Sustaining Sustainable Hydration: the Importance of Aligning Information Cues to Motivate Long Term Consumer Behavior Change

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We compare the effectiveness of information placed near an upstream choice (e.g., desks) versus near consumption (e.g., water dispensers) on behavior change (refilling reusable bottles). Over a 7-week field experiment, we find the signage near the upstream choice to be much more effective in creating habits in the post-intervention period.

[to cite]:

[url]:
http://www.acrwebsite.org/volumes/1024359/volumes/v45/NA-45

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Changing For The Better: When And Why People Fail (or Succeed) to Engage in Beneficial Behavior Change
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Paper #1: The Mere Cost Effect
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Paper #2: Can NFL Players be Viewed as Victims? How Camera Angles Can Increase Sympathy Towards Athletes
Kirk Kristofferson, Arizona State University, USA
Andrea C. Morales, Arizona State University, USA
Brent McFerran, Simon Fraser University, USA
Darren W. Dahl, University of British Columbia, Canada

Paper #3: Good People Don’t Need Medication
Sydney E. Scott, University of Pennsylvania, USA
Justin F. Landy, University of Chicago, USA

Paper #4: Sustaining Sustainable Hydration: The Importance of Aligning Information Cues to Motivate Long Term Consumer Behavior Change
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SESSION OVERVIEW
Understanding when and why consumers fail to engage in beneficial behavior change has important consequences for individual and societal well-being. Key reasons why people are unable to change behaviors often include biases, misperceptions, and habits. The goal of this session is to further explore these key drivers and present novel insights on the rich dynamics that influence behavior change.

This series of four papers explores when and why people fail to engage in beneficial behaviors and considers how to influence both deliberative and automatic thought processes in order to encourage such changes. We collectively demonstrate that consumers’ failure to change behaviors is due in part to misperceptions, irrational assumptions, and habits, but that even small changes to seemingly inconsequential marketing variables can successfully promote significant changes with substantial benefits to the self and society.

In the first paper, Lieberman, Amir, and Carmon explore a novel mechanism explaining behavior change failures. Specifically, that the mere perception of a cost to change behavior hinders one’s willingness to do so, even when the cost is greatly outweighed by the benefit of the change. The authors further show that the longer consumers engage in an inferior behavior, the lower their likelihood to switch to a superior one.

The second paper expands the focus from the perceived cost of the change to the perceived risks associated with the unfavorited behavior. Kristofferson, Morales, McFerran, and Dahl focus on the consequences of misperceiving a behavior as less risky than it truly is and examine ways to alter these perceptions to improve well-being. Specifically, the authors demonstrate that changing the way a sporting event is viewed (i.e., through zoomed-in camera angles) can shift feelings of amusement to sympathy and recalibrate risk perceptions, leading to beneficial changes in behaviors.

Next, Scott and Landy assess why consumers fail to accept drug treatments despite acknowledging that they are the most effective method to improve their current state. The authors show that people dislike drug treatments because they believe using drugs reflects poor moral character, for a wide variety of ailments.

In the final paper, Putnam-Farr and Dhar explore the effectiveness of reminders delivered at the moment of choice versus earlier in the choice process. In a 2-month field experiment encouraging the use of reusable water bottles, the authors demonstrate that triggering upstream consumption decisions, relative to in the moment reminders, was more effective at promoting behaviors that led to sustained habit change, even once the reminders were removed.

Collectively, these four papers provide a fresh understanding of the mechanisms underlying the perpetuation of detrimental behaviors and provide new insights about how to effectively promote positive behavior change. Across several domains, we find that consumers maintain existing negative behaviors because change can be misperceived as costly, viewed as unnecessary, deemed immoral, or overpowered by habit. The authors further demonstrate that manipulating the message framing and timing can overcome these behavior change barriers. We believe this session will have broad appeal, drawing researchers investigating behavior change, influence, risk, habits, health, and judgment and decision-making.

EXTENDED ABSTRACT
Much of the research from the social sciences expects that people, all else being equal, will engage in self-serving behaviors. However, when presented with an opportunity to change one’s existing behavior to a more beneficial one, consumers often fail to do so. Prior research shows that people prefer to stick with an existing option, the status quo (Samuelson and Zeckhauser 1988), which is often explained by a number of psychological factors, including loss aversion and the endowment effect (Kahneman, Knetch, and Thaler 1991). We add to this literature by proposing a novel mechanism: the felt cost of a behavior change. Specifically, the mere perception of a cost to change a behavior hinders one’s willingness to do so, even when the benefit of the change greatly outweighs this cost, there is no potential loss to the individual, and there is no uncertainty. Across four studies, we demonstrate that participants engaged in a behavior fail to switch to a preferred and more lucrative behavior simply because changing is perceived as a cost. Further, the more entrenched one is in a current state, the larger the perceived cost, decreasing the probability of making a behavior change.

In an initial study, we test whether consumers indeed fail to switch from a less preferred behavior to one that is preferred. We also test whether the likelihood to change to an improved state decreases the longer a consumer is engaged (i.e., more entrenched) in a suboptimal behavior. Participants (n = 273) are assigned to complete 10 rounds of a task, they begin with a tedious task (transcribing sideways paragraphs) and are given the opportunity to switch to a fun task (word game) either on their third round (low entrenchment) or on their sixth round (high entrenchment). Participants who choose not to switch simply continue transcribing, thus the only cost of switching is the action of clicking one additional button. At the outset of the study, participants tested and rated the tasks; social science research predicts that, given all else is equal, participants will switch to their preferred activity when given the opportunity. However, when provided the option to switch, 24% of participants who preferred the word-game failed to do so! Further, a significantly greater proportion failed to switch in high entrenchment (32%) compared to low entrenchment.
entrenchment (16%), $X^2(1, 195) = 6.93, p = .008)$. However, in this study participants did have to click one extra button to switch, requiring they perform an action (Ritov and Baron 1992), whereas if they chose to stay they simply continued transcribing.

In a second study we further equate the cost of switching such that participants have to click on a button to stay or click on a button to switch. Similar to study 1, participants ($n = 882$) were assigned to 10 rounds of a tedious transcription task and given the opportunity to switch to a word-game on their sixth round. Participants either saw the same switching opportunity as in study 1 or a cost-equated switching opportunity where they had to actively click on a button to switch or to stay. Again, 23% of participants who preferred the word-game failed to switch when given the opportunity; this proportion did not differ based on whether participants had to passively or actively make the decision ($p > .4$), supporting our hypothesis that the perceived cost is indeed driven by the switch itself.

A 3rd study provides additional support that enhanced entrenchment decreases the likelihood of switching while also ruling out goal completion (Bargh et. al 2001) as an alternative explanation. Participants ($n = 442$) were presented with a similar paradigm as the first 2 studies, but here we set up an infinite horizon such that they were unaware of the length of the study. Participants were given the opportunity to switch from transcribing to the word-game on round 3 (low entrenchment), round 6 (medium entrenchment), or round 9 (high entrenchment), all while remaining unaware of how many rounds they had left. Participants behaved in a manner consistent with the first 2 studies. Across conditions, 21% of participants who preferred the word-game failed to switch, and a significantly greater proportion failed to change tasks in high entrenchment (28%) than in low entrenchment (16%), $X^2(1, 201) = 4.49, p = .034$.

In a final study we generalize to two new tasks and provide a monetary incentive such that participants who fail to switch are financially worse off. Participants ($n = 179$) earned points for their performance on a task, and for each point earned they received an additional entry into a lottery for a $5 bonus. Therefore, the more points a participants earned, the greater their odds of winning. Participants tested and rated new tasks: dragging a slider to exactly 50 (tedious task) and rating captions for New Yorker cartoons (fun task). Participants learned that the average number of points earned was 10 points on the slider task versus 20 points on the cartoon task. Thus, the cartoon task was financially more lucrative in addition to being rated as more enjoyable than the sliders, $t(178) = 9.3, p < .001$. All participants were then assigned to the tedious task (sliders) and given the opportunity to switch to the more fun and lucrative task (cartoons) halfway through. Yet, even with the clear financial advantage of switching, 44% of participants who also subjectively preferred the cartoon task, chose to remain with the sliders! Participants maintained a behavior that they preferred less and made them financially worse off, merely because once on a given trajectory the act of changing a behavior is perceived as costly.

Across 4 studies we present a novel mechanism explaining that consumers fail to change their behaviors in part because the act of changing is perceived as costly, even when the benefit of doing so clearly outweighs the mere cost of the change itself. These findings shed light on the reasons why behavior change is so difficult and provide unique insights relevant to a broad audience of practitioners and researchers.

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**Can NFL Players be Viewed as Victims? How Camera Angles Can Increase Sympathy Towards Athletes**

**EXTENDED ABSTRACT**

In 2015, the top 12 television shows of the fall season were all NFL games and *Sunday Night Football* was the #1 most watched primetime show, averaging 23.7 million viewers per telecast (Chase 2015). The staggering and continual popularity of football stands in stark contrast to the dangerous, and sometimes fatal, injuries that we now know the game can cause its players. Case in point, in a recent study, 96% of NFL players (and 79% of all football players) examined by the Department of Veterans Affairs and Boston University were identified to have chronic traumatic encephalopathy, or CTE, a degenerative disease believed to be caused by repeated head trauma (Breslow 2015; Omalu et al. 2005).

The juxtaposition of high viewership and the potential for severe harm to its players provides an opportune context for examining some of the psychological factors that increase or decrease consumers’ support for players. Specifically, the current work examines this issue through the theoretical lens of prosociality, to determine possible ways to increase sympathy towards NFL players. In other words, are there factors that can shift consumers’ views of the players to victims in need of help, instead of professional athletes who entertain them?

Previous work in prosocial behavior and value of life has focused primarily on increasing sympathy towards victims in order to increase charitable giving; we contend that many of the same psychological underpinnings apply to the current context. Consistent with prior work that shows people are more inclined to help identifiable victims than unidentified or statistical victims (Schelling 1968; Jenni and Loewenstein 1997; Small and Loewenstein 2003; Kogut and Ritov 2005a; 2005b), we propose that multiple factors contribute to football players being perceived as unidentifiable. For instance, the uniforms and helmets they wear greatly reduce their individuality on the field (Joseph and Alex 1972), and referring to them by number instead of name also leads to increased dehumanization (Haney, Banks, and Zimbardo 1973). The football context may actually be a stronger test than prior work on identifiable victims: football players do not typically engender much sympathy (given their high incomes and celebrity status) and the degree of behavioral change required may be greater (shifting consumers from a state of enjoyment, rather than apathy).

In the current research, we examine how the camera angles used to broadcast games can change the way consumers perceive players. Specifically, we contend that when consumers view physical contact between football players through a zoomed-in (vs. regular) camera angle, consumers will feel heightened negative emotions that cause them to view players as victims, resulting in changes in attitudes and behaviors. In particular, we demonstrate in 2 laboratory studies that using camera angles to increase negative emotions leads to higher risk assessments of football related injuries, lower attitudes towards the NFL, and decreased support for the game of football.

Study 1 provided an initial test for our hypothesis. Undergraduate participants ($n = 228$) were assigned to one of two between-subject conditions (camera angle: regular vs. zoomed-in). Participants were told they would be watching a video clip and then answering questions about their experience. In actuality, all participants viewed a 40-second clip that highlighted some of the biggest hits of the 2015 NFL season. We digitally edited the clip in the zoomed-in condition such that the moment of contact between the two players was zoomed-in to a level similar to a close-up during a broadcast airing. For internal validity, the audio was removed from both videos. To
assess emotional reactions, participants completed a modified version of the consumption emotions scale (Richins 1997). After completing cover story questions, participants were presented with a series of questions to assess their sympathy towards football players (e.g., How likely are football players to get seriously injured while playing? How risky do you think football is?) and their attitudes towards the game (e.g., attitude towards NFL, experienced excitement at seeing extreme hits). Finally, participants were asked to imagine they had a son and answered the likelihood of allowing him to play football (1-7). Supporting our predictions, the zoomed-in clip elicited significantly higher negative emotional reactions than the regular clip ($p < .05$). These heightened emotional reactions in turn increased sympathy towards professional football players (all $ps < .05$), decreased attitudes towards the NFL and enjoyment of watching football ($ps < .001$), and reduced the likelihood of allowing one’s own son to play football ($p = .01$).

Study 2 built on study 1 by including a behavioral dependent measure of football support (choice of tickets) and added an additional condition to examine whether other digital edits (i.e., slow-motion) also induce sympathy. Undergraduate participants ($n=126$) were assigned to one of three between-subjects conditions (camera angle: regular vs. zoomed-in vs. slow-motion). In addition to completing the same measures as study 1, participants were given the choice of being entered in a draw for two tickets to a football or basketball game featuring their university team. ANOVA results replicated the emotional reaction and attitude results from study 1 ($p < .05$); the zoomed-in clip elicited stronger emotional reactions and subsequent sympathy than either the control or slow-motion conditions (all $ps < .05$). Notably, the zoomed-in clip also led to a shift in choice of tickets to attend the college basketball vs. football game ($p < .05$). A replication of this study is also in process to better understand the null effects of the slow-motion condition. Preliminary analyses suggest watching an entire clip in slow-motion was generically less likely to increase sympathy for professional football players ($n=126$), obesity (diet pills vs. diet), and depression (Prozac vs. trying to stay positive). Across examples, drug treatments were less preferred ($F(303) = 12.96$, $p < .001$, $d = .74$), though viewed as more effective ($F(303) = 5.04$, $p < .001$, $d = .29$). In scenarios, people who choose drug treatments were viewed as having worse character ($F(303) = 11.16$, $p < .001$, $d = .64$). These character judgments predicted participants’ own preferences not to use drug treatments ($r = .32$, $p < .001$) even after controlling for efficacy ratings ($r = .11$, $p = .060$).

In study 2 ($n = 405$), we test whether these character inferences are limited to cases where people caused the ailment they are trying to treat. People may feel they have a duty to “clean up their own mess” instead of relying on drugs. In order to test this hypothesis, we presented scenarios about painkiller addiction in a 2 (Fault: Own, Other) X 2 (Treatment Choice: Drug, Cold Turkey) within-subjects design. In the own-fault scenarios, targets took painkillers recreationally and became addicted, whereas in the other-fault scenarios, doctors prescribed too strong a dose of painkillers to patients, who then became addicted. In both conditions, one person tries to quit using a drug (Methadone) and the other tries to quit cold turkey. Participants judged addicts who choose drug treatments (vs. those who choose to quit cold turkey) as having worse character ($F(1,404) = 92.51$, $p < .001$, $\eta_p^2 = .19$), but this effect was not moderated by whose fault the addiction was ($F(1,404) = 0.002$, $p = .967$). Choosing a drug treatment reflects poor character regardless of whether the ailment is your fault.

In study 3 ($n = 408$), we tested whether character inferences are specific to certain types of drugs. In particular, we tested two accounts: a pain-specific account where people don’t like drugs that remove pain, and an effort-specific account where people don’t like drugs that reduce the effort a person needs to exert. In a within-subjects design, participants considered four addicts: one quitting cold turkey, one quitting with a drug that reduces withdrawal pain, one quitting with a drug that reduces cravings (and therefore effort required to quit), and one quitting with a drug that reduces withdrawal pain and cravings. Contrary to both an effort-specific and a pain-specific account, addicts who took any drug treatment were judged to have about equally poor character regardless of the specific drug (on 9-point likert scale, $M_{no\ pain} = 5.82$; $M_{no\ effort} = 6.02$; $M_{pain\ or\ effort} = 5.97$), and all were judged to have poorer character than the addict quitting cold turkey ($M_{cold\ turkey} = 6.48$, $ps < .001$). Choosing a drug treatment reflects poor character regardless of whether the drug targets the pain felt or effort exerted.

In study 4 ($n = 365$), we test whether these character inferences are limited to cases where the drug is fixing a psychological (as opposed to biological) problem. It is possible that people think that psychological cures are best for psychological ailments and biological cures are best for biological ailments. In a study testing this account, participants judged the character of two addicts, one who chooses a...
drug treatment and another who chooses a therapy treatment for their addiction. Through random assignment, participants were either told that the addictions were biologically caused or were psychologically caused. In order to ensure that participants were not matching more effective treatments to biological causes, we specified that the drug and therapy treatments were equally effective. Participants judged addicts who took drug treatments as having worse character ($F(1, 363) = 141.75$, $p < .001$, $\eta^2_p = .28$), but this effect was not moderated by whether the addiction was biological or psychological ($F(1, 363) = 0.61$, $p = .436$). Choosing a drug treatment reflects poor character regardless of whether the ailment is biological or psychological.

Across five studies, we find a robust preference for non-drug treatments. This preference occurs in part because using drug treatments reflects poor character, and these character inferences are not moderated by whether the ailment is your fault, whether the drug alters pain or effort, and whether the ailment is biological or psychological.

**Sustaining Sustainable Hydration: The Importance of Aligning Information Cues to Motivate Long Term Consumer Behavior Change**

**EXTENDED ABSTRACT**

The standard theory of consumer choice assumes that customers select the option that has the highest value. In contrast, a vast body of choice research finds that preferences are often constructed in the moment rather determined by a careful evaluation of all available options, leading to systematic biases, such as for the status quo option. (Samuelson and Zeckhauser 1988; Tversky and Simonson 1993) Furthermore, the status quo option in the real world is often a choice that reflects an existing habit and is hence difficult to change (Wood and Neal 2009). We propose that changing behavior away from the status quo option relies on System 1 rather than System 2 processing (Dhar and Gorlin 2013), both in the immediate, when customers are influenced by salience of available options, and in the long term, through prolonged exposure to a change in the underlying contextual cues linked to habits. The current article has two objectives: to explore the most effective way of presenting information that will nudge consumers toward a new desired behavior in the short term, and to measure the persistence of different nudges once they are no longer immediately salient. Even effective treatments tend to quickly wear off once the treatment is no longer present (Gneezy and List 2006; Loewenstein 2005), presenting a challenge for those who wish to understand and influence longer term behavior. Our partner (a large technology company) has a dual goal of increasing water consumption by employees (as opposed to other sugary beverages) while simultaneously reducing the amount of plastic waste. We thus focus on trying to shift people from the practice of grabbing a disposable plastic bottle of water towards refilling reusable bottles.

While traditional communications literature on behavior change has focused on the persuasive power of relevant information, focusing on System 1 processing suggests that timeliness and salience of the information is more likely to impact the outcome of decisions (Bordalo, Gennaioli, and Shleifer 2013). While timely persuasive information is often effective in the short term (Dale and Strauss 2014; Webb and Eves 2007) however, that registered voters, by registering, have already signaled their interest in voting. The theory presented in this article predicts that impersonal, noticeable messages can succeed in increasing the likelihood that a registered voter will turn out by reminding the recipient that Election Day is approaching. Text messaging is examined as an example of an impersonal, noticeable communication to potential voters. A nationwide field experiment ($n = 8,053$ or at changing opinions (Cacioppo and Petty 1989), research in habit formation has suggested that changing the environment (Chance et al. 2016; Verplanken and Wood 2006) and identifying situational prompts which can lead to automatic activation of a goal (Holland, Aarts, and Langendam 2006) are more effective in changing long term behavior. Indeed, in our setting, efforts to promote the use of reusable bottles with giveaways and informational campaigns have had limited long-term success, with 58% of employees citing convenience as the primary reason for their continued use of disposable bottles. We thus distinguish between moment of choice reminders, which are delivered at the moment of the desired behavior and focus on changing the salience of different options in the choice set, and reminders which are delivered earlier in the choice process, which focus on environmental cues that can trigger situational activation of a behavioral prompt.

There are two key moments in the hydration decision-making process: the obvious one occurs when people are near water, and its availability can be made salient. (Posavac, Sanbonmatsu, and Fazio 1997) However, targeting communications near the water dispensers misses the window of opportunity to bring a reusable bottle from their desks. Getting them to use a reusable bottle requires targeting the upstream behavior of actually taking the water bottle with them when they leave the desk. Targeting the communications at the desk also links the behavior (refilling a water bottle) to the situational context of the desk area, and may be more effective at changing behavior even without the reminder, if the link between desk and water bottle can become automatically activated.

In a seven week field experiment, we randomly assigned six different office areas to have posters in one of two different locations – either near water dispensers (moment of choice) or near desks (environmental trigger). We used three different posters with slight differences in how the information was presented (e.g., visual vs. text), but there were no differences in outcomes between posters so we combined the different posters and focused on the location of the messages as the manipulation of interest. The focal behavioral outcome was the total amount of water consumption from the water dispensers. We collected three weeks of baseline data, two weeks of poster data, and an additional two weeks of data after the posters were taken down.

Dispensed water consumption during the period the posters were displayed increased an average of 24% across all conditions ($t = 3.06$, $p = .003$). A full regression model controlling for time and office area effects shows a significant difference between the baseline and poster periods, but no interaction with poster location condition. Posters near water and near desks were equally effective at driving water consumption while salient.

This general positive effect was not unexpected, and we were more interested in potential differences in persistence, where we do see significant differences between location conditions. There was no long term effect on dispensed water in the locations where the posters were displayed near water dispensers, while consumption remained significantly higher than baseline in the locations where posters were displayed near desks (interaction $t = 1.95$, $p = .05$). On average, putting posters near desks resulted in an additional two gallons per day of water dispensed to reusable containers in the two weeks after posters came down, equivalent to 16 plastic bottles per day from one location. This translates to an 8% reduction in the average daily use of bottles.

Overall, this experiment shows that information presentation can serve as effective reminders for short term and long term behavior change. Posters placed near the moment of choice can trigger salience and are effective at changing short-term behavior. In
order to build new habits and motivate sustainable behavior change, it may be more effective to target upstream triggers in the environment. These upstream reminders are likely to be most effective when they link the behavior to situational cues, allowing the behavior to the environment, rather than the prompt.

REFERENCES


