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Non-Conscious Influences on Consumer Choice

Abstract

While consumer choice research has dedicated considerable research attention to aspects of choice that are deliberative and conscious, only limited attention has been paid to aspects of choice that occur outside of conscious awareness. We review relevant research that suggests that consumer choice is a mix of conscious and nonconscious influences, and argue that the degree to which nonconscious influences affect choice is much greater than many choice researchers believe. Across a series of research domains, these influences are found to include stimulus that are not consciously perceived by the consumer, nonconscious downstream effects of a consciously perceived stimuli or thought process, and decision processes that occur entirely outside of awareness.

Keywords

non-conscious choice, implicit effects on attitude, memory and behaviour

Disciplines

Advertising and Promotion Management | Behavioral Economics | Business | Business Intelligence | Cognitive Psychology | Marketing | Sales and Merchandising

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Previous models of the consumer choice process (e.g. Bettman 1979; Howard and Sheth 1969) have generally assumed that choice is a conscious, usually deliberative process. Increasingly, however, research has shown that a large degree of consumer decision making occurs outside of conscious awareness or is influenced by factors unknown to the decision maker. In the present paper we review recent research in a number of different aspects of the consumer choice domain and highlight work that suggests that nonconscious components may play an important role. Although our focus is on processes that occur outside of conscious awareness, we do not argue that nonconscious processes act as a replacement for conscious decision making but rather that all decisions consist of a mix of conscious and nonconscious processes. We do argue that the degree to which nonconscious processes influence the consumer choice process is much greater than most choice researchers believe. The areas covered in this review span most of the major domains of consumer research on decision making, i.e., attention and perception, goal activation and pursuit, learning and memory, attitudes and preferences, affect, and choice.

Attention and Perception

The Effect of Attention on Nonconscious Processing. Attention is no longer viewed strictly as a bottom-up process that proceeds from an automatic sensory perception, to preconscious processing, and then to selection for conscious awareness. Conscious goals can “prime” appropriate visual pathways (Corbetta et al. 1991); conscious rules can inhibit awareness thresholds (Neely 1977; Posner and Snyder 1975); and long-term memory may drive nonconscious selection for focal attention at various stages of preconscious analysis (Bruner and Postman 1947; Erdelyi 1974; Greenwald 1992). Perception may even be a preparatory process that “looks” for features to “support” expectations (Marcel 1983; Rock 1983).

Attention also plays a critical role in learning. Mere spatial-temporal contiguity is not sufficient to establish Pavlovian learning in humans, and short-term memory processes involving “demand awareness” mediate preparatory conditioning (Rescorla and Wagner 1972; Miller et al. 1995). A matter of current debate is whether evaluative conditioning requires that

participants be at least “contingency aware” (Field 2000) or whether a neutral object can acquire evaluative significance without conscious awareness (Baeyens et al. 1998). A perceiver’s goals and motivations may indeed moderate this process. Low-effort learning may be merely associative, whereas high-effort motivated learning may be forward looking and expectancy based (van Osselaer and Janiszewski, 2001).

Perceptual Biases in Spatial Judgments. The perception of visual cues does not require higher-order cognitive processing. Salient visual cues can strongly influence many consumer decisions ranging from route choice to package choice. A framework of automatically activated anchor-and-adjustment processes has been recently tested in the context of spatial judgments, in which the anchor is the most perceptually salient dimension of a visual configuration. For example, Raghubir and Krishna (1996) revealed a *direct distance bias* in a map-based judgment task wherein consumers use the direct distance between the end points of a path as an initial input into a distance judgment and then correct for path configuration. In a multi-dimensional spatial judgment, the most salient dimension is used as the starting anchor, without consumers being able to articulate its effect on their judgments (Krider et al. 2001; Raghubir and Krishna 1999). The pattern of results shows that the use of visual cues may be hard-wired, inasmuch as the effect is not eliminated by efforts to motivate or de-bias the perceiver. Indeed, increases in attention to the stimuli, whether through contextual presentation formats, experimental instructions, or individual differences, exacerbates the bias—suggesting that the bias is automatic.

Goal Activation and Pursuit

What sets goal pursuit into motion? Perhaps the most intuitively appealing and compelling answer is that our conscious will does. We decide to pursue a particular goal in a particular social situation, determine which strategies will best serve us in attaining the goal, engage in goal-directed behavior and plans of action, and evaluate our progress made toward the goal (Bandura 1997; Cantor and Kihlstrom 1987; Carver and Scheier 1981; Gollwitzer 1990; Heckhausen, 1991; Locke and Latham, 1990; Mischel, Cantor, and Feldman 1996).

However, goal pursuit does not always involve deliberate direction of goal-driven behavior. Sometimes it occurs outside of awareness, intent, and even control. Social environments automatically activate goals frequently associated with them in the past, and these goals then operate to guide information processing and behavior without conscious intervention (Chartrand and Bargh, in press). Recent evidence has shown that the environment automatically (i.e., without conscious awareness) activates associated goals and motives (Bargh, Raymond, Pryor, and Strack 1995; Gollwitzer 1999; Moskowitz, Wasel, Gollwitzer and Schaal 1999; Spencer, Fein, Wolfe, Fong, and Dunn 1998), that individuals pursue goals they are not aware of having (Bargh, Gollwitzer, Lee-Chai, Barndollar, and Trötschel, in press; Chartrand and Bargh 1996; Séguin and Pelletier 2001), and that individuals succeed and fail at nonconsciously-pursued goals, and this has downstream consequences for mood, self-enhancement, and performance (Chartrand, 2001; Chartrand, Cheng, and Tesser 2001).

Learning and Memory

Accessibility, Diagnosticity and Automaticity. Feldman and Lynch (1988) define accessibility as the ease with which something can be retrieved from memory and diagnosticity as the sufficiency of that input for the judgment task at hand. They propose that the use of one input versus another in making judgments is a function of each input's relative accessibility and diagnosticity. Research has substantiated this framework with regard to the use of competing memory inputs and the use of memory versus contextual information in judgment (Menon, Raghurir, and Schwarz 1995, 1997; Simmons, Bickart, and Lynch 1993).

More recent work by Menon and Raghurir (2001) suggests that this framework may reduce to a single construct "accessibility framework" for information that is automatically retrieved. They provide evidence that accessibility and diagnosticity may not be independent or orthogonal constructs. The ease with which information is retrieved from memory (i.e., accessibility) may itself be used as an input in judgment, implying that the relationship between these two constructs may be a multiplicative rather than an additive one. When people are

made aware of using retrievability as an input in judgment, discrediting its diagnosticity relative to other more diagnostic sources of information diminishes its use; however, if it is discredited after being experienced, it continues to affect judgments. Menon and Raghuram demonstrate that this is because accessibility as an input is outside of awareness, and its use is uncontrollable once it has been experienced—that is, people are not aware of using it as an input to judgments, do so unintentionally, and are unable to stop using it once it has been activated (cf. Bargh 1989; Bargh and Chartrand 1999).

Measuring Automatic Effects on Memory. One of the most powerful and useful tools for studying automatic processes in judgment and choice is response-latency analysis. This approach can be used to (a) measure judgment strength (Fazio 1989), (b) measure automatic judgment activation (Fazio, Sanbonmatsu, Powell, and Kardes 1986), and (c) distinguish between “real” previously-formed judgments stored in memory versus “artificial” measurement-induced or constructed judgments (Fazio, Lenn, and Effrein 1984). Response-latency measures are superior to commonly used paper-and-pencil measures in many respects. Response-latency measures outperform paper-and-pencil measures of judgment strength when predicting persistence (i.e., judgment stability over ten days) and resistance (i.e., susceptibility to counterpersuasion; see Bassili 1996). Because the results of thinking rather than the processes of thinking are open to conscious awareness and reflection (Neisser 1967; Nisbett and Wilson 1977), no one has even attempted to use standard paper-and-pencil measures to assess automatic judgment activation. Standard approaches have been used to investigate judgment construction (Bettman, Luce, and Payne 1998), but response-latency analysis might also be applied to this topic. Relative to standard paper-and-pencil measures, response latencies are less reactive, less obtrusive, and less susceptible to demand effects.

Strong attitudes are highly accessible from memory and can be retrieved relatively quickly (Fazio 1989). Strong attitudes are also activated automatically (unintentionally) upon mere exposure to the attitude object. Automatic activation can be investigated using an

evaluative priming paradigm (evaluatively consistent primes and targets result in faster target response times; Fazio et al. 1986) or an implicit association test (Greenwald, McGhee, and Schwartz 1998). Previously formed judgments are retrieved relatively quickly regardless of whether paper-and-pencil measures or response-latency measures are administered first, whereas robust order effects are observed for constructed judgments (Fazio et al. 1984; Kardes 1988; Stayman and Kardes 1992).

Constructed preference judgments are often dismissed as “artificial” measurement effects that do not tell us much about people’s values. However, recent research indicates that artificial preferences can reveal much about the psychological processes involved in preference formation and representation and that artificial preferences can influence behavior (Kardes, Cronley, Kim, and Bhargava 2001). Firsthand experience (consuming a new product) results in well-articulated preferences, whereas secondhand experience (reading a package label) results in poorly articulated preferences. Measurement-order effects were more pronounced for poorly than for well-articulated preferences, but even poorly articulated preferences has a strong impact on choice when the choice options are physically present during the choice task. Physically present products (versus brand names only) evoke more immediate perceptions of and intense responses to product related stimuli.

Implicit Learning. Over the past 25 years strong evidence has accumulated that learning can occur without intention or any awareness that it is occurring. This phenomenon is usually called either “implicit,” “unconscious,” or “incidental” learning. Concept formation paradigms have typically examined the acquisition of simple multi-attribute rules and found that incidental learning (i.e., learning that results when the “training” task was unrelated to the concept but exposed subjects to information that was sufficient for learning) results in a level of performance that is moderately high (e.g., 70% - 85% correct), but never approaches the near perfect learning that it often obtained when learning is intentional (e.g., see Jacoby and Brooks 1984 and Wattenmaker 1991). Hutchinson and Alba (1991) have examined this paradigm in

consumer situations. The terms implicit or unconscious learning have typically been used in paradigms where a complex rule or sequence of events is to be learned. Performance on these tasks is typically poor (e.g., 50% to 70% correct) and, surprisingly, incidental learning is often more effective than intentional learning (e.g., see Berry 1994, Perruchet 1994, and Reber 1989). When tested on the learned concepts subjects frequently believe they are just guessing and are skeptical of their own knowledge.

Although the phenomena are certainly real, the dichotomous distinction between implicit and explicit learning is misleading. Whittlesea and Wright (1997) argue that “learning has a variety of attributes, of which the subject could separately be aware or unaware, including the stimulus object, the properties carried by the stimulus object that can be learned, the variety of ways in which the stimulus could be learned, the act of learning, the content of learning, the sources of control in past experience, and the effect of the learning for future unanticipated circumstances.” They summarize current empirical results as support for the conclusion that people are “massively unaware” of both past influences on current performance and the consequences of current stimuli and decisions on future performance. We concur.

Attitudes and Preferences

Predecisional Distortion. When one alternative emerges as the tentative leader in overall preference during the choice process, there is a tendency for new information to be assessed too positively in favor of that alternative. Further, the more confidence the decision maker has in the leader, the greater is the subsequent distortion of information. This phenomenon is robust, occurring in consumer choices (Russo, Meloy, and Medvec 1998), professional decisions (Russo, Meloy and Wilks 2000) and mock trials (Carlson and Russo 2001).

Post-experimental questioning tested for awareness of this predecisional distortion. In Russo et al. (2000), auditors' reported certainty that they “might be ‘seeing’ new information as favoring the alternative believed to be leading” correlated only .05 ($p > .10$) with actual

distortion. In the same study, sales representatives' rated awareness correlated $-.21$ (two-sided, $p < .05$) with actual distortion. In other words, decision makers who claimed with greater certainty that they did not notice distorting information actually distorted significantly more. Similarly, Carlson, Russo, and Meloy (2001, Experiment 1) using students making a consumer choice, found the correlation between awareness of distortion and actual distortion to be $.29$ (two-sided, $p < .01$). In this study, participants were also asked whether they were aware of the opposite bias, described as "undersupport of the leader." The correlation between these ratings and the negative of distortion was $-.07$. In sum, stated awareness of distortion seems invalid. Those who claim to be unaware exhibit the most distortion. All of this suggests that there is little or no recognition of this bias as it occurs.

Nonconscious Processing and Metacognition. In the present context, metacognition concerns the level of insight consumers or managers have regarding the source, cause, and—in some cases—existence of their knowledge, attitudes, and preferences. Metacognition should be poor when an individual's responses are driven by stimuli (e.g., Janiszewski 1988) or processes (Seiger 1994) that occur below the level of conscious awareness. However, this classic view of nonconscious processing is restrictive and understates the degree of metacognitive error. Conscious awareness is brought into question whenever individuals misidentify the cause or source of their cognitive and affective states. For example, consumers may confuse the true nature of a product experience with a subsequent ad-induced description of it (Braun 1999). Such misinformation can alter beliefs without producing a conscious sense of confusion. Unrecognized biases can result in exaggerated recollection of the differences between chosen and rejected alternatives (Svenson and Benthorn 1992), unintentional overestimation of one's prior knowledge (see Hawkins and Hastie 1990), and delusions about the consistency of one's attitudes (Levine 1997). Perception itself can be colored, as when illusory correlations are detected among product features (Broniarczyk and Alba 1994) and the perceived quality of a product is driven by expectations rather than actual performance (Hoch and Ha 1986). Indeed, many "framing" effects reflect nonconscious influences, as when subtle environmental

manipulations alter perceptions of product superiority (e.g., Levin and Gaeth 1988). It also seems safe to argue that people are not consciously aware of the influence that mere perceptual fluency and the misattribution of familiarity can have on their attitudes, confidence, perceptions of truth, and forecasts (see Alba and Hutchinson 2000). And, it is doubtful that people are aware of the influence that conditioning, genetics, and evolution have on everyday behavior (Alba 2000).

Affect and Non-Conscious Processes

Affect researchers have typically distinguished between three types of affect: evaluations, which are simple positive and negative reactions to specific stimuli; moods, which are more generalized feeling states, mild in arousal and relatively long-lasting; and emotions, which, in contrast to moods, are stimulus-specific rather than generalized and are often characterized by more intense arousal levels (Gardner 1983). Considerable evidence of non-conscious processes within each of these main categories of affective responses.

In the domain of evaluations, a variety of automatic effects have been hypothesized. For example, theories of category-based (or schema-triggered) affect suggest that affective or evaluative responses to stimuli can be a direct, automatic consequence of the act of categorization (Fiske 1982). When the category is accessed, so too is the related affect which is then transferred automatically to the stimulus. In addition, research on attitude accessibility (i.e. Fazio, Sanbonmatsu, Powell and Kardes 1986) has demonstrated that strong attitudes speed up responses, suggesting that the presentation of the attitude object results in the automatic activation its evaluation. For very strong attitudes, the mere perception of the attitude object is often sufficient to automatically activate the attitude. Work on mere exposure effects (Zajonc 1968) also suggests that evaluations can be based upon implicit memory for stimuli, again leading to evaluations that occur non-consciously. Recently a number of scholars have focused on the degree to which attitude constructs can operate non-consciously or implicitly to impact behaviors in ways not recognized by conscious processing (i.e., Greenwald and Banaji 1995).

A variety of non-conscious mood effects have also been identified. Previous research has focused on mood congruent memory, such as when enhanced memory for positive material occurs

among individuals in a positive mood (Isen 1984), and mood dependent memory, wherein activation of an emotion at the time of encoding later aids in the retrieval of those items when the same emotion is reinstated. In several papers, Eich and colleagues (i.e, Eich 1995; Macaulay, Ryan and Eich 1993) has found both effects to be more reliable and consistent when assessed via implicit rather than explicit memory measures, which is consistent with the notion that the connections between emotions and stimuli are being made automatically rather than effortfully. Finally, research in the “affect as information” stream has suggested that mood can impact judgments of such things as happiness (i.e, Clore, Schwarz and Conway 1994), at least when mood effects are not made salient, and thus are more likely to occur in an automatic fashion.

In the domain of emotions, the evidence for non-conscious effects is more mixed, with a number of authors arguing that while emotional appraisal often occurs rapidly and automatically (Smith and Ellsworth 1985), an emotion must be conscious to be felt. Research suggests that emotional disorders may often perpetuate themselves in non-conscious ways. For example, depressed subjects exhibit automatic processing of depression-related concepts (Gottlib and McCann 1984) and link such concepts automatically with their self-concepts (Bargh and Tota 1987). Similarly a significant research stream exists on the topic of emotional perception. This research has found that emotion can serve as a perceptual cue and as a prioritizer such that individuals perceive stimuli that are consistent with their current emotional states (i.e. Niedenthal 1990). Ortony, Clore and Collins (1988) have written about “latent” emotions, which they define as emotions that have not yet reached a level of intensity to bring them into consciousness. Thus they are not exactly emotions, but represent emotional potential instead.

Neuroscience and the Unconscious

Evidence supporting the existence of unconscious mental functioning has been growing in the neuroscience literature as well, particularly from lesion-based neuropsychological studies. Studies conducted on patients suffering from a condition called blindsight provide compelling evidence for subliminal perception and for unconscious processes associated with priming

effects. In this condition, patients suffer lesions in either the right or the left visual cortex, resulting in complete blindness to one half of the world. Early studies with such patients found that despite being completely unaware of objects placed in their “blind” hemifields, the patients are able to guess at beyond chance levels the presence of stimuli, the location of stimuli in space, the orientation of lines, the direction of movement of a spot of light, and the color of light (see Weiskrantz, 2000). Recently the reports have extended to the semantic biasing by words. For example, Marcel (1998) presented a single word to two subjects in their blind fields (e.g., money) and then presented a semantically ambiguous word in their intact fields (e.g., bank). The subjects were instructed to indicate the meaning of the ambiguous word as fast as possible. The apprehended meaning of the word shown in the intact field was found to be reliably biased by that of the preceding word in the blind field. For example, the subjects were more likely to say “money” rather than “river” as the meaning of the word “bank.”

Non-conscious Processes in Choice

It is particularly appropriate to investigate nonconscious influences in choice. Inasmuch as choice pits alternatives against one another, one of the primary influences on choice is reference dependence. Unlike the immediate assimilation effects noted in social judgment theory, this effect of contrast in the evaluation of choice information is automatic (cf. Petty and Wegener 1993). For example, how one feels about an attribute level (say 35 mpg) depends critically on the competing level of the other alternatives (say, 30 or 40 mpg). We consider two ways that this reference dependence distorts choice. First, in choices, continuous attributes are biased upward compared with categorical attributes (Nowlis and Simonson 1997; Hsee and Leclerc 1998; and Stone and Schkade 1991). Second, the impact of adding a nearly or totally dominated decoy to a choice set results in distortion of choices that can only be partially accounted for by perceptual shifts (Pettibone and Wedell 2000). From the perspective of nonconscious effects on choice interesting evidence has emerged that both forms of distortion become greater given effort or practice.

With respect to context effects, Simonson (1989) has shown that the attraction effect becomes stronger when respondents are required to justify their results. Had the bias been conscious, it would have been expected to moderate under the high processing condition. Similar results are obtained in research examining the impact of asking questions on subsequent behavior. For example, Fitzsimons and Shiv (2001) found that when responding to hypothetical questions, respondents are unable to prevent a substantial biasing effect on their behavior. The hypothetical content of the question was shown to have a substantial impact on subsequent behavior despite the fact respondents were clearly aware it was purely hypothetical. Further, an increase in cognitive elaboration increased the contaminative effects of hypothetical questions, suggesting a non-conscious mechanism.

Several recent papers have examined the role of subliminal primes on actual consumption behavior and found substantial effects. Winkielman, Berridge and Wilbarger (2001), for example, explored the role of subliminal affective primes on consumption and evaluations of a drink. Subliminal exposure to happy facial expressions caused thirsty participants to pour and consume more of the beverage and to have a higher willingness to pay for the drink, whereas exposure to angry faces led to decreases in consumption and ratings of the drink. Strahan, Spencer and Zanna (2001) found similar increases in drink consumption using both facial expressions and semantic thirst-related primes. Interestingly, in both papers the impact on behavior was observed despite the fact that participants were unaware both that they were exposed to the facial expressions or thirst-related words and that they had unconscious affective reactions to the subliminal primes.

Conclusion

We have briefly reviewed some of the mounting evidence in support of non-conscious influences on many aspects of the consumer choice process. Evidence continues to accumulate regarding stimuli that are not consciously perceived by the consumer, nonconscious downstream effects of a consciously perceived stimuli or thought process, and decision processes that occur entirely outside of awareness. Each of these nonconscious components

of consumer choice has important implications for researchers studying consumer decision making, particularly because consumer choice contexts exhibit many of the conditions that lead to automatic processing.

References

- Alba, Joseph W. (2000), "Dimensions of Consumer Expertise ... Or Lack Thereof," in *Advances in Consumer Research*, Vol. 27, eds. Stephen J. Hoch and Robert J. Meyer, Provo, UT: Association for Consumer Research, 1-9.
- Alba, Joseph W. and J. Wesley Hutchinson (2000), "Knowledge Calibration: What Consumers Know and What They Think They Know," *Journal of Consumer Research*, 27 (September), 123-156.
- Baeyens, Frank, Jan De Houwer, Deb Vansteenwegen, & Paul Eelen (1998). Evaluative conditioning is a form of associative learning: On the artifactual nature of Field and Davey's (1997) artifactual account of evaluative learning. *Learning and Motivation*, 29, 461-474.
- Bandura, A. (1997). Self-efficacy. New York: Freeman.
- Bargh, John A. (1989), "Conditional Automaticity: Varieties of Automatic Influence in Social Perception and Cognition" in *Unintended Thought*, eds., James S. Uleman and John A. Bargh, New York, NY: Guilford Press, 3-51.
- Bargh, J. A. (1990). Auto-motives: Preconscious determinants of social interaction. In E. T. Higgins & R. M. Sorrentino (Eds.), Handbook of Motivation and Cognition (Vol. 2, pp. 93-130). New York: Guilford Press.
- Bargh, John A. and Tanya L. Chartrand (1999) "The Unbearable Automaticity of Being," *American Psychologist*, Vol. 54, No. 7, 462-479.
- Bargh, J. A., Raymond, P., Pryor, J., & Strack, F. (1995). Attractiveness of the underling: An automatic power sex association and its consequences for sexual harassment and aggression. Journal of Personality and Social Psychology, 68, 768-781.
- Bargh, J.A., Gollwitzer, P. M., Lee-Chai, A. Y., Barndollar, K., & Trötschel, R. (in press). Automating the Will: Nonconscious Activation and Pursuit of Behavioral Goals. Journal of Personality and Social Psychology.
- Bargh, John A. and M. E. Tota (1988), "Individual Construct Accessibility and Perceptual Selection," *Journal of Experimental Social Psychology*, vol. 22, pp. 293-311.
- Bassili, John N. (1996). "Meta-Judgmental Versus Operative Indexes of Psychological Attributes: The Case of Measures of Attitude Strength," Journal of Personality and Social Psychology 71, 637-653.
- Berry, Diane C. (1994) Implicit Learning: Twenty-Five Years on. in *Attention and performance XV, Conscious and Non-Conscious Information Processing*, eds. Carlo Umiltà and Morris Moscovitch, Cambridge, MA: MIT Press.
- Bettman, James R., Mary F. Luce, and John W. Payne (1998). "Constructive Consumer Choice Processes," Journal of Consumer Research 25, 187-217.

- Braun, Kathryn A. (1999), "Postexperience Advertising Effects on Consumer Memory," *Journal of Consumer Research*, 25 (March), 319-334.
- Broniarczyk, Susan M. and Joseph W. Alba (1994), "Theory Versus Data in Prediction and Correlation Tasks," *Organizational Behavior and Human Decision Processes*, 57 (January), 117-139.
- Cantor, N., & Kihlstrom, J.F. (1987). Personality and social intelligence. Englewood Cliffs, NJ: Prentice-Hall.
- Carver, C. S., & Scheier, M. F. (1981). Attention and self-regulation: A control theory approach to human behaviors. New York: Springer.
- Carlson, Kurt A. and J. Edward Russo (2001), "Jurors' Distortion of Evidence in Legal Trials," Journal of Experimental Psychology: Applied (forthcoming).
- Carlson, Kurt A., J. Edward Russo, and Margaret G. Meloy (2001), "Warning ..." (in preparation).
- Chartrand, T.L. (2001). Mystery moods and perplexing performance: Consequences of succeeding and failing at a nonconscious goal. Manuscript submitted for publication.
- Chartrand, T. L., & Bargh, J. A. (1996). Automatic activation of impression formation and memorization goals: Nonconscious goal priming reproduces effects of explicit task instructions. Journal of Personality and Social Psychology, 71, 464-478.
- Chartrand, T. L., & Bargh, J. A. (in press). Nonconscious motivations: Their activation, operation, and consequences. To appear in A. Tesser, D. Stapel, & J. Wood (Eds.), Psychological perspectives on self and identity (vol. 2). Washington, D.C.: American Psychological Association Press.
- Chartrand, T. L., Cheng, C. M., & Tesser, A. (2001). Consequences of negative mystery moods resulting from failure at nonconscious goal pursuit for self-enhancement and stereotyping. Manuscript in preparation, The Ohio State University.
- Corbetta, M., Miezin, F. M., Dobmeyer, S., Shulman, G. L., & Petersen, S. E. (1991). Selective attention during visual discriminations of shape, color, and speed: Functional anatomy by Positron Emission Tomography. *The Journal of Neuroscience*, 11(8), 2382-2402.
- Eich, Eric (1995), "Searching for Mood Dependent Memory," *Psychological Science*, Vol. 6, No. 2, pp. 67-75.
- Fazio, Russell H. (1989). "On the Power and Functionality of Attitudes: The Role of Attitude Accessibility," in Anthony R. Pratkanis, Steven J. Breckler, and Anthony G. Greenwald (eds.), Attitude Structure and Function. Hillsdale, NJ: Erlbaum.
- Fazio, Russell H. (1990). "A Practical Guide to the Use of Response Latency in Social Psychological Research," in Clyde Hendrick and Margaret S. Clark (eds.), Research Methods in Personality and Social Psychology 11. Newbury Park, CA: Sage.

- Fazio, Russell H., Tracy M. Lenn, and Edwin A. Effrein (1984). "Spontaneous Attitude Formation," Social Cognition 2, 217-234.
- Fazio, Russell H., David M. Sanbonmatsu, Martha C. Powell, and Frank R. Kardes (1986). "On the Automatic Activation of Attitudes," Journal of Personality and Social Psychology 50, 229-238.
- Feldman, Jack M. and John G. Lynch, Jr. (1988), "Self-Generated Validity and Other Effects of Measurement on Belief, Attitude, Intention and Behavior," Journal of Applied Psychology, 73 (August), 421-35.
- Field, Andy P. (2000). I like it, but I'm not sure why: Can evaluative conditioning occur without conscious awareness? Consciousness and Cognition, 9, 13-16.
- Fiske, S. T. (1982), "Schema-triggered affect: Applications to Social Perception," in M.S. Clar and S. T. Fiske (Eds), Affect and Cognition: The Seventeenth Annual Carnegie Symposium on Cognition, Hillsdale, NJ: Erlbaum, pp. 55-76.
- Gilbert, Daniel T. (1989), "Thinking Lightly about Others: Automatic Components of the Social Inference Process" in Unintended Thought, eds., James S. Uleman and John A. Bargh, New York, NY: Guilford Press, 189-211.
- Gilbert, Daniel T., Brett W. Pelham, and Douglas S. Krull (1988), "On Cognitive Busyness: When person perceivers meet persons perceived," Journal of Personality and Social Psychology, 54 (May), 733-740.
- Gollwitzer, P. M. (1990). Action phases and mind-sets. In E. T. Higgins & R. M. Sorrentino (Eds.), Handbook of Motivation and Cognition (pp. 53-92). New York: Guilford Press.
- Gollwitzer, P.M. (1999). Implementation intentions: Strong effects of simple plans. American Psychologist, 54, 493-503.
- Gottlib, I.H. and C. D. McCann (1984), "Construct Accessibility and Depression: An Examination of Cognitive and Affective Factors," Journal of Personality and Social Psychology, 47, pp. 427-439.
- Greenwald, Anthony G. (1992). Unconscious Cognition Reclaimed. American Psychologist, 47 (7), 766-779.
- Greenwald, Anthony G. and Mahzarin R. Banaji (1995), "Implicit Social Cognition: Attitudes, Self-Esteem and Stereotypes," Psychological Review, Vol. 102, No. 1, pp. 4-27.
- Greenwald, A. G., D. E. McGhee, and J. L. K. Schwartz (1998). "Measuring Individual Differences in Implicit Cognition: The Implicit Association Test," Journal of Personality and Social Psychology 74, 1464-1480.
- Hawkins, Scott A. and Reid Hastie (1990), "Hindsight: Biased Judgments of Past Events After the Outcomes Are Known," Psychological Bulletin, 107 (May), 311-327.
- Heckhausen, H. (1991). Motivation and Action. Berlin, Heidelberg, New York: Springer-Verlag.

- Hoch, Stephen J. and Young-Won Ha (1986), "Consumer Learning: Advertising and the Ambiguity of Product Experience," *Journal of Consumer Research*, 13 (September), 221-233.
- Hsee, Chris and France F. Leclerc (1998) "Will Products Look More Attractive When Evaluated Jointly or When Evaluated Separately?" *Journal of Consumer Research*, 25, 175-186.
- Hutchinson, J. Wesley and Joseph W. Alba (1991), "Ignoring Irrelevant Information: Situational Determinants of Consumer Learning," *Journal of Consumer Research*, 18 (December), 325-346.
- Izen, Alice M. (1984), "Toward Understanding the Role of Affect in Cognition," In *Handbook of Social Cognition*, Vol. 3, R. S. Wyer, Jr. and T. K. Srull (Eds.), Hillsdale, NJ: Erlbaum, pp. 179-236.
- Izard, Carrol (1977), *Human Emotions*, Plenum.
- Jacoby, L. L. & Brooks, L. R. (1984). Nonanalytic cognition: Memory, perception, and concept learning. (In G. Bower (Ed.), *The psychology of learning and motivation: Advances in research and theory* (Vol. 18, pp. 47—91). San Diego, CA: Academic Press.)
- Janiszewski, Chris (1988), "Preconscious Processing Effects: The Independence of Attitude Formation and Conscious Thought," *Journal of Consumer Research*, 15 (September), 199-209.
- Johnson, Richard M. and Bryan K. Orme (1996), "How Many Questions Should You Ask In Choice-Based Conjoint Studies?" Available at <http://www.sawtoothsoftware.com/>
- Kardes, Frank R., Maria L. Cronley, John Kim, and Mukesh Bhargava (2001). "When do 'Artificial' (Constructed) Preferences Influence Behavior?" Unpublished data. University of Cincinnati.
- Kardes, Frank R. (1988). "Spontaneous Inference Processes in Advertising: The Effects of Conclusion Omission and Involvement on Persuasion," *Journal of Consumer Research* 15, 225-233.
- Kihlstrom, Mulvaney, Tobias, Tobis (2000), "The Emotional Unconscious," *Cognition and Emotion*, In Eich, Kihlstrom, Bower, Forgas, Niedenthal, (Eds.), Oxford University Press, Chapter 2, pp. 30-89.
- Krider, Robert E., Priya Raghurir, and Aradhna Krishna, (2001) "Pizzas: π or Square? Psychophysical Biases in Area Comparisons," *Marketing Science*, in print.
- LeDoux, Joseph (1998), *The Emotional Brain: The Mysterious Underpinnings of Emotional Life*, Touchstone, Simon and Shuster.
- Levin, Irwin P. and Gary J. Gaeth (1988), "How Consumers Are Affected by the Framing of Attribute Information Before and After Consuming the Product," *Journal of Consumer Research*, 15 (December), 374-378.
- Levine, Linda J. (1997), "Reconstructing Memory for Emotions," *Journal of Experimental Psychology: General*, 126 (June), 165-177.

- Locke, E. A., & Latham, G. P. (1990). A theory of goal setting and task performance. Englewood Cliffs, NJ: Prentice-Hall.
- Macaulay, Dawn, Lee Ryan and Eric Eich (1993), "Mood Dependence in Implicit and Explicit Memory," In P. Graf and M.E.J. Masson (Eds.), *Implicit Memory: New Directions in Cognition, Development and Neuropsychology*, Hillsdale, NJ: Erlbaum, pp. 75-94.
- Marcel, Anthony (1983). Conscious and unconscious perception: An approach to the relations between phenomenal experience and perceptual processes.
- Marcel, Anthony J. (1998), "Blindsight and Shape Perception: Deficit of Visual Consciousness or of Visual Function?" *Brain*, 121 (8), August, 1565-1588.
- Menon, Geeta, Priya Raghurir and Norbert Schwarz (1995), "Behavioral Frequency Judgments: An Accessibility-Diagnosticity Framework," *Journal of Consumer Research*, 22 (September), 212-28.
- Menon, Geeta, Priya Raghurir and Norbert Schwarz (1997), "How Much Will I Spend? Factors Affecting Consumers' Estimates of Future Expense," *Journal of Consumer Psychology*, 6 (2), 141-164.
- Menon, Geeta and Priya Raghurir (2001), "When Automatic Accessibility meets Conscious Content: Implications for the Accessibility-Diagnosticity Framework," New York University Working Paper.
- Mischel, W., Cantor, N., & Feldman, S. (1996). Principles of self-regulation: The nature of willpower and self-control. In E. T. Higgins & A. W. Kruglanski (Eds.), Social psychology: Handbook of basic principles (pp. 329-360). New York: Guilford.
- Moskowitz, G. B., Wasel, W., Gollwitzer, P. M., & Schaal, B. (1999). Preconscious control of stereotype activation through chronic egalitarian goals. *Journal of Personality and Social Psychology*, 77, 167-184.
- Neely, James H. (1977). Semantic priming and retrieval from lexical memory: Roles of inhibitionless spreading activation and limited-capacity attention. *Journal of Experimental Psychology: General*, 106 (3), 226-254.
- Neisser, Ulric (1967). Cognitive Psychology. New York: Appleton-Century-Crofts.
- Nidenthal, Paula M. (1990), "Implicit Perception of Affective Information," *Journal of Experimental Social Psychology*, 26, pp. 505-527.
- Nisbett, Richard E. and Timothy DeCamp Wilson (1977), "Telling More than We Can Know: Verbal Reports on Mental Processes," *Psychological Review*, 84 (May), 231-259.
- Nowlis, Steven M and Itamar Simonson (1997) "Attribute-task Compatibility as a Determinant of Consumer Preference Reversals," *Journal of Marketing Research*, 34, 205-218.
- Ortony, Andrew, Gerald L. Clore and Allan Collins (1988), *The Cognitive Structure of Emotions*, Cambridge University Press.

- Perruchet, Pierre (1994) Learning from Complex Rule-Governed Environments: On the Proper Functions of Non-Conscious and Conscious Processes. in Attention and Performance XV, Conscious and Non-Conscious Information Processing, eds. Carlo Umiltà and Morris Moscovitch, Cambridge, MA: MIT Press.
- Pettibone, Jonathan C. and Douglas H. Wedell (2000) "Examining Models of Nondominated Effects Across Judgment and Choice," *Organizational Behavior and Human Decision Processes*, 81.2 (March) 300-328.
- Raghubir, Priya and Aradhna Krishna, (1999) "Vital Dimensions: Biases in Volume Estimates," Journal of Marketing Research, Vol. XXXVI (August), 313-326.
- Raghubir, Priya, and Aradhna Krishna (1996), "As the Crow Flies: Bias in Consumers' Map-Based Distance Judgments," Journal of Consumer Research, Vol. 23, No: 1 (June), 26-39.
- Raymond, Jane E., Kimron L. Shapiro, & Karen M. Arnell (1992). Temporary suppression of visual processing in an RSVP task: An attentional blink? *Journal of Experimental Psychology: Human Perception and Performance*, 18 (3), 849-860.
- Raymond, Jane E., & Nader T. Tavassoli (2001). The role of attention in affective binding. *In progress*
- Reber, A. S. (1989). Implicit learning and tacit knowledge. (*Journal of Experimental Psychology: General*, 118, 219—235.)
- Rescorla, Robert A., & Allan R. Wagner (1972). A theory of Pavlovian conditioning: Variations in the Effectiveness of reinforcement and nonreinforcement. In A. H. Black & W. F. Prokasy (Eds.), *Classical conditioning II: Current theory and theory*, NY: Appleton-Century-Crofts, 64-99..
- Russo, J. Edward, Margaret G. Meloy and Victoria Husted Medvec (1998), "The Distortion of Product Information During Brand Choice," Journal of Marketing Research, 35(4), 438-452.
- Russo, J. Edward, Margaret G. Meloy and T. Jeffrey Wilks (2000), "Predecisional Distortion of Information by Auditors and Salespersons," Management Science, Vol. 46 (1), 13-27.
- Seger, Carol Augart (1994), "Implicit Learning," *Psychological Bulletin*, 115 (March), 163-196.
- Séguin, C., & Pelletier, L. G. (2001). Automatic activation of intrinsic and extrinsic motivation. Manuscript submitted for publication, University of Ottawa.
- Simmons, Carolyn J., Barbara A. Bickart and John G. Lynch, Jr. (1993), "Capturing and Creating Public Opinion in Survey Research," *Journal of Consumer Research*, 20 (September), 316-29.
- Schneider, Walter and Richard M. Shiffrin (1977), "Controlled and Automatic Human Information Processing: I. Detection, Search, and Attention," Psychological Review, 84 (Jan), 1-66.

- Shiffrin, Richard M., and Walter Schneider (1977), "Controlled and Automatic Information Processing: II. Perceptual Learning, Automatic Attending, and General Theory," *Psychological Review*, 84 (Mar), 127-190.
- Simonson, Itamar (1989), "Choice Based On Reasons: The Case of Attraction and Compromise Effects," *Journal of Consumer Research*, 16 (September), 158-174.
- Smith, Craig A. and Phoebe C. Ellsworth (1985), "Patterns of Cognitive Appraisal in Emotion," *Journal of Personality and Social Psychology*, 48 (April), 813-838.
- Speilman, Lisa A. Felicia Pratto and John A. Bargh (1988), "Automatic Affect," *American Behavioral Scientist*, Vol. 31, 3 (January/February), 296-311.
- Spencer, S. J., Fein, S. Wolfe, C. T., Fong, C., & Dunn, M. A. (1998). Automatic activation of stereotypes: The role of self-image threat. *Personality and Social Psychology Bulletin*, 24, 1139-1152.
- Stayman, Douglas M., and Frank R. Kardes (1992). "Spontaneous Inference Processes in Advertising: Effects of Need for Cognition and Self-Monitoring on Inference Generation and Utilization," *Journal of Consumer Psychology* 1, 125-142.
- Stone, D.N. and David Schkade (1991) "Numeric and Linguistic Information Representation in Multiattribute Choice," *Organizational Behavior and Human Decision Processes*, 49, 42-59.
- Strahan, Erin A. Steven J. Spencer and Mark P. Zanna, (2001), "Subliminal Priming and Persuasion: Striking While the Iron is Hot," *University of Waterloo Psychology Department Working Paper*.
- Svenson, Ola and Lars J. Benthorn (1992), "Consolidation Processes in Decision Making: Post-Decision Changes in Attractiveness of Alternatives," *Journal of Economic Psychology*, 13 (June), 315-327.
- Tipper, Steven P. (1985). The negative priming effect: Inhibitory priming by ignored objects. *Quarterly Journal of Experimental Psychology: Human Experimental Psychology*. 37A (4), 571-590.
- Treisman, Anne (1988). Features and Objects: The Fourteenth Bartlett Memorial Lecture. *The Quarterly Journal of Experimental Psychology: Human Experimental Psychology*, 40A (2), 201-237.
- van Osselaer, Stijn M. J. & Chris Janiszewski (2001). Learning to value and learning to recall: Two ways of learning brand associations. *Working Paper*.
- Wattenmaker, William D. (1991) Learning modes, feature correlations, and memory-based categorization. *Journal of Experimental Psychology: Learning, Memory, & Cognition*. Sep Vol 17(5) 908-923
- Weiskrantz, Lawrence (2000), "To Have but not to Hold," in *Brain, Perception, and Memory: Advances in Cognitive Neuroscience*, ed. Johan J. Bolhuis, New York, NY: Oxford University Press, 311-325.

Winkielman, Piotr, Kent C. Berridge and Julia Wilbarger (2001), "Doing without feeling: Unconscious affect controls human consumption," *University of Denver Psychology Department Working Paper*.

Whittlesea, Bruce W. A.; Wright, Richard L. (1997) Implicit (and explicit) learning: Acting adaptively without knowing the consequences. *Journal of Experimental Psychology: Learning, Memory, & Cognition*. 1997 Jan Vol 23(1) 181-200

Zajonc, Robert B. (1968), "Attitudinal Effects of Mere Exposure," *Journal of Personality and Social Psychology*, Vol. 9, No 2, pt 2.