

# The Beauty of Boundaries: When and Why We Seek Structure in Consumption

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Dissertation Essay 1

## Abstract

How do consumers cope when life's events seem to stretch beyond their personal control? This research posits that consumers will seek greater structure in consumption—or the sense that everything is in its designated place—and that the boundaries present in one's environment offer an important means by which they may find such structure. Five experiments demonstrate that when personal control is threatened, consumers prefer logos, products and environments that are explicitly or implicitly bounded over those that are unbounded. This research also identifies important resources that individuals may rely on when personal control is threatened to reduce the desire for boundaries (i.e., religious beliefs, financial resources, and social support.)

The terrorist attacks in the U.S. on September 11<sup>th</sup>, 2001 shocked and horrified the nation. In the weeks and months following the attacks, people faced a heightened awareness of their vulnerability and lack of control over outcomes in life (Schuster et al. 2001). To cope, they heightened support for the government (Willer 2004), held tighter to religious beliefs (Schuster et al. 2001; Smith, Rasinski, and Toce 2001) and increased spending on consumer goods (Zuckerman 2002). Interestingly, these attempts to re-establish control and order were accompanied by a perceived (if not actual) change in products that were introduced (Nussbaum 2002). Specifically, it has been suggested that America's reaction to its vulnerable state was reflected in a shift away from visually open, flexible, and translucent products to the more structured and tightly bounded products (with their sharp edges, tight corners and opaque packages) that captured design awards and accolades in the year that followed (Nussbaum 2002).

Such an observation is purely speculative; yet the idea that we seek structure in consumption (i.e., 'structured consumption') as a means of dealing with low feelings of personal control may provide powerful insight into our choices. The notion that such structure may be found in the simple elements of our surroundings is particularly intriguing. Thus, this research asks how visual aspects of the environment interact with consumers' psychological needs and impact choices. More specifically, how might such elements serve the underlying need that consumers possess to maintain feelings of control? Are there certain aspects of the environment that provide the sense of order and structure that consumers need to re-establish control?

I specifically focus on how consumers' desire for 'structured consumption' results in enhanced preferences for 'boundaries' in their environment when personal control is threatened. Such boundaries can include the tangible, explicit aspects of products, such as the frame surrounding a painting, a fence circling a house, or a prominent border surrounding a firm's logo.

However, boundaries can also be intangible and implicit, such as when a distinct ‘place’ is identified for a given object and is differentiated from that of others without the presence of a physical border. As an example, organized environments (i.e., space that is organized such that everything is in its place) reflect the presence of strong implicit boundaries. I posit that when people experience a threat to their feelings of personal control, they desire the sense of order and structure that such boundaries provide.

In what follows, I first review why threats to personal control should result in heightened needs for ‘structured consumption’ and why this leads to a desire for boundaries in one’s environment. I then present five experiments that demonstrate how the need for control affects consumption choices through consumers’ enhanced preferences for explicit and implicit boundaries. Overall, this research demonstrates an important example of how individuals’ psychological needs and the elements of their physical environment jointly influence product choices. More specifically, it introduces the notion that consumers seek ‘structured consumption’ as a means of coping with fragile perceptions of control and demonstrates that the desire for such structure is often manifested as the preference for boundaries.

### The Need for Personal Control

Personal control is considered to be a basic human need (e.g., Kelly 1955; Lefcourt 1973; White 1959), referring to the extent to which an individual can intentionally produce desired outcomes and prevent undesired ones (Skinner, Chapman, and Baltes 1988). A sense of personal control encourages individuals to persist in their endeavors and take action to solve problems (e.g., Kelley 1971; Ross and Mirowsky 1989); reduces anxiety-ridden feelings of randomness

and chaos (e.g., Kay et al. 2009); increases individuals' confidence that they will be able to cope with and minimize danger in the future (e.g., Miller 1979); and enhances one's sense of competence (e.g., Thompson 1981). A sense of control is also a robust predictor of individuals' psychological and physical health (e.g., Abramson, Seligman, and Teasdale 1978; Rodin 1986).

Given the vast benefits associated with having personal control, people respond in a variety of ways when it is threatened. In the research at hand, I specifically focus on how people seek a sense of structure in their environment in order to feel that 'things are under control' (vs. random and chaotic) when personal control is threatened. In other words, the idea that the events of life are operating in a structured and ordered manner provides at least some comfort when one is not directly in control of such events. Research has suggested that this need for structure appears in the way people strengthen their beliefs in a controlling God, provide greater support for their government, and even force themselves to see patterns in random noise when personal control is threatened (Kay et al. 2008; Whitson and Galinsky 2008).

### Seeking Structured Consumption through Boundaries

I suggest that another intriguing way that people will seek to satisfy the need for order and structure that arises when personal control is threatened is by embracing 'structured consumption.' In seeking 'structured consumption', I posit that consumers desire to have their beliefs, emotions, and environments bounded. That is, they seek to contain the elements related to consumption decisions in clearly designated mental or physical places. In this research, I focus on one important facet of structured consumption—the desire for boundaries in one's physical environment. I posit that boundaries, by their very nature, dictate where things belong

and can consequently communicate a sense of order and structure. This sense of order and structure might be more colloquially paraphrased as the feeling that ‘there’s a place for everything and everything is in its place.’ By dictating a ‘place for everything,’ boundaries should enhance individuals’ beliefs that they can effectively re-assert control in the environment, or at least provide the sense that things are under control. In what follows, I focus on how low feelings of control and the subsequent need for structure enhance consumers’ preferences for two types of boundaries: explicit, tangible boundaries and implicit, intangible boundaries.

*Explicit Boundaries.* Explicit boundaries refer to visual borders that separate and contain a focal object. While research on such boundaries is scant, what does exist suggests that explicit boundaries are important tools for containing objects in a given space and may therefore be important for establishing order and structure. For example, Levav and Zhu (2009) and Meyers-Levy and Zhu (2007) have demonstrated that the basic boundaries in a given space, as reflected in aisle width and ceiling height, respectively, can instigate feelings of containment and impact consumption choices and decision processes (i.e., variety-seeking and item-specific vs. relational processing). Psychiatric research (Hartmann 1991) suggests that some people chronically prefer to have ‘thick’ boundaries in their environments, including things as simple as thick, solid clothing and heavy walls and doors to contain one’s body. Such individuals are also thought to have a strong desire for structure more generally. In the context of studying larger societal designs, Newman (1972) has argued that explicit boundaries are critical in influencing who enters a space, what they do while they are there and the overall sense of order and civility in neighborhoods. Thus, while research on explicit boundaries is limited, there is reason to believe that they are critical for containment and may impact perceptions of order and structure.

*Implicit Boundaries.* Implicit boundaries in one's environment can be viewed as invisible borders that separate and contain focal objects within their designated spaces. For example, the borders between countries are often invisible lines, yet they are important in providing a sense of separation and structure ((Burriss and Branscombe 2005). Implicit boundaries are particularly meaningful for consumers as it relates to the space in which they live, work and shop. A space in which objects all occupy a seemingly well-defined and deliberate place without the aid of explicit borders is one that reflects strong implicit boundaries. Evidence suggests that the presence of such boundaries (generally discussed as the presence or lack of clutter) in one's environment affects well-being and provides meaningful signals to the self (e.g., Cwerner and Metcalfe 2003; Ger and Yenicioğlu 2004). For example, Belk et al. (2007) have demonstrated that a physically disorganized home (i.e., a lack of implicit boundaries) means a disorganized life and a chaotic sense of self. They found that consumers feel better about themselves and their environment after at least partially de-cluttering their homes. Thus, implicit boundaries, like explicit boundaries, can provide meaningful signals of structure in one's life.

## Overview of Experiments

In sum, I posit that when feelings of personal control are threatened, individuals have a desire for greater order and structure in consumption (i.e., structured consumption) that is often manifested as an enhanced preference for boundaries (see figure 1). In what follows, I discuss five experiments to test this hypothesis. In experiments 1 - 3, I operationalize the presence of boundaries using designs (postcards or brand logos) that do or do not have explicit borders surrounding them. In experiment 4, I focus on explicit boundaries that surround products

themselves. In experiment 5, I demonstrate that the preference for boundaries extends beyond the explicit boundaries located in and around individual products to the more implicit boundaries in our environments.

## **EXPERIMENT 1: SILENCE IS GOLDEN**

In experiment 1, I aim to demonstrate that when individuals find themselves in situations of low personal control (versus high personal control), they are more likely to seek boundaries in their environment. To manipulate feelings of control, I leverage a classic ‘noise’ manipulation and place people in a room in which they have high control over noise or no control (e.g., Glass, Singer, and Friedman 1969; Pennebaker et al. 1977). To measure preferences for boundaries, I ask participants to make a real choice between a ‘bounded’ and an ‘unbounded’ postcard.

### Method

*Participants and Procedure.* Forty undergraduate students were recruited at a southeastern U.S. university. They were told that they would be participating in an experiment designed to understand cognitive performance in the face of distraction. Participants arrived at the lab one at a time and were directed to a small room wherein they were asked to answer several simple two-digit addition and subtraction problems. While solving the math problems, participants listened to the sounds of emergency sirens, car alarms, and shrill whistles blaring at 100 decibels from speakers located less than three feet away from their seat. (To have a better sense for what this means, imagine turning your personal stereo up to its maximum volume and

standing directly in front of it, or working with the saws and other power tools inside your garage; National Institute of Health: [www.nidcd.nih.gov](http://www.nidcd.nih.gov)). Half of the participants were assigned to a 'high control' condition. They were given a remote and informed that 'some participants press the button to terminate the noise, and while we prefer that you do not, it is totally up to you whether you press the button or not.' Remaining participants were assigned to the 'low control' condition. They never saw the remote, and the possibility of terminating the noise was never mentioned. (In both conditions, the experimenter turned the noise on and off.)

After listening to the noise, participants completed a manipulation check question (Glass et al. 1969; Pennebaker et al. 1977), in which they were asked to indicate the extent to which they felt as if they had the ability to control the noise in the experiment (where 1 = no ability and 7 = complete ability). They were also asked how difficult it was to concentrate on the math problems (where 1 = not at all difficult and 7 = very difficult.) After listening to the noise, all participants chose a post card as a 'thank-you' for participating in the experiment. The two postcards that participants chose from pictured a popular water lily garden on campus. The primary difference between the postcards was whether a boundary was present or not. One postcard had a black border framing the picture and the other did not. (A pre-test of the two postcards revealed no differences in aesthetic appeal.) The dependent variable was the degree to which participants chose the 'bounded' postcard over the 'unbounded' postcard. Finally, in this and the remaining experiments, participants completed demographic measures and were probed for suspicion. Given that the demographic measures were inconsequential and participants were unable to guess the hypothesis for this or the remaining experiments, these measures will not be discussed further.

## Results

The manipulation check confirmed that participants in the low control condition felt as if they had lower ability to control the noise in the experiment than participants in the high control condition ( $F(1, 38) = 5.13, p = .03, M_{\text{low control}} = 2.64, M_{\text{high control}} = 4.25$ ). Importantly, while individuals in the high control condition believed that they had more control, they never exercised their control to terminate the noise. Interestingly, participants in the low control condition performed more poorly on the math problems than individuals in the high control condition ( $F(1, 38) = 5.32, p = .03, M_{\text{low control}} = 179, M_{\text{high control}} = 212$ ), even though there were no reported differences in concentration difficulty ( $F(1, 38) = .48, p = .49$ ).

To test the main hypothesis for this experiment—that individuals who did not have control over the noise would be more likely to choose the bounded logos than individuals who did have control—a logistic regression analysis was conducted. The analyses supported this prediction ( $\chi^2 = 3.96, p = .04; M_{\text{low control}} = 61\%, M_{\text{high control}} = 25\%$ ). Even after controlling for differences in performance on the math problems across the two noise conditions, the effect of control on the postcard preferences remained significant ( $\chi^2 = 3.78, p = .05$ ).

## Discussion

The results of experiment 1 indicate that low feelings of control instigate a desire for boundaries. Participants placed in a situation where they lacked control over noise were more likely to choose a bounded postcard than participants who believed that they had control, even though they listened to the exact same noise. Building from these results, it is important to get a

better understanding of the contexts in which low feelings of personal control will generate such preferences for boundaries. For example, is personal control only a meaningful influence on boundary preferences in negative and unpleasant situations? Is it one's actual state of control that matters or just one's perceptions of control? Experiment 2 addresses these questions.

## **EXPERIMENT 2: IT'S ALL IN YOUR HEAD**

Experiment 2 has two primary objectives. First, I seek to demonstrate that a feeling of low control over the outcomes in one's life enhances preferences for boundaries regardless of whether one finds himself in a situation where the lack of control is an objective circumstance or is subjectively construed. Second, I aim to demonstrate that a lack of personal control leads to a preference for boundaries, even when the situation is positively-valenced. To accomplish these objectives, I manipulate the ease with which individuals can recall positive instances of low or high personal control (Schwarz et al. 1991) and ask participants to choose between a series of bounded and unbounded logos. Specifically, participants were asked to think about positive experiences where they were *not in control* or where they were *in control* and to think of either 10 or three examples of such. The hypothesis is that individuals who think of times in which they were *in control* will find it too difficult to think of 10 examples. They should experience a greater threat to personal control and consequently choose more bounded logos in the '10 examples' condition than the 'three examples' condition. Similarly, individuals who think of times in which they were *not in control* should find it too easy to think of three examples. They should feel a greater threat to personal control and choose more bounded logos in the 'three examples' condition than the '10 examples' condition.

## Method

*Participants and Procedure.* Eighty participants were recruited from a marketing research company's online database. The experiment employed a 2 (ease of retrieval: 10 examples vs. three examples) x 2 (personal control: high vs. low) between-subjects design. Participants were asked to write about 10 examples or three examples of positive things that have happened to them when they were either in control or not in control. Next, participants chose a bounded logo or an unbounded logo among each of 10 different pairs of logos (see appendix 1). Ten additional pairs of logos that did not differ with respect to boundaries were included as fillers.

## Results

Prior to the main experiment, a pre-test was conducted in order to confirm that the manipulation was effective at manipulating feelings of personal control. Leveraging manipulation check questions used in Kay et al. (2008) ["The events in my life are mainly determined by my own actions", "I am not in control of most things that occur in my life" (reverse scored)], participants were asked to rate their agreement on a seven point scale (1 = strongly disagree, 7 = strongly agree). Results indicated that among participants who were asked to think about instances when they were *in control* (N = 35), those who were asked to list three examples (easy) showed greater perceptions of personal control than those asked to list 10 examples ( $M_{\text{easy}} = 4.4$ ,  $M_{\text{difficult}} = 3.6$ ,  $p = .05$ ). Similarly, among participants who were asked to

think about instances when they were *not in control* ( $N = 34$ ), those who were asked to list 10 examples (difficult) showed stronger perceptions of personal control than those asked to list three examples ( $M_{\text{difficult}} = 4.9$ ,  $M_{\text{easy}} = 4.2$ ,  $p = .01$ ). Thus, the ease of retrieval manipulation was effective at impacting individuals' confidence in their levels of personal control.

In the main experiment, the primary goal was to test the prediction that participants who perceived of themselves as having low personal control (as manipulated by instructions to think about either three times when one was not in control or 10 times when one was in control) would have a stronger preference for bounded logos relative to individuals who perceived of themselves as having high personal control (as manipulated by instructions to think about either three times when one was in control or 10 times when one was not in control.) A repeated measures logistic regression analysis was conducted to test this hypothesis. The predictors were the ease of retrieval condition (three versus 10 examples) and level of control (high vs. low control). The dependent variable was the choice of a bounded logo versus an unbounded logo across each of the 10 pairs of logo choices. The results revealed no main effects of ease of retrieval or level of control. However, there was an interaction of ease of retrieval and level of control ( $B = .37$ ,  $Z = 3.33$ ,  $p < .001$ ). A planned contrast revealed, as predicted, a significant difference between listing 10 examples and three examples in the high personal control condition ( $\chi^2 = 5.29$ ,  $p = .02$ ). When asked to think of times when they had control, participants were more likely to choose bounded products when this was difficult to do (10 examples;  $M = 69\%$ ) relative to when it was easier to do (three examples;  $M = 50\%$ ). An additional planned contrast revealed a significant difference between listing 10 examples and three examples in the low personal control condition ( $\chi^2 = 5.00$ ,  $p = .02$ ). When asked to think of times when they were not in control, participants were more likely to choose bounded products when this was easy to do (3

examples;  $M = 67\%$ ) relative to when it was harder to do (10 examples;  $M = 50\%$ ). (See figure 2.) Overall, individuals who perceived of themselves as having lower personal control (i.e., those who wrote about three times when they were not in control or 10 times when they were in control) were more likely to choose bounded products than those who perceived themselves as having higher personal control (i.e., those who wrote about three times when they were in control or 10 times when they were not in control). The contrast comparing the combined low perceived control conditions and the combined high perceived control conditions was significant ( $\chi^2 = 10.19, p = .001$ ).

## Discussion

In experiment 2, the basic effects demonstrated in experiment 1 are replicated, merely as the result of manipulating individuals' confidence in their levels of personal control. Participants who were primed to think they had low levels of personal control had a stronger preference for bounded logos relative to individuals primed to feel higher levels of personal control. Thus, together, experiments 1 and 2 demonstrate that one's psychological need for personal control has an important impact on one's desire for boundaries, specifically the preference for physical boundaries. Experiment 3 is designed to provide greater insight into the process by which this occurs.

## **EXPERIMENT 3: BY ANY MEANS NECESSARY**

Why does low personal control lead to an enhanced preference for boundaries? I posit that when personal control is threatened, individuals are likely to try to find structure in the environment by whatever means they can. In other words, I expect that when feelings of control are low, individuals are more motivated to perceive boundaries in their environment as relevant signals of structure, which then leads to an enhanced desire for bounded items. To test this mediation hypothesis, I manipulate feelings of personal control, measure individuals' eagerness to accept elements in the environment as meaningful signs of structure, and then measure their preference for bounded versus unbounded logos. An additional goal of experiment 3 is to demonstrate that low personal control enhances the desire for boundaries as opposed to high personal control dampening it. To do so, I add a baseline condition.

## Method

*Participants and Procedure.* Fifty-nine participants were recruited from a marketing research firm's database to take an online experiment. Participants were assigned to one of three conditions. In a condition designed to decrease feelings of personal control, participants wrote about 'something positive that happened to you in the past few months that was NOT because of something that you did'. In a condition designed to maintain positive perceptions of personal control, participants wrote about 'something positive that happened to you in the past few months that was because of something that you did'. These two manipulations effectively manipulate feelings of personal control without affecting mood or self-esteem (Kay et al. 2008). Finally, in order to provide a reference point, remaining participants wrote about 'a movie or television show that you saw and enjoyed in the past few months.'

After completing the writing exercise, participants were asked three questions designed to measure the degree to which they were motivated to accept elements in the environment as tools for increasing their sense of order and structure ( $\alpha = .80$ ). On a six-point scale, participants indicated their agreement with the following statements: 1) It is useful to perceive a sense of order and structure in the elements of design around me; 2) Visible boundaries in one's environment suggest that there's a place for everything and everything is in its place; 3) Frames and borders are useful tools for providing a sense of order and structure in one's environment. Participants were then asked to choose which logos they preferred in each of 10 pairs of bounded versus unbounded logos (in addition to several fillers, just as in experiment 2).

## Results

First, a repeated measures logistic regression analysis was conducted to test the hypothesis that when personal control is threatened, individuals are more likely to choose bounded logos than when personal control is not threatened. The predictors were the three personal control conditions. The dependent variable was the choice of bounded logo versus unbounded logo in each of 10 pairs of choices. The results revealed a main effect of condition (comparing low personal control to high personal control) whereby low personal control resulted in the choice of more bounded logos ( $B = -.85$ ,  $Z = -2.91$ ,  $p = .003$ ,  $M_{\text{low control}} = 74\%$ ,  $M_{\text{high control}} = 55\%$ ). A main effect of condition also emerged when comparing the low personal control condition to the baseline movie condition ( $B = -.65$ ,  $Z = -2.16$ ,  $p = .03$ ,  $M_{\text{low control}} = 74\%$ ,  $M_{\text{neutral}} = 60\%$ ) whereby low personal control led to the choice of more bounded logos.

Next, I investigated whether an increased motivation to accept elements in the environment as tools for increasing one's sense of order and structure would mediate the effect of personal control threats on the preference for boundaries. Following the procedures outlined in Baron and Kenny (1986), I first find that the effect of the independent variable (low personal control versus the pooled high control/neutral conditions) is related to both the dependent variable ( $Z = -2.81, p = .005$ ) and the mediator ( $Z = -5.32, p < .0001$ ). Next, I find that the mediator is related to the dependent variable ( $Z = 2.87, p = .004$ ). Finally, when the dependent variable is simultaneously regressed on both the mediator and the independent variable, the mediator remains significant ( $Z = 2.40, p = .02$ ), but the independent variable does not ( $Z = -1.12, p = .26$ ). The drop in the effect of the independent variable is reliable (Sobel  $Z = -2.19, p = .03$ ), suggesting that an increased motivation to accept elements in the environment as providing a sense of order and structure can help explain why threats to personal control increase individuals' preferences for boundaries.

## Discussion

As predicted, experiment 3 demonstrates that when personal control is threatened, individuals prefer logos with explicit boundaries over those without such boundaries. This is driven by individuals' increased motivation to accept elements in the environment as helpful for increasing feelings of order and structure. Thus, experiment 3 provides support for the idea that a desire for structure underlies the relationship between personal control and preferences for boundaries.

An additional way to demonstrate that the need for structure is an important underlying factor in consumers' desire for boundaries is to demonstrate that individuals' chronic needs for structure are related to their desire for boundaries. A 'chronic' need for structure refers to the extent to which people regularly desire simple structure in their lives (Neuberg and Newsom 1993). The scale designed to capture the essence of this construct includes questions such as "I enjoy having a clear and structured mode of life," "I like to have a place for everything and everything in its place." If my hypothesis is correct and low feelings of control lead to a greater preference for boundaries because of an enhanced need for structure, then we should find that individuals with high chronic needs for structure have a greater preference for boundaries at baseline (i.e., when control is not threatened) than individuals without such needs for structure. To test this hypothesis, 28 adults were recruited online and asked to complete the need for structure scale ( $\alpha = .80$ ). They then indicated their preferences for a new measure of boundaries. Participants chose between items that can be characterized as explicitly bounded or not (e.g., a picture with a frame vs. no frame, a house surrounded by a fence vs. no fence; see appendix 2.) Specifically, participants chose one item in each of six pairs of items where one item in each pair was bounded and the other was not. Pre-testing indicated that these items differed in perceptions of structure, but not other measures such as quality, price or attractiveness. Using repeated measures logistic regression, the choice of bounded versus unbounded items was regressed on the continuous need for structure measure. The analyses revealed that the higher a consumer's need for structure, the more likely he/she was to choose bounded products ( $B = .40, Z = 1.96, p = .05$ ). This therefore provides further support for the idea that a need for structure is an important underlying factor in why people prefer boundaries.

## EXPERIMENTS 4A & 4B

The results of experiment 3 suggest that the need for structure is an important underlying factor in the relationship between feelings of personal control and preferences for boundaries. In what follows, I explore how certain chronic individual differences might reduce the desire for boundaries when personal control is threatened. Specifically, I focus on the psychological and material buffers that individuals use to cope with low feelings of personal control. Extant research offers several suggestions as to what such resources might be, including religious beliefs, social resources and financial resources.

Religious beliefs appear to be an important means by which people cope with low feelings of personal control. Secondary data suggest that in times of economic, social and political turmoil, presumably the times when perceptions of personal control are lowest, individuals turn to more authoritarian churches (McCann 1999; Sales 1972). More recently, Aaron Kay and colleagues have directly demonstrated that threats to personal control enhance individuals' beliefs in a controlling God (Kay et al. 2008) and that priming thoughts of randomness increases support for supernatural sources of control, such as God or Karma (Kay, Moscovitch, and Laurin 2010). Thus, it seems that when individuals face low perceptions of personal control and the fear of randomness that accompanies such perceptions, they often rely on God to control matters in their lives. Accordingly, when individuals have strong religious beliefs, they should rely less on boundaries in the environment for structure.

Perceived social support may also be an effective buffer against fears related to low personal control. Research suggests that people with high social support are in a better position to control the events that confront them, particularly when social support is characterized by a

close, confiding relationship (Cohen 1988; Pearlin et al. 1981). Further, those who can count on specific people when they need specific help (financial, household repairs, etc.) have fewer health problems (Seeman and Syme 1987). Thus, when personal control is threatened, individuals who perceive of themselves as having a strong social support system should be more likely to turn to these resources and less likely to turn to boundaries as a means of providing a sense of order and structure in their environment.

The presence of stable financial resources should also be an effective means of buffering individuals from the threat of low personal control. Research suggests that the mere thought of money is enough to activate feelings of strength and self-sufficiency (Zhou, Vohs, and Baumeister 2009). Further, researchers have found that money is effective at increasing actual levels of control in one's environment (Lea and Webley 2006). Thus, individuals with strong financial resources can rely on their finances to enhance the order and structure in their lives and should therefore be less likely to change their preferences for boundaries in the environment as a means of doing so.

In what follows, I first describe the results of an exploratory pre-test designed to supplement the insights of the research discussed above and to aid my prioritization of buffers to explore. I then focus on the buffers that consumers reference most often in this pre-test and explore how differences in such factors moderate the relationship between one's needs for personal control and preferences for boundaries.

Pre-test

In a pre-test, 100 online participants (ranging from 23 to 84 in age) answered a simple open-ended question, “What are things that might keep you from fearing situations that aren’t under your control?” Participants were permitted to list as many things as came to mind. The results were highly consistent with what would be expected based on extant research. 47% of respondents mentioned religious beliefs as a buffer; 32% mentioned economic stability (e.g., having a job or sufficient savings); 32% mentioned social support from family members and friends; 24% mentioned personal skills (e.g., formal or informal education). Individuals also mentioned positive attitude (24%), good health (14%), and past experiences (13%) as buffers.

#### **EXPERIMENT 4A: LET GO AND LET GOD**

Based on their prominence in the pre-test and the extant literature, religious beliefs are the focus for experiment 4A. Specifically, I seek to demonstrate that individuals who are high in religiosity are buffered from the need to find structure through aesthetically bounded products when personal control is threatened. Instead, they find solace in the idea that God is in control of the environment. Conversely, individuals with a low sense of religiosity will be significantly more likely to seek bounded products when personal control is threatened (versus when it is not).

*Participants and Procedure.* Seventy-eight participants were recruited online. Participants were first asked to complete the Religious Commitment Inventory-10 (Worthington et al. 2003). This 10-item scale is designed to assess the degree to which a person adheres to his or her religious values, beliefs and practices and uses them in daily living (e.g., “My religious beliefs lie behind my whole approach to life,” “I enjoy working in the activities of my religious

affiliation,” where 1 = not at all true of me and 5 = totally true of me;  $\alpha = .96$ ). Next, participants were randomly assigned to one of two conditions: either the low personal control or the high personal control conditions presented in experiment 3. Participants were then asked to choose which product they preferred in a series of six product pairs in which one product in each pair was bounded and the other was unbounded (see appendix 2).

## Results and Discussion

The primary goal of experiment 4A was to test the prediction that people who are low in religiosity are more likely to choose bounded products when personal control is threatened than when it is not threatened. I did not expect people high in religiosity to respond to a threat to personal control with their choices of bounded versus unbounded products. A repeated measures logistic regression analysis was conducted with personal control condition and the continuous measure of religiosity as the predictors. The choice of bounded versus unbounded products in each of six pairs of choices was the dependent variable.

The analysis revealed no significant main effects, but as expected, there was a significant interaction of personal control condition and the religiosity measure ( $B = .14, Z = 2.23, p < .03$ ). As religiosity is a continuous measure, I followed the procedures recommended by Aiken and West (1991) and outlined in a recent *Journal of Consumer Research* editorial (Fitzsimons 2008) to analyze the data. The analysis was repeated at one standard deviation below the centered mean of the religiosity measure and one standard deviation above. The analysis revealed a significant simple effect of condition among individuals who were low in religiosity ( $B = -.30, Z = -3.01, p < .01$ ). Low religiosity individuals chose more bounded products when personal

control was threatened than when it was not. However, as anticipated, the effect of condition was not significant among high religiosity individuals ( $B = .03, Z = .30, p = .77$ ). (See figure 3.)

Thus, it appears that individuals who are high in religiosity are buffered from the need to seek structure through bounded products when personal control is threatened. Conversely, individuals with a low sense of religiosity are significantly more likely to seek bounded products when personal control is threatened (versus when it is not).

### **EXPERIMENT 4B: LIFE SUPPORT**

Per the existing literature and the pre-test previously discussed, it is clear that there are several buffers in addition to religious beliefs that individuals will rely on when facing threats to personal control. In experiment 4B, I explore how the presence of adequate personal resources in a variety of domains impacts whether individuals seek bounded products when personal control beliefs are threatened. To do so, I leverage the Resource Adequacy Scale (Rowland, Dodder, and Nickols 1985). The scale measures how individuals feel about the adequacy of resources pertaining to their physical environment, health and physical energy, available time, finances, interpersonal support, knowledge and skills, and community. I expect that individuals who question the adequacy of their resources should be the most likely to seek the sense of order and structure afforded by bounded products.

In this experiment, instead of asking participants to focus on instances of low or high personal control in any domain, I ask them to focus on a negative instance related to their finances. This provides an opportunity to explore the degree to which domain specificity is an important factor in individuals' responses. By asking participants to focus on a situation

specifically related to finances, one can determine whether the adequacy of one's resources is only relevant when the resources match the domain in question (e.g., financial resources) or whether resources that are not specific to the threat in question can be just as effective in reducing the desire for boundaries.

## Method

*Participants and Procedure.* Ninety-five participants were recruited online. Participants were first asked to complete the Resource Adequacy Scale ( $\alpha = .88$ ). Participants were then randomly assigned to a low or high personal control condition. In the low personal control condition, participants were asked to write about something negative that happened to their finances in the past few months that was *not* because of something that they did. In the high personal control condition, participants were asked to write about something negative that happened to their finances in the past few months that *was* due to something they did. Participants then chose a product among each of six product pairs where one product in each pair was bounded and the other was unbounded (the same as in experiments 3 and 4A).

## Results and Discussion

Given that this experiment leverages a slightly different manipulation than has been used previously, a pre-test was conducted to confirm that the manipulation was effective at altering perceptions of personal control. Forty-three participants were asked the manipulation check questions used in Kay et al. (2008) and also referenced in experiment 2 of this paper.

Participants in the low personal control condition indicated that they perceived themselves as having lower personal control than those in the high personal control condition ( $M_{\text{low}}=3.6$  vs.  $M_{\text{high}}=4.4$ ,  $p = .02$ ), suggesting that the manipulation was effective. Further, as measured by the PANAS (Watson, Clark, and Tellegen 1988), there were no differences in positive affect ( $p = .59$ ), negative affect ( $p = .67$ ), or specific emotions like guilt ( $p = .53$ ).

In the main experiment, the primary goal was to test the prediction that people with low perceived adequacy of resources would be more likely to choose bounded products when personal control was threatened than when it was not threatened. I did not expect people with high perceived adequacy of resources to respond to a threat to personal control with their choices. A repeated measures logistic regression analysis was conducted with personal control condition and the full resource adequacy scale (mean-centered) as the predictors. The choice of bounded versus unbounded products in each of six pairs of choices was the dependent variable.

The analysis revealed no significant main effects, but as expected, there was a significant interaction of personal control condition and the resource adequacy measure ( $B = .27$ ,  $Z = 2.94$ ,  $p < .01$ ). As resource adequacy is a continuous measure, the analysis was repeated at one standard deviation below the centered mean of resource adequacy and one standard deviation above. The analysis revealed a significant simple effect of condition among individuals with low resource adequacy ( $B = -.35$ ,  $Z = -3.22$ ,  $p < .01$ ). Individuals characterized by low resource adequacy chose more bounded products when personal control was threatened than when not. As anticipated, the effect of condition was not significant among individuals characterized by high resource adequacy ( $B = .12$ ,  $Z = 1.17$ ,  $p = .24$ ). (See figure 4). This same pattern not only held for the full scale, but for most of the subscales (i.e., finances, environment, interpersonal

relations and skills). The pattern was not significant when focusing on subscales pertaining to community, health or time, although it was directional in each case.

## Discussion

As expected, individuals characterized by high perceived adequacy of resources did not change product preferences when personal control was threatened versus when it was not. However, individuals characterized by a low perceived adequacy of resources preferred bounded products more when personal control was threatened than when it was not threatened. This was driven most strongly by resources related to one's finances, environment, interpersonal relations and skills. This not only demonstrates that the impact of personal control on the desire for boundaries can be weakened by several factors, but also demonstrates that such factors do not need to be directly related to the type of personal control threat that one faces.

## **EXPERIMENT 5: A PLACE FOR EVERYTHING & EVERYTHING IN ITS PLACE**

In each of the experiments discussed so far, I have focused on how low feelings of personal control lead to a preference for explicit boundaries that surround the products and designs that we regularly encounter in our environments. However, the idea that people seek boundaries when control is low can be construed much more broadly. I posit that when feelings of control are low, individuals should not only prefer that individual items be bounded (e.g., products, logos, etc.), but should also prefer that their *environments* be bounded. Specifically, they should seek environments wherein implicit, intangible boundaries dictate where things belong and keep things 'in place'. In other words, people should assign greater value to being in

very organized environments when their feelings of personal control are low relative to when such feelings are high. As it pertains to retail environments, when personal control is low, individuals should be more willing to buy products when they are in an environment that provides the structure that they desire. In order to test this idea, I manipulate feelings of personal control and manipulate a shopping environment to reflect the presence of strong implicit boundaries (i.e., a very organized environment) or weak implicit boundaries (i.e., a very disorganized environment).

## Method

*Participants and Procedure.* Eighty-five undergraduate participants were recruited to participate in the experiment. Upon arriving to the lab (one at a time), half of the participants were asked to write about a threatening experience in which they were not in control of the outcome (low control condition) and half were asked to write about a threatening experience in which they were in control of the outcome (high control condition). They were then asked to shop in a mock convenience store in the consumer psychology lab. Participants were told that the lab manager was considering opening the store for retail during the next semester and wanted to gauge students' interest in the concept overall and understand the types of products that they would be most interested in buying. In order to stimulate their interest and to encourage realistic choices, participants were told that the store's items were highly discounted and that ~30% of people would be able to buy their basket of items at the end of the experiment (as randomly determined by the experimenter's computer). Participants were randomly assigned to shop in the store when it was in a disorganized state or an organized state. In the disorganized state of

the store, products were scattered along the shelves in a manner such that nothing appeared to be in 'its place.' In the organized state of the store, everything was shelved in a way such that each item seemed to occupy a clearly designated place. The products were exactly the same in each state of the store and were chosen based on the selection at a popular convenience store on campus and the types of products that a group of undergraduates indicated that they would be interested in via a pre-test (e.g., snacks, school supplies, DVDs, school paraphernalia).

After shopping in the store and collecting their selections in a shopping basket, participants reported their selections on a computer. Next, to ensure that our predicted interaction pattern could not be attributed to factors other than the value that consumers place on order and structure when personal control is threatened, participants rated several aspects of the store (product quality, store variety, store organization, store atmosphere, product prices, ease of finding things, convenience, and effort of the store's management) on seven-point scales (where 1 = very bad and 7 = very good.) They also rated the degree to which each of these aspects is important to them (where 1 = not at all important and 7 = very important.)

## Results

As expected, results revealed an interaction between the personal control and the store organization manipulations on the number of items selected ( $F(1, 81) = 4.16, p = .05$ ; see figure 5). Individuals in the low control condition chose more items in the organized store than the disorganized store ( $F(1, 81) = 14.30, p = .0003$ ;  $M_{\text{low control/organized}} = 9.45, M_{\text{low control/disorganized}} = 3.60$ ), whereas high control participants did not ( $F(1, 81) = 3.02, p = .09$ ;  $M_{\text{high control/organized}} = 6.31, M_{\text{high control/disorganized}} = 4.36$ ). Moreover, low control participants chose more than high

control participants in the organized store ( $F(1, 81) = 4.50, p = .04$ ), but not in the disorganized store ( $F(1, 81) = .39, p = .53$ ). These patterns of significance were the same when dollars spent was used as the dependent variable as opposed to the number of items selected.

Next, I analyzed how the personal control and organization manipulations impacted how individuals rated the store on the characteristics noted previously. As expected, when the store was in a disorganized state, individuals rated it more poorly on a number of aspects (store variety, organization, store atmosphere, ease of finding things, convenience, and management effort.) Importantly, the personal control manipulation did not impact these measures, nor did the interaction of personal control and store organization. In other words, low feelings of personal control did not cause individuals to view the store differently. However, when asked how *important* each of these elements was, a main effect of the personal control manipulation on an index of attitudes toward the store's organization and atmosphere (i.e., a proxy for the importance of order and structure) emerged ( $\alpha = .75; F(1, 83) = 4.45, p = .04, M_{\text{low control}} = 5.11, M_{\text{high control}} = 4.59$ ). Individuals did not differ in their ratings on other measures based on the personal control and organization manipulations or the interaction of the two. Together, these data suggest that the reason individuals in the low and high control conditions reacted differently when in the disorganized versus organized store was not because they perceived aspects of the store or their shopping experience differently, but because they valued order and structure (i.e., boundaries) differently.

## Discussion

Experiment 5 demonstrates that boundaries are not only important in the individual products that we see, but also in the environments in which we operate. When participants with low feelings of control were assigned to shop in an organized store, they were much more likely to buy products than when assigned to shop in a disorganized store. While participants with low feelings of control did not perceive aspects of the store to be different than participants with high feelings of control, they explicitly assigned greater importance to store organization. It seems clear that our psychological need for control has an important influence on the boundaries we seek in the world that surrounds us.

## **GENERAL DISCUSSION**

The research presented here has demonstrated how psychological needs, particularly the need for control, influence preferences toward boundaries in one's environment and ultimately attitudes toward marketing stimuli overall (e.g., products, logos, and retail environments). Experiment 1 demonstrated that a threat to personal control via noise leads to increased preferences for bounded postcards. Experiment 2 replicated the results of experiment 1 by focusing on how simply manipulating the ease with which one remembers an event can enhance or reduce one's feelings of personal control and consequently impact one's preferences for boundaries. Experiment 3 demonstrated that this effect is mediated by individuals' motivation to accept elements in the environment as tools for enhancing one's sense of order and structure. Experiments 4A and 4B demonstrated that individuals who are low in supportive resources are the most likely to prefer bounded products when their sense of personal control is threatened. Finally, experiment 5 demonstrated that when personal control is threatened, people prioritize the

importance of implicit boundaries in a retail setting and are thus more willing to spend money in an organized store than an unorganized store.

Together, these experiments introduce the idea that consumers often seek structure in consumption (or, ‘structured consumption’), particularly when coping with threats to personal control. I focus on the preference for boundaries as one example of structured consumption. I demonstrate that psychological needs can essentially empower the subtle meanings of elements embedded in our environments and affect our consumption choices. In doing so, this work not only contributes to the growing literature on personal control by introducing a novel means by which individuals seek order and structure as a response to personal control threats, but more generally supports the growing body of research in consumer behavior that demonstrates that consumers respond to threats in their lives through their consumption choices (e.g., Ferraro, Shiv, and Bettman 2005; Gao, Wheeler, and Shiv 2008; Rucker and Galinsky 2008). Moreover, given the nature of the boundaries demonstrated across the experiments, this research also suggests that the areas of product aesthetics and retail atmospherics may be fruitful domains for exploring the underlying relationships between consumers’ psychological needs and their product choices. Moreover, because boundaries in these two distinct areas have similar implications for consumers’ preferences when personal control is threatened, theoretical gains may emerge from investigating the synergies of aesthetic design and atmospherics in more detail.

### Theoretical Implications beyond Visible Boundaries

Importantly, ‘structured consumption’ as a means of coping can apply beyond the realm of boundaries in one’s physical environment. Researchers have demonstrated that the

boundaries that individuals use to delineate where the self and others belong can reside simply in one's head (Burriss and Rempel 2004; Nippert-Eng 1996). Thus, many types of boundaries may be imposed on consumption-related beliefs, emotions, and activities. For example, consumers may become much less likely to allow brands to stretch beyond a particular 'space' in brand extensions and partnerships, or they may erect boundaries in emotional responses and constrain their emotions such that they affect only relevant decisions. In essence, the erection of and preference for boundaries is likely to extend beyond the physical domain to provide many meaningful manifestations of structured consumption.

### Practical Implications

Given the findings of this research, marketers should be more aware of the degree to which low feelings of personal control characterize their target consumers. These feelings might be instigated by the acts of marketers themselves (e.g., out of stocks, sweepstakes and contests, unpredictable high-low pricing schemes, unintended outcomes associated with products, etc.), situations outside of marketers' control (e.g., terrorist attacks, economic recessions, natural disasters), as well as the chronic characteristics of their target consumers (e.g., level of income, health, mobility, etc.). Marketers would be wise to take heed of such factors and acknowledge the beauty of boundaries.

## Works Cited

- Abramson, Lyn Y., Martin E. P. Seligman, and John D. Teasdale (1978), "Learned helplessness in humans: Critique and reformulation," *Journal of Abnormal Psychology*, 87 (1), 49-74.
- Baron, Reuben M. and David A. Kenny (1986), "The moderator-mediator variable distinction in social psychological research: Conceptual, strategic, and statistical considerations," *Journal of Personality and Social Psychology*, 51 (6), 1173-82.
- Belk, R. W., J. Y. Seo, and E. Li (2007), "Dirty little secret: Home chaos and professional organizers," *Consumption Markets and Culture*, 10 (2), 133-40.
- Burris, Christopher T. and Nyla R. Branscombe (2005), "Distorted distance estimation induced by a self-relevant national boundary," *Journal of Experimental Psychology*, 41 (3), 305-12.
- Burris, Christopher T. and John K. Rempel (2004), "'It's the end of the world as we know it': Threat and the spatial-symbolic self," *Journal of Personality and Social Psychology*, 86 (1), 19-42.
- Cohen, Sheldon (1988), "Psychosocial models of the role of social support in the etiology of physical disease," *Health Psychology*, 7 (3), 269-97.
- Cwerner, S. B. and A. Metcalfe (2003), "Storage and clutter. Discourses and practices of order in the domestic world," *Journal of Design History*, 16 (3), 229-39.
- Ferraro, Rosellina, Baba Shiv, and James R. Bettman (2005), "Let us eat and drink, for tomorrow we shall die: Effects of mortality salience and self-esteem on self-regulation in consumer choice," *Journal of Consumer Research*, 32 (1), 65-75.
- Fitzsimons, Gavan J. (2008), "Death to dichotomizing," *Journal of Consumer Research*, 35 (1), 5-8.
- Gao, Leilei, S. Christian Wheeler, and Baba Shiv (2008), "The shaken self: Product choices as a means of restoring self-view confidence," *Journal of Consumer Research*, 36 (1), 29-38.

- Ger, G. and B. Yencioğlu (2004), "Clean and dirty: Playing with boundaries of consumer's safe havens," *Advances in Consumer Research*, 31, 462-67.
- Glass, David C., Jerome E. Singer, and Lucy N. Friedman (1969), "Psychic cost of adaptation to an environmental stressor," *Journal of Personality and Social Psychology*, 12 (3), 200-10.
- Hartmann, Ernest (1991), *Boundaries in the Mind: A New Psychology of Personality*, New York: Basic Books.
- Kay, Aaron C., Danielle Gaucher, Jamie L. Napier, Mitchell J. Callan, and Kristin Laurin (2008), "God and the government: Testing a compensatory control mechanism for the support of external systems," *Journal of Personality and Social Psychology*, 95 (1), 18-35.
- Kay, Aaron C., David A. Moscovitch, and Kristin Laurin (2010), "Randomness, arousal, and belief in God," *Psychological Science*, 21 (2), 216-18.
- Kay, Aaron C., Jennifer A. Whitson, Danielle Gaucher, and Adam D. Galinsky (2009), "Compensatory control: Achieving order through the mind, our institutions, and the heavens," *Current Directions in Psychological Science*, 18 (5), 264-68.
- Kelley, Harold H. (1971), *Attribution in social interaction*: General Learning Corporation.
- Kelly, George A. (1955), *The Psychology of Personal Constructs: A Theory of Personality*, New York: W.W. Norton & Company, Inc.
- Lea, Stephen E. G. and Paul Webley (2006), "Money as tool, money as drug: The biological psychology of a strong incentive," *Behavioral and Brain Sciences*, 29 (2), 161-209.
- Lefcourt, Herbert M. (1973), "The function of the illusions of control and freedom," *American Psychologist*, 28 (5), 417-25.
- Levav, Jonathan and Rui (Juliet) Zhu (2009), "Seeking freedom through variety," *Journal of Consumer Research*, 36 (4), 600-10.
- McCann, Stewart J. H. (1999), "Threatening times and fluctuations in American church memberships," *Personality and Social Psychology Bulletin*, 25 (3), 325-36.

- Meyers-Levy, Joan and Rui (Juliet) Zhu (2007), "The influence of ceiling height: The effect of priming on the type of processing that people use," *Journal of Consumer Research*, 34 (August), 174–86.
- Miller, Suzanne M. (1979), "Controllability and human stress: Method, evidence and theory," *Behaviour Research and Therapy*, 17 (4), 287-304.
- Neuberg, Steven L. and Jason T. Newsom (1993), "Personal need for structure: Individual differences in the desire for simple structure," *Journal of Personality and Social Psychology*, 65, 113-31.
- Newman, Oscar (1972), *Defensible Space*, New York: The MacMillan Company.
- Nippert-Eng, Christena (1996), "Calendars and keys: The classification of “home” and “work”," *Sociological Forum*, 11 (3), 563-82.
- Nussbaum, Bruce (2002), "Winners 2002: The best product designs of the year " [http://www.businessweek.com/magazine/content/02\\_27/b3790099.htm](http://www.businessweek.com/magazine/content/02_27/b3790099.htm).
- Pearlin, Leonard I., Elizabeth G. Menaghan, Morton A. Lieberman, and Joseph T. Mullan (1981), "The stress process," *Journal of Health and Social Behavior*, 22 (4), 337-56.
- Pennebaker, James W., M. Audrey Burnam, Marc A. Schaeffer, and David C. Harper (1977), "Lack of control as a determinant of perceived physical symptoms," *Journal of Personality and Social Psychology*, 35 (3), 167-74.
- Rodin, Judith (1986), "Aging and health: Effects of the sense of control," *Science*, 233 (4770), 1271-76.
- Ross, Catherine E. and John Mirowsky (1989), "Explaining the social patterns of depression: Control and problem solving--or support and talking?," *Journal of Health and Social Behavior*, 30 (2), 206-19.
- Rowland, Virginia T., Richard A. Dodder, and Sharon Y. Nickols (1985), "Perceived adequacy of resources: Development of a scale," *Family and Consumer Sciences Research Journal*, 14 (2), 218-25.

- Rucker, Derek D. and Adam D. Galinsky (2008), "Desire to acquire: Powerlessness and compensatory consumption," *Journal of Consumer Research*, 35 (2), 257-67.
- Sales, Stephen M. (1972), "Economic threat as a determinant of conversion rates in authoritarian and nonauthoritarian churches," *Journal of Personality and Social Psychology*, 23 (3), 420-28.
- Schuster, Mark A., Bradley D. Stein, Lisa H. Jaycox, Rebecca L. Collins, Grant N. Marshall, Marc N. Elliott, Annie J. Zhou, David E. Kanouse, Janina L. Morrison, and Sandra H. Berry (2001), "A national survey of stress reactions after the September 11, 2001, terrorist attacks," *The New England Journal of Medicine*, 345 (20), 1507-12.
- Schwarz, Norbert, Herbert Bless, Fritz Strack, Gisela Klumpp, Helga Rittenauer-Schatka, and Annette Simons (1991), "Ease of retrieval as information: Another look at the availability heuristic," *Journal of Personality and Social Psychology*, 61 (2), 195-202.
- Seeman, Teresa E. and S. Leonard Syme (1987), "Social networks and coronary artery disease: a comparison of the structure and function of social relations as predictors of disease," *Social Networks and Coronary Artery Disease: A Comparison of the Structure and Function of Social Relations as Predictors of Disease*, 49 (4), 341-54.
- Skinner, Ellen A., Michael Chapman, and Paul B. Baltes (1988), "Control, means-ends, and agency beliefs: A new conceptualization and its measurement during childhood," *Journal of Personality and Social Psychology*, 54 (1), 117-33.
- Smith, Tom W., Kenneth A. Rasinski, and Marianna Toce (2001), "America rebounds: A national study of public response to the September 11th terrorist attacks," <http://www.norc.org/nr/rdonlyres/51aa73b5-eb68-4e2a-ac63-75d652aa7d41/0/pubresp.pdf>.
- Thompson, Suzanne C. (1981), "Will it hurt less if I can control it? A complex answer to a simple question," *Psychological Bulletin*, 90 (1), 89-101.
- Watson, David, Lee A. Clark, and Auke Tellegen (1988), "Development and validation of brief measures of positive and negative affect: The PANAS scales," *Journal of Personality and Social Psychology*, 54 (6), 1063-70.
- White, Robert W. (1959), "Motivation reconsidered: The concept of competence," *Psychological review*, 66 (5), 297-333.

Whitson, Jennifer A. and Adam D. Galinsky (2008), "Lacking control increases illusory pattern perception," *Science*, 322 (5898), 115-17.

Willer, Robb (2004), "The effects of government-issued terror warnings on presidential approval ratings," *Current Research in Social Psychology*, 10 (1), 1-12.

Worthington, Everett L., Nathaniel G. Wade, Terry L. Hight, Jennifer S. Ripley, Michael E. McCullough, Jack W. Berry, Michelle M. Schmitt, James T. Berry, Kevin H. Bursley, and Lynn O Connor (2003), "The religious commitment inventory-10: Development, refinement, and validation of a brief scale for research and counseling," *Journal of Counseling Psychology*, 50 (1), 84-96.

Zhou, Xinyue, Kathleen D. Vohs, and Roy F. Baumeister (2009), "The symbolic power of money," *Psychological Science*, 20, 700-6.

Zuckerman, Sam (2002), "9-11-01; Impact on business; American consumers kept economy going; Consumer spending kept economy going," *San Francisco Chronicle*, September 8.

Figure 1. Personal Control and Aesthetic Boundaries

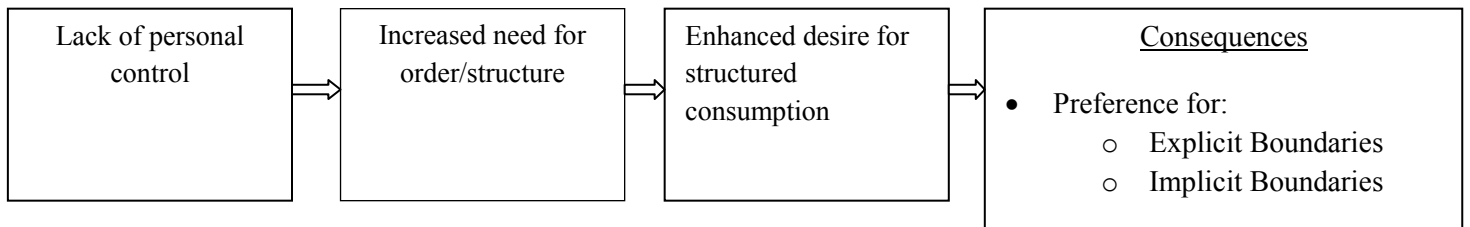


Figure 2. Experiment 2. Interaction of ease of retrieval and level of personal control on choice of bounded versus unbounded logos.

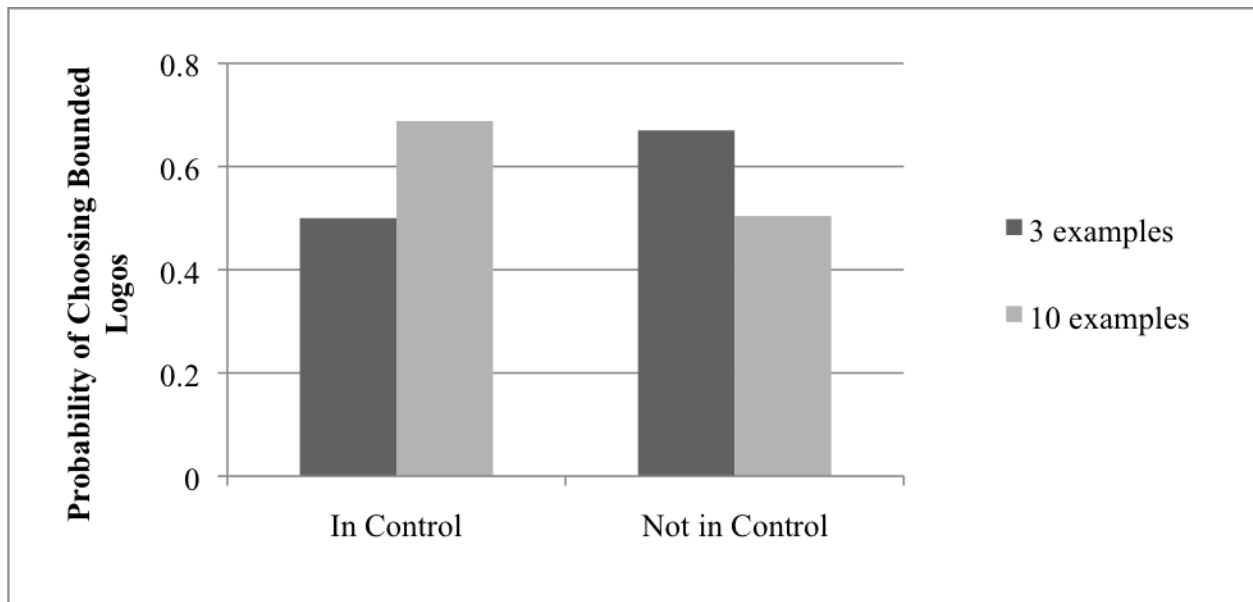


Figure 3. Experiment 4A. Interaction of personal control condition and chronic religiosity on bounded versus unbounded product choices.

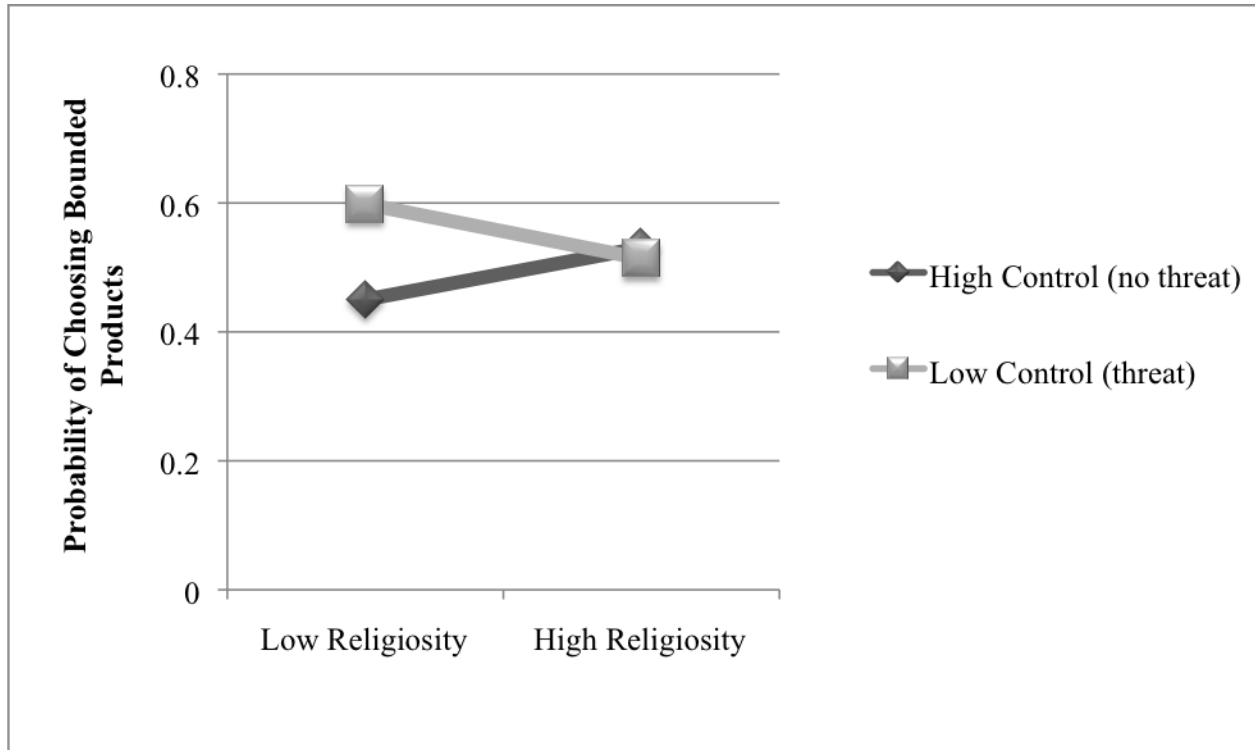


Figure 4. Experiment 4B. Interaction of personal control condition and perceived adequacy of resources on bounded versus unbounded product choices.

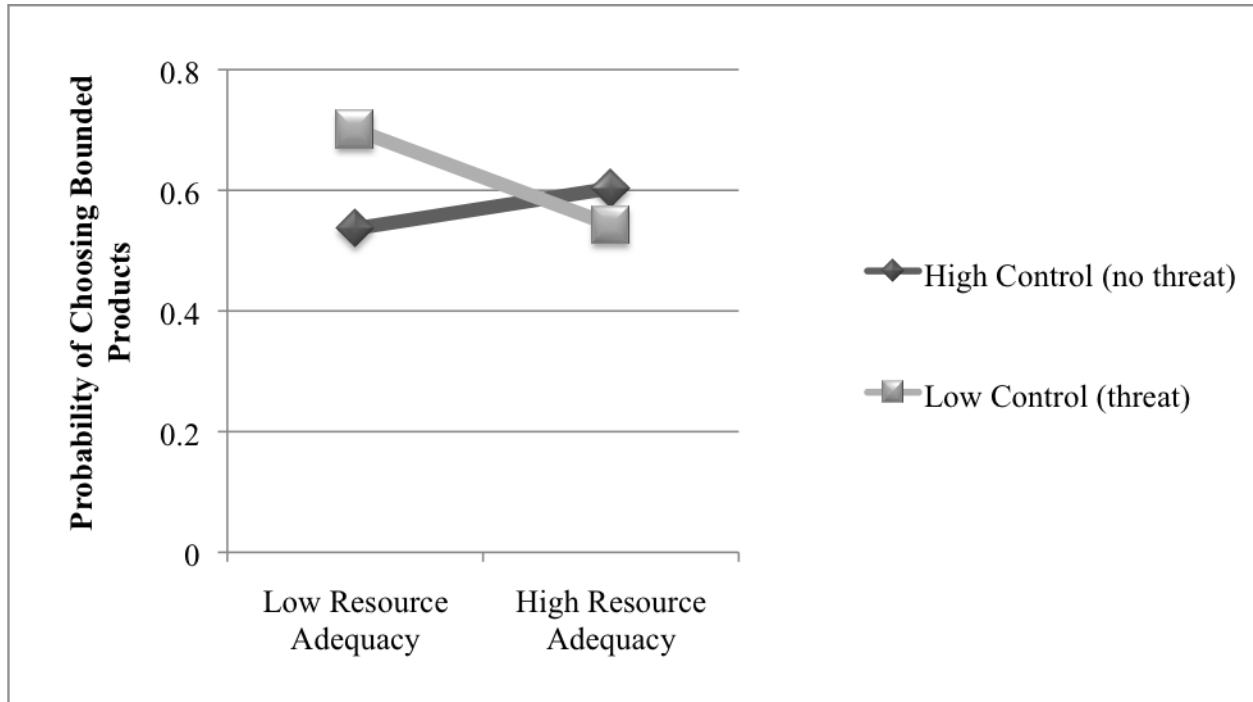
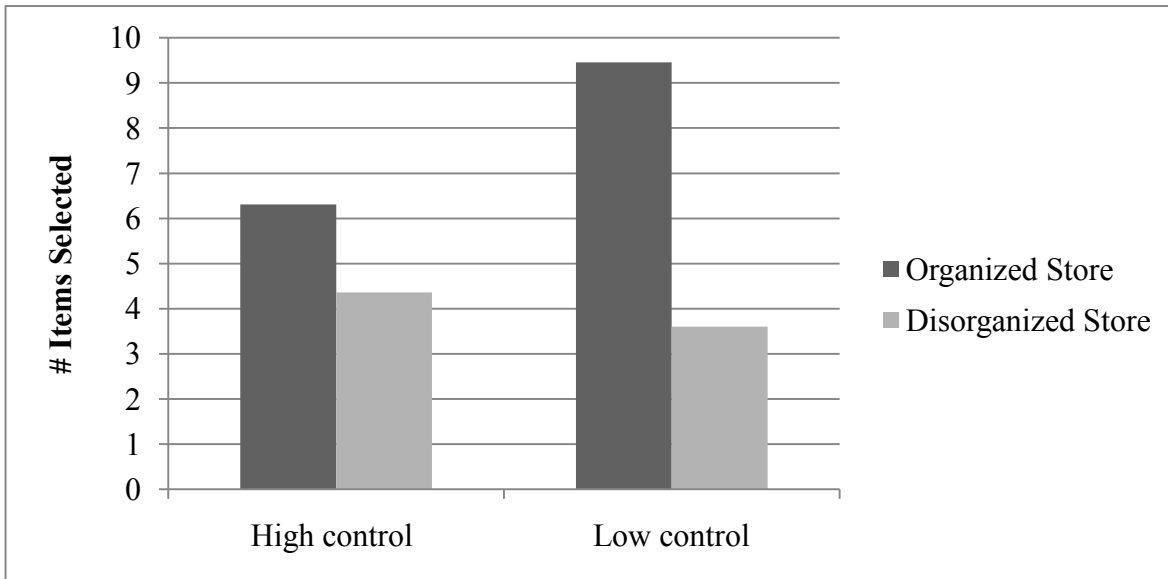


Figure 5. Experiment 5. The interaction of personal control and store organization on number of items selected.



## Appendix 1:

## Logo Choices

 <p><b>DELTA</b> HOTELS</p>	 <p><b>DELTA</b> HOTELS</p>
 <p><i>etta</i> designs</p>	 <p><i>etta</i> designs</p>

## Appendix 2:

**Bounded Products**

(The descriptions beneath the pictures were not included for participants)

<b>“Bounded” Options</b>	<b>“Unbounded” Options</b>
 <p data-bbox="418 695 568 722"><b>Framed art</b></p>	 <p data-bbox="1040 695 1216 722"><b>Unframed art</b></p>
 <p data-bbox="410 1026 581 1054"><b>Fenced Yard</b></p>	 <p data-bbox="1032 1026 1224 1054"><b>Unfenced Yard</b></p>
 <p data-bbox="289 1373 699 1400"><b>Each photo in a designated place</b></p>	 <p data-bbox="922 1373 1333 1400"><b>No photo with a designated place</b></p>
 <p data-bbox="302 1646 685 1673"><b>Food kept in designated places</b></p>	 <p data-bbox="943 1646 1310 1673"><b>No designated places for food</b></p>



**Closed shelves keep everything in a designated space**



**Open shelves allow items to extend beyond their designated space**



**Traditional bedroom (with everything contained within the bedroom walls)**



**Loft-style bedroom (where the bedroom and other rooms blend together)**