

Research Dialogue

# Slim by Design or by willpower? Replies to Herman and Polivy and to Roberto, Pomeranz, and Fisher☆

Brian Wansink<sup>a</sup>, Pierre Chandon<sup>b,c,\*</sup>

<sup>a</sup> *Dyson School of Applied Economics and Management, Cornell University, 110 Warren Hall, Ithaca, NY 14853-7801, USA*

<sup>b</sup> *INSEAD, Boulevard de Constance, 77300 Fontainebleau, France*

<sup>c</sup> *Institute for Cardio-metabolism and Nutrition Paris, France*

Received 3 April 2014; accepted 8 April 2014

Available online 18 April 2014

---

## Abstract

In their commentary of our “Slim by Design” article, Herman and Polivy offer a simple and powerful model of food intake which focuses on the mediating role of hunger, taste, and appropriateness. In their commentary, Roberto, Pomeranz, and Fisher review both new and classic interventions aimed at reducing obesity and raise the issue of whether they can be scalable and sustainable without regulatory oversight. In this rejoinder, we examine the few differences between the Chandon & Wansink and the Herman & Polivy frameworks to highlight critical areas for future research, including focusing on overeating vs. intake, refining the role of normative drivers, and studying lay theories of overeating. We then resolve the questions raised by Roberto, Pomeranz, and Fisher by providing concrete examples of low-cost design changes that are scalable and sustainable because they benefit both healthy eating and the overall sales and profitability of school and workplace cafeterias.

© 2014 Society for Consumer Psychology. Published by Elsevier Inc. All rights reserved.

*Keywords:* Nutrition; Eating; Public health; Monitoring; Packaging

---

Theory for practice. The entire purpose of our target article, “Slim by Design: Redirecting the Accidental Drivers of Mindless Overeating,” can be summarized in one single word: That word is “useful.” Useful to researchers and practitioners by suggesting new theory-driven solutions to the problem of overeating. Useful to public policy officials and visionary marketers who would like to help people eat better. And useful to researchers who want to influence practitioners. We thank [Herman and Polivy \(2014\)](#) and [Roberto, Pomeranz, and Fisher \(2014\)](#) for their insightful and constructive comments, which have greatly enriched our understanding of the drivers of mindless overeating and the ways to move forward on this important topic.

Herman and Polivy’s commentary is tremendously insightful and listing all our areas of agreement is impossible given the space constraints. We highlight the few areas where our perspectives differ: (a) a focus on overeating versus food intake, (b) a focus on drivers of overeating versus their immediate mediators, and (c) a focus on scientific versus lay theories of overconsumption. The comparison sheds new light on our emerging field and highlights many exciting opportunities for future research.

As public health researchers, [Roberto et al. \(2014\)](#) review the effectiveness, scalability, and sustainability of various public health interventions aimed at reducing obesity and provide a fresh and very valuable perspective on how consumer psychology can contribute to evidence-based policy. Encouraged by their conclusion that consumer psychology can provide novel, cost-effective public health interventions, we highlight specific ways to translate our increased understanding of the accidental drivers of mindless overeating into more judicious policy solutions, more successful market solutions, and more thoughtful parental solutions.

---

☆ The authors are grateful to C. Peter Herman, Janet Polivy, Christina A. Roberto, Jennifer L. Pomeranz, and Jennifer O. Fisher for their insightful and constructive commentaries of their target article.

\* Corresponding author.

*E-mail addresses:* [wansink@cornell.edu](mailto:wansink@cornell.edu) (B. Wansink), [pierre.chandon@insead.edu](mailto:pierre.chandon@insead.edu) (P. Chandon).

## Drivers, mediators, and lay theories of why we overeat: a reply to Herman and Polivy

Herman and Polivy's theoretical framework consists of only four words: Intake, Hunger, Taste, and Appropriateness. As marketing professors, we are humbled that their framework beats ours on four of the six principles that make concepts memorable and interesting (Heath & Heath, 2007): their framework is simple, unexpected (for a scientific framework), concrete, and credible. This framework provides an evidence-based map of our field that doubles as a useful communication tool. Beyond this, there are a few important distinctions between Herman and Polivy's framework and ours.

### *Overeating vs. intake*

Whereas Herman and Polivy examined food intake in general, we focus only on overeating, which we define as eating more than we realize. This explains why we highlighted the role of consumption monitoring. We agree that monitoring is not an important driver of intake when people are sated (vs. hungry) or presented with bad-tasting (vs. palatable) food, but these are also situations when overeating is unlikely to occur. We also agree that monitoring "internal states" like hunger and fullness may be more relevant for healthy eating than monitoring consumption, if only because foods are differently satiating. We chose to focus on consumption monitoring because, as Herman and Polivy pointed out, monitoring internal states is even more difficult than monitoring consumption. To clarify, consumption monitoring does not require setting a target for calorie or consumption volume. Simply monitoring whether we ate more than usual, more than what others ate, or just remembering whether we ate or not can already have a large impact on hunger and subsequent intake (Higgs, 2008; Redden & Galak, 2013; Rozin, Dow, Moscovitch, & Rajaram, 1998).

### *Drivers vs. mediators*

Probably the most important distinction between the two frameworks is that we focused on the sensory, emotional, or normative nature of the multiple factors influencing overeating and left open the question of their mediators by choosing to highlight only one of them: consumption monitoring. In contrast, Herman and Polivy argue that "all influences on eating exert their effects through Hunger, Taste, and/or Appropriateness". We agree that these three factors, especially appropriateness, mediate most intake decisions. We also agree that it is important to distinguish whether the drivers that we highlighted, say sadness, influences intake through hunger, taste, or perceived appropriateness. Still, we are concerned that a naïve reading of Herman and Polivy's framework would lead scientists to conclude that we understand all the mediators of intake. Reflecting upon this issue after reading their commentary, we think, for example, that consumer psychology has neglected the importance of consumption costs (from accessing, buying, and preparing the food), which are absent from Herman and Polivy's framework and only

tangentially mentioned in ours (Drewnowski & Darmon, 2005). There is therefore still work to be done to explore all the possible mediators of intake and their relationship with their multiple sensory, affective, and normative antecedents.

### *Refining appropriateness*

Because appropriateness is so important, we think that it would be useful to distinguish among the various types of normative effects and to consider the exact role played by cognition (e.g., attentional biases) and motivation (shift in goals). Otherwise, there is a risk that appropriateness becomes a tautological "catch-all" category. After all, one could always argue that, if people overeat despite not being hungrier or enjoying the food more, it must be because they found it appropriate. But why exactly did they find it appropriate?

Consider the recent finding, still in search of explanation, that people eat less healthily after watching their favorite football team lose (Cornil & Chandon, 2013). Assuming that the defeat does not influence hunger and taste, did "appropriateness" change because of a norm (descriptive or prescriptive, personal or social) that it is appropriate to eat more in this context (Andrade, 2005; Chandon, Smith, Morwitz, Spangenberg, & Sprott, 2011), because emotions bias quantity perceptions (Cornil, Ordabayeva, Kaiser, Weber, & Chandon, 2014), because sadness triggers a motive for reward and comfort-seeking (Raghunathan, Pham, & Corfman, 2006), or because the ego depletion created by the vicarious defeat made subsequent self-regulation more difficult (Tice, Bratslavsky, & Baumeister, 2001)? Of course, these mediators themselves can be further refined (e.g., self regulation failure could be driven by shifts in attention or in motivation, see Inzlicht & Schmeichel, 2012). We thus join Herman and Polivy's assessment that it is time to redirect some of the energy still spent on the elegant but limited homeostatic model of eating to better understand the role of norms.

### *Scientific vs. lay theories*

Another important issue raised by reading Herman and Polivy's article is the lack of attention paid by consumer psychology to lay theories of eating—a point that is consistent with Pham's (2013) recent call for greater attention to matters of psychological content (as opposed to processes) in consumer theorizing. As consumer researchers, we tend to believe that people have a very poor intuition for why they do what they do and that not much can be gained from listening to them. Herman and Polivy remind us that how people *interpret* the world and their own actions is also very powerful (Wilson, 2011). We should therefore try harder to understand people's own narratives for overeating and why they sometime differ so much from the scientific interpretation of their behavior.

For example, as Herman and Polivy point out, hunger is not the powerful driver of eating that people think it is. As mentioned in "Slim by Design", when 1000 North Americans were asked why they recently overeat, 49% attributed it to hunger, 39% to taste, and 11% to emotions (Wansink, 2014). People therefore completely missed the importance of norms (appropriateness)

and reversed the actual magnitude of the significance of hunger and taste. Even when asked directly, the majority of people do not believe that normative drivers, like the size of bowls, influence their eating (Vartanian, Herman, & Wansink, 2008). Instead of drawing the conclusion that we should just dismiss what people are saying about why they eat, we agree with Herman and Polivy that our field needs to examine both the actual and perceived motives of consumption. This will help us redirect people's eating narratives from "I ate because I was hungry" to "I ate because my kitchen space made me mindlessly graze without hunger or pleasure." Redirecting people's narratives is a very powerful method for behavior change (Wilson, 2011).

To conclude, Herman and Polivy's framework and commentaries help us understand why we eat mindlessly, regardless of how tuned in we think we are to what we eat and how much we eat. To Herman and Polivy's important point, this does not mean that our eating is random or that we are incapable of self-control (Wansink, 2006; Wansink, Just, & Payne, 2009). It does not also mean that we are incapable of mindful eating or that people cannot learn to redirect their consumption impulses through mindful eating (Papies, Barsalou, & Custers, 2012). It more generally means that we either choose not to think carefully about what or how much we eat, or that we are not aware of many of the seemingly irrelevant factors that do indeed move us to take or eat 10% more than we might have (Wansink et al., 2009). Our contention is that when we drop into our chair for dinner with still nine things on our to-do list while children are arguing and the phone is ringing, for most of us mindful eating is not a practical, scalable and enduring solution to mindless eating.

### **Slim by Design solutions—the Smarter Lunchroom Movement: a reply to Roberto, Pomeranz, and Fisher**

We believe that it is easier to eat better by changing our environment than by changing our mind. We concluded our "Slim by Design" article by showing how small changes could be made around one's home—a Slim-by-Design home makeover—could help consumers and their families eat less and eat better without having to monitor their every food movement. Whereas changes like this might cause us to serve 20% less pasta on our plates, Roberto et al. (2014) insightfully question whether it is relevant in other contexts, scalable, and self-sustainable without explicit, compelling regulatory incentives.

Roberto et al. (2014) highlight the importance of working with legal experts when crafting their research questions and interpreting the results to understand what is legally permissible—which we agree is an important limitation of the work typically done in consumer psychology. Conversely however, it is important that regulators understand the impact that legislation and regulations will have on companies, and not just on consumers. For example, Roberto et al. (2014) argue that calorie labeling, just like trans fat labeling, will lead companies to reformulate their products to offer healthier options. But trans fats are unequivocally perceived as bad for health and irrelevant, or perhaps even vaguely bad for taste, whereas low-calorie reformulation is clearly perceived as okay for health and clearly bad for taste. Given that taste is, and will likely remain, a more important driver of food

choice than health, food marketers cannot reduce calories through reformulation if it is perceived as compromising taste. In fact, it seems that, in the US, the Nutrition Labeling and Education Act of 1990 has actually worsened the average nutrition quality of foods sold in grocery store compared to pre-NLEA levels and compared to similar food products unregulated by the NLEA (Moorman, Ferraro, & Huber, 2012).

Roberto et al. (2014) argue that "if nudge strategies are not systematically implemented, enforced, and sustained, their impact is likely to be minimal." We agree. However, we disagree that "it is hard to imagine that such nudge strategies would be voluntarily implemented and maintained on a large-enough scale in schools, workplaces, or restaurants without mandates or explicit, compelling incentives to do so." We believe that consumer research offers several examples of nudges that can help consumers make healthier choices and yet be, not just inexpensive, but actually revenue-positive for food marketers (Chandon & Wansink, 2012). Food marketers are not "obligated to sell more foods," as Roberto, Pomeranz, and Fisher argue; food companies are obligated to make money. But innovative food marketers show us that it can be done by providing more enjoyable eating experiences (vs. more food) while simultaneously helping consumers achieve their other important goals (convenience, low prices, and even health). We have already reviewed some of these innovative strategies in another article (Chandon & Wansink, 2012), so we only highlight a few that are particularly adapted to the school context brought up by Roberto et al. (2014).

Rising obesity rates among children has led many to point blame at the school lunch program. Local school lunch administrators feel tremendous pressure from parents and activists to drop higher calorie items from the menu such as cookies, sodas or ice cream. At the same time, strong demands are placed on district school lunch programs to be financially solvent. Much of the tension between health and cost is due to the particular approaches taken to each problem. Introducing ultra-healthy products into the lunchroom requires a significant increase in spending while reducing unit sales and total participation levels. Banning popular items for their content also directly reduces sales. Yet suppose we could simply rearrange items that are currently offered within the school to encourage children to buy more of the healthy items and less of the unhealthy items. Such a strategy costs very little, has a negligible impact on overall revenue, and may provide a way for school districts to show a demonstrable increase in the healthy content of their meals. That has been the goal of the Smarter Lunchroom Movement. To develop low-cost or no cost interventions that are scalable and nudge or guide children to take the apple instead of the cookie.

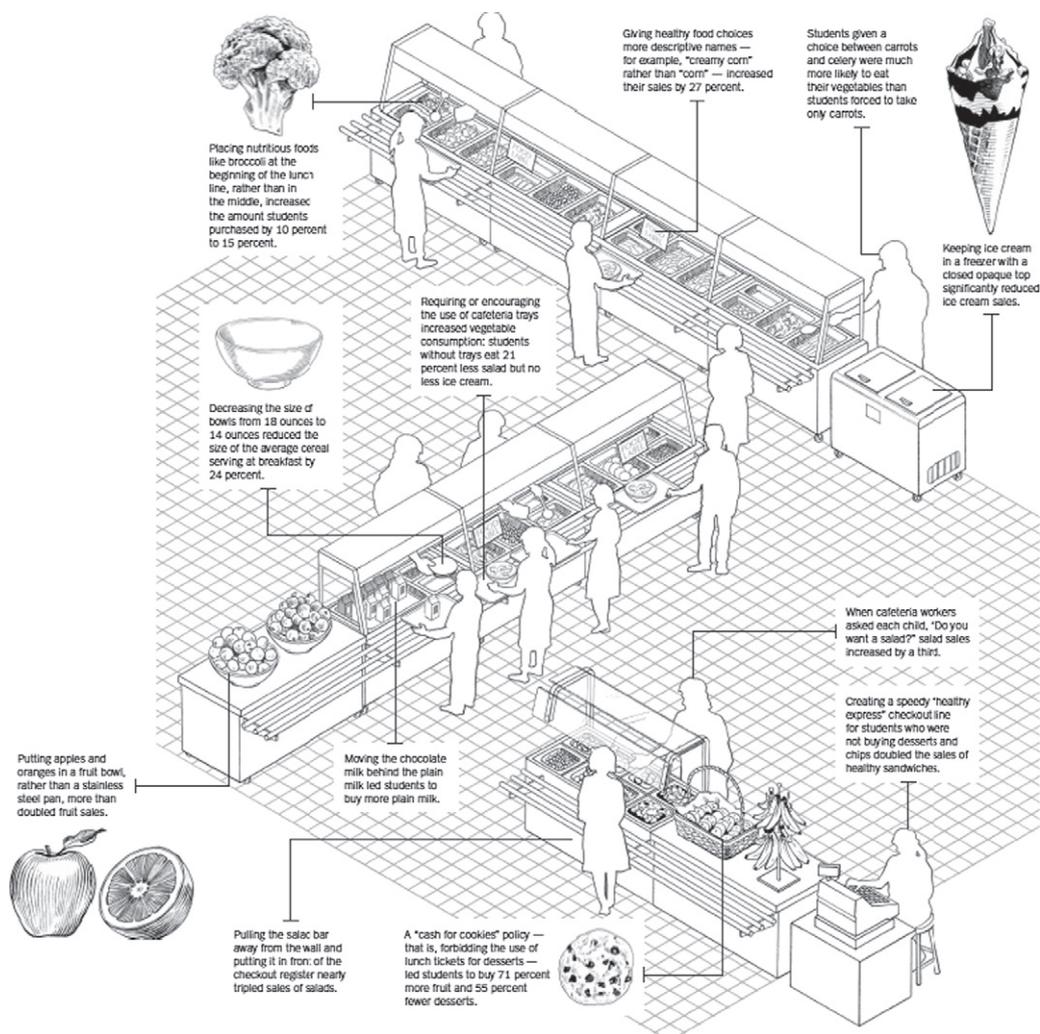
#### *Move the fruit*

There are unexpected ways to moving food or to moving the traffic flow patterns. In one Minnesota school, we found that cash registers were one of the bottlenecks in the system. While students waited to ring out, they waited in line and were faced with a wide array of grain-based snacks and desserts, generating a number of impulse purchases. One option would have been to move these temptations. For example, we found

that simply closing the lid on the freezer that contains the ice cream can reduce the number choosing ice cream from 30% down to 14% (Wansink, 2014). Unfortunately, this would have almost assuredly increased complaints, decreased satisfaction, decreased the number of children purchasing school lunches, and decreased revenue (Hanks, Just, & Wansink, 2014). A better option was to replace these snacks with an array of fruits. This way, 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 (Fig. 1).

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. But many students taking milk were only taking it because they had been asked. 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 cost 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



**Note:** Reproduced from Wansink, B., Just, D. R., & McKendry, J. (2010). Lunch line Redesign. The New York Times, October 21, [http://www.nytimes.com/interactive/2010/2010/2021/opinion/20101021\\_Oplunch.html](http://www.nytimes.com/interactive/2010/2010/2021/opinion/20101021_Oplunch.html)

Fig. 1. Lunch line redesign.

Note: Reproduced from Wansink, B., Just, D. R., & McKendry, J. (2010). Lunch line Redesign. The New York Times, October 21, [http://www.nytimes.com/interactive/2010/2010/2021/opinion/20101021\\_Oplunch.html](http://www.nytimes.com/interactive/2010/2010/2021/opinion/20101021_Oplunch.html).

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.

### *Surprising salad sales*

Consider the problem of a middle school in the Corning, New York, area. 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 ft 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° and moving it to the middle of the lunch room, it became something students had to walk around, not something they could mindlessly walk by. Sales immediately increased the week after the move and continued to increase as it became a part of the lunchtime routine for students.

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.

### *Choose your own vegetable*

In general, when schools require students to take vegetables, only a small percentage of the students actually consume the vegetables (about 35%), again resulting in substantial waste of food and resources. Alternatively, consider what might happen if students were given the choice between carrots and celery. In a recent experiment we conducted at Cornell, 120 junior high participants in a summer 4H program were told they must take carrots with their lunch, while another 120 were given the choice of carrots or of celery (103 of 120 selected the carrots). Of those required to take the carrots, 69% (83 of 120) consumed the carrots, while 91% (94 of 103) of those choosing between carrots or celery consumed their vegetable. Such results are suggestive that requiring a vegetable, but offering an active choice between at least two options will substantially reduce the waste from vegetables, and increase the healthy content of the foods.

### *Cash for desserts*

Of all of the different food psychology and behavioral economic tactics we have 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. Students can no longer mindlessly put their soda and dessert purchase on their debit card or on their pin account, they have to take out the dollar they might otherwise spend on an iTunes 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 found that this change did not hurt revenue or participation and led to greater sales of more nutritious items and lower sales of the less nutritious items (Hanks, Just, & Wansink, 2013).

### **A complementary conclusion**

Theory for practice. Classic sage wisdom of some dissertation advisors is that there is nothing more practical than a great theory. Herman and Polivy have challenged our field to not just develop any theory, but to develop them in proportion to the impact they have on eating behavior. That is, to focus on appropriateness and to a much lesser extent than taste and hunger. Unfortunately, most of us do not develop great theories—we develop theoretical explanations for narrow phenomena that only take place in the lab, what Michel Pham (2013) calls “theories of studies”. Yet as Roberto et al. (2014) imply, the real world runs on main effects whereas many of our carefully controlled studies thrive on second- and third-order interactions. The main effect is generally reported as either an afterthought or as being as uninteresting as the effect of demographic differences.

“Slim by Design” was written to be useful to researchers who want to influence practitioners. We conduct research to try to make a difference. We want our research to make a difference not just in our own lives, professionally or personally, but in the lives of others: academic colleagues, consumers, or public policy makers. Unfortunately, as Roberto et al. (2014) implied, most of us do not think of how our research might be implemented in the future (Wansink, 2011). As a result we end up chasing “hot house” effects that would not occur in the real world, we end up using treatment variables that have no analog in the real world, or we end up proposing implications that would be neither scalable nor persistent in the real world. Integrating the recent insights from Herman and Polivy (2014) and Roberto et al. (2014), provides a vision that can not only inspire us to start new research but also inspires us to design it for impact.

### **References**

- Andrade, E. B. (2005). Behavioral consequences of affect: Combining evaluative and regulatory mechanisms. *Journal of Consumer Research*, 32, 355–362.
- Chandon, P., Smith, R. J., Morwitz, V. G., Spangenberg, E. R., & Sprott, D. E. (2011). When does the past repeat itself? The interplay of behavior prediction and personal norms. *Journal of Consumer Research*, 38, 420–430.
- Chandon, P., & Wansink, B. (2012). Does food marketing need to make us fat? A review and solutions. *Nutrition Reviews*, 70, 571–593.
- Cornil, Y., & Chandon, P. (2013). From fan to fat? Vicarious losing increases unhealthy eating but self-affirmation is an effective remedy. *Psychological Science*, 24, 1936–1946.
- Cornil, Y., Ordabayeva, N., Kaiser, U., Weber, B., & Chandon, P. (2014). The acuity of vice: Attitude ambivalence improves visual sensitivity to increasing portion sizes. *Journal of Consumer Psychology*, 24, 177–187.

- Drewnowski, A., & Darmon, N. (2005). Food choices and diet costs: An economic analysis. *The Journal of Nutrition*, *135*, 900–904.
- Hanks, A. S., Just, D. R., & Wansink, B. (2013). Smarter lunchrooms can address new school lunchroom guidelines and childhood obesity. *The Journal of Pediatrics*, *162*, 867–869.
- Hanks, A. S., Just, D. R., & Wansink, B. (2014). Chocolate milk consequences: A pilot study evaluating the consequences of banning chocolate milk in school cafeterias. *PLoS One*, *9*.
- Heath, C., & Heath, D. (2007). *Made to stick: Why some ideas survive and others die* (1st ed.). New York: Random House.
- Herman, C. P., & Polivy, J. (2014). Models, monitoring, and the mind: Comments on Wansink and Chandon's "Slim by Design". *Journal of Consumer Psychology*, *24*, 432–437.
- Higgs, S. (2008). Cognitive influences on food intake: The effects of manipulating memory for recent eating. *Physiology and Behavior*, *94*, 734–739.
- Inzlicht, M., & Schmeichel, B. J. (2012). What is ego depletion? Toward a mechanistic revision of the resource model of self-control. *Perspectives on Psychological Science*, *7*, 450–463.
- Moorman, C., Ferraro, R., & Huber, J. (2012). Unintended nutrition consequences: Firm responses to the Nutrition Labeling and Education Act. *Marketing Science*, *31* e91022, 717–737.
- Papies, E. K., Barsalou, L. W., & Custers, R. (2012). Mindful attention prevents mindless impulses. *Social Psychological and Personality Science*, *3*, 291–299.
- Pham, M. T. (2013). The seven sins of consumer psychology. *Journal of Consumer Psychology*, *23*, 411–423.
- Raghunathan, R., Pham, M. T., & Corfman, K. P. (2006). Informational properties of anxiety and sadness, and displaced coping. *Journal of Consumer Research*, *32*, 596–601.
- Redden, J. P., & Galak, J. (2013). The subjective sense of feeling satiated. *Journal of Experimental Psychology: General*, *142*, 209–217.
- Roberto, C. A., Pomeranz, J. L., & Fisher, J. O. (2014). The need for public policies to promote healthier food consumption: A comment on Wansink & Chandon (2014). *Journal of Consumer Psychology*, *24*, 438–445.
- Rozin, P., Dow, S., Moscovitch, M., & Rajaram, S. (1998). What causes humans to begin and end a meal? A role of memory for what has been eaten, as evidenced by a study of multiple meal eating in amnesic patients. *Psychological Science*, *9*, 392–396.
- Tice, D. M., Bratslavsky, E., & Baumeister, R. F. (2001). Emotional distress regulation takes precedence over impulse control: If you feel bad, do it! *Journal of Personality and Social Psychology*, *80*, 53–67.
- Vartanian, L. R., Herman, C. P., & Wansink, B. (2008). Are we aware of the external factors that influence our food intake? *Health Psychology*, *27*, 533–538.
- Wansink, B. (2006). *Mindless eating: Why we eat more than we think*. New York, NY: Bantam Books.
- Wansink, B., Just, D. R., & McKendry, J. (2010). *Lunch line Redesign*. The New York Times October 21, [http://www.nytimes.com/interactive/2010/2010/2021/opinion/20101021\\_Oplunch.html](http://www.nytimes.com/interactive/2010/2010/2021/opinion/20101021_Oplunch.html).
- Wansink, B. (2011). Activism research: Designing research that intends to transform. In D. G. Mick, S. Pettigrew, J. L. Ozanne, & C. Pechmann (Eds.), *Transformative consumer research for personal and collective well-being* (pp. 67–88). New York: Routledge.
- Wansink, B. (2014). *Slim by Design: Mindless eating solutions for everyday life*. New York: William Morrow.
- Wansink, B., Just, D. R., & Payne, C. R. (2009). Mindless eating and healthy heuristics for the irrational. *American Economic Review*, *99*, 165–169.
- Wilson, T. D. (2011). *Redirect: The surprising new science of psychological change*. Hachette Digital, Inc.