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Choices Between Binary Alternatives:

On Automatic Preferences in Consumer Choice

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Abstract

To shed further light on the impact of automatic preferences on consumer choice, the authors conducted an experiment in which participants had to choose between two alternatives. They found that automatic product preferences were better at predicting the choice when participants made fast decisions and had clear self-reported attitudes.

Choices between binary alternatives: on automatic preferences in consumer choice

Imagine that you are used to drinking coke during your lunch break and that you prefer coke to alternatives like water or juice. Simply put, you have a positive attitude towards coke, regardless of which brand is offered. Now consider the case in which you have a choice between Coca-Cola and Pepsi. Even if people hold positive attitudes towards coke in general, they may also have a clear brand preference. However, individual choices may depend on the way people make their decision. In the above example, if you are choosing a brand of coke while talking with a colleague as you wait in line at the cafeteria, your choice might be different than if you start to think about reasons for your choice. Especially in the latter case, several specific product aspects as well as arbitrary cognitions that are accessible in the decision context may influence your choice.

In numerous studies, Wilson and his colleagues (Wilson and Dunn 1986; Wilson, Dunn, Bybee, Hyman, and Rotondo 1984; Wilson, Dunn, Kraft, and Lisle 1989; Wilson and Hodges 1992; Wilson, Hodges, and LaFleur 1995; Wilson, Kraft, and Dunn 1989; Wilson and LaFleur 1995; Wilson and Schooler 1991) showed the effect of thinking about reasons on preferences. In one study, Wilson and Schooler (1989) asked participants to taste different strawberry jams and to indicate their preference. Half of the participants thought about reasons why they liked or disliked each sample, whereas the other half did not. The preferences of the two groups differed significantly; moreover, it is interesting to note that the ratings of participants who analyzed reasons did not correspond to experts' ratings of the jams, whereas the ratings of the control group did. Thus, the assessments of participants who were not asked to think about reasons for their preferences were in some sense "better"

than the assessments of the other participants. In a further study, Wilson et al. (1993) compared the post-choice satisfaction for consumer choices that had been made with or without an analysis of the reasons behind the choice. In this study, participants had to choose one of five posters. In one condition, participants listed reasons for their feelings about the posters. Compared to a control condition, these participants were less satisfied with their choice when asked two weeks after their decision. Wilson, Lisle, and Kraft (1990; see also Wilson, Dunn, Kraft, and Lisle 1989) proposed that thinking about reasons led people to focus on information in memory that is available in the context of the decision and provides them with plausible reasons. However, sometimes these reasons may be incorrect or unrelated to a spontaneous preference.

Thinking about reasons does not necessarily bring a distorted sample of cognitions to mind. It may also induce a focus on another component of the respective attitude. For example, Shiv and Fedorikhin (1999) showed the importance of the cognitive/affective distinction for consumer decision-making by varying the amount of processing resources and the cognitive or affective superiority of two available alternatives (chocolate cake and fruit salad). They found that most participants chose the chocolate cake (superior on the affective dimension) when cognitive recourses where constrained, and the fruit salad (superior on the cognitive dimension) when cognitive recourses were not constrained. In their subsequent research, Shiv and Fedorikhin (2002) specified the mechanisms through which affect and cognitions arising from a stimulus can influence choices. In particular, the authors relied not only on the classic distinction between cognition and affect (Zanna and Rempel 1988), but also distinguished between “lower order” affective reactions, which are based on automatic processes, and “higher order” affective reactions,

which reflect more controlled processes (see Giner-Sorolla 1999 for a similar distinction). They argue that choices are influenced more by lower order processes when individuals make their decisions quickly, while higher order processes are of greater importance when individuals deliberate their decisions extensively. Similar assumptions are made by two other prominent lines of research on attitudes. The first deals with implicit affective processes, the second with the determinants of deliberative and spontaneous processing.

Let us turn first to the distinction between implicit and explicit processes. Wilson, Lindsey, and Schooler (2000), for example, distinguish between implicit and explicit attitudes. They define implicit attitudes as evaluations that have an unknown origin, are activated automatically, and influence responses that they do not attempt to control (see for a similar definition Greenwald and Banaji 1995). They posit that an implicit attitude can be overridden by an explicit attitude that requires more capacity and takes more time to retrieve from memory. The distinction between implicit and explicit attitudes becomes relevant when the two attitudes imply contrary evaluative tendencies. This is often the case in the area of prejudice and stereotyping. For example, some studies found no correspondence between automatically activated evaluations or implicitly measured associations and explicit self-report measures (Fazio et al. 1995; Greenwald et al. 1998). However, research also demonstrated that the correspondence between implicit and explicit measures increases when participants are less motivated to control their behavior (Fazio et al. 1995) or to elaborate information extensively (Florack, Scarabis, and Bless 2001; Shiv and Fedorikhin 2002). According to Giner-Sorolla (1999, p. 450), “implicit measures of attitudes … are most likely to tap the immediate affect” (for a similar view see Marsh, Johnson, and Scott-Sheldon 2001). If this is true, individuals should rely on their

immediate affective reactions (as measured by implicit techniques) when they are not motivated or do not have the opportunity to engage in extensive information processing.

A further line of research that may be helpful in specifying the occurrence of automatic affect and its influence on decision making is based on the work of Fazio and colleagues (e.g., Fazio 1990a; Fazio and Towles-Schwen 1999). Fazio (1990a) argued that people automatically activate an attitude upon the perception of an attitude object. He postulated that this activation should be faster the stronger the attitude is. His MODE-model (motivation and opportunity as determinants) also specified circumstances under which behavior will be influenced by reasoned or spontaneous processes. Fazio suggested that, in addition to the opportunity for deliberation, some motivational force is necessary to induce people to engage in deliberative processes. In a test of this model, Sanbonmatsu and Fazio (1990) conducted an experiment in which they manipulated both the motivation and the opportunity to deliberate. Participants had to choose one of two stores in which to buy a camera. To increase the motivation to deliberate, the experimenter told one half of participants that their decision would be compared to the decision of other students and that they would have to explain their decision afterwards. The opportunity to deliberate was varied by decision time. Sanbonmatsu and Fazio found that participants were more likely to base their decision on the overall evaluation of the store when they experienced time pressure and were not expected to explain their decision. However, when they had enough time and when their motivation was high, they considered more detailed attributes of the stores. These results and, more generally, the MODE-model corresponds to the above-mentioned work of Shiv and Fedorikhin (2002) on the opportunity to deliberate. Like Fazio (1990a), Shiv and

Fedorikhin emphasize the importance of situational conditions that constrain cognitive processing or leave enough cognitive resources for deliberation (cognitive load and decision time). Additionally, Fazio explicitly incorporates motivational influences on elaboration into his model.

In sum, there is a broad theoretical base and a good deal of evidence for the assumption that people who think about reasons for a choice rely more on information than on their automatic affective preference alone. However, in the area of consumer research most of the cited studies examined main effects in the sense that in one condition the majority of participants was more likely to choose alternative "A," whereas in another condition the majority was more likely to choose an alternative "B". For example, in the study by Shiv and Fedorikhin (1999, Experiment 1), participants were more likely to prefer a chocolate cake over a fruit salad when their decision time was limited as compared to when they had enough time. The chocolate cake was said to be superior on the affective dimension, while the fruit salad was said to be superior on the cognitive dimension. However, individuals may differ in their automatic preference for fruit or chocolate. Some people might have an automatic preference for chocolate, others for fruit. Thus, it seems reasonable to study the role of individual differences in this process. Indeed, studies that directly assess automatic or implicitly measured product preferences are rare (Brunel, Collins, Greenwald, and Tietje 1999; Maison, Greenwald, and Bruin 2001), and we do not know of a single study that directly tested whether the degree or mode of introspection moderates the correlation between automatic product preferences and product choice. Therefore, we designed an experiments to test the question of whether the correlation between automatic product preferences and choice

decreases when participants analyze reasons as compared to when they simply focus on their feelings.

The Study

The main purpose of the study was to examine whether the choice between two alternatives is more closely related to automatic preferences when participants focus on their affective reactions to the offered brands, as compared to when they analyze reasons for choosing or not choosing one of the two brands. The specific task of participants was to choose between two brands of chocolate. The focus during the process of decision-making was varied through the instructions that were given. In the affective focus condition, participants were instructed to concentrate on their feelings, while in the cognitive focus condition they were asked to think about reasons for their choice. Since there was no clear argument for the preference of one brand over the other, we did not expect to find a general switch from one choice to the other when participants were asked to focus on their affect as compared to when they were asked to focus on reasons for their choice. However, we expected that in the cognitive focus condition, arbitrarily available aspects, which presumably differ between participants, would have an influence on the choice and diminish the correlation with automatic preferences. In addition, we assumed a stronger correlation between the automatic preference and choice for participants who have unambiguous preferences and who make a fast choice, as compared to participants who have a less clear preference and who hesitate in choosing a brand. The consideration of the ambiguity of preferences or ambivalence in the present context seems useful, because when people are asked for things that make them feel positive and negative at the same time (i.e. ambivalent; see Conner and Sparks 2002), eating chocolate is one of the most frequently mentioned behaviors. In

addition, a clear preference and fast decision are also an indicator for a strong attitude (Bassili 1996). People with a strong attitude do not need to think about their decision. If the motivation is not increased for reasons other than choice ambivalence, they should rely on their automatically activated preference without further consideration.

Method

Participants and design. Two hundred and thirteen pupils and students (174 female, 39 male) were randomly assigned to one of two conditions (cognitive focus vs. affective focus). The mean age was 19.51 years (ranging between 16 and 55 years). As compensation for taking part in the experiment, participants could choose between two brands of chocolate. Students also received course credit.

Procedure. After arriving at the laboratory, participants were instructed to sit down in front of a personal computer. All instructions and experimental tasks were presented on the computer screen. First, the focus of introspection was manipulated; next, participants made their choice between the two chocolate brands; then they completed explicit and implicit attitude measures. Finally, participants were thanked and received a bar of chocolate.

Focus manipulation. To manipulate the mode of introspection, one group of participants (affective focus) was instructed to imagine a situation in which they would really enjoy eating a bar of chocolate and to think about which of two well-known German brands (Milka or Ritter Sport) would make their mouth water more. Furthermore, they were asked to close their eyes and to take a moment to imagine the taste of the chocolate. The other group (cognitive focus) was also instructed to think about their preference for one of the two brands, and, unlike the other group, to

carefully analyze their reasons and to list at least five arguments concerning each brand.

Brand choice and choice latency. After participants analyzed their reasons or focused on their feelings concerning the two chocolate brands, they clicked a button on the screen to proceed. They now read that they had the opportunity to choose between two bars of chocolate as a reward for their participation. The bars of chocolate were “Milka Alpenmilch” and “Ritter Sport Vollmilch”. The two products were represented on the screen with two big pictures. Participants made the choice by clicking on one of the two pictures. The time participants needed to decide was recorded. We refer to this measure as choice latency. Because the reaction time distribution was positively skewed, the reaction times were transformed using a natural logarithmic transformation (Fazio 1990b).

Automatic brand preference. We used two different versions of the implicit association test as a measure of automatic brand preference (IAT, Greenwald et al. 1998). Participants first completed a pleasant-unpleasant IAT, and then a self-other IAT. In both versions, participants had to classify pictures of bars of chocolate as belonging to the brand Milka or Ritter Sport. This task was combined either with the classification of positive or negative pictures to the categories pleasant or unpleasant (pleasant-unpleasant IAT), or with the classification of words as fitting to themselves or to others (self-other IAT). Participants used two response keys for the classification. In the relevant phases of the task, the categories were combined so that each response key was assigned to two categories (e.g., left key: “self” and “Milka”; right key “other” and “Ritter Sport”). Participants with an automatic preference for Milka should respond faster when one key is assigned to “Milka” and “self” (“Milka” and “pleasant”) and the other to “Ritter Sport” and “other” (“Ritter Sport” and

"unpleasant") compared to the reverse combination. Both versions included five phases. Three phases included a simple classification of the brands, the self and other related words, or the pleasant and unpleasant pictures. Two phases included the classification with the combined assignment of the response keys. Altogether the classifications were made in the following order: 1.) self-other (pleasant – unpleasant); 2.) Milka – Ritter Sport; 3.) self – other (pleasant – unpleasant) / Milka – Ritter Sport; 4.) Ritter Sport – Milka; 5.) self – other (pleasant – unpleasant) / Ritter Sport – Milka. The order of phases 2+3 and 4+5 was transposed for half of the participants. To prepare the data for statistical analyses we followed the procedure recommended by Greenwald, Nosek, and Banaji (in press), with a few exceptions. To devise a measure for automatic preferences, we computed the differences between the combined classification phases. However, before computing this difference we eliminated the first two trials of each phase, because after clicking the "start" button with the mouse, participants first needed to find the keys and therefore the reaction time on these trials was often slow. Furthermore, we replaced the latencies of error trials with the block mean plus two standard deviations. Applying this procedure, we computed a self-other IAT score and a pleasant-unpleasant IAT score. On both measures, positive values indicate an automatic preference for Milka, negative values an automatic preference for Ritter Sport.

Self-reported product preference and ambiguity of preference. The self-reported product preferences were measured with ten unipolar 9-point-scales. Participants were asked to indicate the degree to which several adjectives applied to the two chocolate brands (1= not at all; 9 = very much). Half of the adjectives were positive (tasty, nutty, healthy, digestible, natural), the other were negative (harmful, icky, unpleasant, greasy, repelling). First, the ratings were combined into a single

scale by computing the mean values of the positive scales and the reversed negative scales. The Cronbach Alpha values were .79 for the Milka preference and .80 for the Ritter Sport preference. To construct a measure that reflects the relative preference of one brand over the other, we computed the difference of the mean ratings of each brand. Positive values indicate a preference for Milka, negative values a preference for Ritter Sport. We devised a measure for the ambiguity of preference by applying a procedure that is usually used for ambivalence measures in regard to the positive and negative evaluations of a single attitude object (Thompson, Zanna and Griffin 1995). Ambivalence is denoted by the equation $A = (P + N)/2 - |P – N|$, where P is the intensity of positive evaluation towards an object, while N is the intensity of negative evaluation. According to Breckler (1994), this index fulfills the desired criteria. In the present case a value of -3 indicates minimal ambivalence (i.e., one attitude component is maximal while the other is minimal), whereas a value of 9 indicates maximal ambivalence (i.e., both components have maximal values).

Results and Discussion

Preliminary analyses of product choice showed a tendency in favor of the brand Milka. Fifty-seven percent of participants (n = 122) preferred Milka when asked to decide which chocolate brand they would like to receive as compensation for their participation. The remaining 43 percent (n = 91) chose Ritter Sport. There was neither a contingency between the focus conditions and the choice of one of the two chocolate brands, phi = .05, ns, nor an effect of the focus manipulation on the self-reported attitude and the pleasant-unpleasant IAT score, Fs < 1, *ns*. There was only a non-significant tendency for a stronger association between Milka and self in the cognitive focus condition (M = .22, SD = .44) than in the affective focus condition (M = -.11, SD = .45), $F(1, 178) = 2.71$, $p = .10$.

In both experimental conditions, the self-reported product preference as well as the automatic product preference clearly reflected the product choice (Table 1).

[Insert Table 1 about here]

Participants with automatic and self-reported preference for Milka chocolate were more likely to chose this brand as reward for their participation than participants with automatic and self-reported preference for Ritter Sport, rs > .38, p < .001. In contrast to our expectation, there were no differences in the correlation between the focus conditions, zs < 1.06, *ns*. We further inspected the arguments participants listed in the cognitive focus condition. This inspection showed an unexpected result. Participants listed mainly arguments with reference to affect. Thus, the manipulation obviously had not triggered enough cognitive thoughts to induce the expected cognitive focus.

A further hypothesis was that automatic preferences predict the choice of the chocolate brand better when participants choose the chocolate brand fast and have an unambiguous and clear preference for one brand over the other. To examine this hypothesis, we computed binary logistic regression analyses with choice as dependent variable. We computed four regression equations which included the following predictors: a) choice latency, pleasant-unpleasant IAT, the interaction of both; b) choice latency, self-other IAT, the interaction of both; c) ambiguity of preference, pleasant-unpleasant IAT, the interaction of both; d) ambiguity of preference, self-other IAT, interaction of both. Since all interactions were orthogonalized with respect to lower-order terms (see Draper and Smith 1981), all main effects and interactions could be directly interpreted as regards their contribution to the prediction of choice. The results of the binary logistic regression analyses confirmed our hypotheses. Even if the main effects of the automatic

preference measures were significant in all regression equations, $\chi^2(N = 213) > 27.73$, $p < .001$, the interactions of the two automatic preference measures with choice latency and with ambiguity of preference were significant, $\chi^2(N = 213) > 5.50$, $p < .05$, or marginally significant, as was the case for the interaction between preference ambiguity and the pleasant-unpleasant IAT, $\chi^2(N = 213) > 3.32$, $p < .07$. To illustrate the nature of the interactions, a median split was performed on the choice latency and the ambiguity of preference. Table 2 shows the correlations between the implicit measure and choice as a function of choice latency and ambiguity of preference. In detail, the self-other IAT was more likely to predict the choice when participants chose fast, and when their preference was less ambiguous. Similarly, the predictive value of the pleasant-unpleasant IAT rises with an increase in choice latency, and a decrease of ambiguity of preference.

[Insert Table 2 about here]

In sum, our study showed that the automatic brand preference as measured by the IAT is a better predictor of product choice when participants have a clear preference of one brand over the other and make a fast choice. These findings fit well with the assumption that consumers are very likely to rely on automatic preferences when they perceive their preference as unambiguous and when - because of their clear preference or for other reasons (e.g., low relevance of the decision) – they are not motivated to elaborate extensively on their decision (cf. Fazio 1990a; Shiv and Fedorikhin 2002). Thus, the findings are in line with previous research which has demonstrated that people with more ambiguous preferences tend to process information more deeply (Jonas, Diehl and Brömer 1997; Maio, Bell and Esses 1996), and that deep processing of information increases the impact of automatic preferences on judgment (Florack et al. 2001).

However, we also expected that automatic preferences would have a higher predictive value for the decision when participants focus on their feelings as compared to when they think about reasons for their choice. This hypothesis was not confirmed. The arguments participants listed in the affective focus condition point us to an explanation for this missing effect. It seems that participants did not switch from an affectively-based decision in the affective focus condition to a cognitively-based decision in the cognitive focus condition. Rather, they also listed affective reasons (e.g., “I like that chocolate”) when asked to find reasons for their choice. Presumably, the choice between two products within a product category that is strongly related to affect triggers affectively-based decisions when consumers try to find arguments. In our study, neither choice option might have any advantages concerning the cognitive dimension (e.g. long-term consequence like “is healthy”, “helps me to stay in shape”). The most obvious strategy for finding reasons for one’s own preference (and that was the task in the cognitive focus condition) was to rely on the affective dimension. This reasoning implies that a cognitive focus during decision making should diminish the effect of automatic preferences on choice when cognitive as well as affective product aspects are relevant. Indeed Scarabis, Florack, and Gosejohann (2006) provided evidence for this hypothesis. They found that higher correlations between an implicit measure of preference and the choice between fruit and chocolate. The choice of fruit can be regarded to be superior according to cognitive dimensions like health.

Conclusion

Automatic preferences may be one of the most important determinants of product choice in the area of fast moving consumer goods and food. The present research provides evidence that there are considerable individual differences in

automatic product preferences which have an impact on consumer choice. Market research may profit from the further development of tools that can provide the researcher with insights in the automatic preferences of consumers as regards products and choice contexts for which automatic preferences are especially relevant.

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Table 1

Intercorrelations Between Preference Measures and Choice for Participants in the Affective and Cognitive Focus Conditions

	1	2	3	4
	Affective Focus (n = 105)			
1. Self-reported Preference	-	.61***	.47***	.71***
2. Self-Other IAT		-	.59***	.55***
3. Pleasant-Unpleasant IAT			-	.36***
4. Choice				-
	Cognitive Focus (n = 108)			
1. Self-reported Preference	-	.51***	.41***	.75***
2. Self-Other IAT		-	.47***	.50***
3. Pleasant-Unpleasant IAT			-	.46***
4. Choice				-

* $p < .05$; ** $p < .01$; *** $p < .001$

Table 2

Intercorrelations Between Automatic Preferences and Choice for Participants as a Function of Choice Latency and Ambiguity of Preference

,	Choice Latency		Ambiguity of Preference	
	Fast (n=107)	Slow (n=106)	Low (n=105)	High (n=108)
1. Self-Other IAT	.62***	.41***	.63***	.38***
2. Pleasant-unpleasant IAT	.57***	.26**	.47***	.34***

* $p < .05$; ** $p < .01$; *** $p < .001$