

Sweet instigator. Choosing increases susceptibility to affective product features.

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Sweet instigator. Choosing increases susceptibility to affective product features.

The present research demonstrates that repeated active choice-making increases the susceptibility of consumers to salient affective product features. We show that affective features influence product choice more after a series of active product choices than after a series of compliances with purchase instructions. The combined results of three experiments suggest that repeated choice gradually depletes the mental capacity required for critical evaluation of choice alternatives, while ruling out alternative explanations. The results are discussed in terms of their implications for theory and management of impulse purchasing.

Keywords: Self-control depletion; Consumer decision-making; Choice; Affective product features; Cognitive product features

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Imagine that you have promised your significant other that you would do today's shopping. Inside the store, you have a hard time choosing the best colour for a new coffee mug. Should it be blue or should it be yellow? Moreover, you have difficulties deciding between one of two familiar-looking brands of laundry detergent because there is nothing on the shopping list that specifies which brand. To complicate matters even more, you find it taxing to determine how many apples to purchase, as your shopping list is also unclear as to how many are needed. You struggle through the rest of the list choosing and selecting items to the best that you can. Then you see the freezer full of ice cream. Ice cream is the last item on your shopping list. There is a less expensive, less attractive brand of ice cream but also a more expensive and more delicious brand. You remember that you are on a limited budget but cannot resist the temptation. In the end, you buy the more expensive, more delicious ice cream. We propose that you may not have succumbed to the delicious-looking (and more expensive) ice cream if you had not previously made choices among coffee mug colours, laundry detergents, or calculated how many apples to buy. Specifically, we submit that the ability to stick to a fixed budget is impaired by previous episodes of making choices. In this paper we present three studies to support this claim.

Several decades ago, researchers began to recognize that consumer purchase decisions are driven by more than the tangible product or service being offered for sale. Indeed, the tangible product is but a small part of the total product. In addition to tangibles, the product includes pleasantries, images, packaging, advertising, and other product features, all of which are thought to receive considerable attention in consumer choice making (Kotler, 1973). Now researchers know that consumer purchase decisions are influenced by considerations of both affective and cognitive product features.<sup>2</sup> Affective product features furnish fun, pleasure, fantasy and excitement. In contrast, cognitive product features are primarily instrumental, functional and goal-oriented (Dhar & Wertenbroch, 2000). When consumers give more weight to affective product features at the expense of cognitive product features,

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<sup>2</sup> Affective and cognitive considerations have been referred to as desire and willpower (Hoch & Loewenstein, 1991), as vice and virtue considerations (Wertenbroch, 1998), as parts of the hot emotional and the cool cognitive system (Metcalf & Mischel, 1999), or as hedonic and utilitarian considerations (Dhar & Wertenbroch, 2000). For the sake of clarity, we will use the terms 'affective' and 'cognitive' throughout the remainder of the paper, following Shiv and Fedorikhin (1999).

they may be prone to making suboptimal purchase decisions that will bring regret later (cf. impulsive spending; Rook, 1987; Rook & Fischer, 1995; Rook & Hoch, 1985). We argue that susceptibility to affective product features can be brought about by a lack of self-control strength, a concept considered as a guiding force behind self-control. In this paper, we argue that it requires self-control strength to give sufficient weight to cognitive product features and therefore not succumb to the enticement of affectively-laden product features. Moreover, the current approach views engagement in a repeated choice-making process as one route by which self-control strength is depleted. Accordingly, an overvaluation of affective product features is thought to come about because of depleted self-control strength, a state that may well be a consequence of the shopping process itself.

Previously studied determinants of susceptibility to affective product features

It has been argued that consumer purchase decisions can be influenced by the atmosphere of the location in which the products are purchased (Kotler, 1973). Consumers may overvalue affective product features at the expense of cognitive product features because of in-store atmospherics. Research has documented that consumers' behaviour can be influenced by the atmosphere created by retail management (for reviews see Bitner, 1992; Lam, 2001; Turley & Milliman, 2000). Apparently, store environments can evoke affect along the dimensions of pleasure, arousal and dominance (a theory known as the PAD model), and each of these components have been shown to influence consumer decision making (Babin & Darden, 1995; Donovan & Rossiter, 1982; Lam, 2001; Mehrabian & Russell, 1974). The strength of affective response induced by the in-store environment varies with the degree of environmental stimulation. A general measure of environmental stimulation is the "load," or degree of novelty and complexity in the environment (Donovan & Rossiter, 1982; Mehrabian & Russell, 1974). Examples of in-store atmospheric variables that impact the environmental load and thus consumer behaviour are music, odor, colour, lighting, and point-of purchase variables such as a prominent product display (Turley & Milliman, 2000). According to Donovan and Rossiter (1982), affective responses induced by the in-store environment determine the extent to which consumers spend beyond their expectations. In support of this idea, research has shown that variations of atmospheric variables have an influence on

the amount of money people spend and the number of items they purchase (Turley & Milliman, 2000). Moreover, the affective factors of pleasure and arousal predict longer time spent in the store and increased unplanned spending, effects that have been shown to be independent of cognitive factors such as variety and quality of merchandise and value for money (Donovan, Rossiter, Marcoolyn, & Nesdale, 1994).

Hence, there is considerable evidence that in-store atmospherics – through the novelty or complexity of the stimulation in the store - can create shopping experiences that are both affect-enhancing and cognitively demanding. As a result, shopping experiences can reduce consumers' available cognitive resources and enhance consumers' susceptibility to affective product features.

Research on the effect of environmental load has focused only on the concurrent taxing of cognitive resources on consumers' susceptibility to affective product features. Building on the self-control literature however, we aimed to demonstrate that susceptibility to affective product features can also be a consequence of previous taxation of scarce self-resources. Specifically, we focus on engagement in a series of product choices as a determinant of overvaluation of affective product features in a purchase situation. We investigate consumer choice making in the context of a realistic shopping situation. We expect that consumers engaging in repeated choice-making of the kind that occurs as the result of the shopping process will be susceptible to affective product features.

Our rationale for this reasoning is twofold. First, there is both theoretical and empirical evidence that it requires self-control strength to give sufficient weight to cognitive product features. Hence, giving more weight to affective product features and less weight to cognitive product features suggests a lack of available self-control strength (Hoch & Loewenstein, 1991; Metcalfe & Mischel, 1999; Shiv & Fedorikhin, 1999). Second, research on repeated choice-making has demonstrated that it brings about a loss of self-control due to a depletion of self-regulatory resources (Vohs et al., under review). Hence, the present paper considers consumer involvement in repeated choice-making (e.g., through the process of shopping) as a key factor determining subsequent susceptibility to affective product features. Both lines of reasoning will be elaborated on in the next paragraphs.

## Lack of self-control resources and susceptibility to affective product features

There is both theoretical and empirical evidence to suggest that preferences for affective product features (relative to cognitive product features) imply low levels of self-control. Theoretically, it has been argued that consumers will choose the attractive product when they lack sufficient self-control resources (Hoch & Loewenstein, 1991; Metcalfe & Mischel, 1999). Empirically, it was found that consumers with sufficient resources were better able to resist attractive product features, whereas this was more difficult for consumers who lacked resources (Shiv & Fedorikhin, 1999).

Hoch and Loewenstein's (1991) theoretical framework of consumer purchases as a struggle between affective and cognitive considerations points strongly to lowered self-control as one primary reason. According to this analysis, when affective considerations exceed cognitive considerations, consumer self-control breaks down.

Metcalfe and Mischel (1999) have argued that affective and cognitive representations can be conceptualized as two separate but interacting systems. Typically, responses that are determined by affective considerations are either approach or avoidance patterns. In contrast, responses that are established by cognitive considerations consist of descriptions, statements, assertions, and commentaries (i.e., reflections). According to Metcalfe and Mischel (1999), self-control ability is determined by the capacity to limit the dominance of affective considerations in the service of cognitive goal pursuit. This is possible through engagement in cooling operations such as distraction, symbolic transformations of the affective stimulus, avoiding drift to affective considerations, and enriching cognitive considerations. However, the extent of cognitive elaboration varies depending on several factors. When affective considerations are dominant, salient exposure of the affective product features will tend to elicit the automatic relevant response. Framed according to the self-regulatory resource model, this suggests that consumers will buy the attractive product when they lack sufficient self-control resources.

Trade-offs between affective and cognitive considerations have also received empirical attention (Babin & Darden, 1995; Hinson, Jameson, & Whitney, 2003; Read & van Leeuwen, 1998). For instance, it has been shown that consumer choice between affective and cognitive product features depended on whether consumers had sufficient cognitive resources (Shiv & Fedorikhin, 1999). Consumers who were

under high cognitive load were significantly more influenced by affective product features than consumers who were under low cognitive load. In other words, consumers with sufficient resources were better able to resist attractive product features, whereas this was more difficult for consumers who lacked resources. In the present research, we show that susceptibility to affective products can also be a consequence of previous taxation on scarce self-resources. Specifically, we focus on repeated choice-making as a determinant of preference of affective products over cognitive products.

### Active choice-making and self-control depletion

The capacity to exert self-control is an important feature of human nature. Self-control refers to the self's capacity to alter its own responses. In general, people are able to regulate their thoughts, control their emotions, alter their performances or inhibit their impulses. However, people sometimes lose control and fail at self-control (Baumeister, Heatherton, & Tice, 1994). According to Baumeister and colleagues (Baumeister, Bratslavsky, Muraven, & Tice, 1998; Muraven, Tice, & Baumeister, 1998; Vohs & Heatherton, 2000; Vohs, Baumeister, & Ciarocco, 2005), all acts of self-control draw on a common limited resource that is akin to energy or strength. Hence, exertion of self-control is necessarily followed by a period of diminished capacity to exert subsequent self-control. Eventually, with sufficient rest, the resource should build up again.

Studies on self-control depletion typically use a two-task paradigm. Participants are asked to exert self-control and then perform a subsequent, seemingly unrelated task that also requires self-control. In over 40 published experiments (see Baumeister, Schmeichel, & Vohs, under review; Vohs & Baumeister, 2004, for a review), it has been found that the first self-control task reduces performance on the second self-control task. Researchers have attempted to demonstrate self-control depletion in diverse circumstances. For instance, controlling one's emotions or suppressing forbidden thoughts induced people soon afterwards to show impaired physical stamina or to give up quickly on unsolvable anagrams (Muraven et al., 1998). Likewise, eating radishes instead of tempting chocolates or suppressing one's emotions caused people soon afterwards to quit faster on unsolvable puzzles or to show impaired performance on solvable anagrams (Baumeister et al., 1998).

Resisting good-tasting snacks or controlling one's emotional expressions made dieters eat more ice cream in the next task (Vohs & Heatherton, 2000).

There exists evidence that choosing requires self-control and therefore depletes regulatory resources. Baumeister et al. (1998) found that making a meaningful personal choice (i.e., deciding whether or not to make a counter-attitudinal speech) caused people to quit faster on unsolvable puzzles than people who did not have to make this choice beforehand. A more extensive test was conducted by Vohs et al. (under review), who asked some participants to make a series of choices among household products or to choose about features of a product class (i.e., choice participants), whereas other participants evaluated the same products and product features but did not make any choices (i.e., these were no choice participants). Subsequently, choice participants were found to drink less of a bad-tasting beverage (Study 1 and Study 2), persist less on a cold water pressure task (i.e., keeping one's hand in water of 5°C; Study 3), and perform worse on a math task (Study 4) than no choice participants. In Study 5 (Vohs et al., under review) people were approached at a shopping mall and asked to complete a choice questionnaire. Subsequently, all respondents were asked to solve 100 addition problems. As predicted from the choice-depletion hypothesis, people who had made a lot of difficult choices during their shopping trip performed poorly on the addition problems. Vohs et al. (under review) concluded that across a wide variety of circumstances, active choice-making depletes self-control resources. These findings are in line with earlier accounts that stressed active guidance by the self as requirement for all kinds of complex forms of information processing, including active choice-making (Schmeichel, Vohs, & Baumeister, 2003).

### The current studies

Susceptibility to affective product features might be affected by the shopping process itself. This reasoning assumes two steps. First, resistance to exaggerated influence of affective product features requires self-control. Therefore, self-control depletion is likely to make consumers more susceptible to affective product features. Second, Baumeister (2002) suggested that shopping may tax consumers' resources, in part because it involves a series of active choices. If this is true, at the conclusion of a shopping trip consumers should be rather susceptible to affective product features at



the cost of cognitive product features. In the present research, we tested the hypothesis that making a series of product choices would heighten consumers' susceptibility to affective product features.

In three studies, we assessed susceptibility to affective product features after engaging in depleting versus non-depleting choice tasks. In Study 1, participants were either asked to make a series of six binary product choices (i.e., depleting choice task), or were instructed to select the same product as the participant before them had done (i.e., non-depleting choice task). Afterwards, participants were given the opportunity to choose between an attractive but expensive product and a cheaper but less attractive product. Given similar functionality, one would expect people in a non-depleted state to prefer the cheapest option. However, if depletion through active choice-making increases the weight of affective product features at the expense of the weight of cognitive product features, depleted participants would be expected to select the more attractive (but expensive) product more often than non-depleted participants, a prediction that received support in Study 1. In Studies 2 and 3, participants either were given the option of choosing as many single pieces of candy as they wanted from each of six different flavors of candy (i.e., depleting choice task), or were instructed to select the same number of items of those six types of candy as the participant before them had done (i.e., non-depleting choice task). In Study 2, the dependent measure of consumption was operationalized as purchase of a very attractive but overpriced type of candy, whereas in Study 3 the consumption measure was purchase of a very attractive but overpriced type of candy versus a less attractive but a cheaper type of candy. Again, if depletion as a result of active choice-making increases the weight of affective product features at the expense of the weight of cognitive product features, depleted participants would be expected to buy more items of the attractive but overpriced candy than non-depleted participants. As predicted, we found support for this claim in Studies 2 and 3.

### Study 1

In previous research, it has been shown that making a series of inconsequential choices leads to self-control depletion (e.g., Vohs et al., under review). We built on these studies to test the hypothesis that self-control depletion through active choice-making increases subsequent susceptibility to affective product features. In the *choice*

*condition*, participants were asked to make six binary product choices. For five of these six product pairs, the two products were equally attractive and equivalently priced. Accordingly, choosing between those products was expected to be difficult and hence, depleting. In the *no choice condition*, participants' choices were yoked to the choice condition participant before them, such that participants were instructed to select the same products as the choice condition participant before them had done. Hence, no choice participants did not have to ponder over options and consequently their task was considered to be non-depleting. Subsequently, all participants in both conditions made one binary product choice as the measure of importance of cognitive versus affective product features. Within this product pair, one product was more attractive but more expensive than the other product. Given similar functionality, attractiveness was considered to be a relatively affective product feature, whereas price was considered to be a relatively cognitive product feature. It was hypothesized that choice participants (i.e., participants in the choice condition) would be relatively more influenced by the affective (i.e., attractiveness) rather than the cognitive (i.e., price) feature than no choice participants (i.e., participants in the no choice condition).

### *Method*

*Participants.* Participants were 101 undergraduate students. Data from 12 participants (12 %) were discarded because they did not comply with the instructions by not buying the products in the assigned order. Of the remaining 89 participants, 62 were women. Ages ranged from 18 to 31 years ( $M = 21.42$  years,  $SD = 2.20$  years). Participants were rewarded with money and with a gift for their cooperation. The money and the gift had a combined value of €7.5. All participants were recruited through the internet.

*Materials.* A store was simulated in the laboratory. Eleven product categories were displayed on a table. Seven of these product categories were on the shopping list that participants received upon entering the shop. The remaining four product categories served as fillers.<sup>3</sup> Each product category consisted of two products. Results of a pretest conducted in the same population ( $n = 42$ ) showed that both

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<sup>3</sup> The seven product categories on participants' shopping lists were light bulbs, coasters, candles, drinking straws, Christmas cards, chocolates and staples. The four filler product categories were drinking glasses, cactuses, alarm clocks and pens.

products in each pair were equally attractive for the five product categories of interest. Those products all received the same price label, €1, which was close to their retail price. As a result, choosing between the two products within each of these five product categories was expected to be difficult and hence, depleting. A second independent pretest also in the same population ( $n = 42$ ) showed that the perceived prices for the two products in each of these five pairs did not differ.

The two pretests also showed that for two product categories of interest, the two options differed in attractiveness and perceived price. Those two remaining product categories served as our target product categories. We selected two product categories as a first step towards generalizability. In both categories, we created a conflict between the affective and the cognitive aspects. The affective aspect was attractiveness. The cognitive aspect was price. One product category was staples, which were either multi-coloured or ordinary gray staples. Because coloured staples were regarded as more attractive than regular gray staples, we priced the coloured staples at €1.20 and the gray staples at €0.90. A second product category was chocolates. Santa Claus-shaped chocolates were regarded as more attractive than elf-shaped chocolates. The Santa Claus-shaped chocolates were priced at €1 and the elf-shaped chocolates at €0.90. In both cases, prices were selected such that the price difference was larger than the perceived price differences (following the pretest). Order of chocolate versus staple category was counterbalanced, so that half of the participants first saw the chocolate-shape product category on their shopping list and the staples last, and vice versa for the other half of participants. For convenience, we refer to the attractive but expensive product as the affective product and to the cheap but less attractive product as the cognitive product.<sup>4</sup>

*Procedure.* The present experiment was the first in a series of unrelated studies. Participants were scheduled to come to the laboratory individually. Upon arrival, they were asked to watch a five-minute computer presentation with landscape pictures and peaceful music. The aim of this presentation was to reduce differences that may have existed in pre-experimental levels of self-control depletion. A pretest ( $n = 77$ ) indeed showed that this presentation reduces feelings of stress and increases reports of calm.

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<sup>4</sup> There were no visible brand names on the products. Therefore, participants could not choose products based on familiarity with a particular brand.

After the presentation, participants were invited to visit a simulated store. They received a shopping basket and were told to pick seven products from a shopping list. Participants received €7.5 and were explained that at the end of the experiment, they would have to actually buy one of the products they had picked. This product would be randomly determined by means of a lottery. This procedure is incentive compatible (e.g., Wertenbroch, 1998). It was made clear that the more expensive the product to purchase at the end of the experiment, consequently the less money that would be left of the €7.5 to take home. Hence, this incentive compatible procedure does not necessarily bias participants towards choosing affective products.

At this point, participants were randomly assigned to one of two conditions: a choice or a no choice condition. Participants in both conditions received a shopping list. In the *choice condition*, the shopping list consisted of seven product category names. For each of these seven product categories, participants had to decide which of the two options to select. In the *no choice condition*, the shopping list contained the names of six products instead of product categories. Only for the last product category, which represented the dependent measure, did participants have to make a decision between two options. To increase comparability between the two conditions, no choice participants were yoked to the choice participants with respect to the product choices. Hence, in terms of an account of actual selections, the no choice and choice conditions had identical selections for all products until choice number six. The major difference was that the no choice condition involved no active choice-making regarding the first six products on the shopping list.

To ensure that mood did not differ as a function of having or not having to make choices, a pretest ( $n = 36$ ) was conducted. The results showed that the choice manipulation did not induce significant differences in positive ( $F(1, 34) = 0.18, p = .67$ ) or negative affect ( $F(1, 34) = 0.05, p = .83$ ) as measured by the Positive Affect Negative Affect Scale (Watson, Clark, & Tellegen, 1988). Furthermore, in both conditions, the time required to pick up every single product and to put it in the shopping basket was registered.

Subsequently, by means of a lottery game, it was determined which product participants had to buy with part of their €7.5. At the end of the experiment, participants were debriefed and thanked.

## *Results and discussion*

We predicted that participants in the choice condition would show more susceptibility to affective product features than participants in the no choice condition and thus purchase the affective product more often than the cognitive product. To test this hypothesis, we conducted a logistic regression analysis with choice (no choice versus free choice) as the predictor variable, shopping time as a covariate, and product choice as the dependent variable. This analysis indicated that choice participants chose the affective product significantly more often (53.5%) than no choice participants (37.0%),  $Wald \chi^2 (Df = 1) = 6.50, p < .05$ .

Shopping time was inserted as a covariate because preliminary analyses revealed significant differences in shopping times between the choice and the no choice condition,  $F(1, 83) = 20.84, p < .0001$ . Average shopping times were significantly lower for no choice participants ( $M = 50.98$  s,  $SD = 18.66$  s) than for choice participants ( $M = 71.56$  s,  $SD = 22.82$  s). Preliminary analyses showed no effects of gender or product replicate on the dependent measure of product choice. Therefore, these variables were omitted from the analyses.

Study 1 tested the idea that consumer choice changes attraction to affective and cognitive aspects of products. We found that after a series of active product choices, affective product features were chosen more often as compared to products purchased after a similar task but which did not involve choosing.

Even with these encouraging results, two alternative explanations are possible. First, choice participants needed more time to complete the shopping task than no choice participants. The choice condition may have led to a more real life shopping experience than the no choice condition, and hence may have increased the personal relevance of the last product choice. Because of increasing relevance, the attractiveness might have received more attention, and hence affected choice more in the choice condition than in the no choice condition. However, time spent shopping was statistically controlled for, which mitigates this possible explanation. A second alternative explanation involves the idea that the percentage of affective choices in the experimental condition is a random choice process, given that the percentage of affective choices was 53.5%, which is statistically equivalent from 50%. Studies 2 and 3 were designed to tackle these concerns and replicate the depletion effect of product choice.

## Study 2

Study 2 was a conceptual replication of Study 1 that additionally corrected the time confound of Study 1 by altering the demands of the shopping task to require equal amounts of time shopping.

As in Study 1, we used making product choices as a manipulation of self-control depletion. In the *choice condition*, participants were asked to choose as many single pieces of candy as they wanted from each of six different flavors of candy. In the *no choice condition*, participants were instructed to select the same number of items of those six types of candy as the participant in the choice condition before them had done. Subsequently, participants in both conditions were given the opportunity to buy as much candy as they wanted of a highly appealing type of candy. The price of the candy was set as much higher than its retail price, and thus the price (which was a cognitive feature) was a negative feature. However, because the candy was very appealing, its expected taste (i.e., an affective feature) was a rather positive feature. In line with our hypothesis and the findings of Study 1, we expected that choice participants would be more affected by the affective product feature relative to the cognitive product feature, and hence they would purchase more of the attractive candy than no choice participants.

### *Method*

*Participants.* Participants were 47 undergraduate students. Data from 3 participants (6 %) were discarded because they did not comply with the instructions by not buying the products in the assigned order. Of the remaining 44 participants, there were 14 men and 30 women. Their age ranged from 19 to 25 years ( $M = 21.45$  years,  $SD = 1.42$  years). All students participated in order to receive partial course credit. They were also rewarded with money and with a gift. The money and the gift had a combined value of €2.

*Materials.* A store was simulated in the laboratory. Seven bowls filled with approximately 200 grams of candy were displayed on two tables. All seven types of candy in the bowls were on the shopping list that participants received. Results of a pretest conducted in the same population ( $n = 32$ ) showed that the attractiveness of six

types of candy was equivalent and high. In close accordance with actual prices, three types of candy received a price label of €0.60 per 100 grams and the other three types of candy received a price label of €0.80 per 100 grams. The pretest also showed that one type of candy (i.e., wrapped mini-chocolates) was more attractive than the other types of candy. This type of candy served as our target candy and therefore was last on participants' shopping list. We priced this attractive type of candy at €1 per 100 grams, which is more expensive than the retail price, which was €0.77 per 100 grams. The quantity of the mini-chocolates (i.e., most expensive candy) purchased was our measure of susceptibility to affective product features, relative to cognitive features.

*Procedure.* The procedure of Study 2 was identical to the one of Study 1, with a few exceptions. In the simulated store, participants were told to put the different types of candy from a shopping list in seven little paper bags. As all participants manually scooped the different pieces of candy in the seven bags, shopping time was expected to be equal in both conditions. In both conditions, the time required to put every type of candy in the little paper bag and to put the bag in the shopping basket was recorded. Participants received €2 and were told that they would have to buy one of the amounts of candy they selected at the end of the experiment. The bag of candy to be purchased would be randomly determined by the experimenter by means of a lottery and thus participants were reminded that no single bag of candy could cost more than €2.

At this point, participants were again randomly assigned to one of two yoked conditions: a choice or a no choice condition. In the *choice condition*, the shopping list consisted of seven candy names. Participants were asked to choose as many single pieces of candy as they wanted from each of seven different flavors of candy. In the *no choice condition*, the shopping list contained the names and the desired number of the first six candy items and the name of the highly appealing type of candy (e.g., “mini-Twix: Take four of them”). Participants were given the opportunity to buy as much candy as they wanted only for the highly appealing type of candy. While participants in both conditions were shopping, the experimenter was eating the very attractive target type of candy to make this target type of candy even more attractive.

## *Results and discussion*

Again we predicted that participants in the choice condition would show a higher susceptibility to affective product features than participants in the no choice condition and thus purchase more of the highly appealing type of candy than no choice participants. We conducted a one-way ANOVA using choice (no choice versus free choice) as predictors of amount of the mini-chocolate candy. The results indicated that choice participants purchased significantly more of the candy ( $M = 47.18$  grams,  $SD = 35.27$  grams) than did no choice participants ( $M = 29.51$  grams,  $SD = 17.33$  grams),  $F(1, 42) = 4.45, p < .05$ .<sup>5</sup>

Preliminary analyses did not reveal any gender effects. Therefore, this variable was omitted from the analyses. This time, preliminary analyses also failed to reveal significant differences in shopping times between the choice and the no choice condition,  $F(1, 42) = 0.22, p = .64$ . Hence, we were successful in equating shopping times in both conditions and thus this variable was also omitted from the analyses.

The results of Study 2 support the view that choosing reduces consumers' resistance to affective product features. As in Study 1, we found that susceptibility to affective product features was higher after a series of active product choices than after a similar task that did not require choice-making. Note that in Study 2, the choice manipulation was not confounded with time; therefore, the alternative explanation that shopping time differences accounted for the effect is mitigated. The aim of Study 3, then, was to directly address the other alternative explanation that choice participants made their selections randomly.

## Study 3

As in Studies 1 and 2, we used making product choices as a manipulation of self-control depletion. Participants either chose as many single pieces of candy as they wanted from each of six different flavors of candy (i.e., the *choice condition*) or selected the same number of items of those six types of candy as the participants in the choice condition to whom they were yoked (i.e., the *no choice condition*). Subsequently, participants in both conditions were given the opportunity to buy as

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<sup>5</sup> As the variance was significantly different in both conditions, we also conducted a non-parametric analysis. A Mann-Whitney U test yielded similar results,  $Z = 2.05, p < .05$ .



much candy as they wanted of a highly appealing but overpriced type of candy and a less appealing but cheaper type of candy. Again, the series of preceding choices in the choice condition should deplete participants and should increase the relative importance of the affective product feature (i.e., taste) and decrease the relative importance of the cognitive product feature (i.e., price) relative to the no choice condition. Because the affective product feature is weaker for the less attractive type of candy, we expected that in comparison with no choice participants, choice participants would buy more of the very attractive candy (i.e., greater influence of affective product features) but not of the less attractive candy. The random explanation, in contrast, predicts that choice of the two types of candy should become less distinguishable (i.e., more close to a 50/50 distribution) in the choice condition than in the no choice condition.

### *Method*

*Participants.* Participants were 42 undergraduate students (30 men and 12 women). Their age ranged from 19 to 24 years ( $M = 20.98$  years,  $SD = 1.44$  years). All students participated in order to receive partial course credit. They were also rewarded with money and with a gift. The money and the gift had a combined value of €2.

*Materials.* A store was simulated in the laboratory. Four pairs of bowls filled with approximately 200 grams of candy were displayed on two tables. All eight types of candy in the bowls were on the shopping list that participants received upon entering the shop. Results of a pretest ( $n = 32$ ) showed that seven types of candy were equally attractive. In close accordance with actual prices, the first pair of bowls of candy received a price label of €0.60 per 100 grams, the second pair of bowls of candy received a price label of €0.70 per 100 grams, and the third pair of bowls of candy received a price label of €0.80 per 100 grams. The last pair of candy bowls once again contained the highly appealing mini-chocolates and one of the relatively less attractive types of candy (i.e., M&M's without peanuts). These types of candy came last and second-last on participants' shopping list, respectively. In the pretest ( $n=32$ ), 75 % preferred the mini-chocolates to the M&M's ( $Z = 2.83, p < .01$ ). The less attractive type of candy received a price label of €0.80 per 100 grams and the very attractive type of candy received a price label of €1 per 100 grams. The quantity of

mini-chocolates purchased (which was the most expensive candy) relative to the quantity of M&M's purchases (which was the less expensive candy) was the dependent measure of susceptibility to affective product features.

*Procedure.* The procedure of Study 3 was identical to the one of Study 2, with a few exceptions. In the simulated store participants were instructed to put the candy of the two bowls that were placed together in the same little paper bag. This was done to rule out the random choice hypothesis. Indeed, in order to rule out this alternative hypothesis, all participants had to make a double product choice at the conclusion of their shopping trip. If depleted participants would choose randomly, we would expect them to select an equal amount of both types of candy. In contrast, if depleted participants would choose on the basis of affective features, we would expect them to select more of the very attractive type of candy (mini-chocolates) than of the less attractive type of candy (M&M's). Again, participants received €2 and were explained that at the end of the experiment, they would have to actually buy one of the paper bags with this money.

At this point, participants were again randomly assigned to one of two yoked conditions. In the *choice condition*, the shopping list consisted of eight candy names. Participants were free to choose as many single pieces of candy as they wanted from each of eight different flavors of candy. In the *no choice condition*, the shopping list contained the names and the desired number of six candy types and the names of the two target types of candy (i.e., the very and the moderately attractive type of candy). No choice participants were given the opportunity to buy as much candy as they wanted only for the last two types of candy.

### *Results and discussion*

We again hypothesized that participants in the choice condition would show a higher susceptibility to affective product features as compared to participants in the no choice condition and thus purchase more of the highly appealing type of candy than no choice participants. In the present study, we also wanted to provide a direct test of the possibility that participants who had few regulatory resources made their selections randomly, rather than on the basis of affective product features as we claim. We conducted a repeated measures ANOVA with the purchased amount of candy (i.e., the very attractive and the moderately attractive types of candy) as repeated

measures and with choice (no choice versus free choice) and gender as independent variables. This analysis showed the expected choice x type of candy interaction,  $F(1, 38) = 8.99, p < .01$ . The shape of the interaction indicated that choice participants purchased a higher quantity of the very attractive type of candy ( $M = 51.01$  grams,  $SD = 51.44$  grams) than of the moderately attractive type of candy ( $M = 22.47$  grams,  $SD = 15.99$  grams),  $F(1, 19) = 8.89, p < .01$ , but that no choice participants did not purchase different quantities of the very attractive candy ( $M = 30.55$  grams,  $SD = 25.35$  grams) as compared to the moderately attractive candy ( $M = 32.78$  grams,  $SD = 23.45$  grams),  $F(1, 19) = 0.36, p = .55$  (see Figure 1). From another perspective, we found that participants in the choice condition purchased a higher quantity of the very attractive type of candy than did participants in the no choice condition  $F(1, 38) = 4.65, p < .05$ , (thereby replicating Study 2) and that participants in the choice condition tended to purchase a lower quantity of the less attractive type of candy as compared to no choice participants,  $F(1, 38) = 3.19, p < .10$ .<sup>6</sup>

Preliminary analyses did not reveal significant differences in total shopping time between the choice and the no choice condition,  $F(1, 40) = 0.00, p = .95$ . Hence, this variable was omitted from the analyses.

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Insert Figure 1 about here

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The results of Study 3 confirmed the view that choosing reduces consumers' resistance to affective product features. Like in Study 1 and Study 2, we found that there was a greater impact of affective product features after a series of active product choices than engaging in a non-choice task that was similar in all other respects. In Study 3, we also found that people purchased more of the very attractive type of candy relative to the less attractive type of candy after a series of active choices. Because the difference between the attractive and the relatively less attractive type of candy increased rather than decreased in the choice condition, an alternative explanation in terms of random choice is far viable.

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<sup>6</sup> Again, the variances differed significantly but non-parametric test led to the same conclusions for all tests.

## General discussion

### *Summary of findings*

The major aim of the present investigation was to show that one of the most frequent activities during a shopping trip — that is, choosing — enhances consumers' susceptibility to purchasing products on the basis of affective product features. The three studies reported in this paper provided support for this view. In Study 1, we found that when people have made a series of active product choices they are more likely to buy an attractive but expensive product as compared to when they merely have complied with purchase instructions. Study 2 replicated the basic effect with another product type (candy). We found that when people have made a series of choices they buy more items of a very attractive type of candy than when they have followed a pre-established shopping plan. Study 2 also eradicated the concern that time differences between the conditions drove the results of Study 1. In Study 2, the effect was replicated without purchase time differences between the two conditions. In Study 3, we also found that people's preference for a more attractive but more expensive type of candy over a less attractive but cheaper type of candy increases after a series of active choices. This study also ruled out the alternative explanation in terms of increasing random choice in a depleted state because in the choice condition, the difference between the two types of candy increased rather than decreased.

### *Theoretical and managerial implications*

Previously, research has demonstrated that consumer susceptibility to affective product features can be strengthened by in-store atmospherics. We build upon the idea that consumer's attraction to affective product features is a crucial step to understanding consumer behaviour, and go beyond to provide evidence for the notion that susceptibility to affective product features can also be enhanced by the act of shopping (i.e., insofar as it involves active choice-making) itself.

The present research has implications for the literature on impulsive spending. In the past, some definitions have depicted impulsive spending behaviour as resulting from certain product characteristics (Stern, 1962). However, more recent definitions have portrayed it as stemming from affective experiences within the shopper (Rook, 1987; Rook & Fisher, 1995; Rook & Hoch, 1985). According to Hoch and

Loewenstein (1991), consumers experience an ever-shifting conflict between desire and willpower. Impulsive spending occurs whenever the desire to buy, to own, or to consume exceeds willpower. In other words, it occurs whenever consumers' capacity to exert self-control breaks down. Vohs and Faber (under review) found that participants who lacked self-control resources because they had to control their attention or suppress certain thoughts displayed subsequently more impulsive buying tendencies (Study 1), were subsequently willing to pay higher prices for a variety of products (Study 2), and spent subsequently more money on books (Study 3) than participants with sufficient self-control resources. The authors concluded that impulsive purchasing is a function of self-regulatory resources. Our research lends credence to these theoretical accounts of impulsive spending and extends the empirical findings of Vohs and Faber (under review) by providing empirical evidence for the role of regulatory resources in determining the relative influence of affect and cognitions on choice. Moreover, to our knowledge, we are the first to both manipulate self-control depletion and assess the effects of this manipulation in the same consumer behaviour context.

The current findings also have several practical consumer and managerial implications. For retailers, the results suggest that offering a large set of choices has an impact on the product attributes that consumers will take into account later in their shopping choices. Building on this idea, our results also suggest that the impact of affective product features may be expected to increase during the shopping event. Our results also imply that retailers would benefit from the use of expensive and attractive end-of-aisle-displays or delicious-looking but somewhat overpriced candy at cash registers.

For consumers, an important implication of the present findings is that resisting the temptation of affective product features would be easier achieved by reducing the number of decisions they make in the store. One possibility is to rely on the same brands or highly familiar products. This way, self-control resources are not depleted. Another solution to reduce in-store decision-making would be to use a detailed shopping list containing the desired amounts for well-specified product brands while shopping. Apparently however, only a little more than half (55%) of supermarket shoppers are inclined to use shopping lists (Block & Morwitz, 1999), and we are doubtful that these lists contain brand, volume, and flavor information.

Given that our studies were conducted in a setting devoid of the richness that surrounds real-world brand choices, our results provide a conservative test of the hypothesis that choice influences affective product preferences; thus the effect would perhaps be stronger in naturalistic settings. As real-life shopping environments are more extracting and real-life shopping behaviour is less controlled, we expect consumers in naturalistic settings to be even more susceptible to affective product features after choice-making. This is certainly so given the explosion of choice in modern day life and the increasingly hedonistic nature of the cultures in which we live. Indeed, the shopping process itself seems to be the constant dropping that wears away the stone.

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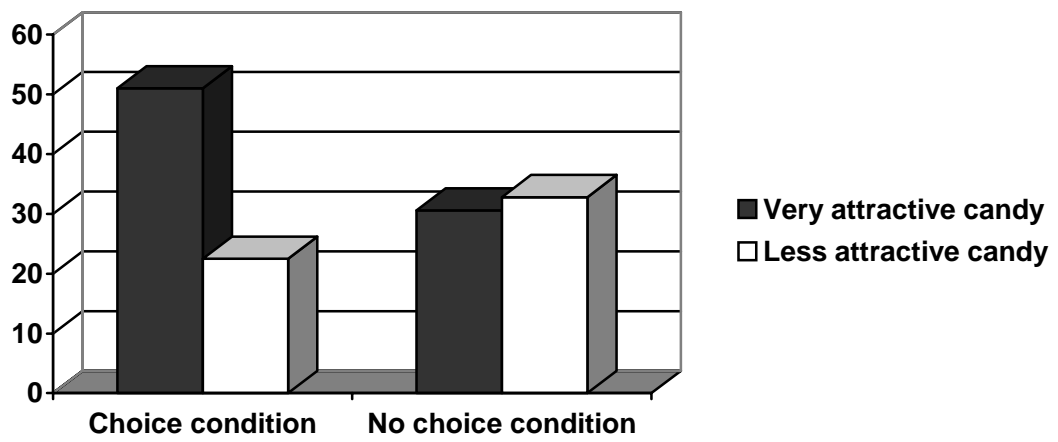
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## Figures



*Figure 1.* Purchased amounts (in grams) of the very attractive and the less attractive type of candy in the choice condition and in the no choice condition.