Taming Temptation: Targeting Self-Control Increases Healthy Food Behaviors

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Many obesity-related interventions rely on providing information to encourage healthier food choices. Behavioral science research has shown, however, that while such interventions can change attitudes and intentions, they often fail to change real behavior. Here, we show that urging self-control through simple prompts and pre-commitment can significantly improve nutrition behavior.

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Paper #1: Taming Temptation: Targeting Self-Control Increases Healthy Food Behaviors
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Paper #2: Exercising to the Lowest Common Denominator
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Paper #3: Commitment and Environmental Behavior Change: Evidence from the Field
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SESSION OVERVIEW

The research described here shows how relatively small, yet well-planned interventions can lead to significant changes in behavior. Influencing behavior change is an ongoing challenge in today’s society. In response, psychology, economics and consumer behavior researchers have been trying to find effective ways to induce new habits (e.g., Choi et al. 2004, Cialdini 2003). Recently, Thaler & Sustein (2009) proposed that it is possible to change behavior by manipulating the context in which individuals make decisions (i.e., nudges). The four papers included in this session take the nudge approach and provide new evidence for behavior change in applied settings.

The papers focus on three domains of social concern: health, wealth and the environment, which consumer research is poised to address. Consequently, the present work provides practical strategies for improving practices in these areas, via the use of economic and psychological theories. All papers included in this session involved field experimentation, and spanned the globe. As such they appeal broadly to both those who conduct randomized experimental work as well as those who are interested in exploring behavior change in diverse real world settings.

The first two papers apply concepts of self-control, commitment and normative feedback to address overeating and sedentary behavior. The paper by Schwartz et al. shows that urging self-control through simple prompts and pre-commitment can significantly improve nutrition behavior. For instance, consumers accept offers to reduce their calorie intake by taking smaller portions of side-dishes in a fast-food restaurant. Taking a different approach to health, the paper by John and Norton addresses how to increase activity (i.e., reduce sedentary behavior) in a work setting through the use of walkstations – treadmills attached to elevated workspaces – while also giving employees feedback on their own and coworkers’ walkstation usage. Results show that walkstation usage declines over time, and that this decline is greater when participants are given information on peers’ usage levels, presumably due to a tendency to converge to the lowest common denominator.

The final paper by Baca-Motes et al. highlights the potential use of a commitment device to increase individuals’ compliance with environmental appeals. Results show that guests who make a specific commitment to environmental behavior and are given the chance to strengthen this commitment with a publicly displayed symbol (an environmental pin) are more likely to reuse their towels during their hotel stay, arguably via signaling.

We are convinced this session will be of broad interest to the ACR community, as it addresses important topics and provides insights regarding the ways we can change behavior (for the better). Finally, this session complements the theme of this year’s ACR conference, “appreciating diversity,” in that the interventions tested were applied to a diverse set of contexts with diverse sets of populations.

Taming Temptation: Targeting Self-Control Increases Healthy Food Behaviors

EXTENDED ABSTRACT

The obesity epidemic lacks a clear and actionable solution. Some communities have taken first steps towards healthier diets with interventions that require prominent nutritional information. Such interventions rely on information to encourage healthier food choices. Behavioral science research has shown, however, that while information-based interventions (e.g., mandatory calorie labeling) can effectively change attitudes, they often fail to change actual behavior. As an alternative, we propose tackling the problem from a different angle. Specifically, we have targeted the temptation to make unhealthy food decisions through a series of field and web-based experiments that specifically focus on activating self-control. Our results show that this strategy is effective, easily implemented and especially welcomed by consumers.

First, we conduct a series of field experiments at a Chinese fast-food restaurant. In Study 1 participants were asked by restaurant staff if they wanted to “cut over 200 calories from their meal” by taking a half-portion side dish (ranging in calories from 440-570). In one condition the participants were merely prompted to cut back, in a second condition they were offered a nominal (25 cent) discount along with the prompt and the third condition was a baseline condition. One-third of the participants accepted the offer, enough to lower the overall number of calories served not only to downsizers, but over the entire restaurant population. Study 2 replicated and extended these findings by demonstrating the same pattern of results and showing that the downsizing prompt was better than calorie labeling at reducing the number of calories served. Study 3 once again replicated this pattern of results, and demonstrated that meal downsizing resulted in significantly fewer calories served. Moreover, an analysis of leftovers in Study 3 showed that meal downsizing not only led to fewer calories being served, but also to fewer calories being consumed.

All three studies took place over multiple day blocks that alternated several days each of baseline activity, the downsizing prompt (with and without either a small incentive or calorie labeling), and another baseline. Customers were unaware that a study was taking place and all data were recorded through daily cash register receipts.

Table 1 shows that while customers almost never spontaneously ask for a half portion side dish, anywhere from 18-33% were willing to take one when it was suggested (p < .05 in all studies)—even without an incentive (Study 1). In addition calorie labels were not effective—either before and after it was introduced and especially compared to the downsizing prompt (Study 2). Study 3 also assessed the weight of patrons’ leftovers and found that regardless of how
much food consumers started out with, everyone left an average of 2oz of food on their plates. This allowed us to determine that meal downsizing not only influences the amount of food purchased, but also the amount of food eaten. Finally, the cash register receipt data also revealed there was no evidence of compensation whereby participants who downsized then opted for more highly caloric entrees.

Next, we examined the effectiveness of pre-commitment on shoppers at a popular grocery store in South Africa. Members who ordinarily receive a 25% discount on their healthy food purchases were asked if they would be willing to put their discount on the line by pledging to increase the number of healthy food items by a certain percentage. For example, members were asked if they would pledge to increase their percentage of healthy food items from 25% to 30% in order to maintain their 25% discount. Those who reach the goal get the healthy food discount on all items, but those who fail to reach the goal lose the discount on ALL healthy food items. The data showed that 2/3 of the incentive program members said they were willing to put their discount on the line and pre-commit to buying healthier food at the grocery store. We are now running a field experiment with members from the same population to determine how effective this program is in an actual shopping environment. These data will be presented.

We close by noting that public health interventions often focus on giving information to help consumers make better choices. In reality, this information may have limited ability to change behavior. Our research takes a different approach—one that targets self-control as the primary contributor to poor eating habits. These strategies are effective, easy to implement and are often welcomed by both consumers and retailers. As such, these findings have significant implications for both marketing and public policy.

**Exercising to the Lowest Common Denominator

EXTENDED ABSTRACT

Sedentary behavior has been on the dramatic rise in the United States in recent decades. Half of occupations required at least moderate physical exercise in the 1960s; just one fifth did so in 2010 (Church et al., 2011). As a result, average daily occupation-related energy expenditure has decreased by more than 100 calories over the same time period, a reduction that alone can account for a significant portion of the increase in average body weight (Church et al., 2011). In a field study, we attempted to reduce sedentary workplace behavior by introducing walkstations — slow-moving treadmills attached to elevated workspaces enabling employees to walk while working — giving employees feedback on their own and their coworkers’ walkstation usage, and measuring the impact of the health behaviors of coworkers on usage over time.

People’s desire to align their behavior with descriptive norms can lead to positive behavior change if the target behavior is positive and people are underperforming relative to the descriptive norm, but also to “boomerang” effects if the target behavior is positive and people are outperforming the descriptive norm (Cialdini et al., 1990; Schultz et al., 2007). While some previous research has documented the positive effects of social support on health behavior (e.g., Berkman, 1986; Cohen & Syme, 1985), recent research suggests that peers can exert more downward than upward pressure on health behaviors, such as research demonstrating that obesity can “spread” through social networks (Christakis & Fowler, 2007); in one study of United States Air Force Academy students, being randomly assigned to squads with peers who were less fit in high school predicted the probability of failing the academy’s fitness requirements, and these downward effects were driven in particular by exposure to the least physically fit students (Carrell et al., 2011).

But through what proximal mechanism do these distal effects occur? How do the health behaviors of one’s peers in the short term create these longer-term health outcomes? Social facilitation suggests that group behavior tends to converge upon the dominant response (Zajonc, 1965); in one study, many participants who had agreed to volunteer their time stopped volunteering as soon as someone else had stopped: once anyone exhibited the dominant response – in this case, not volunteering – others followed suit (Linardi & McConnell, 2011). The obesity epidemic and increase in sedentary workplace behavior suggest that with respect to physical activity, the dominant response is not to exercise. As a result, feedback on others’ walkstation use could cause dyad and group behavior to converge to the dominant response – sitting down – such that people’s exercise would converge to the lowest performing member of the group: the lowest common denominator.

Employees (N=224) at a US company participated in a six month between-subjects randomized field experiment. In the “hold-out” control condition, participants could not use the walkstations. In three experimental conditions, participants were asked to use the walkstations and sent a personalized weekly email. In the solo condition the email summarized the participant’s walkstation usage for the previous week; in the duo condition – in which each participant was randomly paired with another participant – the email summarized the participant’s and their partner’s usage. In the quintet condition – in which each participant was randomly grouped with four others – the email summarized each participant’s and the other four participants’ usage. The study was conducted with employees from three differ-

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*p < .05, **p<.01, ***p<.001.
ent work sites of the same company in the same city; randomization was stratified by work site. To use the walkstations, employees entered their unique employee ID; our primary outcome measure was walkstation usage assessed by these login data, which allowed us to assess how often and for how long each employee used the machine.

Walkstation use declined over time \((F(1, 2896)=86.8, p<.0005)\) – in general, participants reverted to the dominant response over time – but this main effect was qualified by an interaction between time and feedback condition \((F(2, 2896)=4.62, p=.01)\). In both the *duo* and *quintet* conditions, usage declined faster than in the *solo* condition \((F(1, 2898)=5.11, p=.02)\). This greater decline in usage in duos and quintets was driven by the fact that usage converges to that of the least frequent user – the lowest common denominator. We first identified each quintet’s top performer (the participant with the highest usage), worst performer (the lowest common denominator), and the three “middling” performers in month one, then tracked their behavior in months 2-5 and month 6. Middling performers converge over time to the lowest common denominator, rather than being pulled upward by the top performer. For duos, the same pattern is apparent: over time the top performer is pulled more toward the bottom performer than the reverse. When we randomly group solo participants into post-hoc “quintets,” we see no evidence of similar convergence; the same holds true when we group solos into post-hoc “duos.” This lack of convergence in these synthetic groups offers further support for the specific impact of social feedback on convergence to the lowest common denominator.

We showed that the impact of social feedback on walkstation usage was to decrease health behaviors: usage declined more in the *duo* and *quintet* conditions than in the *solo* condition, due to a tendency for people to converge to the lowest common denominator. Our results do not suggest that social feedback always leads to worse behavior; social support can be beneficial in improving people’s health (Berkman, 1986; Cohen & Syme, 1985); they do suggest, however, that when the dominant response for a behavior is the negative one (from not exercising to overeating) that social feedback is likely to reinforce rather than ameliorate. Given the power of the dominant response in shaping social behavior, future research should explore the impact of framing behaviors as the dominant response – even when they are not – on health behaviors; in our paradigm, we could have shown participants in quintets only data from the top performer, changing the ostensible dominant response, decreasing the salience of the lowest common denominator, and perhaps changing behavior for the better.

**Commitment and Environmental Behavior Change: Evidence from the Field**

**EXTENDED ABSTRACT**

Influencing sustainable behavior is an ongoing challenge in psychology and consumer behavior research. One example is that of hotel towel reuse programs, which typically ask guests to “do their part” for the environment by reusing their towels. It is hoped this will trigger conservation minded behavior, but data shows participation rates are generally low (30-38%) (Goldstein et al. 2008). Normative appeals can increase participation (e.g., Goldstein et al. 2008), yet an estimated 50% of hotel patrons remain unresponsive. Furthermore, the “social norm” solution relies on communicating a typically false social “norm”—the majority of guests in most hotels do not reuse their towels.

In this paper we propose a novel approach for increasing guests’ participation in hotel towel reuse programs. Specifically, we suggest that allowing guests to actively express their interest in joining hotels’ environmental efforts by reusing their towels would consequently increase the likelihood they would do so. In order to test this proposition, we ran a large, intensive field experiment \((N = 4,345)\) in a California hotel to examine how committing to practice sustainable behavior at check-in would influences guests’ subsequent compliance with eco-friendly behavior during their stay. Results show that specific commitments coupled with a publicly displayed symbol (environmental pin) increased towel reuse, arguably via signaling and dissonance avoidance.

We predict that guests’ participation in towel reuse programs would increase if they initially choose to commit to do so, presumably because choosing to commit sends a signal to the individual that she cares about the environment, which should promote consistent behavior (self signaling; see Ariely & Norton 2008; Bem 1972; Bénabou & Tirole 2011). Additionally, we argue that allowing guests to express their commitment to the environment publicly would reinforce their commitment and further increase sustainable behavior (e.g., Ariely et al. 2009). Finally, we expect that guests’ participation would be positively affected if their commitment specifies the steps required to achieve such behavior (e.g., Wright & Kacmar 1994).

Guests were randomly given the option at check-in to join the hotel’s environmental efforts through two types of commitments: General (commitment to be environmentally friendly during stay) or Specific (commitment to reuse towels during stay). To reinforce signaling, some guests received a “Friend of the Earth” pin. This resulted in a two (Commitment Specificity: general, specific) by two (Symbol: pin, no pin), between-participants, design. We also included three external control conditions: “Message Only”—guests were only exposed to the hotel’s environmental message, “Pin Only”—guests only received a pin, and “No Manipulation”. Our main measure of compliance was the likelihood of towel reuse—hanging towels to be reused the next day.

A logistic regression analysis showed Specific Commitment guests were more likely to hang a towel relative to General Commitment guests \((M_{\text{Specific}} = 66.6\% \text{ vs. } M_{\text{General}} = 61.0\%); Wald(1) = 4.49, p = .034\). The regression further revealed a significant effect of Symbol: guests that received a pin were more likely to hang a towel \((M_{\text{Pin}} = 68.0\%, M_{\text{NoPin}} = 59.6\%); Wald(1) = 10.02, p = .002\). The interaction was not significant. A comparison to the three control conditions revealed that Specific Commitment plus Pin guests were more likely to hang a towel than guests in any of the control conditions \((p's < .001)\), while General Commitment plus Pin guests were only more likely to hang a towel than Pin Only guests \((p = .016)\). When using a Bonferroni correction for multiple comparisons, the Specific Commitment plus Pin condition differed from all other conditions, and there were no other significant differences.

Overall, we found that a commitment alone is relatively ineffective in motivating behavior—the increase in desired behavior occurred only when the commitment was detailed and action-oriented. Based on past work, we propose that an abstract, diffused, commitment requires very little effort to be fulfilled. In contrast, a more specified commitment promotes subsequent behavior consistent with the desired change. In addition, guests signing this specific contract further signal to themselves that they in fact care about the environment, which increases the likelihood that they will behave consistently with that identity. When coupled with a symbol to reinforce their commitment, guests were most likely to practice sustainable behavior, supporting our proposition that adding a social component would further promote behavior change. Notably, the commitment itself was entirely symbolic—once guests completed the check-in process they were able to exist in anonymity and behave as they wished, since they were unaware that their behavior would be moni-
From the perspective of hotels, and other entities attempting to motivate certain behaviors, our approach offers a simple alternative that hinges on individuals’ self-identity. Adding one small step to the check-in process significantly increased guests’ eco-friendly behavior leading to savings of both scarce resources and money.

REFERENCES