Slim By Design: Moving from Can't to *CAN*

Brian Wansink
Cornell University

Behavioral science research on encouraging healthy behavior has had a frustratingly small impact on "Public Policy" and on the more "small p" policies of institutions such as worksites and schools. This may have to do with the way findings are organized and the way studies have conducted. This chapter has two purposes. The first is to emphasize that policies to encourage healthy behavior are not limited to national policies but include policies, cultures, or rules of thumb that can be implemented at the level of a company, a school, or a household. The second purpose is to show how research can change food choices – and other healthy choices – by using an organizing framework following the acronym *CAN* making healthy choices more convenient (physically and cognitively), more attractive (comparatively and absolutely), and more normative (actual and perceived), and that it can be done in a way that is actionable, useful, effective, and scalable. Such a framework could help expand both the relevance and reach behavioral science research into both small policies and large Policies.

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Introduction -- Small and Large Policies

When we think of "policy" we think of Congress and laws – that's policy with a capital "P." But every person and household has policies. They are the habits and daily patterns, like the policy to hang up your keys when you get home or to take off your shoes. It might be a policy to eat breakfast every day or not to keep a candy dish on your desk or cookie jar in the kitchen.

Just as we have personal policies, restaurants, schools, grocers, and workplaces also have policies. Some are written down, and some are simply rules of thumb, like the customer is always right, or always put a bread basket on the table. These policies are all flexible. If a company's policy caused it to lose money or customers, it could be changed overnight (Wansink 2014).

This is where consumers fit in. If changing these policies mean enough to enough consumers, they can help encourage these places to make profitable changes that make it even easier for families, neighborhoods, and communities to be slim by design. The best policies are the ones that are win-win. They're the ones that let restaurants, companies, grocery stores, and schools benefit—and us as well (Wansink 2014).

This chapter provides an outline of how small, consumer-driven changes can help change the institutions that feed us and that can help make us slim by design. One of the inhibitors of making such changes lies in our reliance of public policy and the outdated and often irrelevant toolbox that is used in the food environment. Following this, a basic outline is provided as to how we can go from an approach of focusing on what consumers can't do to an approach to focusing instead on focusing on what they CAN. This allows us to

move away from the resistance and reactance generated by laws, bans, and taxes and to move toward CAN efforts – efforts that make healthier foods more Convenient, Attractive, and Normal to purchase and consume.

The low-cost, win-win success of the CAN Framework is then illustrated in the context of how it has been implemented in the Smarter Lunchroom Movement. Finally, the implications of this in the larger context of this in our communities and in our personal food radius is outlined along with a model for the new form of public policy that can best address related issues in a productive and promising way.

The Public Policy Toolbox

Our food environment is one that has evolved to provide food that is highly available, affordable, and attractive. Food is highly available within a short distance of most places you have been at any time today – gas stations, vending machines, office supply checkouts, and probably your desk drawer. Food is highly affordable – the average American family spent 24% in 1960, and spends only 7% today. Food is highly attractive, coming in more brands, more flavors, and more sizes than ever in the past.

Although available, affordable, and attractive food has helped to make us overweight, the solution is not to make food less available, less affordable, and less attractive. Not even the most extreme critics of the food supply would want to resort to

growing maize and hunting buffalo to feed their family, nor would they want to pay five times more for bread or ice cream so they would eat less.

There needs to be another solution.

There is a classic observation that if the only tool you have is a hammer, everything looks like a nail. The warning is that any efforts one makes to build a better mousetrap or garage will be severely handicapped by the use of the wrong tool. Public policy efforts generally involve a limited number of tools – bans, regulations, taxes, and subsidies. While not as limiting as having only one tool, it limits how resourceful, creative, and successful it can be outside of a limited number of contexts or problem areas.

As we just saw, our food environment has evolved to become available, affordable, and attractive because that is what almost 300 million US consumers want. It's what our market system organically evolved to give us (Just 2006). To try and reverse our preferences with taxes or subsidies, or restrict our choices with bans or regulations is unlikely to provide the quick fix to a what a more finely tuned food system has evolved to provide.

There is a German word called Verschlimmbesserung that resonates with many well-intended, but inexperienced handymen. It roughly translates to "Trying to fix something, but making it worse." Public policy is a well-intended, but inexperienced handyman in the food environment. While having achieved some success in the tobacco environment, the food environment is different – just as fixing your car is different than fixing your home.

The Problem with Can't

Many efforts to change eating behavior focus on nutrition education or restrictive policy changes. Strategies based upon behavioral economic and social psychology theory may provide a way to encourage healthier behavior without inducing the resistance and reactance often associated with restrictive policies (Just et al 2007; Just and Wansink 2009). Rather, behavioral policies offer the potential of creating long-lasting habits and attitudes. Institutions – restaurants, grocery stores, workplaces, and schools -- can exert considerable control over the "choice architecture" even in simply changing how foods are offered and presented. Behavioral economics theory suggests several possibilities to structure environments in ways that non-coercively encourage healthier choices.

Consider a recent study wherein corporate wellness trainers at a conference retreat were invited to a free hot breakfast buffet. On one series of tables, the food items were arranged from healthiest to least healthy. After one picked up their plate, they first saw cut fruit, low-fat yogurt, low-fat granola and the buffet ended with bacon, fried potatoes, and cheesy eggs. The other series of tables ordered the food in the exact opposite order. After picking up their plate, the people who had been randomly sent to this line first saw cheesy eggs, fried potatoes, and bacon, and they only saw low-fat granola, low-fat yogurt, and fresh cut fruit at the end of the line, after they had already filled their plate. Regardless of what they saw first, the first three items comprised two-thirds of the different food they took (Wansink and Hanks 2013). As Figure 1 indicates, if those items were healthy, two-thirds of the items they took were healthy. If those items were unhealthy, two-thirds of the items they took were unhealthy.

[Insert Figure 1]

When only bans and taxes are used they often ignore a basic understanding of consumer behavior. Instead of banning bacon from the buffet, all one would have to do is put it at the end. As with the example of the buffet line, tremendous opportunity is lost for using wiser, less reactance-generating solutions. Consider two examples: Chocolate milk bans and soft drink taxes.

When Chocolate Milk Attacks

Whether to remove flavored milk from school cafeterias has been actively debated as a measure to reduce childhood obesity. The predominant view of nutrition and medical researchers is that milk has nutrients essential for bone growth and development. Although low-fat chocolate milk contains over twice as much sugar as low-fat white milk, some school districts take the position that any milk is better than no milk while others have begun to limit or omit the sale of flavored milk in hopes of reducing children's total caloric and sugar intake from dairy. What is not known, however, is how changing the availability of flavored milk would influence other behaviors, such as what students might otherwise select, and what potential economic implications, such as impacts on participation in the school lunch program and milk waste may result.

With an estimated two-thirds of participating students in the National School Lunch Program (NSLP) choosing chocolate over white milk, reducing availability of flavored milk may lead many children to change what they drink and eat. Because most children drink flavored milk

for its taste, as opposed to its nutritional content, its removal may not lead to a complete substitution to white milk, though students who select white milk instead are not consuming the added sugars. There is, however strong evidence that removal or limitation of flavored milk in schools leads to a decrease in overall milk consumption, thus eliminating milk-specific nutrients from children's diets.

Other similarly paternalistic policies, such as requiring that students to take a fruit or vegetable with their lunch, have led to more waste while making lunches more expensive for cafeterias to serve. It is possible that restrictive policies related to milk, such as eliminating flavored milk, could have similar ramifications. Given students' documented preference for chocolate over white milk, eliminating it may have an impact not only on total milk sales, but also the amount of milk students consume.

A natural experiment was afforded by eleven elementary schools, which made a clean transition from offering flavored milk to only white milk. Although the results are limited by the absence of control schools – and may not be generalizable in magnitude to middle schools and high schools – the consistency of these results offer important preliminary insights related to possible economic consequences of eliminating flavored milks. Among these schools, the elimination of flavored milk was associated with a 10% decrease in average daily milk sales, a 10% increase in the cost of milk, and a 30% increase in milk waste (Hanks, Just, and Wansink 2014). Yet, eliminating flavored milk reduced the amount of sugar and calories available in a student's lunch. As the infographic in Figure 2 illustrates, this set of findings demonstrates that removing flavored milk from a cafeteria can be accompanied with unintended consequences which must be considered before such a decision is pursued.

[Insert Figure 2]

An alternative approach is to simply make white milk more attractive than chocolate. When white milk is made more convenient by moving it to the front of the cooler, sales typically increase by 30-40%. If at least one-third of all milk is white, sales increase another 35%. No complaints. No front-page stories

Beverage Taxes: From Coke to Coors

Taxes on energy-dense foods have been proposed to address the growing obesity problem (e.g. IOM, 2009; Brownell et al 2009; Brownell and Frieden, 2009; Jacobson, 2004). In the United States, the tax that has received the most attention is a tax on sugar-sweetened beverages, often referred to as a "soda tax" or "soft drink tax," which has been proposed by the Institute of Medicine (IOM), the Centers For Disease Control and Prevention (CDC) and several state and local governments (Paterson 2008; IOM Report 2009; Roehr 2009; Rudd Report 2009). The aim of such a tax would be to reduce calorie intake, improve diet and health, and generate revenue that governments could use to further address obesity-related health problems (Brownell and Frieden 2009; Duffey et al. 2010; Jacobson and Brownell 2000; Powell and Chaloupka 2009, Smith, Lin, and Lee 2010).

These reports and the subsequent policy debates have had two curious omissions (Mytton et l 2007; 2012; Kuchler et al 2004; Campbell 2011). First, they have omitted any discussion of consumer behavior and marketing responses other than simply assuming that if the price increases people will buy less. Indeed, no marketing or consumer behavior research from the *Journal of Marketing* – or any leading marketing journals – was cited in the reports by the IOM

or by the CDC. Second, they lacked empirical evidence as to how people would respond to a tax on food – instead relying on epidemiological models of tobacco taxes (Adda and Cornaglia 2006. This tobacco-food parallel may not be accurate. In 2011, Denmark imposed a tax on foods with 2.3% or more saturated fat (Zafar, 2011), increasing the cost of foods, such as butter, meats, and desserts, by as much as 30% (Press Assn. 2011). After one year, they repealed it, claiming it did not improve health and it hurt many small businesses because it merely led people to buy lower-priced food or to make a stockpiling drive to Germany – which was foreshadowed in Grether and Holloway's (1967) *Journal of Marketing* article nearly half of a century ago (Chouinard et al 2007). The purpose of this research is to empirically investigate the impact of a soft drink tax in a way that can introduce both the consumer and marketing into important policy debates in this area and in other areas such as portion sizes (Mohr, Lichtenstein, and Janiszewski 2012), advertising regulation (Parsons and Schumacher 2012; Kolsarici and Vakratsas 2010), deceptive marketing (Tipton, Bharadwaj, and Robertson 2009), and fast food restrictions (Dhar and Baylis 2011).

Up to this point, two principal techniques have been used to assess the effectiveness of a tax on sugar-sweetened beverages (SSBs). The first relies on the natural variation in current soft drink taxes across states to identify responses in demand (Besley and Rosen,1999; Zheng and Kaiser 2008, Fletcher, Frisvold, and Tefft 2010a; Powell et al 2009). The second estimates price elasticities for beverages and uses these elasticities to estimate responses to increases in prices of SSBs. A complement to these two methods is a controlled field experiment. A controlled field experiment could more cleanly provide within- and between- subject variation, household specific demographic information, and a semi-controlled environment where the salience of the tax is not a concern (List 2011; List 2009; Levitt and List 2009; Harrison and List 2004).

Furthermore, if conducted over a period of time it would also provide household-level insights related to effectiveness, substitution, and decaying impacts of a tax.

To examine this, we conducted a controlled field experiment in three major grocery stores in a small city (pop. 62,000) in the eastern United States. In the study, 113 households in their shopper rewards program were randomly assigned to either face a 10% tax on SSBs or to be in the control group and their individual household purchases were recorded over a seven-month period (Hanks et al 2013).

Our initial results indicate that the tax had no significant impact on fluid ounces purchased of soft drinks. Among frequent buyers of soft drinks, we find evidence of a strong preference for soft drinks, such that households prefer calories from this beverage relative to other full calorie beverages that may have more nutrients (sugar-sweetened fruit juice and whole and flavored milk). Yet, in a rather startling set of results, we also find that the tax drives frequent buyers of beer to purchase more beer than they would have without the tax. Even though there are other substitutes available, frequent beer buyers seem to prefer the trade-off of soft drinks for beer over trade-offs for other beverages.

We also found that the interaction between purchase frequency–which we use to proxy for preferences for soft drinks and beer–and the tax treatment suggests a significant correlation between frequent beer buyers in the tax treatment and fluid ounces of beer purchased over fluid ounces of soft drinks (Wansink, Hanks, and Just 2015). This is not the substitution that was expected (i.e., Fletcher et al 2011). Specifically, the data suggest that the more frequent buyers of beer respond to the tax by purchasing 31.5 more fluid ounces more beer each month, translating into an additional 352 calories ($p < 0.01$ for both). Not only did the tax increase the amount of alcohol purchased by beer-drinking households, it also increased the amount of

calories purchased as well. To public health officials and policy makers, this presents an important empirical result and more generally points toward wide ranging contributions that consumer behavior research can make in their decisions.[1]

Moving From Can't to *CAN*

Consumer psychologists have been generating, testing, and publishing an increasing number of powerful insights in the area of food choice and consumption. Curiously, however, few of these insights seem to have made their way into effective public health interventions or treatments (Wansink 2004), and most are unknown by the researchers, practitioners, and policy makers in these fields (Johnson 2006).

Part of this lack of impact has to do with consumer psychology's focus on internal validity over external validity (lab studies versus randomized controlled trials) and on theory building and mediation over behavioral outcomes (interactions versus behavior-related main effects). Another part of consumer psychology's lack of impact also has to do with structural differences in where we publish (PsychInfo-indexed journals versus PubMed-indexed journals) and the search terms that are used (manipulations versus interventions, consumption versus intake, and so on).

Yet a third impact barrier is one that is much easier for us to address. It relates to how consumer psychology has not been able to provide public health with a systematic way to use all of the wide array of insights we have discovered (Wansink 2015). Across consumer psychology

[1] Although some price manipulation interventions found that hiking the price on might reduce cafeteria demand (Block 2009), the tax level was extreme (35%) and was not in a retail shopping environment (Nederkoorn, et al 2011).

and health psychology findings often appear Balkanized. This is partially because they focus on different dependent variables (choice, affect, memory, behavioral intentions, and so on), and the use of vague or somewhat unwieldy independent variables (such as need for cognition or eating restraint) that cannot clearly be identified or manipulated in practice (Wansink and Chandon 2014).

What is needed is a basic categorization system that can help us systematize our findings in a way that makes them useful to both public health researchers and practitioners. This basic framework focuses on interventions that can change choice and do so by making healthy choices more convenient (physically and cognitively), more attractive (comparatively and absolutely), and more normative (actual and perceived). Consider the acronym *CAN*: Convenient, Attractive, and Normative.

Education and cognition is overrated when it comes to changing eating behavior. There is a very unreliable link between knowledge and behavior, and relying only on education, knowledge, cognition, or willpower to change the eating behavior is frustratingly unsuccessful. Fortunately, there is an alternative.

Most people have a choice of what and how much they eat. Even if given only a bowl of gruel from the Oliver Twist cookbook, they have the choice of whether to eat any of it or whether to eat it all and ask for more. The key to changing eating behavior is not in convincing a person that an apple is better for them than a cookie. Instead the key is to make sure that the apple is the more convenient, attractive, and normative food to choose (Figure 2).

[Insert Figure 2]

Even though the typical person believes they make about 20-30 decisions about a food each day, they make closer to 200 food decisions (Wansink and Sobal 2007). About 90% of

these decisions we are not fully aware of because they don't involve reason and deliberation. They involve quick, instinctive actions. This gives us a great opportunity to set up eating environments so a person's quick, instinctive actions are biased toward the healthier foods – biased toward the apple rather than the cookie.

In 2006, the New York State Department of Health raised the question, "How much would the government need to subsidize whole fruit in school lunchrooms so that children would take 5% more fruit?" A quick visit to five schools would have shown that these fruits were being sold in metal chafing dishes, under sneeze shields, in a dim corner of the line. The fruit's 50¢ price was probably not the problem and it probably would not be the solution. Instead, the fruit needed to be put in nice bowls and placed in a well-lit part of the line. When this was done, fruit sales increased an average of 103% for the entire semester (Just and Wansink 2009).

Putting the fruit in an attractive bowl in a well-lit part of the line would accomplish three goals. First, it made the fruit *convenient* to select. Second, it made the fruit appear more *attractive*. Third, it made it appear *normative*, typical, or reasonable to take fruit – partly because it was convenient and attractive. As Table 1 indicates, this ***CAN*** approach to changing behavior it one that is outlined in detail in the book *Slim by Design* (Wansink 2014).

In dozens of different eating behavior studies in homes, grocery stores, restaurants, and schools, using this ***CAN*** approach – making healthy foods more convenient, attractive, and normative – has been shown to be much more effective than taking favorite foods away from people or artificially restricting what someone can order (Wansink 2014). Doing this creatively and effectively can not only alter a person's food choice, but it can change expectations which can alter taste evaluation (Wansink et al 2012) and eventually lead to habitually healthier choices. Although these downstream ripples of one's food choices are critical to changing habits and

health, a key focus should be on changing that choice in the first place regardless of whether it is in the home, in restaurants, grocery stores, where we work, or where our children go to school (Table 2).

[Insert Table 2 Here]

Increasing *C*onvenience

As Table 2 illustrates, a healthy choice needs to be made to be the convenient choice – convenient to see, to order, to pick up, and to consume. Consider what happens in schools that have adopted a behavior change program called the Smarter Lunchroom Movement. In one study, when one of the food lines in a school cafeteria was redesigned to be a convenient line that only offered pre-packaged healthy entrées and foods (such as salads), sales of these healthy foods increased 77% within two weeks (Hanks, et al 2012).

Convenience can relate to the way food is offered. If one were to ask children why they don't eat more apples or pears, 5-9 year old children say it is too big for their mouths or it gets stuck in their braces. Adolescent girls say they don't eat more fruit because it is messy and it looks unbecoming or unladylike. One solution to both problems would be to provide children with cut fruit. Indeed, when we put fruit sectionizers in school lunchrooms, children ate 70% more fruit (Wansink, Just, Hanks, and Smith 2013).

Consider why 100-calorie packages have been so effective at reducing how of a food most people consume in one sitting (Wansink, Payne, and Shimizu 2012). One posited reason partially has to do with the inconvenience of opening a second or third bag, and the convenience of being able to pause and ask "Am I really that hungry" (Geier, Rozin, and Wansink 2012).

Making healthy food the more convenient choice, leads to greater choice. Making less healthy food the less convenient choice, leads people to more mindfully having to consider how hungry they are and whether it is worth the extra effort (Painter et al 2003).

Convenience can be in the form of saving physical effort, but it can also take the form of saving cognitive effort. One often-cited technique to change behavior is to change defaults. For instance, if one is automatically given water with their combo meal unless they explicitly ask for a soft drink, water consumption would dramatically increase. While part of this might be explained by water being perceived as a more normative choice, another part of it is that it is the cognitively convenient choice to make.

Increasing Attractiveness

The second principle of the ***CAN*** approach is that the healthy choice needs to be made more attractive relative to what else is available. This includes more attractively named, more attractive in appearance, more attractively priced, and more attractive expectations. Fruit that is served in a steel chafer pan or stored in the bottom drawer of a refrigerator is not as attractive as fruit in a colorful bowl. Even simply giving food a descriptive name makes it more attractive and increases a person's taste expectations and enjoyment of it (Wansink, Just, Payne, and Klinger 2012). For instance Dinosaur Trees are more exciting to a child and taste better than broccoli, and a Big Bad Bean Burrito tastes better and is more exciting than when it is called a Vegetarian Burrito. Even putting an Elmo sticker on apples led 46% more daycare kids to take and eat an apple instead of a cookie (Wansink, Just, and Payne 2012).

Making a food more attractive by altering its price relative to other options is a popular but overused tool of behavioral economists. Still, it has potential if more creatively employed

for it can involve not only altering the price of the target product (decreasing the price of fruit), but altering the price of nontarget products (increasing the price of cookies). Making a healthy food more attractive by adjusting price has creatively been done by offering people either a discount on a meal or a price premium on a less healthy one.

As Figure 2 illustrated, in addition to changing the name of a food and enhancing expectations of taste or enjoyment, making a healthy food more attractive can involve making it or its surroundings more visually attractive. Putting fruit in a nicer bowl leads children to take more and putting garnish near a salad makes people rate the taste as better (Payne, Wansink and Painter 2015).

Increasing Normativeness

Last, many consumers often like what is popular – they like what they think is normal. This includes being more normative to order, to purchase, to serve, and to eat (see Table 1). Efforts that make the healthy choice appear to be the more normal or normative choice appear to make it more. For instance, when 50% of the milk in a cooler is white (versus chocolate), middle school students are nearly three times as likely to take a white milk than when only 10% is white (Hanks et al 2014). It seems like the normative choice. The same applies at home. When healthier food is placed on the front or middle shelf in a cupboard or refrigerator, it is more frequently taken and is rated as the more normative food to take – otherwise it wouldn't be so convenient (Chandon and Wansink 2002).

Until now, much of this discussion has focused on how convenience, attractiveness, and normativeness influence choice. Also of interest is how they influence how much one consumes. In many cases there is a wide range to how much of a product a person can consume. A person

may be quite content eating from 3-5 pieces of pizza for lunch and drinking from 12-16 ounces of cola without feeling overly hungry or overly full (Wansink 2006). Without a norm for how much pasta or potato chips one should consume, some people may unknowingly rely partly on past experience and partly on implied norms or consumption cues around them to determine the quantity or a range that is acceptable to consume.

One category of cues that is often used to determine how much to serve is the cue that is provided by the package size or by the plate of bowl size (Wansink 1996; van Ittersum and Wansink 2014). Consumption norms – particularly those resulting from implicit visual cues coming from physical dimensions (Table 3) – hold tremendous promise for researchers for three reasons: 1) Their reach is farther than has been appreciated, 2) they can be found in an endless number of forms, and 3) their perceptual nature makes consumers more vulnerable then they believe. From an intervention standpoint, changing the size of a cafeteria tray or the size label on a restaurant menu can change consumption in an automatic way that does not necessitate willpower or a expensive public health education campaign.

[Insert Table 3]

Of initial value would be to more fully define the dimensions of implicit consumption norms. This would enable a way to determine which features of these norms led them to have the greatest impact on consumption volume. Knowing this would prove useful in directing research toward that which was most relevant, and directing interventions toward that which was most useful. One area where this is particularly important is when dealing with nutrition and children.

Case Study: The Smarter Lunchroom Movement

To see how behavioral science can effectively be used as a tool to change choices and eating behavior, consider the challenge of encouraging children to make smarter choices in school cafeterias. Rising obesity rates among children have led to harsh criticisms of school lunch programs. Local school lunch administrators feel tremendous pressure from parents and activists to drop higher calorie items from the menu such as cookies, French fries or ice cream. Proponents of these measures argue that if children cannot buy it, they will not consume it, thus reducing the child's total intake of calories. Additional pressure on the USDA's subsidized school lunches has pushed for substituting familiar, favorite pizza and hamburgers with foods that are organic or vegetarian.

Yet introducing ultra healthy products into the lunchroom requires a significant increase in spending while reducing unit sales and total participation levels. Furthermore, banning popular items because of their content also directly reduces sales and participation. Suppose, however, that rearranging, repositioning, and reframing the currently offered food items could instead encourage children to buy more of the healthy foods and less of the rest. Such a strategy costs little, and it would provide a way for school districts to demonstrate an increase in the overall health content of their meals as well as in their popularity and participation.

Recent interventions in policy have experimented with behavioral economics (Johnson 2006; French and Stables 2003; French et. al. 2004). The resulting success has helped establish various choice architectures that can sometimes guide or encourage people to make

healthier decisions, without eliminating the freedom they have to make less healthy decisions (for instance, to purchase a cookie on Monday or French fries on Friday). Two features of school lunches make it an ideal candidate for using behavioral economics. First, there is substantial evidence that environmental and psychological influences can bias food selection and consumption (Sunstein and Thaler 2007; Just 2006; Shiv, Carmen and Ariely 2005). Second, while institutional food services focus on profit, they also have the non-economic goal of encouraging people to make nutritious food choices (Oliveira and Variyam 2003).

This research has two objectives relevant to making school lunchrooms smarter. First, it describes a new study that underscores that giving a person a choice can result in higher intake and taste ratings of vegetables than if given no choice except for what they would have otherwise selected anyway. That is, junior high students who selected carrots over brownish celery ate more carrots and rated them as tastier than those who were simply given the carrots without a choice. Second, it summarizes recent field study findings that illustrate how small, "low cost, no-cost" changes in lighting, salience, convenience, and payment systems can result in unexpectedly large changes in the healthfulness of meal selections. The implications for local food service policies and for health and wellness boards are then outlined.

The Unexpected Power of Constrained Volition

Constrained volition refers to a person believing that he or she made a decision based on their own free will – with their own volition – without realizing the extent to which they were influenced by the artificial constraints placed on them. Constrained volition occurs when a decision context is engineered (or has accidently

evolved) to guide the way in which people consider options, without being overtly perceived as doing so. Framing studies and studies on choice contexts may result in constrained volition. That is, their results frequently lead to changes in choice without a commensurate awareness of how they were guided toward a particular selection.

Constrained volition involves misinterpreting one's behavior as less constrained than it actually was. While the results would appear similar to an "opt in or opt out" scenario (Sunstein and Thaler 2007; Wertenbroch, 1998), it could lead to very different inferences about behavior. This behavioral effect is disproportionate to one's level of awareness. In the case of a student's food selections, it would involve not fully acknowledging the larger set of constraints (such as the restrictions of a debit card) that might have led to this change.

With school lunches, as with all meals, there is a subjective dimension to food that makes people equally susceptible to environmental influences. Small environmental cues – such as the name of a food or how many others are eating it – can alter how one interprets its flavor, calorie content, and healthfulness (Wansink 2004). If an invisible hand were to lead a person to choose one food over another, it might also alter how they interpret their behavior and evaluate their choices.

Consider three situations: 1) Fruit is made more salient by buying a new bowl and shining a light on it, 2) a salad bar is moved so it breaks up foot traffic patterns, and 3) a vegetable option is provided of either baby carrots or brownish celery. If these interventions were to lead a student to select foods (fruit, salad, and carrots) they might not have otherwise selected, there is psychological precedence

that one may not even acknowledge their influence. Over 90% of the people involved in food intake studies routinely claim they were not influenced by the environmental cues such as package sizes or glass shapes (Vartanian and Herman 2008). Because of either an unawareness of these environmental cues or an unwillingness to acknowledge their influence, there is a fundamental attribution error that occurs (Ross 1977).

In this broad area of constrained volition, one area that has not been widely examined is the role that these small interventions can make in guiding particularly routine or automatic behavior such as lunchtime food selections. Such small, low-cost, no cost interventions could lead a person to pause their behavior – even for just a moment – and perhaps rethink their next action.

To illustrate how behavioral economic concepts can help increase the healthy content of foods without harming the bottom line, a few examples from the field may be helpful. Some of the tools are extremely simple to implement and can provide a big bang for the buck. For example, simply closing the lid on the freezer that contains the ice cream can reduce the number choosing ice cream from 30% down to 14%. Similar results can be obtained by simply moving vending machines further from the cafeteria.

Lighting up the Fruit. There are unexpectedly large responses to moving food or to moving the traffic flow patterns. In one Minnesota school, cash registers were found to be a bottleneck in the system. While students waited to pay, they were faced with a wide array of grain-based snacks, chips, granola bars, and desserts. This appeared to generate a number of impulse purchases. While one option would have been to move these temptations, this option would have almost assuredly decreased revenue. A better option

was to replace these snacks with an array of fruits. This way, when students were waiting to check out, the impulse temptations were healthier options. Fruit sales increased, snack food sales decreased, and total revenue did not significantly decrease. Part of the increase in fruit sales may have also been aided by the inclusion of a wider variety of fruits (plums and peaches) in addition to the standard trio of apples, bananas, and oranges.

In order to obtain the USDA subsidy for a school meal, the meal must contain at least three separate food items and at least one must be from the protein food group. Being aware of this financial incentive, the food service staff person operating the cash register will often inspect a meal and if the meal has only two items, she will suggest that the student take an extra item. In many schools, because milk is kept right next to the cash register, it is often suggested as an option to complete the meal. When visiting one school where this setup prevailed, we quickly noticed that a number of the students taking milk were taking it because they had been asked. They did not intend to consume it. As a result, the trash bins had many unused milk cartons that had been thrown away.

Instead of milk, suppose this school placed fruit next to the cash register and milk at the front of the line. Several studies have shown that suggesting a student take fruit will increase the number of students *eating* (not just taking) the fruit by as much as 70%. Further, while milk can go bad or become unappetizing when warm, fruit may be easily carried out of the lunchroom and eaten later in the day. Finally, most fruit costs substantially less than a lunch-sized carton of milk. Thus, it could be that placing fruit at the end of the lunch line would maintain the level of USDA subsidy, increase the health content of the food consumed, and reduce the costs of providing the foods. Such simple solutions can make a nice addition to both health and financial goals.

Moving the Salad Bar. Consider the problem of a middle school in Corning, New York. Their lunchroom consists of two lunch lines feeding into two cash registers. A portable salad bar was initially introduced and situated against the wall just 3 feet to the east of the easternmost lunch line, and parallel to that line. Purchasing a salad would require a student to walk to the salad bar, place their salad on a plate, and then go to the end of the lunch line to wait for the cash register. Sales of salad were rather sluggish. By rotating the salad bar 90 degrees and moving it eight feet to the middle of the lunch room (see Figure 3), it became something students had to walk around, not something they could mindlessly walk by. Bulk sales increased 200-300 percent after the move and continued to increase as it became a part of the lunchtime routine for students.

[Insert Figure 3]

Rather than gutting sales as many healthy measures may tend to do, this move increased overall sales and profitability. The level of visibility was increased – increasing their desire for the food, and the level of convenience was increased as one could wait through the line while getting their salad. Most importantly children chose the salad without prodding or heavy handed measures. This move makes it much more likely that children will begin to develop a healthy habit of choosing the salad at lunch when it is available. Indeed in one high school of 1000 students, simply introducing a salad bar increased average reimbursable lunch participation by 21% from one year to the next.

Keep Your Tray? The type of tray used for carrying the food can also play heavily into the food decisions of the individual. Relevant to some high schools, there is a recent trend in college dining halls that might be of interest. In order to reduce waste, many

colleges are phasing out the use of trays – especially in all-you-can-eat buffet-style cafeterias – forcing students to carry individual plates and glasses. This move was made in the hopes that they might reduce waste. That is, people might take less and eat more of what they do take. One key question this does not ask is this: If they take fewer foods, what do they leave behind – salads or desserts?

In an investigation of trayless cafeterias, we found not having a tray made students much more reluctant to take side dishes. Unfortunately, most of the fruit and vegetable content of meals are in these side dishes. Our matched-meal study of a 1200 person dining hall at Cornell, found that 26% fewer salads were taken, but only 8% fewer bowls of ice cream (Wansink and Just 2013). Strangely, there was even more waste without the trays. Without trays, students took larger portions of things they liked. With larger portions and less variety, we found they tended to take more than they ended up eating. Cafeterias with fixed portion-sizes may have less waste. Nevertheless, in the context of trayless serve-yourself cafeterias, going trayless reduced nutrition without reducing waste.

The Limitation of Changing Defaults. In fast food restaurants and food courts, the default options offered in the meal – soft drinks and fries – tend to be what most order, even though milk, salads or apple slices are also available at no added cost. The potential power of these options leads us to question, what if restaurants – or school lunchrooms – were to change the defaults. What if instead of putting tater tots on a tray they put peas on the tray and gave students the option of substituting tater tots for peas if they wanted?

In one study with elementary school aged students in a summer 4-H program, we examined how changing food defaults would work. On one day we gave these students a lunch where they were given French fries as the default but asked if they wanted to trade

their French fries for apple fries (pre-peeled, pre-sliced apples) with caramel dip, commonly available at fast food restaurants. Of the 21 students, 20 (95%) wanted to stay with the French fries default. Two days later we did the reverse, we gave these students a lunch were they were given apple fries as a default but asked if they wanted to trade them for French fries. Of the 22 students in class that day 21 (96%) wanted to switch to French fries. What initially appeared to be a strong case for food defaults, ended up being overwhelmed by overriding preference for French fries. While defaults might work well in cases where preferences are ambiguous or where people do not care (Johnson and Goldstein 2003), they might not be the solution in the school lunch room.

Cash for Cookies. Of all of the different food psychology and behavioral economic tactics we've so far introduced into schools, the one that may have the largest success at the lowest cost is requiring high school students to pay cash for desserts and soft drinks. We do not take their desserts away, we just say, "If you want that cookie bad enough, you can pay cash for it." They cannot mindlessly put it on their debit card or on their pin account, they have to take out the dollar they might otherwise spend on an iTune and ask themselves how bad they want the cookie.

In our experiments and in our analysis of the USDA's School Nutrition Dietary Assessment (SNDA) data, we find this change does not hurt revenue or participation and it leads to greater sales of more nutritious items and lower sales of the less nutritious items. Figure 3 presents some summary statistics for sales of healthy foods from the SNDA national sample of schools offering different payment methods. Those in the schools allowing cash purchases see higher sales of healthy foods. A seemingly modest adjustment to the existing school lunch payment systems could have a sizable influence on food choice

(Just and Wansink 2013). Over the years, this could significantly impact the weight and health of children.

Every school district that participates in the National School Lunch program is required to have a local school wellness policy – this is a tool that can be used to promote healthier eating through smarter lunchrooms. These nascent wellness policies are to be determined by, monitored by, and altered by a school district wellness board comprised of local citizens. Many of these boards are uncertain of the steps they can take to make a positive difference in their schools. Being able to champion a restricted debit card system would be an easy, high visibility initiative for a wellness board.

Policy Considerations for School Health and Wellness Boards

Food is not nutrition until it is eaten. We should not judge the quality of a school lunch by what is offered. We should judge it by what is eaten. Overly restricting a student's options is like forcing a child to eat their vegetables. In the end, we might win the in-school battle but lose the after-school war. We might condition them for food choices as a high school student, but leave them unprepared for the battle of the Freshman-15 that awaits them afterward.

A seemingly modest adjustment to the existing school lunch payment systems could have a sizable influence on food choice. Over the years, this could significantly impact the weight and health of children. Restricting the use of prepaid debit cards to healthier foods would also allow parents to reclaim some control over their child's food choice set, without unfairly restricting them or without decreasing the revenue for school cafeterias.

Every school district that participates in the National School Lunch program is required to have a local school wellness policy – this is a tool that can be used to promote healthier eating and physical activity through changes in school environments. These nascent Health and Wellness policies are to be determined by, monitored by, and altered by a school district Health and Wellness board comprised of local citizens. Many of these boards are uncertain of the steps they can take to make a positive difference in their schools. Being able to champion any of the low-cost, no cost changes would move them far ahead of peer schools (see Figure 3). Such changes can be an easier alternative than fighting against food service directors, waiting for Federal policies to change, or readjusting the organic food supply. They can be accomplished quickly, easily, and between semesters.

[Insert Figure 3]

For some Health and Wellness boards, the next step might be a cautious one that would require results from randomized controlled trials at a wide range of schools in their district. Yet such expense and caution may not be necessary. Given the strength of the effect reported here during one occasion, the ease of implementation, and the immediacy of the results, there are wellness boards who may simply want to implement a trial version of Smarter Lunchroom changes and gauge its acceptance by students, parents, and lunch staff.

Behavioral economics has a powerful potential to change behavior. By broadening their commonly used set of tools – beyond discounting – there is an increased opportunity to explain more of the variation in troubling behavior and to generate creative, scalable policy solutions. Because of reactance and compensation, direct approaches to behavioral change may be more effective in theory than in practice. Constrained volition offers a more frictionless nudge.

Creating a Self-Assessment Scorecard

Some people have a hard time believing that simply moving a fruit bowl or the white milk can change what kids eat overnight. But when they do it and see that it works, they become huge converts and want to know what to do next. It's good to get advice, but once we get rolling, people--just like school lunch directors--pretty much know what will work best for them and what won't.

To help schools figure out how smart of a lunchroom they are and what they can do next, we have designed a do-it-yourself Scorecard (from Slim by Design) that lunchroom staff, parents, or students can use. All it takes is the Scorecard, a pencil, and a lunchroom--you can even skip the pencil and download the free App (Smarter Lunchroom Scorecard). Each lunchroom can get as many as 100 points, because there are 100 tasks or changes that help kids choose better and eat better. The more changes your school makes, the higher the score. Most schools first score around 20 to 30, but can quickly move up to 50 within a couple weeks if they really focus.

These are all research-based changes we have found help kids make smarter choices. We're still discovering new changes, so every school year there are a few new ones we rotate in and a few less effective ones we rotate out, but a school that got a 75 last year will probably get about a 75 this year if they haven't made any changes or if they haven't backslidden.

Conclusion

Consumption is a context where understanding fundamental behavior has immediate implications for consumer welfare. People are often surprised at how much they consume, and this indicates they may be influenced at a basic level of which they are not aware or do not monitor. Similar to the fundemental attribution error, this explains why simply knowing these environmental traps does not typically help one avoid them (Vartanian et al 2011). Relying only on cognitive control and on willpower is often disappointing. Furthermore, consistently reminding people to vigilantly monitor their actions around food is not realistic. Continued cognitive oversight is already difficult for people who are focused, disciplined, and concentrated. It is nearly impossible for those who are not.

The studies reviewed here illustrate how an individual can alter his or her personal environment so it does not have unintended effects on how much is eaten. We did not fully discuss the individual differences which would make some of these changes or "nudges" more effective than others. For some, this might involve repackaging food into single-serving containers, storing tempting foods in less convenient locations, and pre-plating one's food prior to beginning a meal. For others, simply using narrow glasses and smaller plates might be all that is required to make their environment less conducive to overeating.

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Table 1. Sample Findings Using the CAN Framework of Behavior Change

Convenient	Attractive	Normative
• Convenient to see: A fruit display near cash register increased sales 35%, even when product was not discounted (Van Kleef, Otten, and van Trijp 2012)	• Attractively Named: Giving a descriptive names to vegetable increased sales among elementary schoolers by dishes increased 18% (Wansink, et al 2012)	• Normative to Order: Placing a sticker of vegetable on a tray increased the number of school children selecting vegetables by 61% (Mann and Redden 2011)
• Convenient to order: Healthy "Grab and Go" lines in cafeterias led to a 82% increase in healthy food sales (Hanks et al 2012)	• Attractive Appearance: Placing nonedible garnish on a vegetable side dish increased sales and taste evaluation (Wansink, Payne, and Painter 2014)	• Normative to Purchase: Visually diving a shopping cart in half and suggesting that half should be used for fruits and vegetables, increased their sales by 27% (Wansink et al 2014)
• Convenient to Pick Up: Conference goers fill 68% of their plate with the first three foods they encounter on the breakfast buffet (Wansink and Hanks 2014)	• Attractively Priced: Proportional pricing decreased market share for only the largest packaging (Vermeer et al 2010)	• Normative to Serve: Changing a container size decreased snack intake independent of portion size (Marchiori, Cornelle, and Klein 2012)
• Convenient to Consume: Large sip sizes increases increase food intake by 12% (Bolhuis et al 2013)	• Attractive Expectations: Altering the height of a package, increased choice and perceptions of a product's healthfulness (Chandon & Ordabayeva 2009)	• Normative to Eat: 44% of the variation in the amount a woman serves in a buffet line is determined by what the woman ahead of her served herself (Wansink and Just 2014)

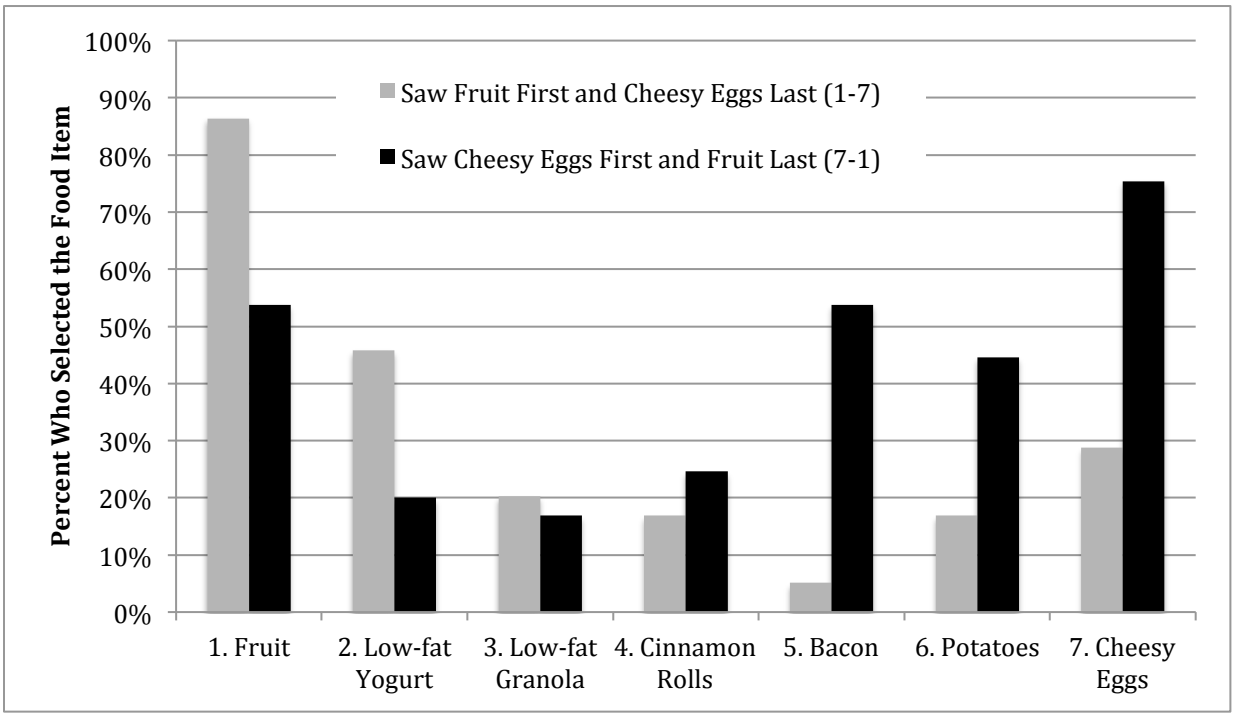
Table 2.
The CAN Approach to Changing Behavior in One's Food Radius

	1. Make it More Convenient	2. Make it More Attractive	3. Make it More Normative
A Mother who wants to eat better at home…	Puts pre-cut vegetables on the middle shelf of the fridge and the bread out of sight	Buys more tempting salad dressings with cool names and less tempting bread	Sets salad bowls on the dinner table every day, even if they aren't being used, and gets rid of the butter dish
A restaurant owner who wants to sell more high-margin shrimp salads …	Makes it easy to find on the menu by putting it on the first page and in a bold font.	Gives it a catchy name or one that appeals to the senses – "Scrumptious Savory Shrimp Salad Bonanza," anyone?	Describes it as a Special or a Manager's Favorite
A grocery store manager who wants to sell more fish at full price …	Places fish in a center cooler at the end of the vegetable section	Offers easy, appealing fish recipe ideas on notecards next to the fish that people can take with them	Put floor decals near it or have a green dashed line pointing toward the fish
An office manager who wants her workers to leave their desk and eat in the new healthy cafeteria …	Adds a $5 Grab & Go line filled with healthier foods, and maybe an honor system cash box	Has a more attractive cafeteria, break room, or brown bag series	Posts notices and news on bulletin boards in the cafeteria, break room, or fitness room, and not in the work area
A school lunch manager who wants to get more kids to take and eat fruit …	Puts it within easy reach in two different parts of the line – beginning and end.	Puts it in a colorful bowl and/or gives it a colorful sign.	Puts it in front of the cash register with a sign saying, "Take an extra one for a snack"

Table 3. Physical Dimensions of Consumption Norms

Physical Dimensions of Consumption Norms	Illustrations of Norms and Approximate Magnitude of Increase
Package-, Serving-, or Dinnerware-size	• Doubling package size increases consumption by 22% (Wansink 1996) • Doubling serving size increased daily intake by 26% and is sustained over 11 days (Rolls, Roe & Meengs 2006, 2007) • Doubling dinnerware size increased food consumption with both bowls (37%) and serving spoons (14%) (Wansink, van Ittersum, and Painter 20006)
Visual Salience	• Candies in clear dishes are consumed 37% more frequently than those in opaque dishes (Wansink, Painter, and van Ittersum 2005)
Cognitive Convenience	• Bundles and "buy-on-get-one-free" promotional packs reduce perceived cost, which increases consumption (Chandon & Wansink 2002; Wansink 1996)
Attractiveness	• Improving taste imagery facilitates the acceptance of downsizing (Cornil and Chandon 2013)
Labeling	• Adding a smaller or larger size shifts selection and consumption (Sharpe, et al. 2008) • Renaming regular size items as double-size decreases how much people consume by 29% (Just and Wansink 2013)
Sequence of exposure	• Altering the order of food in buffet lines leads people to fill 64% of their plate with the first three items on the buffet (Hanks 2013)

Figure 1: Food Presentation Order Influences the Percentage of Diners Who Selected Healthy or Unhealthy Foods



The percentages in this table are predicted percentages of individuals selecting an item in one of two buffet lines. These percentages were generated from a non-linear estimation procedure using the logistic density function.

Figure 2. Chocolate Milk Consequences: Surprising Consequences of Banning Chocolate Milk

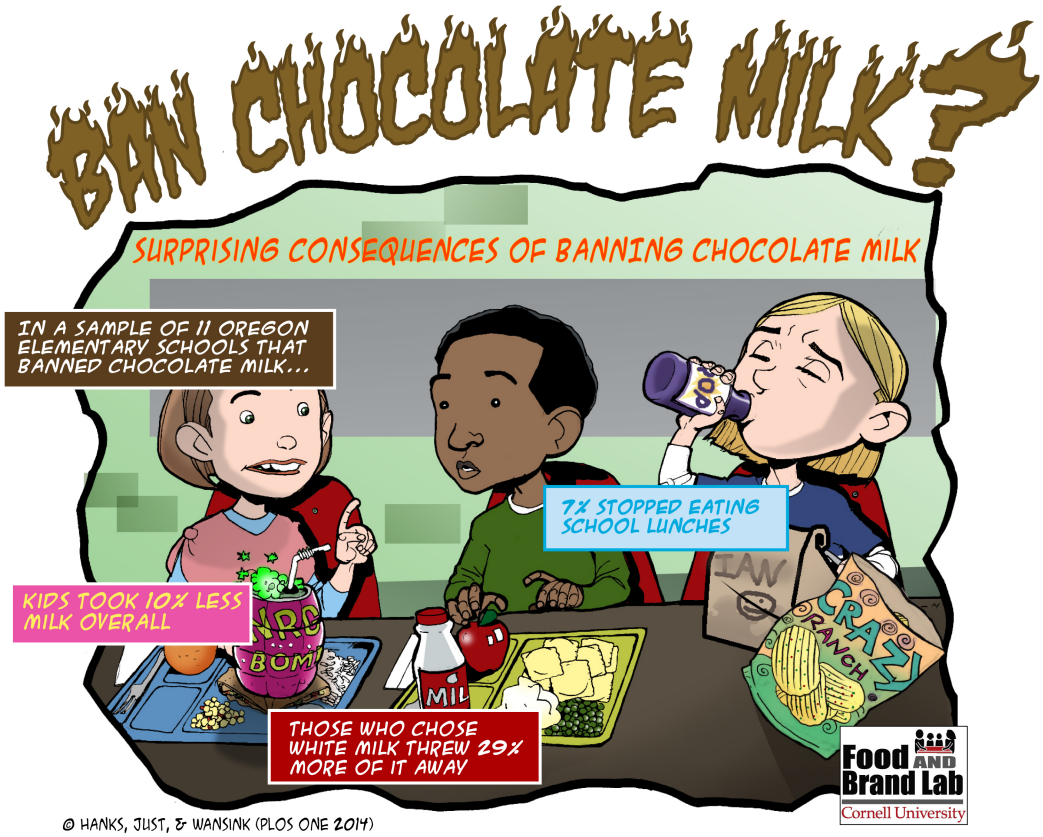


Figure 3. The CAN Approach to Changing One's Food Choice

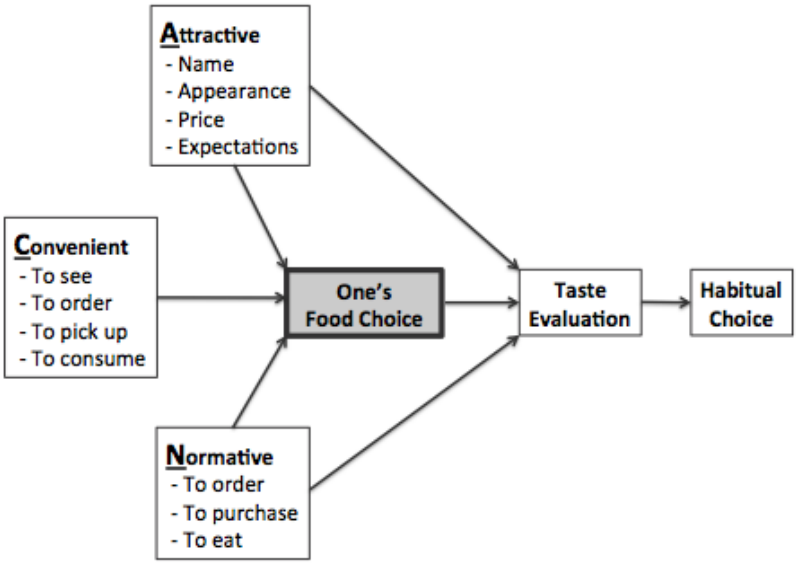
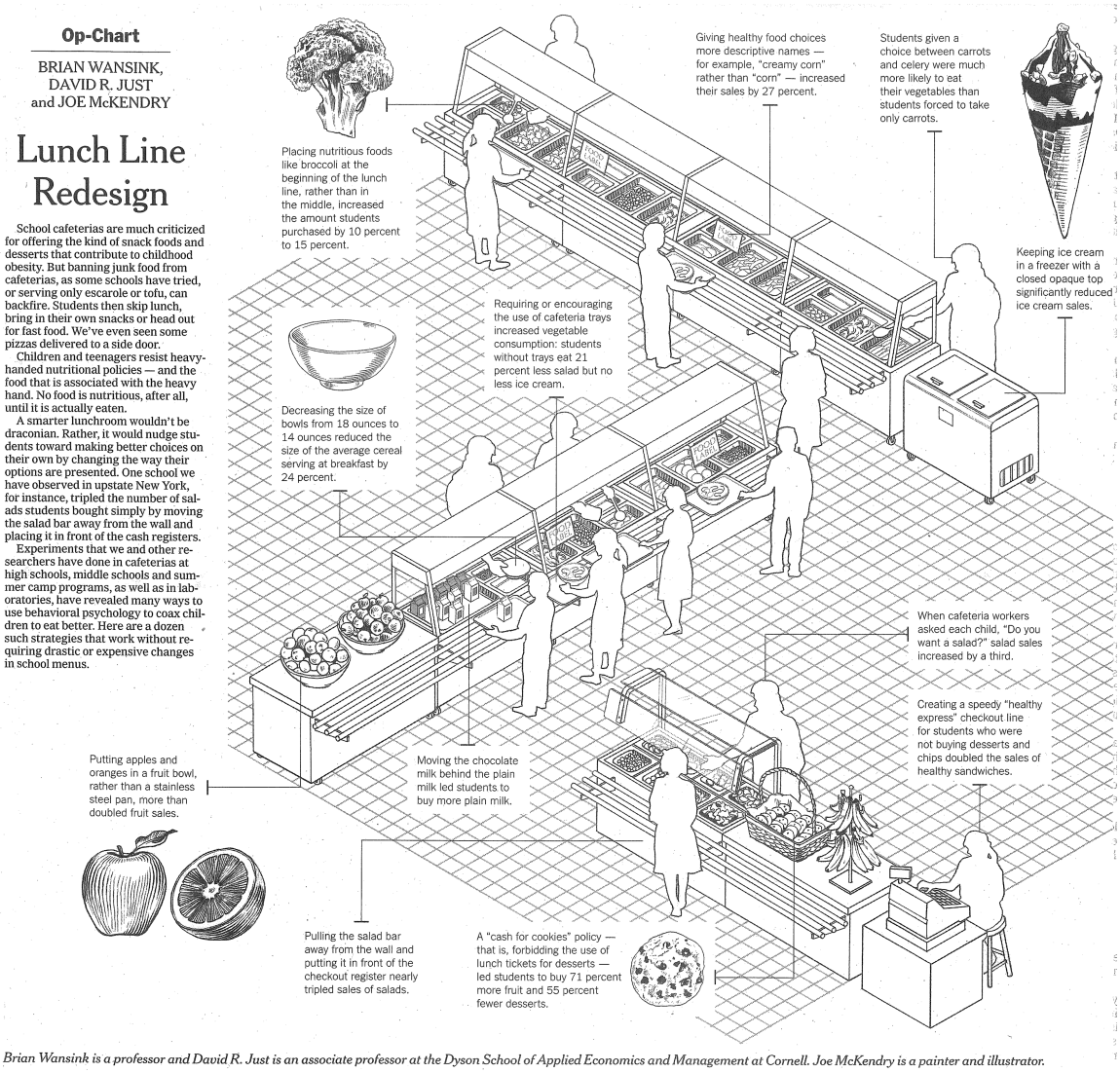


Figure 4.
Lunch Line Redesign



Brian Wansink is a professor and David R. Just is an associate professor at the Dyson School of Applied Economics and Management at Cornell. Joe McKendry is a painter and illustrator.

Figure 5. Smarter Lunchroom Self-Assessment Scorecard

Smarter Lunchrooms Movement — Smarter Lunchrooms Self-Assessment Scorecard

Since its founding in 2009 the Smarter Lunchrooms Movement has championed the use of evidence-based, simple low and no-cost changes to lunchrooms which can simultaneously improve participation and profits while decreasing waste. This tool can help you to evaluate your lunchroom, congratulate yourself for things you are doing well and and identify areas of opportunity for improvement.

Instructions

Read each of the statements below. Visualize your cafeteria, your service areas and your school building. Indicate whether the statement is true for your school by checking the box to the left. If you believe that your school does not reflect the statement 100% do not check the box on the left. After you have completed the checklist, tally all boxes with check marks and write this number in the designated area on the back of the form. This number represents your school's baseline score. The boxes which are not checked are areas of opportunity for you to consider implementing in the future. We recommend completing this checklist annually to measure your improvements!

Important Words

Service areas: Any location where students can purchase or are provided with food

Dining areas: Any location where students can consume the food purchased or provided

Grab and Go Meals: Any meal with components pre-packaged together for ease and convenience – such as a brown bag lunch or "Fun Lunch" etc.

Designated Line: Any foodservice line which has been specified for particular food items or concepts – such as a pizza line, deli line, salad line etc.

Alternative entrée options: Any meal component which could also be considered an entrée for students - such as the salad bar, yogurt parfait, vegetarian/vegan or meatless options etc.

Reimbursable "Combo Meal" pairings: Any reimbursable components available independently on your foodservice lines which you have identified as a part of a promotional complete meal – For example you decided your beef taco, seasoned beans, frozen strawberries and 1% milk are part of a promotional meal called the, "Mi Amigo Meal!" etc.

Non-functional lunchroom equipment: Any items which are either broken, awaiting repair or are simply not used during meal service – such as empty or broken steam tables, coolers, registers etc.

Good Rapport: Communication is completed in a friendly and polite manner

Focusing on Fruit

- ☐ Fruit is available in all food service areas
- ☐ Daily fruit options are available in two or more locations on the service lines
- ☐ At least one daily fruit option is available near all registers (If there are concerns regarding edible peel, fruit can be bagged or wrapped)
- ☐ At least two types of fruit are available daily
- ☐ Whole fruit options are displayed in attractive bowls or baskets (instead of chaffing/hotel pans)
- ☐ A mixed variety of whole fruits are displayed together in bowls in all service areas
- ☐ Sliced or cut fruit is available daily
- ☐ Daily fruit options are displayed in a location in the line of sight and reach of students (Consider the average height of your students when determining line of sight)
- ☐ Daily fruit options are bundled into all grab and go meals available to students
- ☐ All available fruit options have been given creative or descriptive names
- ☐ All fruit names are highlighted on all serving lines with name-cards or product IDs daily
- ☐ All fruit names are highlighted and legible on menu boards in all service and dining areas
- ☐ Fruit options are not browning, bruised or otherwise damaged
- ☐ All fruit options are replenished so displays appear "full" continually throughout meal service and after each lunch period
- ☐ All staff members, especially those serving, have been trained to politely prompt students to select and consume the daily fruit options with their meal

Promoting Vegetables & Salad

- ☐ Vegetables are available in all food service areas
- ☐ Daily vegetable options are available in two or more locations in all service areas
- ☐ At least two types of vegetable are available daily
- ☐ Daily vegetable options are displayed in a location in the line of sight and reach of students (Consider the average height of your students when determining line of sight)
- ☐ Daily vegetable options are bundled into all grab and go meals available to students
- ☐ A salad bar is available to all students
- ☐ All available vegetable options have been given creative or descriptive names
- ☐ All vegetable names are highlighted on all serving lines with name-cards or product IDs daily
- ☐ All vegetable names are highlighted and legible on menu boards in the service and dining areas
- ☐ Vegetables are not wilted, browning, or otherwise damaged
- ☐ All vegetable options are replenished so displays appear "full" continually throughout meal service and after each lunch period
- ☐ All staff members, especially those serving, have been trained to politely prompt students to select and consume the daily vegetable options with their meal

Moving More White Milk

- ☐ White milk is available in all service areas
- ☐ White milk is in two or more locations in all service areas
- ☐ All beverage coolers have white milk available
- ☐ White milk represents 1/3 of all visible milk in the lunchroom
- ☐ White milk is placed in front of other beverages in all coolers
- ☐ White milk is eye-level and within reach of the students (Consider the average height of your students when determining eye-level)
- ☐ White milk crates are placed so that they are the first beverage option seen in all milk coolers
- ☐ White milk is bundled into all grab and go meals available to students as the default beverage
- ☐ White milk is highlighted on all serving lines with a name-card or product ID daily
- ☐ White milk is highlighted and legible on the menu boards in all service and dining areas
- ☐ White milk is replenished so all displays appear "full" continually throughout meal service and after each lunch period

Entrée of the Day

- ☐ A daily entrée option has been identified to promote - a targeted entrée in each service area and for each designated line (deli-line, pizza-line etc.)