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Five experiments demonstrate that exposure to novel visual stimulus arrays of geometric shapes affects consumers' real choices among products. The authors first demonstrate that exposure to variety arrays (arrays of differing shapes) increases variety seeking (Study 1). They then show that exposure to uniqueness arrays (e.g., one circle among six squares) increases choice of unique over common objects (Studies 2 and 3) and interacts with chronic need for uniqueness (Study 3). In the final two studies, the authors show that variety and uniqueness arrays activate distinct constructs; specifically, they find no effect of exposure to uniqueness arrays on variety seeking (Study 4a) and no effect of exposure to variety arrays on uniqueness seeking (Study 4b). Taken together, these studies build on the existing literature about nonconscious effects on consumer behavior and choice behavior in particular by showing that consumers' real choices are affected by subtle exposure to novel stimuli that do not have any previous associations.

Keywords: choice, nonconscious effects, uniqueness, variety seeking

Circles, Squares, and Choice: The Effect of Shape Arrays on Uniqueness and Variety Seeking

Imagine that a consumer is at a store, looking for a notebook to buy, and his or her shopping cart is decorated with novel arrays of shapes such as OOOO□OO. What effect, if any, would these arrays have on the consumer's choice? Could simple exposure to the shape array make the consumer more likely to choose a uniquely colored notebook? Although it may seem that such a simple shape array, which has no prior cognitive associations for the consumer, should not affect his or her choices, this research suggests otherwise. Specifically, we examine the effects of such stimuli on consumers' propensity for uniqueness and variety seeking and consider the mechanisms underlying such effects.

Previous research has shown that consumers' choices are affected by several consciously considered contextual variables, such as consumption settings (e.g., private versus public consumption; Ratner and Kahn 2002) and the composition of choice sets (e.g., making an option a compromise one between two extremes; Simonson 1989). More subtle influences on consumer behavior have also been demonstrated, such as the effect of subliminal priming on beverage consumption (e.g., Strahan, Spencer, and Zanna 2002).

In this article, we test the limits and implications of these more subtle influences on consumer behavior. Building on the extensive literature on automatic processes (e.g., Dijksterhuis, Chartrand, and Aarts 2006; Wheeler and Petty 2001), we extend the range of stimuli previously assumed to affect behavior and construct accessibility. Specifically, we test the effect of impoverished stimuli that have no inherent meaning or prior associations, such as arrays of geometrical shapes (e.g., OOOO□OO), on consumers' choices. Across five studies, we find that these arrays affect consumers' actual choices without their awareness in two choice domains—uniqueness seeking and variety seeking. Moreover, we show that the effect of these arrays on choice of unique items interacts with chronic uniqueness-seeking motivation such that either factor is sufficient to induce uniqueness seeking. Finally, we show that uniqueness and variety are distinct constructs in this context; we find that

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exposure to variety arrays but not uniqueness arrays increases variety seeking and that exposure to uniqueness arrays but not variety arrays increases uniqueness seeking.

EFFECTS OF CONTEXT AND CONSTRUCT ACCESSIBILITY ON CHOICE

Research has documented many robust contextual influences on choice (see, e.g., Bettman, Luce, and Payne 1998). In many cases, these contextual influences pertain to consciously considered factors directly associated with the choice itself. For example, features of the choice set can determine which option consumers choose, such that a focal object is preferred when it is included in choice sets in which it asymmetrically dominates another alternative (Huber, Payne, and Puto 1982) or is a compromise between options (Simonson 1989). Similarly, the framing of an option's attributes (e.g., labeling meat as "75% lean" versus "25% fat") can affect its perceived attractiveness (e.g., Levin and Gaeth 1988).

In other cases, context effects on choice are more subtle. For example, subtle instigation of choice rules, such as whether variety is good or consistency is good, can lead to preferences for variety or consistency seeking (Fishbach, Ratner, and Zhang 2007). Specifically, participants for whom "good" was coupled with "different" and "bad" was coupled with "same" were more likely to show variety seeking in their product choices than those who had "bad" coupled with "different" and "good" with "same."

Other research has shown that simply increasing the accessibility of various constructs can affect a wide variety of judgments and behaviors (see, e.g., Higgins 1996). Although numerous means of increasing construct accessibility have been employed, research has typically used word primes as a basis for increasing the accessibility of the concepts to which those words refer. For example, exposure to trait words in one context increases the likelihood of their subsequent use in forming an impression of an ambiguous target (Higgins, Rholes, and Jones 1977). In this type of paradigm, the constructs activated by the primes are those that are directly associated with the words to which participants are exposed (e.g., "reckless" activates recklessness).

Constructs can also be activated by more abstract pictorial and auditory stimuli. For example, pictures of business-related objects (e.g., briefcases) lead to more competitive behavior (Kay et al. 2004), dollar signs on the background of a Web site affect the perceived importance of price-related attributes (Mandel and Johnson 2002), and type of music played in a store (e.g., German versus French) affects preference for German versus French wine (North, Hargreaves, and McKendrick 1997).

In these examples, the stimuli also have clear prior associations. That is, stereotypical objects, symbols, and ethnic music have preexisting associations for people, and so exposure to such stimuli can activate these associations in memory. However, people might also be affected by stimuli that do not have any established associations, such as novel arrays of geometrical shapes. That is, simple stimuli with which people have no prior contact or mental associations could also lead to the activation of constructs and affect choice behavior if people were to interpret and extract meaning spontaneously from such stimuli.

For example, we propose that on exposure to a simple visual array, such as OOOO□OO, people will extract the concept of uniqueness. Although they might not have prior associations with these types of visual arrays (the arrays have no inherent meaning, as do words, or prior associations, as do stereotype targets), we predict that exposure to these arrays will increase accessibility of the extracted concepts. Indeed, in a pretest, we found that exposure to uniqueness arrays (e.g., OOOO□OO) increases the accessibility of uniqueness-related words (e.g., "unique," "distinct"). Specifically, people exposed to uniqueness arrays recognized uniqueness-related words faster than homogeneity-related words (e.g., "identical," "similar"), and they also recognized uniqueness-related words faster than those exposed to homogeneity arrays (e.g., OOOOOOO).

Can this automatic meaning extraction affect consumer choice? We predict that this indeed will be the case. The experiments we present herein test the prediction that exposure to these types of arrays increases the likelihood of prime-consistent choices, such as choosing unique over common objects on exposure to uniqueness arrays. If people do extract meaning from these arrays, as our pretest suggests, they may exhibit choice behavior in a consistent manner. We also predict that these processes will occur spontaneously, without people's intention or awareness.

DOMAINS OF INVESTIGATION

For our domains of investigation, we chose two areas that are central to consumer choice research: variety seeking (the tendency of consumers to prefer varied bundles of consumption; e.g., Simonson 1990) and uniqueness seeking (i.e., the tendency of consumers to choose unique items; e.g., Kim and Markus 1999). In Study 1, we examine whether shape arrays, such as ΔOO□OΔ□, can affect variety seeking. In Study 2, we examine whether exposure to uniqueness arrays, such as OOOO□OO, can increase the likelihood of choosing unique over common objects. In Study 3, we replicate the effect of uniqueness arrays on choice even under incidental exposure conditions. In addition, we examine the role of dispositional uniqueness-seeking motivation in producing these effects (need for uniqueness [NFU]; Snyder and Fromkin 1977). Finally, in Studies 4a and 4b, we examine whether the variety and uniqueness arrays activate distinct constructs, such that variety arrays lead to increased variety seeking but not uniqueness seeking and uniqueness arrays lead to uniqueness seeking but not variety seeking.

STUDY 1

In Study 1, we tested whether exposure to the variety arrays would increase variety seeking. Variety seeking—consumers' tendency to prefer varied bundles of consumption—is an established phenomenon in consumer research (for a review, see McAlister and Pessemier 1982). Several moderators of variety seeking have been identified, such as the timing of consumption (Simonson 1990), type of consumption (i.e., public versus private; Ratner and Kahn 2002), and activation of specific choice rules (Fishbach, Ratner, and Zhang 2007). In this study, we examined whether this robust phenomenon could be affected by more subtle manipulations, such as exposure to simple visual arrays. Specifically, we predicted that people exposed to variety arrays (e.g., ΔOO□OΔ□) would be more likely to exhibit variety seeking than those exposed to homogeneity arrays (e.g., OOOOOOO).

We presented participants with either variety or homogeneity arrays before allowing them to choose as compensation three chocolates among a variety of chocolates. This choice served as our measure of variety seeking. Choosing three different types of chocolate, as opposed to choosing three of the same type, is an indication of variety seeking (e.g., Simonson 1990).

Method

Participants and design. Forty-nine students (46% female, mean age = 24.4 years) participated in a single-factor (priming: variety versus homogeneity) between-subjects design.

Procedure. Participants were approached at the campus of a major West Coast university and were offered the opportunity to complete a short survey in exchange for three chocolates. The survey was presented as a "visual perception" study. Participants were told that we were "interested in the effect of figure arrangement on visual perception and accuracy." Participants received five pictures, each consisting of different geometrical shapes, and were asked to look at each picture and indicate the number of circles and squares they saw.

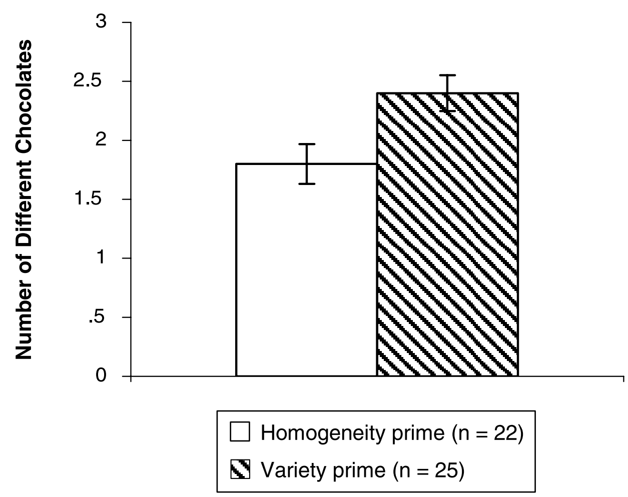
The independent variable, which we manipulated between subjects, was whether the shape arrays participants saw conveyed variety (e.g., ΔOO□OΔ□) or homogeneity (e.g., OOOOOOOO).[1] The dependent variable was participants' choice of three chocolates. Specifically, on completing this task, participants were offered chocolates as compensation for participating in the study. They were presented with a bowl that contained four different types of small Hershey's chocolates—milk chocolate, dark chocolate, Krackel (milk chocolate with crispy rice), and Mr. Goodbar (milk chocolate with peanuts)—and were asked to choose three chocolates. This choice enables us to test for variety seeking: A choice of three different types of chocolates (e.g., milk, dark, and Krackel) would be a manifestation of variety seeking, whereas a choice of three identical chocolates (e.g., three pieces of milk chocolate) would not.

Results and Discussion

We predicted that exposure to the variety arrays would increase variety seeking. To test this hypothesis, we computed the number of different chocolates participants selected. Choosing a greater number of different (versus the same) chocolates indicates greater variety seeking. Consistent with our prediction, participants in the variety condition were significantly more likely to choose different flavors than participants in the homogeneity condition.[2] As Figure 1 shows, the mean number of different flavors chosen in the variety condition was 2.4 (SD = .76), compared with only 1.8 (SD = .79) in the homogeneity condition ($t = 2.56$, $p < .05$).

Figure 1

STUDY 1: VARIETY VERSUS HOMOGENEITY: NUMBER OF DIFFERENT CHOCOLATES CHOSEN AS A FUNCTION OF SHAPE PRIME



The results of this first study support our first hypothesis, that exposure to variety arrays increases variety seeking. Specifically, after seeing arrays of various shapes, participants were more likely to select multiple different chocolates than to select multiple chocolates of the same type. That simple exposure to completely novel and impoverished stimuli, such as shape arrays, could affect variety seeking is consistent with the idea that participants spontaneously extracted meaning from the shape arrays, which then affected their motivation in a subsequent context.

STUDY 2

In Study 2, we wanted to generalize the effects of Study 1 to another choice domain. Therefore, we examined whether exposure to uniqueness arrays increases the probability of choosing a unique option in a choice set. The choices people make, as well as other acts, can reflect different values and aspects of the self (Bruner 1990; Kim and Drolet 2003; Kim and Markus 1999). By choosing a unique option, a person can fulfill his or her need to appear unique and differentiated. However, preference for uniqueness is not universal; rather, it is dependent on various factors, such as culture, values (e.g., Kim and Markus 1999), and context (e.g., Ariely and Levav 2000).

In Study 2, we tested the effects of a much more subtle factor (i.e., exposure to shape arrays). To test the effect of the shape arrays on choice, we presented participants with either uniqueness (e.g., OOOO□OO) or homogeneity (e.g., OOOOOOO) arrays before allowing them to choose an

[1]In a pretest, we exposed participants to a series of different shape arrays and asked them to guess which concepts the arrays represented. We selected the arrays used here on the basis of this pretest. Importantly, although the participants in our pretest generated similar responses when asked to guess the meaning of the shape arrays, none of the participants in any of our experiments indicated that they thought the arrays represented any particular construct. Thus, although people can generate similar meanings for the arrays when explicitly asked to do so, they are not aware of the meaning of the arrays when not explicitly instructed to guess what they represent.

[2]Two participants did not want chocolate, and thus we excluded them from the analysis.

item from a set. Our prediction was that participants exposed to uniqueness arrays would be more likely to choose the unique chocolate.

Method

Participants and design. Thirty-seven undergraduate students at a major West Coast university (56% female, mean age = 20.8 years) participated in exchange for $7 in a one-factor (priming manipulation: uniqueness versus homogeneity) between-subjects design.

Procedure. Participants completed an unrelated computerized experiment before moving to another room to complete the "visual perception study," which was similar to the one used in Study 1. The independent variable, which we manipulated between subjects, was whether the shape arrays participants saw conveyed uniqueness (e.g., □□□□□O□) or homogeneity (e.g., □□□□□□□). The dependent variable was participants' choice of a chocolate. Specifically, while participants completed the payment forms, the experimenter casually offered them a chocolate as additional compensation by saying, "It's been a long experiment, so we are also offering you a chocolate as compensation. Please take one of these chocolates—all milk chocolate." We operationalized uniqueness of options with a method similar to that used in previous research (Kim and Markus 1999, Study 3). Participants were presented with five milk chocolate Hershey's Kisses. Four were wrapped in the same color (e.g., silver), and one was wrapped in a different color (e.g., green).[3] The experimenter chose the specific colors blindly, with the restriction that each set should consist of four same-color and one differently colored Kisses. By using Hershey's Kisses in different-colored wrappers, we held the nature of the product constant and made one of the options unique. Thus, the choice of the unique (or common) object is more likely to be due to a preference for the unique (or common) features of the object and not to a preference for the object itself.

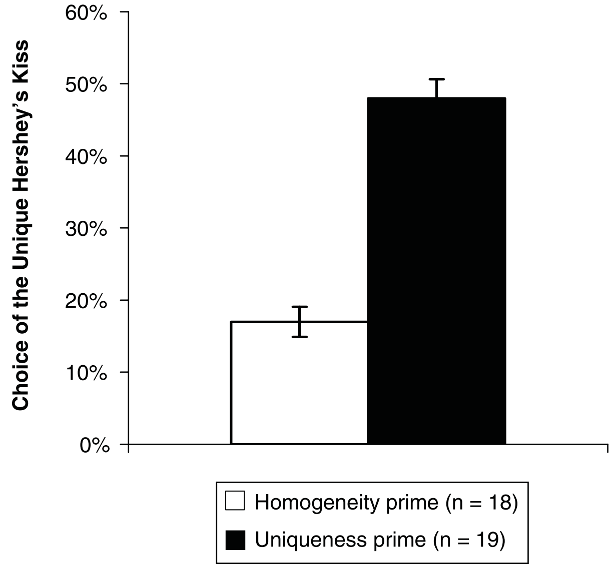
After making their choice, participants completed a debriefing form, in which they were asked to report their thoughts while viewing the shapes and whether they were thinking of specific concepts or ideas while seeing the different shapes. The results indicated that no participants believed that the shapes represented any particular concept.

Results and Discussion

In support of our hypothesis, participants exposed to uniqueness arrays were more likely to choose the unique option than participants exposed to homogeneity arrays ($\chi^2(1, N = 37) = 3.98$, $p < .05$). Specifically, in the uniqueness condition, 48% of the participants chose the uniquely wrapped chocolate, compared with only 17% in the homogeneity condition (see Figure 2). Thus, Study 2 supports the hypothesis that exposure to uniqueness arrays increases preference for unique objects.

Studies 1 and 2 demonstrate that active processing of variety arrays (i.e., counting the shapes they contain) increases variety seeking and that active processing of uniqueness arrays increases choice of unique items. In Study 3, we examine whether the effects on choice are still observed when the exposure to these arrays is only incidental (i.e., when there are no explicit instructions to process them in any way).

Figure 2
STUDY 2: UNIQUENESS VERSUS HOMOGENEITY: PERCENTAGE CHOOSING THE UNIQUELY COLORED HERSHEY'S KISS AS A FUNCTION OF SHAPE PRIME



STUDY 3

In our previous studies, participants actively processed the shape arrays by counting the shapes. In reality, consumers encounter various stimuli and may not actively process and analyze every stimulus they encounter. Therefore, to test the generalizability of our effects, we tested whether the uniqueness arrays would affect choice of unique objects when participants do not actively process the shapes and exposure is only incidental. To that end, in Study 3, participants were incidentally exposed to the shape arrays, which were presented on the computer screen as part of a standard lexical decision task.

Another purpose of Study 3 was to examine how exposure to uniqueness arrays would interact with dispositional uniqueness-seeking motivation to determine behavior. Snyder and Fromkin's (1977) NFU is an individual difference variable that assesses chronic motivation to be unique and stand out from others. High-NFU people are more likely to act inconsistently with statistical norms and are more likely to belong to groups that emphasize their differences from others (Snyder and Fromkin 1977). In this study, we measured participants' NFU and tested its main and interactive effects on choice of the unique product.

Finally, it could be argued that the choice context of Study 2—choice of a Hershey's Kiss—involved a choice that is not very consequential to a person's sense of uniqueness. The chocolates were likely to have been consumed shortly after the study, and the unique feature (i.e., the wrapper) was probably discarded before consumption. Therefore, in Study 3, we used a more durable product—differently colored memo pads. In addition to being more

[3]Kim and Markus (1999) also use choice sets with two items in one color and three items in another color. Because they did not find any difference between the two sets, we used only the one–four set.

durable, the unique feature of this product—the cover—is inseparable from the product itself.[4]

Method

Participants and design. Ninety-five students at a major West Coast university (56% female, mean age = 21.4 years) participated in exchange for $11 in a two-factor (priming manipulation: uniqueness versus homogeneity) × NFU (measured) between-subjects design.

Procedure. Participants were told that they would complete multiple tasks on the computer. The first task was a lexical decision task, which served as a cover task for the priming manipulation. Specifically, participants saw 41 strings of letters (20 words and 21 nonwords) and were asked to indicate whether the string of letters was a real word or not. None of the words were related to either uniqueness or homogeneity. The strings of letters were interspersed with arrays such as XXXXXXX or XXXXOXX. Specifically, a string of letters appeared on the screen until the participant indicated whether it was a real word or not (by pressing the corresponding key), followed by a blank screen for 400 milliseconds, an array presented for 1500 milliseconds, and then another blank screen for 400 milliseconds.

Participants were told that the purpose of the arrays that appeared in between the letter strings was "to clear your vision and to help you better process the letter strings." These arrays served to manipulate uniqueness versus homogeneity priming. Specifically, half the participants were exposed to uniqueness arrays (e.g., OOXOOOO), and half were exposed to homogeneity arrays (e.g., OOOOOOO).

After the priming task, participants moved to a different room and chose between unique and common memo pads. Specifically, the experimenter presented a set of five memo pads from which participants could select one as a gift for participating in the experiment. Four of the memo pads had the same color of cover (e.g., green), and one had a differently colored cover (e.g., blue). A pretest showed that all three possible colors (green, blue, and red) were equally liked. The experimenter chose the specific colors blindly, with the restriction that each set should consist of four same-color and one differently colored memo pads.

Participants then returned to their computer to complete the second task. After working on unrelated studies for approximately 15 minutes, participants completed the NFU scale (Snyder and Fromkin 1977). The scale consists of 32 items, such as "It bothers me if people think I am being too unconventional" (reverse coded). Participants indicated their level of agreement with each item using a scale ranging from 1 ("strongly disagree") to 5 ("strongly agree").[5] Finally, participants completed the debriefing form. The results indicated that no participants detected a connection between the relevant tasks, nor did they think of any specific concepts while viewing the shape arrays during the lexical decision task. Participants were then debriefed and paid.

Results and Discussion

To examine the effect of the priming manipulation and NFU on choice, we ran a series of logistic regressions. In all models, we used the continuous measure of NFU, a dummy-coded condition factor in which the uniqueness array condition was coded as 1, and a dependent measure in which the choice of the unique memo pad was coded as 1.

We first ran a logistic regression model with main effects only. As we predicted, the priming manipulation affected choice, such that participants primed with uniqueness arrays were more likely to choose the unique memo pad ($\beta = 1.195$, Wald = 6.72, $p < .05$). Whereas 49% of those primed with uniqueness arrays chose the unique memo pad, only 25% of those primed with homogeneity arrays did so. Thus, these data show that even incidental exposure to uniqueness arrays leads to more unique choices. The NFU variable also had a significant, positive effect on choice, such that high-NFU people were more likely to choose the unique memo pad ($\beta = 1.176$, Wald = 4.770, $p < .05$). On the basis of a median split of the NFU scores (Mdn = 3.06), we found that whereas 30% of the low-NFU group chose the unique memo pad, 44% of the high-NFU group did so.

In addition to testing the main effects of NFU and incidental exposure to shape arrays on choice, we examined whether the two factors interacted to affect choice behavior. We ran the full model including the two main effects and the two-way interaction. The results indicated that the interaction term was marginally significant ($\beta = -2.27$, Wald = 3.67, $p = .055$). Simple-slopes tests revealed that for low-NFU participants (defined as one standard deviation below the mean), the effect of the prime was highly significant ($\beta = 2.401$, Wald = 8.429, $p < .005$), whereas there was no effect of the prime among high-NFU participants (one standard deviation above the mean; $p > .5$). As Figure 3 shows, among low-NFU participants (based on a median split), the priming manipulation increased the share of the unique memo pad from 14% to 46%, whereas the increase was smaller and nonsignificant among high-NFU participants (from 36% to 52%).

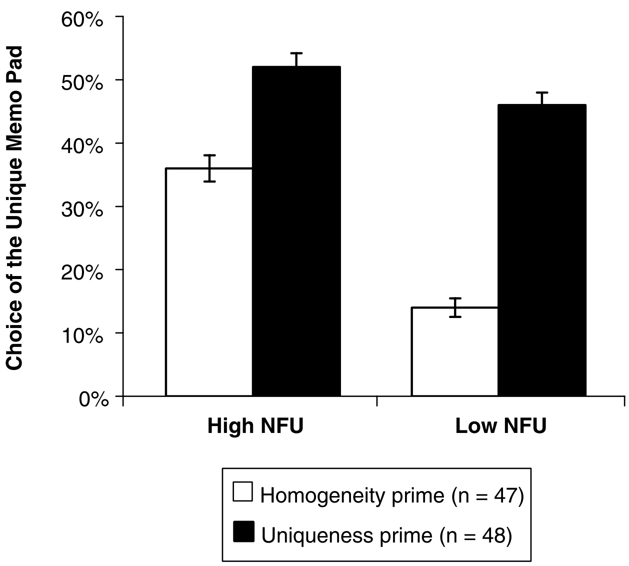
The finding that low-NFU people are more affected by the prime than high-NFU people is consistent with the idea that the goal to be unique is chronically accessible among high-NFU people because they pursue a uniqueness-seeking goal even in the absence of activation of the goal by the prime. More generally, these results suggest that the motivation to be unique can stem from either chronic (NFU) or situational (shape prime) sources and that either source is sufficient to induce uniqueness seeking.

To summarize, Study 3 establishes the generalizability of this type of manipulation. Specifically, participants in this study were incidentally exposed to the primes without being required to actively process (i.e., count) them. That we obtained these effects under these incidental exposure conditions suggests that active processing of the primes is not required for them to have an effect. We also generalized our findings to a somewhat more consequential and durable choice (i.e., memo pads), indicating that these findings do not apply only to quickly consumed goods. In addition, we showed that the uniqueness arrays can compensate for low chronic uniqueness-seeking motivation in driving the

[4]In Study 3, we also tested whether the observed effects would be moderated by the insertion of a delay between the prime and the choice task. This factor did not have any significant effects, and thus we do not discuss it further.

[5]In a linear regression analysis with NFU as the dependent factor and the priming manipulation as the independent factor, the effect was not significant ($p > .6$), suggesting that the long delay between the prime and the measurement of NFU was sufficient to eliminate any influence of the prime on participants' scores.

Figure 3
STUDY 3: UNIQUENESS VERSUS HOMOGENEITY: PERCENTAGE CHOOSING THE UNIQUE MEMO PAD AS A FUNCTION OF NFU AND SHAPE PRIME



choice of unique items. In our final two studies, we examine an additional boundary condition by testing the conceptual distinctiveness of our variety and uniqueness arrays.

In Study 1, we showed that exposure to variety arrays (e.g., ΔOO□OΔ□) increases variety seeking. In Studies 2 and 3, we showed that exposure to uniqueness arrays (e.g., OOOO□OO) increases choice of unique items, as does NFU. In our final two studies, we examine the extent to which the uniqueness and variety-seeking findings from the first three studies are conceptually distinct.

STUDY 4A

Some research suggests that variety seeking sometimes results from a desire to be unique. For example, when choosing drinks or dishes in a group, people tend to order items that differ from those others have ordered to present themselves as unique (Ariely and Levav 2000). This tendency is greater among high-NFU people. Thus, a person's NFU leads him or her to choose unique items (i.e., items different from what others chose), giving rise to group-level variety seeking.

Similarly, when people choose a series of items, they are likely to use a variety of "choice rules" (Drolet 2002). For example, after making choices from sets of items that promote compromise choices (e.g., portable grills, stereo speakers), people are subsequently likely to choose an extreme option when choosing an item from an unrelated set (e.g., microwaves). After making choices from sets of items that promote extreme choices (e.g., dental insurance, ice cream), people are subsequently likely to choose a compromise option. This tendency to switch choice rules is greater among high-NFU people. Similar results are found using manipulations and measures of culture (Kim and Drolet 2003) and are attributed to the greater propensity for uniqueness seeking among members of Western cultures.

On the basis of these studies, it might be questioned whether uniqueness and variety seeking actually represent different constructs. However, the variety-seeking contexts in the previously mentioned research differ from those in the current research. Here, variety seeking refers to choosing varied bundles of consumption. This is the most common operationalization of variety seeking. In Ariely and Levav's (2000) work, variety seeking is a group-level property that emerges from the independent and individual unique choices of the group members. In the work by Drolet and colleagues (e.g., Drolet 2002; Kim and Drolet 2003), variety seeking refers to rule switching, not to choosing variety. (Indeed, the paradigm required all participants to choose only a single item from each product category.) Thus, the extent to which uniqueness would predict the varied consumption we observed in Study 1 is an open question.

There is another methodological reason the uniqueness primes could promote variety seeking. Compared with our homogeneity primes (e.g., OOOOOOO), our uniqueness primes (e.g., OOOO□OO) could potentially activate variety because they contain slightly more variety than (but not nearly as much as) our variety primes. Thus, even if uniqueness and variety seeking are relatively distinct at the conceptual level, our operationalizations of the primes could potentially conflate the two.

To test the distinctiveness of these two constructs in our research context, Study 4a included three priming conditions—variety, uniqueness, and homogeneity. As in Study 1, we tested variety seeking by comparing choices participants made when choosing three among a variety of chocolates. Moreover, we measured NFU as an additional tool to distinguish the two constructs. Specifically, if variety seeking in our studies is driven by uniqueness motivation, we would expect to find that both uniqueness arrays and NFU increase variety seeking.

Method

Participants and design. Seventy-five students at a major West Coast university (57% female, mean age = 20.2 years) participated in exchange for $8 in a two-factor (priming manipulation: variety versus homogeneity versus uniqueness) × NFU (measured) between-subjects design.

Procedure. Participants first completed an unrelated word-completion task. Then, they completed the "visual perception study," which was similar to the one used in Study 1. In addition to the variety and homogeneity conditions, we included an additional condition in which participants saw uniqueness arrays, as in Study 2. In all conditions, participants were asked to count the squares and circles in each array. Participants then moved to another room where they made a few product choices. The first was a choice of three chocolates among four different types of Hershey chocolates, enabling us to test variety seeking (as in Study 1). Participants then returned to the first room and completed an unrelated experiment on consumer behavior for approximately ten minutes before completing the NFU scale, as in Study 3.[6] Finally, they indicated how important

[6]In a linear regression analysis with NFU as the dependent factor and two dummy variables for the three priming conditions as the independent factors, the effects were not significant (*p*s > .19), suggesting that the long delay between the prime and the measurement of NFU was sufficient to eliminate any influence of the prime on participants' scores.

they thought various features were in choosing the chocolates (e.g., having a variety of chocolates, flavors of chocolates) on a scale ranging from 1 ("not at all") to 7 ("very much"). Then, participants completed the debriefing form. The results indicated that no participants detected a connection between the relevant tasks, nor did they think of any specific concepts while counting the shape arrays. Participants were then debriefed and paid.

Results and Discussion

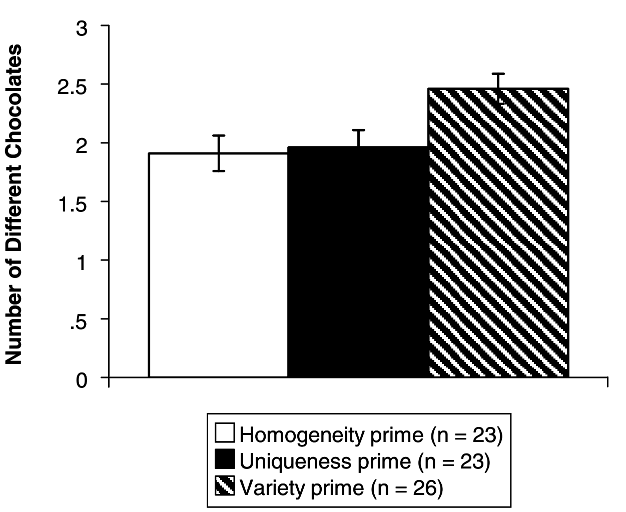
We predicted that variety arrays, but not uniqueness arrays, would increase variety seeking, consistent with the notion that the arrays activate two distinct constructs. The results supported this prediction. As Figure 4 shows, we replicated the effect found in Study 1, in which priming with variety arrays led to more variety seeking ($M_{variety}$ = 2.48, SD = .65; $M_{homogeneity}$ = 1.91, SD = .73).[7] Moreover, we found that priming with uniqueness arrays did not affect variety seeking ($M_{uniqueness}$ = 1.96, SD = .71). In a linear regression with two dummy variables as the independent variables (dum1 = 1 if condition = variety and 0 if otherwise; dum2 = 1 if condition = uniqueness and 0 if otherwise) and number of different flavors chosen as the dependent variable, we found an overall significant effect ($F(2, 68) = 4.98$, $p < .05$). Specifically, dum1 (comparing the effect of variety and homogeneity conditions) was significant ($t = 2.78$, $p < .01$), whereas the effect of dum2 (comparing the effect of uniqueness and homogeneity conditions) was not ($t < 1$).

To test the role of NFU, we ran an additional regression model, with the two dummy variables, the continuous measure of NFU, and the two-way interactions as predictors. Again, the only significant effect was that of dum1, which compares the effect of the variety and homogeneity conditions ($t = 2.59$, $p < .05$). These results show that NFU does not predict variety seeking in this context, nor does it interact with the priming manipulation as it did in Study 3. These findings support our conceptualization of uniqueness and variety seeking as distinct predictors of choosing varied assortments for personal consumption.

[7]Four participants did not want chocolates, and thus we excluded them from further analysis.

Figure 4

STUDY 4A: VARIETY VERSUS UNIQUENESS VERSUS HOMOGENEITY: NUMBER OF DIFFERENT CHOCOLATES CHOSEN AS A FUNCTION OF SHAPE PRIME



We also examined whether our priming manipulation consciously affected participants' reasons for choosing the chocolate they did. Although our debriefing indicated that no participants were aware that the shapes represented a particular construct or thought that the shapes had any effect on their judgments, the shapes might have subtly altered their conscious perceptions of the importance of variety in making their choice.

To examine this, we analyzed the ratings of attribute importance reported by the participants on the seven-point scales. Not surprisingly, participants who chose more variety indicated that having a variety of chocolates was more important to them ($M_{one\ flavor}$ = 2.67, $M_{two\ flavors}$ = 3.59, $M_{three\ flavors}$ = 5.63; $t = 5.77$, $p < .001$). However, in a regression model with dum1, dum2, NFU, and their interactions predicting the perceived importance of having variety, none of the effects were significant (*p*s > .3). Moreover, controlling for perceived importance of variety actually increased the overall effect of the priming manipulation on choice ($F(3, 67) = 17.2$, $p < .001$) and the effect of dum1 (comparing variety and homogeneity conditions; $t = 3.1$, $p < .005$); the effect of dum2 (comparing uniqueness and homogeneity) remained nonsignificant ($t < 1$). These results suggest that the effects of the priming manipulation were not due to conscious changes in the perceived importance of variety. Neither the priming manipulation nor the number of chosen flavors was related to the importance ratings of the other attributes (flavors of chocolates, overall attractiveness, likelihood of liking, likelihood of regretting choice; *p*s > .39).

To summarize, in Study 4a, we replicated the previously observed effect in which exposure to variety arrays leads to increased variety seeking. Moreover, we established an important boundary condition to our priming manipulation because we found that exposure to uniqueness arrays and NFU do not increase variety seeking. These findings suggest that, at least in the context of our studies, variety seeking was not driven by uniqueness motivation. Previous work suggesting a linkage between these two constructs has not examined choice of varied products for personal consumption but rather individual uniqueness seeking giving rise to varied group-level choices (Ariely and Levav 2000) and variety of choice rules (e.g., compromise versus extreme options; Drolet 2002). Thus, it appears that different forms of decision influences underlie these other types of effects.

STUDY 4B

Study 4a showed that the uniqueness and variety arrays had different effects on variety seeking; only variety arrays increased variety seeking. In Study 4b, we tested whether the effects of the arrays would be similarly distinct with respect to uniqueness seeking. We predicted that the effects of the arrays would be distinct, such that uniqueness arrays, but not variety arrays, would increase uniqueness seeking.

Method

Participants and design. Sixty-four students at a major West Coast university (61% female, mean age = 20.5 years) participated in exchange for $9 in a single-factor (priming manipulation: uniqueness versus variety versus homogeneity) design.

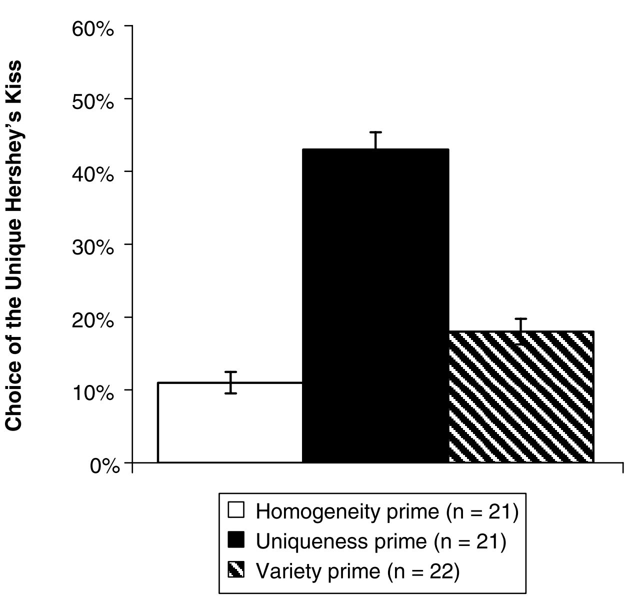
Procedure. As in Study 4a, participants first completed the unrelated word completion task and then the visual perception task, which manipulated the three priming conditions: uniqueness, variety, and homogeneity. Participants then moved to another room and were invited to choose a Hershey's Kiss, as in Study 2. Choosing the uniquely colored Hershey's Kiss was our indicator of uniqueness seeking. After completing unrelated tasks for approximately 15 minutes, participants indicated the importance of various features in choosing the chocolate (e.g., uniqueness of the chocolate, attractiveness, likelihood of liking it) on a scale ranging from 1 ("not at all") to 7 ("very much"). Finally, participants completed the debriefing form. The results indicated that no participants detected a connection between the relevant tasks, nor did they think of any specific concepts while counting the shape arrays. Participants were then debriefed and paid.

Results and Discussion

We predicted that uniqueness arrays, but not variety arrays, would increase uniqueness seeking, consistent with the notion that the arrays activate two distinct constructs. The results indicated that only exposure to uniqueness arrays led to uniqueness seeking. As Figure 5 shows, whereas 43% of participants primed with uniqueness arrays chose the uniquely wrapped Hershey's Kiss, only 14% of those primed with homogeneity arrays and 18% of those primed with variety arrays did so. In a logistic regression with two dummy variables as the independent factors (dum1 = 1 if condition = variety and 0 if otherwise; dum2 = 1 if condition = uniqueness and 0 if otherwise) and choice as the dependent factor (choice of the unique chocolate coded as 1), we found that dum2 (comparing the effect of uniqueness and homogeneity conditions) was significant (Wald = 3.88, $p < .05$), whereas the effect of dum1 (comparing the effect of variety and homogeneity conditions) was not (Wald < 1). Thus, the uniqueness arrays led to increased uniqueness seeking, but the variety arrays did not. Taken together, Studies 4a and 4b demonstrate that the variety and uniqueness arrays have unique consequences for choice and suggest that variety and uniqueness are distinct constructs, at least in the current research context.

Figure 5

STUDY 4B: UNIQUENESS VERSUS HOMOGENEITY VERSUS VARIETY: PERCENTAGE CHOOSING THE UNIQUELY COLORED HERSHEY'S KISS AS A FUNCTION OF SHAPE PRIME



As in Study 4a, we examined whether our priming manipulation consciously affected participants' reasons for choosing the chocolate they did. Although no participant reported thinking about any specific concept while viewing these shapes, the arrays might have subtly affected their conscious perceptions of the importance of uniqueness in selecting the unique chocolate.

To examine this, we analyzed the ratings of attribute importance reported by the participants on the seven-point scale. Not surprisingly, participants who chose the uniquely colored chocolate indicated that the uniqueness of the chocolate was more important to them ($M_{unique} = 3.5$, $M_{common} = 2.5$; $F = 5.46$, $p < .05$). However, in a linear regression model with two dummy variables for the three conditions predicting the perceived importance of uniqueness of the chocolate, none of the effects were significant (ps > .7). Controlling for perceived importance of uniqueness in the logistic regression model to predict choice of the unique chocolate had almost no effect on dum2 (comparing uniqueness and homogeneity conditions; Wald = 3.76, $p = .05$), and the effect of dum1 (comparing the variety and homogeneity conditions) remained nonsignificant (Wald < 1). As in Study 4a, these results suggest that the effects of the priming manipulation were not due to conscious changes in the perceived importance of uniqueness. Finally, neither the priming manipulation nor the uniqueness of chosen chocolate was related to the importance ratings of the other attributes (color of chocolate, overall attractiveness, likelihood of liking, likelihood of regretting choice; ps > .3).

GENERAL DISCUSSION

Across five studies, we found that novel, simple arrays of geometrical shapes affect consumers' actual choices. In Study 1, we showed that exposure to variety arrays increases the tendency for variety seeking. In Study 2, we demonstrated that exposure to uniqueness arrays increases choice of unique chocolates, which generalizes the effect to another choice domain. In Study 3, we demonstrated that the effect of uniqueness arrays on choice is evident even when exposure to these arrays is only incidental. Moreover, we found that chronic and situational factors interacted to determine choice. High-NFU people were more likely to choose the unique item regardless of priming condition, but low-NFU people did so only when exposed to the uniqueness arrays. Finally, in Studies 4a and 4b, we replicated the effects found in Studies 1–3 and demonstrated that uniqueness and variety are distinct constructs in our context; we found that (1) exposure to variety arrays increases variety seeking but does not lead to uniqueness seeking and (2) exposure to uniqueness arrays increases uniqueness seeking but does not increase variety seeking.

Theoretical Implications

The studies we report herein add to the existing literature on the various effects on choice behavior in general and on uniqueness and variety seeking in particular. Previous research on these two choice contexts has examined a variety of moderators, such as culture (Kim and Markus 1999), settings of consumption (Ratner and Kahn 2002), and priming of specific choice rules (Fishbach, Ratner, and Zhang 2007). The current research builds on these studies by showing that even exposure to novel stimuli with no inherent meaning or preexisting associations, such as arrays of geometrical shapes, affects real choice behavior. Moreover, the finding that uniqueness arrays and variety arrays lead to different choice behavior contributes to the literature on variety seeking. Specifically, whereas previous research has proposed the need to appear unique as a possible drive for variety seeking (e.g., Ariely and Levav 2000; Drolet 2002), our findings suggest that uniqueness motivations, activated by uniqueness arrays and assessed by chronic NFU, do not affect choice of varied bundles for consumption.

Although this research focused on these two content and behavioral domains (i.e., uniqueness and variety seeking), we believe that they are a small subset of the potential constructs that could be subtly activated by these abstract stimuli. For example, in social contexts, exposure to an array such as OO O could activate separation and alienation, whereas exposure to an array such as OO could activate friendship and closeness, leading to different behaviors and judgments.

In our studies, the choice behavior in the homogeneity conditions was similar to what would be predicted by chance (the unique option was chosen by approximately 20%, and an average of approximately two flavors was chosen in the variety studies). Moreover, in the pretest discussed previously, we found that exposure to uniqueness arrays indeed increased accessibility of uniqueness words, but exposure to homogeneity arrays did not increase accessibility of homogeneity words. Taken together, these findings imply that the effects of our primes may be driven by the uniqueness and variety conditions and not by the homogeneity condition. It is possible that homogeneity arrays conveyed homogeneity less clearly than uniqueness and variety arrays conveyed uniqueness and variety, respectively, making it easier to prime uniqueness and variety than homogeneity. Alternatively, floor effects may explain why we did not observe lower rates of choice of unique options in the homogeneity conditions.

The finding that the effect of these shape arrays interacts with chronic motivation to seek uniqueness adds to a growing body of literature examining interactions between chronic and situational factors that influence consumer behavior (e.g., Aaker and Lee 2001; Briley, Morris, and Simonson 2000; Simonson and Nowlis 2000). In contrast to the more blatant situational factors explored in previous research (e.g., providing reasons for choice, message framing), Study 3 demonstrated an interaction between a subtle situational factor (incidental exposure to arrays of shapes) and a dispositional factor (chronic NFU). The results show that dispositional and primed motivations can interact to determine behavior and that, in some cases, situational activation of motivation-related constructs can compensate for low levels of chronic motivation, such that either source is sufficient to lead to motivation-consistent behavior.

More generally, the studies we report herein extend the range of stimuli previously assumed to affect behavior. Previous research on priming has used objects with clear associations, such as words, stereotype targets, or stereotypical objects, as the priming stimuli. The finding that people spontaneously extract high-level concepts and have their choices altered by priming stimuli that have no preexisting associations or inherent meaning adds to the understanding of human perception and information processing by showing the ubiquity of people's categorization processes and their implications for observable behavior. In addition, the finding that these impoverished stimuli automatically affect behavior suggests that nonconscious priming effects on behavior are not limited to the more social constructs, such as stereotypes (e.g., Bargh, Chen, and Burrows 1996), traits (e.g., Kay et al. 2004), or goals (e.g., Fishbach, Dhar, and Zhang 2006), that have characterized the automatic behavior literature but can extend to more abstract, nonsocial concepts (e.g., variety).

Finally, at a more cognitive level, the current studies build on research on spontaneous categorization of social targets on various criteria, such as age, race, gender, and traits (for a review, see Carlston and Smith 1996), by showing that people spontaneously categorize novel visual stimuli even when the stimuli represent rather abstract and peripheral qualities not associated with any particular category (e.g., uniqueness). That people extract such concepts even when engaged in an incidental task suggests that categorized objects need not be social, central, or even frequently encountered to be automatically activated on exposure to a stimulus.

Practical Implications

That incidental exposure to these simple stimuli has reliable effects on actual choices has considerable practical implications. The simplicity of these shape arrays enables them to be used in mundane situations to convey various concepts. For example, a brand that wants to subtly convey its uniqueness could choose one of the uniqueness arrays presented here as a logo. Through the subtle linkage of the company with uniqueness, the company might avoid the types of counterarguments that are likely to accompany more blatant company claims (e.g., Friestad and Wright 1994). Because such stimuli, on the face of it, do not convey any particular construct, they are unlikely to be recognized as potential biasing or persuasion agents.

Moreover, the finding that these arrays affect choice even when people are only incidentally exposed to them (in Study 3, participants did not count the shapes) is highly important to marketers. In most consumption environments, consumers are exposed to multiple stimuli and are not able to process them all actively. That these arrays affect choice even when consumers do not actively think about them extends the range of possible implementations of these ambiguous visual stimuli because it allows for their subtle and nonobtrusive usage to convey certain ideas and affect choice behavior.

These findings suggest several potential market tests. For example, would shopping carts decorated with homogeneous versus heterogeneous pictures affect the variety of consumers' baskets? Would pictures of many different ice-cream flavors in an ice-cream shop increase selection of multiple flavors in double scoops? Would brands with uniqueness-related logos appeal more to niche versus mass-market customers? Could companies promote choice of unpopular products through exposure to uniqueness arrays?[8] These and many other possibilities provide exciting avenues for further research.

That mere exposure to simple stimuli, such as shape arrays, has such dramatic effects on choice highlights the importance of understanding basic perceptual influences on consumer decision making, a topic that has previously received insufficient attention. Our findings suggest that the range of influences on consumer choices is likely to be considerably greater than consumers consciously recognize or consumer behavior theorists have thus far explicitly identified. These results illustrate the broad range of potential applications of nonconscious consumer influence techniques and point to the large influence of small factors in consumer choice.

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