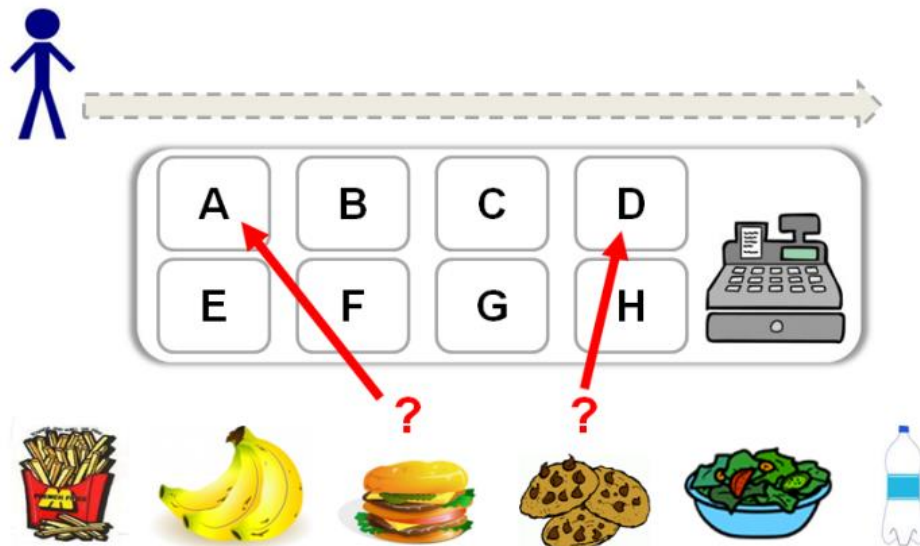
Figure 1.3: Illustration of Choice Architecture

In the case related by Thaler and Sunstein, administrators realized that the demand for items could be increased or decreased by as much as 25 percent depending on where the food was placed.

The administrators act as choice architects; they have the power to influence food selected based on setting the structure of the environment. And because food has to be placed somewhere, there is no neutral design. That is, all designs influence choice somehow; they nudge people in some direction. Some designs will increase the selection of the cookies. Others will increase the selection of bananas.

Which then begs questions as to both the goals of the architects and the design strategies that should be used. Should the goal be to maximize profits based on the markup on each item? Should the strategy be to place food randomly? Should the goal be to make students better off? We'll revisit the concept of goals throughout the cases in this book. Later on we'll also focus on ethical considerations and people's perceptions.

Architects have power over not only choices, but also information and process. Consider the following screenshot, which is from a *Wired* article covering Merrill Lynch's implementation of a website that takes a photo of a user. This

photo is then put in a virtual time machine so that user can see what they will look like in the future (Wohlsen 2012). The tool is loosely based on research by Hal Hershfield at UCLA and colleagues (Hershfield, et al. 2011).

Without evaluating the merits of this design, Merrill Lynch's implementation has some very interesting and notable aspects. In the center of the screen there is the age progressed photo of the user, which provides information as to what they might look like in retirement. As another example of information presented to the user, the right hand panel illustrates what a gallon of gasoline is projected to cost decades into the future (in the year 2082 it is apparently expected to be $39.88 per gallon). The user can also see how the cost of living will be up 939% from what it is today.

To what extent do details beyond choice architecture matter?
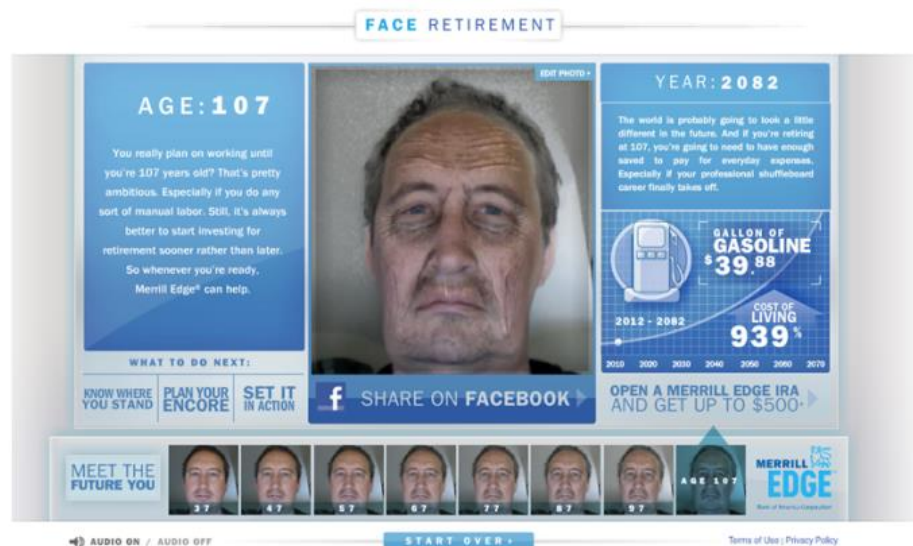
Source: Wired article about Merrill Lynch retrieved from http://www.wired.com/2012/12/retirement-magic-mirror/ on June 14, 2015
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Figure 1.4: Illustration of Other Behavioral Architecture Considerations

But one could also imagine a different approach to information architecture. What if gasoline was stated in today's real dollars versus nominal dollars in the future? Or what if dollars were stated in annual costs instead of dollars per gallon? Yet why even use gasoline as an example of the future? What if healthcare costs were put on the screen? The designer has control over what information is displayed and how information

is displayed.

Also notice the button just below the center photo which reads, "Share on Facebook." That might be the best process approach if the goal is to create marketing buzz and allow the user to connect with others. One could also imagine other designs though, such as a process of enabling a user to increase their retirement savings if they feel emotionally connected to their future self. In the original study by Hershfield and colleagues involving retirement savings, participants who saw age-progressed photos increased savings by 30% (average savings rate of 6.76%) relative to a alternative group (average savings rate of 5.20%), who instead saw photos of their current self (Hershfield, et al. 2011). So in addition to information architecture, process architecture is another important consideration in design.[4]

Power, Tools, and Devil in the Details

Nudging, which I'll loosely define here as the consideration of architecture and application of behavioral science, started to establish a beachhead in the public policy space after Thaler and Sunstein's released *Nudge* in 2008. A couple of years later in 2010, the Behavioral Insights Team (or Nudge Unit) emerged in the UK (Behavioral Insights Team Annual update 2010-11 2011). In 2014, the White House set up the Social and Behavioral Sciences Team. By their first birthday in February 2015, they had success with various pilot projects, covering areas like connecting veterans with counseling, helping student borrowers better understand loan repayment possibilities, and re-enrolling Armed Services members in savings plans (Shankar 2015). Nudging initiatives in the public policy space are also present in some countries within the European Union, Canada, Singapore, and New Zealand (Ly and Soman 2013).

While nudging activity in the public policy space is still

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[4] At this point, I do not plan to delve into the intricacies of the definitions for information, choice, and process architecture since the scope of these terms can get muddied just like architecture terms related to buildings, such as modern, classical, or contemporary architecture. That said, I will revisit process architecture in greater detail in Chapter 4.

formative and crossing the chasm[5], we are now seeing more activity outside of public policy. Some examples of companies and organizations harnessing the power of behavioral science to achieve great results include:

- **GymPact** – This startup uses a choice architecture construct of pre-commitment to get people to exercise or pay, yielding 80 to 90 percent follow-through in exercise (Kim 2012).

- **Opower** – This software company leverages information architecture constructs with personalized energy reports; solutions have helped residents save $355 million in energy in less than five years (Cialdini 2013).

- **HM Revenue and Customs (HMRC) and Behavioral Insights Team (BIT)** – By using information architecture and highlighting social norms, they increased clearance of delinquent tax payments from 67.5% to 83% (Behavioral Insights Team Annual update 2010-11 2011).
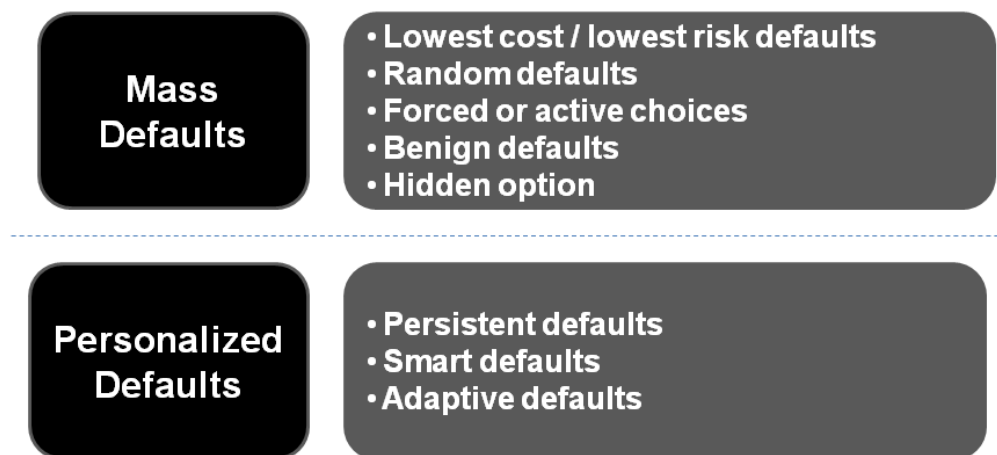
It is important to re-emphasize that the application of behavioral science requires attention to details, and even a simple taxonomy of approaches relative to the design of defaults[6] in choice architecture reveals that the design considerations can be significant. See the following figure for a sample (Goldstein, et al. 2008). Since I don't want to re-invent

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[5] Based on the countries listed in the prior sources and accounting method used, very roughly 3% to 10% of countries in the world have nudging efforts in the public policy space.

[6] For readers unfamiliar with the use of the term "defaults" in this context, these are essentially pre-selected choices made for an individual unless they opt-out of the choice entirely (if possible) or actively select another choice option. An often-used example is the notion of organ donation in the case of death where in some countries the default when applying for a driver's license is *not* to donate organs upon death versus other countries the default is to donate organs upon death. In the case of organ donation, a simple difference in choice architecture can have a dramatic impact on saving lives (Johnson and Goldstein 2003).

the wheel, I leave the reader to investigate the sources I've listed and many others I've not listed. That said, this is a good time to point out the noteworthy concept of personalized defaults, where choice architecture is determined according to the characteristics of the individual making the choice. As the world evolves in the digital space with videos, social graphs, big data, mobile technology, the Internet of things (IoT), and the like, there are tremendous research and innovation opportunities with behavioral science and personalization. These opportunities will just continue to increase over time.


Figure 1.5: Summary of Potential Design Choices for Defaults

Behavioral GRIT™

To me the term "grit" means having the ability and fortitude to succeed. Based on my experience and gleaning from that of others, I wanted to put together an investigative framework that would help companies assess, plan, and take action to apply behavioral science. I call this framework Behavioral GRIT™. GRIT stands for the business functions related to Goals, Research, Innovation, and Testing. In my experience, the best companies make deliberate choices to design and improve these functions when examining them through a behavioral science lens (which includes considering information, choice, and process architecture with a varying degree of personalization).

Structurally, I see this framework targeted toward companies that wish to innovate and create something new of value, whether it be a new way of thinking that results in better outcomes or new products and services. That said, there are clearly other possibilities to use the framework on a more incremental basis (e.g., to see if there are areas that can be tuned up by incorporating behavioral science).

Does your organization have the Behavioral GRIT™ to win?
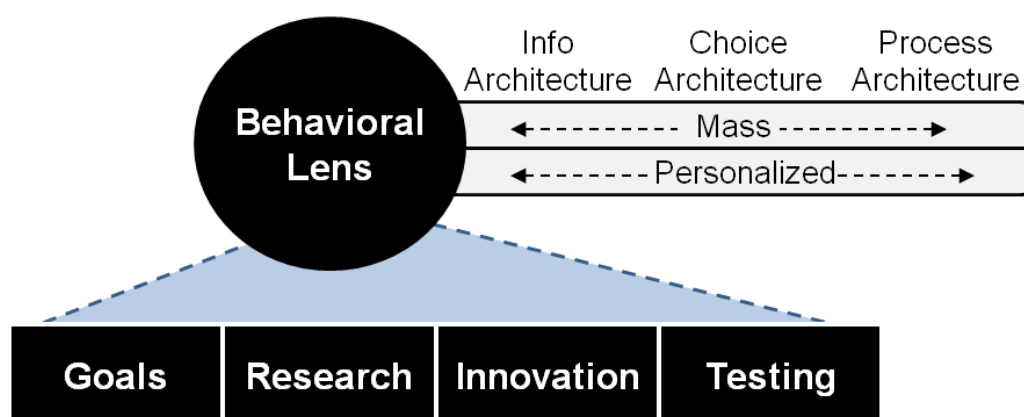
Figure 1.6: Behavioral GRIT™ Overview

The Behavioral GRIT™ framework may seem intuitive, even obvious, but failure to determine goals and understand previous research before jumping into innovation and testing can easily lead organizations astray. There have been cases where behavioral science academics, who know the research well, jump into an organization and start recommending solutions before understanding the problems the organization faces (goals). There have also been situations where organizations start trying to design interventions without understanding what has already been tested in the past (research). Walking through each step in the Behavioral GRIT™ framework ensures that the ultimate recommendations are both optimized to the goal and well grounded in previous work.

In subsequent chapters, I'll go into more detail about the consideration areas and illustrate Behavioral GRIT™ using

cases of companies that apply behavioral science.

Key Takeaways

1. **Plan to incubate the use of behavioral science lenses** - Think about design through behavioral science lenses of information, choice, and process architecture. Additionally, consider mass versus personalized approaches. If organizational knowledge needs to be expanded, consider incremental investment in education for the organization, contracting out, or partnering. Also consider the notion of behavioral assessment frameworks or components that may be available as lenses for specific areas (e.g., website analysis).

2. **Map out how your design connects to goals and ethical considerations** – While I'll address this topic in greater detail through cases and the perspectives of and papers by academics, try to make sure that you think about the design architecture elements and ask questions like, "How do these support the goals of our organization, customers, or partners?" and "How does the design support the ethical considerations?"

3. **Start to think about the business processes you'll use to increase organizational IQ around tools and academic literature** – Be aware that behavioral science covers a lot of space and that tools and literature go both broad and deep. Laundry lists of principles can sometimes play a role when thinking about behavioral science, and I'll address under what conditions this may make more or less sense because sometimes it does not. When thinking about tools and literature, at minimum acknowledge and distinguish general (e.g., psychology), industry-specific (e.g., finance), and sub-industry-specific research (e.g., finance and annuities versus Social Security).

4. **Recognize that behavioral science research can have deep, shallow, repeatable, charted, uncharted, and mysterious territory**

simultaneously – While behavioral science can explain a lot, it cannot explain many aspects of human behavior, even when looking at broad swathes of people. Puzzles exist. Additionally, even when broad explanations exist as borne out in peer reviewed research, we should acknowledge variances between individuals. Finally, even when research exists and has been broadly replicated, there may be differences observed when these are taken to the field or actual implementations.