RESEARCH DIALOGUE

The Unconscious Consumer:
Effects of Environment on Consumer Behavior

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In this article, we argue that consumer behavior is often strongly influenced by subtle environmental cues. Using grocery shopping as an example (or a "leitmotif," if you wish), we first argue that the traditional perspective on consumer choice based on conscious information processing leaves much variance to be explained. Instead, we propose that many choices are made unconsciously and are strongly affected by the environment. Our argument is based on research on the perception–behavior link and on automatic goal pursuit.

Picture yourself in a supermarket. You are navigating through aisles, around people, occasionally dropping something in your cart. After about 20 min, you find yourself at the counter with 26 different items in your cart, among them a tuna pizza with anchovies, as well as bananas, peanut butter, detergent, and Ben & Jerry's New York Super Fudge Chunk® ice cream. Now, how did all of these things end up there? Sure, you picked them yourself, but why? If you would be probed to explain, for all 26 items individually, why you chose them, you would likely find yourself troubled. A few choices are easy to explain. For example, you were all out of detergent and you are going to a conference tomorrow and really want to bring two shirts that need to be washed first. Many other choices, however, will likely be introspectively almost blank. "Ice cream? Well, I really felt like ice cream, I guess."

The thing is, people often choose unconsciously, or at least almost unconsciously. The majority of the items you buy were chosen after nothing more than a fleeting moment of awareness ("Ah yes, bananas"). During the 20 min you spent in the supermarket your consciousness was mostly occupied with things other than groceries. You thought about the coming conference, about the weird noise your car made while driving to the supermarket, or perhaps about whether Holland will beat Germany again in tonight's soccer game.

Traditionally, explanations of consumer behavior are cast in terms that are rooted in cognitive psychology (Bargh, 2002). Before people buy, or choose, or decide, they engage in more or less elaborate, conscious *information processing* (Chaiken, 1980; Petty, Cacioppo, & Schumann, 1983). Information processing may lead to certain attitudes, and these attitudes, in turn, may or may not affect *decisions*. The amount of information that is processed is dependent on various moderators, such as involvement (e.g., Fazio, 1990; Krugman, 1965). In addition, the sort of information that finally influences your attitudes can differ too. Attitudes can be based more on cognitive beliefs, such as when one finds a product very useful, or more on affect, such as when a product has important symbolic meanings (Venkatraman & MacInnes, 1985). However, various known moderators notwithstanding, the key always seems to be that people consciously process information before they decide what to buy (or eat, or drink, etc.). Although this emphasis on information processing is highly useful, it also has an inherent danger. The flavor

of the approach is conscious and highly intrapersonal. That is, the general picture that emerges is that of a conscious decision maker who negotiates decisions based on processing the pros and cons of a certain product. There is no doubt that people sometimes do this, especially when such products are important and expensive, but very often they do not.

Recent insights on influence tactics and persuasion have emphasized that we often react rather "mindlessly" to stimuli that trigger certain automated responses. Cialdini (2001), in a highly influential overview of such automatic influence tactics, described these phenomena as "click-zoom" reactions. Certain stimuli directly affect our decisions and behavior; when an advertisement features the phrase "today only," and thereby indicates scarcity, we are more likely to run to the store and buy the product. The scarcity principle implicitly tells us "what is scarce is good." Other principles that make us act mindlessly are, for example, reciprocity, commitment, consistency, social proof, and authority. Many experiments have shown these principles to be effective in subtly leading to compliance.

Now let us go back to the supermarket example. You have these 26 items that ended up in your cart, and our claim was that most choices were made unconsciously or mindlessly. As said before, these choices were introspectively blank. In our view, this is because for the majority of items, the amount of information processing going on was minimal or virtually nonexistent. That is, you cannot describe your information processing strategy if you have not engaged in information processing in the first place. Now if one is willing to assume that a substantial amount of consumer behavior (not just grocery shopping) is unconscious and not the result of a great deal of information processing, this raises the question of what other factors influence consumer behavior. If people do not (or hardly) process the various pros and cons of products, why do they end up buying them?

First, some of these unconsciously made shopping choices are highly habitualized and based on attitudes that are automatically activated on the perception of a product (Fazio, Sanbonmatsu, Powell, & Kardes, 1986). Here, some information processing may have taken place, but not right before you picked a product. Instead, these choices are influenced by automatically activated attitudes that are based on earlier information processing in the past. That is, you did not have to think about buying bananas because you simply already knew they are your favorite fruit. However, even with such automatic attitude-driven decisions, earlier information processing does not explain decisions fully: There is quite some variance left to explain. After all, when people buy groceries while very hungry, they usually end up buying considerably more ("Huh, why did I buy three different kinds of cheese?") than under normal circumstances. One reason may be that these automatically activated attitudes are malleable and context dependent (Ferguson & Bargh, 2004a). We discuss this more elaborately later.

Second, some of our choices are likely made without any information processing at all, neither just before we pick a product, nor earlier. Here, attitudes do not really guide behavior, and we truly buy things on impulse. In other words, atti-

tudes are bypassed completely. These impulse choices are usually strongly affected by subtle cues in the environment. Sometimes such cues are at least informative for the product at hand (such as when things are said to be scarce; Cialdini, 2001). Sometimes, however, such cues are hardly related at all. A nice example is the work by North and colleagues (North, Hargreaves, & McKendrick, 1997) who showed that French music played in a store led to an increase in sales of French wine, whereas German music led customers to buy more German wine. Why does music influence our choice of wine?

In our view, to explain such results, it is fruitful to move away from a purely conscious and intrapersonal perspective based on information processing. Instead, a useful road (albeit one less traveled in the literature) is to take into account the unconscious influence our environment exerts (see also Bargh, 2002). In the past 15 years or so, social cognition researchers have been unraveling unconscious effects of environmental cues on human behavior (see, e.g., Bargh & Chartrand, 1999; Dijksterhuis, Chartrand, & Aarts, in press; Ferguson & Bargh, 2004b; Wegner & Bargh, 1998). In this article, we review two important strands of this research and discuss their potential implications for our understanding of consumer behavior. The first area of research is the "perception–behavior link." This work shows that mere perception of the social environment leads people to engage in corresponding behavior (see Dijksterhuis & Bargh, 2001; Wheeler & Petty, 2001). This research implies that our behavior is often highly imitative and thus that behavior is contagious. The second realm pertains to automatic goal pursuit (Aarts & Dijksterhuis, 2000; Bargh, Gollwitzer, Lee-Chai, Barndollar, & Trötschel, 2001; Moskowitz, Li, & Kirk, 2004). Research in this area shows that goal-directed behavior is often unconsciously guided by the environment.

Before we move on, it should be noted that we use choice behavior in supermarkets merely as a vehicle to explain the implications of research on the perception–behavior link and on automatic goal pursuit for consumer behavior in general. The implications, however, are decidedly broader. For instance, the research we discuss later also speaks to matters such as how long we linger in a shop, or how quickly or slowly we eat in a given situation. In a way, the research on the perception–behavior link and on automatic goal pursuit is relevant for our understanding of human behavior in general, and hence, also for a wide range of behaviors relevant for consumer psychologists.

In the following, we briefly review research on the perception–behavior link and on automatic goal pursuit. Later in this article, we return to consumer behavior and discuss the importance of the reviewed research for (a) consumer choices based on (malleable) automatic attitudes and (b) choices whereby attitudes are bypassed altogether.

PERCEPTION–BEHAVIOR LINK

Research on the perception–behavior link is rooted in the idea that mental representations responsible for perception

and mental representations responsible for behavior are intimately linked. This idea dates back to the 19th century (James, 1890; Lotze, 1852), but it then lost its appeal until about 15 years ago (for an exception, see Greenwald, 1970). The consequence of this close linkage of representations underlying perception and behavior is that perception often affects behavior directly and unconsciously (Dijksterhuis & Bargh, 2001). We often simply *do* what we *see*.

The perception–behavior link affects behaviors ranging in complexity from simple motor movements to elaborate interpersonal behavioral patterns. Recently, the distinction was made between the "low road" to imitation and the more complex "high road" to imitation (Dijksterhuis, 2005). The low road refers to mimicry of relatively simple, observable behavior. For instance, people mimic facial expressions, gestures, postures, and various speech-related variables (Chartrand, Maddux, & Lakin, 2005; Dijksterhuis & Bargh, 2001). The high road refers to imitative effects mediated by constructs such as traits, goals, and stereotypes. The notion of a high road is based on the observation that the human perceptual repertoire is rich, and people often automatically go beyond the information given. That is, we "see" much more than observable behavior. On the basis of others' actions, people infer underlying traits (Gilbert, 1989; Uleman, Newman, & Moskowitz, 1996) and goals (Hassin, Aarts, & Ferguson, 2005). In addition, on the basis of people's social category membership, people activate social stereotypes (Bargh, 1994; Devine, 1989; Dijksterhuis & van Knippenberg, 1996; Macrae, Milne, & Bodenhausen, 1994). These inferences are made automatically and permeate social interactions continuously. More important for these purposes, these inferences or "percepts" also automatically lead to corresponding behavior.

We provide some examples of both the low and the high road, starting with the low road (for more elaborate reviews, see Chartrand, Lakin, & Maddux, 2005; Dijksterhuis & Bargh, 2001).

Low Road to Imitation

Evidence for automatic mimicry of the observable behaviors of others is abundant (Chartrand et al., 2005; Dijksterhuis & Bargh, 2001). It is no wonder that mimicry is easy to demonstrate, as recent research shows that spontaneous mimicry is a consequence of humans' neural makeup. The tendency to mimic is, in other words, a capacity people are born with. Meltzoff and Moore (1977, 1983) demonstrated that infants of about 2 to 3 weeks old imitated movements such as tongue protrusions, cheek and brow motions, and eye blinking. Recent evidence from research on *mirror neurons* unraveled the reasons for the findings that even newborns mimic. At first, it was observed that the same neurons in the prefrontal cortex in a monkey brain "fire" both when a monkey perceives a gesture and when it performs a gesture (Gallese, Fadiga, Fogassi, & Rizzolatti, 1996; Rizzolatti, Fadiga, Fogassi, &

Gallese, 1996). Later, research on human participants using PET scan and functional MRI showed evidence for a mirror neurons system (e.g., Decety & Grezes, 1999; Fadiga, Fogassi, Pavesi, & Rizzolatti, 1995; Iacoboni et al., 1999). Several brain regions are involved in both the perception and the execution of simple motor actions. When we observe someone perform a behavior, we activate the same premotor areas in our brain that are active when we perform that action ourselves. In addition, through linkage with brain regions involved in coding intentions and goals, we "understand" others' behavior (Iacoboni, 2005). That is, when we observe the other perform an action, we map the perception of that action onto our own representation of that specific action, both in terms of meaning and actual motor performance. The findings show a relation between perception and action that is as direct as it can possibly get: The same neurons (or neuronal regions) are involved in perceiving an action and in executing that same action. Our brains are wired to understand what others do by mimicry. By doing what others do, we know what they do.

As already noted, evidence of mimicry has been obtained for facial expressions, postures, gestures, and various speech-related variables. Chartrand and Bargh (1999) observed that people mimic inconsequential actions such as foot shaking or nose rubbing. A confederate was instructed to either rub her nose or shake her foot while working with a participant on a task. More important, the two were strangers and had only a minimal interaction, greatly reducing the probability that any imitation was motivational in nature—such as part of an attempt to ingratiate the other person. Their hypothesis, that participants would mimic the behavior of the confederate, was confirmed. Under conditions where the confederate rubbed her nose, participants engaged more in nose rubbing than in foot shaking, whereas the opposite was true when participants interacted with the confederate who shook her foot.

Recently, Johnston (2002) obtained evidence for imitation that has direct relevance for consumer behavior. In her experiments, participants were asked to eat ice cream and to judge its taste. Each experimental participant ate ice cream in the presence of a confederate, and the confederate was always the first to take a sample of ice cream. Unbeknownst to participants, the confederate was either instructed to eat a large sample or a very modest sample. The dependent variable in this research was the size of the sample participants took. As predicted, participants imitated the behavior of the confederate: They ate significantly more ice cream when the confederate had taken a large sample relative to when the confederate had taken a small sample.[1] In addition, Johnston showed that participants were not consciously aware of the subtle influence of the confederate on their behavior.

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[1]Interestingly, the behavior of the confederate was not imitated when the confederate was obese.

It has been known for quite a while that mimicry is related to liking and rapport. Early demonstrations of this relation showed impressive correlations between imitation and rapport (Bernieri, 1988; Charney, 1966; LaFrance, 1979; LaFrance & Broadbent, 1976). Bernieri found a correlation of .74 between degree of posture mirroring and experienced positive affect during an interaction. LaFrance (1979) reported a correlation of .63 between posture mirroring and rapport. To shed light on the direction of causality (i.e., does mimicry lead to liking or does liking lead to more mimicry?) Chartrand and Bargh (1999) manipulated mimicry. In an extension of the work discussed before, they obtained clear causal evidence that imitation leads to increased liking of interaction partners. They found that participants who were surreptitiously imitated by the confederate liked the confederate more relative to participants who were not imitated. In addition, participants who were imitated indicated that the interaction proceeded more smoothly.

Recently, van Baaren and colleagues (van Baaren, Holland, Steenaert, & van Knippenberg, 2003) demonstrated a spectacular advantage of the strategic use of imitation. Inspired by the results of Chartrand and Bargh (1999), they conducted a field experiment in a restaurant. They first established the average tip that waitresses received during a normal evening. They then instructed waitresses to imitate the verbal behavior of customers. That is, they were instructed to literally repeat the order of each customer. In the no-mimicry condition, they were instructed to avoid literal imitation, but paraphrase instead. In two separate studies, it was shown that exact verbal mimicry significantly increased the tips, whereas avoidance of mimicry reduced tips compared to baseline.

High Road to Imitation

As argued before, social perceivers often go beyond the information given. Perception of (the behavior of) others automatically activates traits, stereotypes, and goals (Bargh, 1994; Devine, 1989; Gilbert, 1989; Hassin et al., 2005; Uleman et al., 1996). Priming research from social cognition researchers demonstrates that once these constructs are activated, they often lead to corresponding behaviors.

In the first published research on these effects, Carver, Ganellen, Froming, and Chambers (1983) primed the concept of hostility among half of their participants by incidentally exposing them to words related to this concept (e.g., hostile, aggressive). The remaining half of the participants were not primed. Subsequently, participants played the role of a teacher in a learning task based on the classic experiment of Milgram (1963). Participants were asked to administer electrical shocks to a second participant (actually a confederate) whenever this second participant gave an incorrect answer. The participants were free to choose the intensity of the shocks. Participants primed with hostility delivered more in-

tense shocks than did control participants. That is, priming hostility indeed led to more hostile behavior.

Bargh, Chen, and Burrows (1996; Experiment 1) primed their participants with either rudeness or politeness. They presented their participants with a scrambled sentence task in which they were to construct grammatically correct sentences out of a random ordering of words (see Srull & Wyer, 1979), as a purported test of language ability. The scrambled sentences either contained some words related to rudeness (e.g., *aggressively, bold, rude*) or to politeness (e.g., *respect, patiently, polite*) or neither. Participants were asked to meet the experimenter in a different office on completion of the task. When participants arrived, the experimenter was talking to a confederate. The confederate surreptitiously measured the time it took for participants to interrupt the conversation. Participants who were primed with rudeness were more likely to interrupt than were control participants, whereas participants primed with politeness were least likely to interrupt.

Macrae and Johnston (1998) investigated the consequences of activation of the trait *helpful.* In their experiments, half of the participants were primed with the concept of helpfulness, whereas the remaining participants were not primed. After finishing the priming task, the experimenter, while supposedly leading the participant to another room, "accidentally" dropped the items she was carrying. As expected, participants primed with helpfulness picked up more items from the floor than did control participants.

In what is probably the best known experiment on the effects of priming on behavior, Bargh et al. (1996, Experiment 2) exposed some participants to words related to older people (e.g., *gray, bingo, Florida*) in the context of a scrambled-sentence language task. After participants finished the priming task, they were told that the experiment was over. A confederate, however, recorded the time it took participants to walk to the nearest elevator. The data of two separate experiments showed that participants primed with the older people concept walked significantly slower than did control participants. In other words, people displayed behavior corresponding to the activated stereotype. Older people are associated with slowness, and activating the stereotype of older people indeed led to slowness among the participants. This experiment has broad implications because speed is a relevant parameter for nearly all of human behavior. This is true for consumer behavior as well. We can shop or make decisions or eat or drink either relatively quickly or slowly, and this can have profound implications.

It is also known that activating stereotypes and traits leads to corresponding behavior in the domain of mental performance. Dijksterhuis and van Knippenberg (1998) improved people's intellectual performance in a series of experiments. In some of them, half of the participants were primed with the stereotype of professors. These participants were asked to think about college professors and to write down everything that came to mind regarding the typical

behaviors and attributes of professors. Control participants were not given this task. In an ostensibly unrelated second experiment, participants answered 42 general knowledge questions taken from the game "Trivial Pursuit" (e.g., "Who painted La Guernica?" a. Dali, b. Velasquez, c. Picasso, d. Miro). In line with the prevailing stereotype of professors as intelligent, primed participants answered more questions correctly than did other participants. Another experiment showed that participants could also be led to perform worse on the same task by having them think previously about soccer hooligans, a social group that is associated with a rather modest level of intelligence.

In addition, various studies have shown that activation of a stereotype can affect memory performance (Dijksterhuis, Aarts, Bargh, & van Knippenberg, 2000; Dijksterhuis, Bargh, & Miedema, 2000; Levy, 1996). In experiments by Dijksterhuis, Bargh, et al. (2000), for instance, participants were seated at a desk on which 15 objects were placed. Some participants answered questions about older people ("How often do you meet elderly people?" "Do you think elderly people are conservative?"), whereas others answered questions about college students. After 3 min, participants were placed in a different experimental room and asked to recall as many of the objects present in the previous room as they could. As expected, participants primed with the older people stereotype recalled fewer objects than did other participants.

By now, effects of trait activation and stereotype activation on behavior have been demonstrated for a wide range of behaviors. The evidence for various forms of interpersonal behavior and for mental performance is especially impressive (see Dijksterhuis et al., in press, for a review). People can be made aggressive, helpful, cooperative, competitive, conforming, friendly, unfriendly, creative, intelligent, unintelligent, forgetful, and more.

Whereas the effects of trait activation and of stereotype activated are assumed to be nonmotivational in nature, recent research tested the hypothesis that goals could be contagious too (Aarts, Gollwitzer, & Hassin, 2004; see also Aarts, Dijksterhuis, & Dik, in press). That is, Aarts and colleagues tested the hypothesis that actively striving to achieve a goal can also be imitated automatically. In one of their studies, participants read a short behavioral script in which a student plans a vacation with friends. After planning the vacation the student either (a) went to a farm to work as an assistant for a month (a pretest showed that students encode this behavior in terms of the goal of making money) or (b) went to a community center to do volunteer work for a month (control condition). Participants were then told that the study was almost completed, but that they had to perform a short task on the computer. Crucially, participants were told that if enough time was left at the end of the session they would be able to participate in a lottery in which they could win money. Participants' pace on the computer task served as a measure of goal-directed activity: The faster they worked on it, the stronger their motivation to get to the part of the session where they could earn money. Results showed that participants who were exposed to the goal implying earning money worked faster than did those in the control condition.

In two other studies, Aarts et al. (2004) replicated these goal contagion effects for the goal of casual sex. In these studies, heterosexual male students read a short story about a man who meets a former female friend at a bar and spends a few hours with her. In the casual sex goal-implying condition—but not in the control—the man asks the woman whether he can come with her to her apartment (see also Clark & Hatfield, 1989). Next, all participants were asked to help a female or male experimenter by providing feedback on a task they performed earlier on in the study. Previous findings show that heterosexual men know that offering help can be instrumental in attaining sex with women, and that men behave accordingly (Buss, 1988; Canary & Emmers-Sommer, 1997). Thus, goal contagion should lead participants to be more helpful. Indeed, male participants exerted more effort in helping the female experimenter in the sex goal condition than in the control condition. Moreover, the effects of goal contagion were manifest even after a brief delay, showing some degree of persistence.

The conclusion of the research on the perception–behavior link is that behavior is highly contagious. People strongly adjust their behavior to that of the immediate social environment, without even being aware of it.

AUTOMATIC GOAL PURSUIT

A second realm of automaticity research relevant for consumer behavior is recent work on automatic goal pursuit. This research shows that the entire route from goal activation and goal setting to goal completion can proceed without conscious awareness. Merely priming a goal is enough to have people engage in goal-directed behavior.

Chartrand and Bargh (1996) were the first to investigate goal priming. They based their research on previous research on conscious goals. Hamilton, Katz, and Leirer (1980) observed that participants process information about other people differently, depending on whether they are given the goal to form an impression, or the goal to remember the information. Ironically, people who are presented with information about another person remember this information better if their goal is to form an impression rather than to memorize the information. In addition, people told to form an impression also show superior organization of information in memory. Chartrand and Bargh (1996) replicated these findings, but with one important procedural difference. Rather than giving people the explicit instruction to form an impression or to memorize the information, they primed these goals unconsciously, using a scrambled-sentence task. As it turned out, they obtained the same results. It did not matter whether

the goals were set consciously, or whether they were merely unconsciously activated.

Bargh et al. (2001) extended this research using more social goals. They showed that the goals to achieve and to cooperate can operate without awareness. Moreover, their research also demonstrated that action resulting from unconscious goals has sophisticated characteristics comparable to those of conscious goals. For instance, like conscious goals, unconscious goals lead to persistence in the face of obstacles. That is, participants who were temporarily prevented from achieving their goals demonstrated increased motivation over time.

Moreover, the social environment can trigger the activation of unconscious goals through important others. People associate goals with other people, and the activation of a representation of such an important other can lead to automatic activation of these associated goals (Fitzsimons & Bargh, 2003; Shah, 2003). This way, both goals that you often perform in the presence of an important other (e.g., you often help a particular friend) and goals that others have for you (e.g., your mother wants you to achieve) can be activated. Fitzsimons and Bargh demonstrated that merely thinking about an important other leads to the activation of goals, whereas Shah obtained similar effects with subliminal priming of the representation of another person. For example, participants primed with their mother (Fitszsimons & Bargh, 2003) or father (Shah, 2003) tried harder to succeed on a task relative to control participants.

Other goals can automatically affect our behavior because these goals are linked to specific environments. In research by Aarts and Dijksterhuis (2003) on automatic normative behavior, participants were asked to look at a visual image of a certain environment such as a library or an expensive restaurant. Behavioral goals typically associated with this environment (e.g., being silent in a library or being neat and tidy in an expensive restaurant) become automatically activated provided people are led to believe that they actually have to visit the depicted locations. For instance, people who were led to believe that they had to go to a library at the end of the experiment spontaneously started to whisper. This research shows that norms can become activated automatically.

Finally, Aarts and Dijksterhuis (2000) demonstrated that goals can also cause habitual behavior to ensue automatically. They asked Dutch undergraduate students how often they used their bicycle to reach various destinations (note that, especially in cities, bicycle use in Holland is about as common as car use in the United States). Later, participants were divided into habitual bicycle users (i.e., people who use their bike all the time) and nonhabitual bicycle users. In the actual experiments, participants were given a certain goal implying a specific location, such as the goal to "attend a lecture." The locations that were implied (such as the university) could be reached by bicycle, but also by other means, such as by car or by various modes of public transport. On presenting habitual bicycle users with such goals, the concept of *bicycle*

was automatically activated, as measured by a lexical decision task. Among nonhabitual bicycle users, activating a relevant goal did not lead to activation of this concept. Among habitual bicycle users there was a one-to-one relation between the goal and the means to reach that goal, implying that the decision about how to reach the goal is completely automatized.

The conclusion from these recent insights into automatic goals pursuit is that even goal-directed behavior often takes place outside conscious awareness and that goals can be automatically activated by a multitude of environmental cues.

IMPLICATIONS FOR CONSUMER BEHAVIOR

What are the potential implications of this array of findings for our understanding of consumer behavior? Whereas some of the work discussed bears direct relevance (Johnston, 2002; van Baaren et al., 2003), other findings are not operationalized in terms of consumer behavior. However, it is the general conclusion that is most important: Behavior often unfolds unconsciously as a result of the mere perception of cues in the environment. We briefly touch on these more general implications first, before we return to shopping behavior in supermarkets.

One may have observed that research on the perception–behavior link is more relevant for influencing the parameters of ongoing behavior than for the onset of new behavior. That is, the participants in the experiments by Bargh and colleagues (Bargh et al., 1996) did not walk to the elevator because they were primed with the stereotype of older people. Instead, they walked to the elevator because they were asked to do so by the experimenter, but the prime affected the speed with which they walked. Likewise, participants in the Dijksterhuis and van Knippenberg (1998) experiments did not spontaneously show off their intelligence. They were presented with a general knowledge task, but the prime affected how well they did. Such parameters, however, are highly important. We know that shop owners or restaurant owners sometimes try to affect these parameters. One effective way, for instance, to influence the time people spend in an establishment is to manipulate background music. Slow music tends to make people stay longer, whereas fast music tends to increase turnover rates (Milliman, 1982). The research reviewed previously shows that parameters such as speed are strongly influenced by our social environment as well.

But let us go back to the supermarket example. At the outset, we argued that an approach that emphasizes conscious and thorough information processing can only account for a limited subset of the choices people make. The vast majority of choices are not the result of much information processing at all. For our purposes, we divide these remaining choices into two categories. The first category involves choices based on automatically activated attitudes. The second category in-

volves choices that are not driven by attitudes at all. That is, sometimes the environment makes people bypass attitudes altogether. Both types of choices, we argue, are strongly affected by cues in the environment.

Malleable Automatic Attitudes

Researchers long believed that attitudes guide behavior in a deliberate and conscious manner. Attitudes were seen as conscious evaluations based on a considerable amount of weighting pros and cons of attitude objects. The research by Fazio and colleagues (Fazio et al., 1986) strongly diverged from this conceptualization. They demonstrated that on the mere perception of an object, its attitude is automatically activated and "ready" to guide further behavior. These findings dramatically increased the range of behaviors that could potentially be influenced by attitudes.

For our purposes, it is important to realize that automatically activated attitudes are malleable. Recent research suggests that mimicry, automatic stereotype activation, and automatic goal activation can temporarily change attitudes. Mimicry can affect attitudes in at least two ways. First, people consciously and intentionally take over one another's attitudes. When the "cool kids" wear a new clothing style or start to listen to new music, the "wannabe" cool kids follow their example in the hope of being cool, too. In this case, people want to mimic. However, mimicry can also lead to attitude change in cases where people do not consciously choose to assimilate toward another person. Recent studies by van Baaren, Niël, Peeters, and Ruiter (2005) confirmed what we already knew: Similar people think similar things (see Cialdini, 2001). In two experiments, van Baaren et al. (2005) had a naive confederate either mimic or not mimic the participants during an interview session. During that interview, the confederate expressed his attitude toward a Dutch sport (korfbal). The participant's own attitude toward korfbal was measured on a pre- and a postmeasure. The results showed that after mimicry, participants assimilated significantly more toward the confederate's attitude, compared to the no-mimicry condition. That is, their attitudes toward korfbal had shifted. There seems to be an intimate link between similarity in doing and similarity in thinking.

Evidence for the effect of stereotype activation on attitude change comes from research by Kawakami and colleagues (Kawakami, Dovidio, & Dijksterhuis, 2003). In their experiments, half of the participants were primed with the stereotype of older people. Different priming methods were used, ranging from rather bold, conscious manipulations to subtle, subliminal manipulations. In a later task, participants were asked to what extent they agreed with attitude statements such as "There is too much sex and nudity on TV these days" and "More people should go to church these days." Based on prevailing stereotypes of older people as being somewhat conservative, it was predicted that primed participants would become more conservative. Indeed, participants primed with the *older people* concept were suddenly worried about the amount of sex on TV and about the decreasing number of churchgoers in the Netherlands, relative to control participants who were not primed. That is, people primed with the older people stereotype indeed demonstrated more conservative attitudes toward things such as sex and nudity on TV. In a follow-up study, a more worrisome consequence of such stereotype-induced attitude change was found. Priming the stereotype of skinheads (associated with racism) led people to express more discriminatory attitudes. When asked to evaluate statements such as "The Netherlands should accept more immigrants from poor countries" or "I think that minorities ask too much in their demands for equal rights," participants primed with skinheads adopted more negative attitudes toward foreigners than did control participants who were not primed.

Ferguson and Bargh (2004b) recently revealed that even automatically activated attitudes are affected by subtle goal-priming manipulations. In their work, some participants were subtly given certain goals, whereas others were not. Subsequently, participants' automatic attitudes were measured for objects that were highly goal relevant versus irrelevant. As they predicted, objects that were normally regarded as rather neutral were seen as highly positive once they had become goal relevant. For instance, participants who had just been given the opportunity to drink had a neutral attitude toward water, whereas participants who had been forced to eat pretzels without the opportunity to drink afterward held highly positive attitudes toward water. Likewise, Sherman and colleagues (Sherman, Rose, Koch, Presson, & Chassin, 2003) showed that attitudes toward cigarettes among smokers differed dramatically as a function of when they had smoked their last cigarette. Craving a cigarette was clearly reflected in smokers' very positive attitudes.

Given that consumer choices are at least partly based on automatically activated attitudes, the consequences of these findings are far-reaching. These automatically activated attitudes are not stable, and hence, they do not always lead to the same choices. Instead, such attitudes are partly determined by the current social environment and by current goals. Moreover, people are generally unaware of the moderating effects of these subtle influences.

Bypassing Attitudes

Consumer choices are not affected only by malleable attitudes. There are reasons to believe that some choices may completely bypass the influence of attitudes. Aarts, Dijksterhuis, and de Vries (2001) did experiments in which they made some people thirsty by having them eat very salty candies. Rather than assessing attitudes toward goal-relevant items (as in Ferguson & Bargh, 2004b), they measured the accessibility of objects that could be instrumental in quenching thirst (e.g., cup, water). Indeed, a lexical decision task showed that such objects became more accessible, demon-

strating that goals make people perceptually ready to act. The consequence is that active goals increase the possibility that people perceive goal-relevant objects in their environment.

Environmental features can also activate goals when they are perceived without conscious awareness. Strahan, Spencer, and Zanna (2002) subliminally primed people with words related to thirst. Immediately afterward, participants compared two beverages in a taste test. Participants primed with thirst-related words drank more than control participants who had not been exposed to the prime words. However, these effects were moderated by actual thirst. Half of the participants had been asked not to drink during the last 3 hr before the experiment. Only among these people did the priming manipulation have effects. In sum, when people have a certain goal (e.g., they want to quench their thirst), even subliminal primes can activate goals to alleviate these needs.

Recently, Holland and colleagues (Holland, Hendriks, & Aarts, 2005) tested the effects of the perception–behavior link with an unusual stimulus input: smell. In their laboratory, they hid a bucket full of lukewarm water with citrus-scented cleanser. In one experiment, participants were subsequently asked what activities they wanted to engage in later in the day. Compared to control participants who were asked these questions without the cleanser present, "primed" participants listed more activities concerning cleaning. In another experiment, it was demonstrated that the bucket also affected actual behavior. Participants were asked to eat a rather crumbly cookie, and participants exposed to the scent left fewer crumbs behind at the table. More important, participants in these studies were not aware of the bucket in the laboratory.

CONCLUSIONS

A few years ago, consumer psychologists and others alike may have raised eyebrows at the observation that the music played in a shop affects the choices we make. North et al. (1997) showed that French music led to an increase in sales of French wine, whereas German music led customers to buy more German wine. In our view, such effects may well be very common in real life. Only a limited number of choices are based on conscious information processing strategies. The rest of the variance left to explain is caused by unconscious effects of all kinds of subtle cues in the environment.

So why did you end up with these 26 items in your cart? Why do you look puzzled at the tuna pizza with anchovies, the bananas, the peanut butter, the detergent, and the big container of Ben & Jerry's New York Super Fudge Chunk ice cream? Well, you know you bought bananas because you love bananas and you always buy them. Also, you know you bought detergent because you needed to wash those two shirts. Or did those freshly cleaned floors in the supermarket play a role as well? And what about the rest? You hardly ever buy peanut butter, but a small boy running through the aisles

reminded you of your 5-year-old nephew who loves peanut butter. You bought a big rather than a small container of ice cream because you witnessed someone else grabbing a big container. And although you bought too many groceries because you were hungry, you forgot to buy coffee, perhaps because you thought about what birthday present to buy grandma while you negotiated the coffee aisle. Unfortunately, the mere thought of your grandmother made you forgetful.

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