

Procedural influences on judgments and behavioral decisions

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Abstract

Individuals' decisions are not only influenced by their immediate objective and the relevance of the available information to the attainment of this objective. When several different cognitive procedures could be used to make a decision, the nature of this decision can depend on the procedure that happens to be used. The selection of this procedure, which might come into play at different stages of cognitive functioning, can be affected by factors that are totally irrelevant to the judgment or decision to be made or to the goal that is being pursued. In fact, procedures that have been employed in one situation can influence behavior in a quite different situation in the pursuit of a quite unrelated objective. Examples of these effects are reviewed and interpreted in terms of three basic principles of cognitive functioning that pertain to cognitive efficiency, knowledge accessibility and the impact of subjective experience.

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Asking persons to compare the relative size or ferocity increases their likelihood of purchasing a snack that is on sale after the experiment (Xu & Wyer, 2008). Moreover, asking them questions about animals that require a different response to each question increases the variety of products they choose in a multiple-choice decision task they encounter later (Shen & Wyer, 2010). Inducing consumers to imagine themselves in the situation confronting individuals in need increases the amount of money they decide to donate if they are not asked for help until after they have read the appeal; however, it *decreases* the amount they donate when they are asked for help at the outset (Hung & Wyer, 2009). Shadowing a speech that is delivered at either a fast or slow rate can influence the speed with which people complete a marketing survey they are given subsequently (Shen, Wyer, & Cai, 2011). Reading a movie review that is conveyed in a hard-to-read font can increase the effectiveness of an unrelated ad that individuals encounter shortly afterwards (Shen, Jiang, & Adaval, 2010).

The aforementioned phenomena converge on the conclusion that engaging in activities at one point in time can have unexpected effects on consumer judgments and decisions at a

later time. Thus, in contrast to the assumptions underlying early research and theorizing on behavior decision-making (cf. Slovic, 1972), an understanding of consumer decisions cannot be obtained from an analysis of the decision-relevant information on which the decisions are based. Rather, ostensibly unrelated experiences that occur before individuals encounter a choice situation can influence the decision strategy they employ and the decisions that result from applying it.

This article provides some insight into the nature of these effects. In doing so, it recognizes a relatively recent shift in the focus of behavior decision research away from the identification of new phenomena as an end in itself to a concern with the cognitive and motivational factors that underlie these phenomena. As Simonson, Carmon, Dhar, Drolet, and Nowlis (2001) note in an excellent review, consumer behavior at the turn of the century was dominated by two distinct approaches, each of which had limitations. One, *information processing* perspective focused on the cognitive mechanisms that underlie individuals' responses to the information they receive. The research performed from this perspective typically borrowed theories from cognitive and social psychology, and the phenomena it examined were evaluated in terms of their implications for these theories. However, the research was often performed despite its

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questionable relevance to the conditions that confront consumers in situations outside the laboratory (Wyer & Adaval, 2008). The second perspective, reflected by research under the rubric of *behavior decision theory* focused on the identification of new situation-specific phenomena as an end in itself. These phenomena, which were often counterintuitive, were usually explained in terms of characteristics of the judgment task and features of the situations in which the judgments were made. However, little effort was made to conceptualize the phenomena within a broader theoretical framework (but see Simonson, 1989, for an exception).

In recent years, however, the two approaches have begun to converge. Behavior decision researchers have found that an understanding of judgments and decisions often requires consideration of the cognitive operations that are performed at earlier stages of processing (attention, comprehension, retrieval, etc.; for examples, see Wyer, 2005). At the same time, information processing researchers have become increasingly sensitive to the fact that social psychological theories and empirical findings often have limited applicability to many situations with which consumers are often confronted (Wyer & Adaval, 2008) and they have begun to develop conceptualizations that recognize the unique features of these situations. Consequently, the two “camps” identified by Simonson et al. (2001) now have several members in common.

My own work reflects this convergence. My perspective throughout 40 years as a social psychologist was clearly that of an information processing theorist (Wyer, 1974, 2004; Wyer & Carlston, 1979; Wyer & Srull, 1989). Although my involvement in consumer research over the past decade has reaffirmed my belief in the utility of this perspective, it has also made me aware of the limitations of the conceptualizations I developed on the basis of social psychological research alone and has led me to appreciate the need for a theoretical framework that is more clearly applicable to consumer judgment and decision making.

This article reviews a body of research that exemplifies the need for such a framework. The review is admittedly self-serving, being largely (although not exclusively) limited to research we have conducted during the past 10 years of my professional life as a consumer behavior researcher. It nonetheless cuts across diverse areas of consumer behavior. The research distinguishes between the cognitive *content* (the concepts and knowledge about the persons, objects and events) that provides the basis for consumer judgments and decisions and the *procedures* that operate on this content. We find that when several alternative procedures can potentially be employed in the course of making a judgment or decision, the one that individuals select can be influenced by the procedure they used in the pursuit of a quite different objective in an unrelated situation that they encountered earlier. Moreover, this influence can occur without their awareness of the factors that led the procedure to be selected. The procedures that exert this influence can come into play both at the time information is comprehended and represented in memory and the time that judgment-relevant knowledge is retrieved and its implications for a judgment or decision are construed.

Although the specific phenomena I will review are diverse, they are generally interpretable in terms of three general principles which pertain to the impact on judgments and decisions of (a) cognitive efficiency, (b) knowledge accessibility, and (c) subjective experience. These principles are obviously not intended to serve as a complete theory of consumer information processing. However, any theory that is developed will undoubtedly incorporate versions of these principles and, therefore, will account for the phenomena to which they apply. In the next section, I review briefly the historical basis of these principles and note some of their general implications. In later sections, I review research that exemplifies the utility of the principles in conceptualizing the effects of procedural knowledge in consumer judgment and decision making.

Theoretical considerations

Historical underpinnings

Behavior decision research and theorizing was stimulated in part by Herbert Simon's (1957) conception of bounded rationality. Simon was among the first to emphasize that humans' information processing capacity was limited and often could not begin to capture the complex processes implied by rational models of decision making. In his words:

“The capacity of the human mind for formulating and solving complex problems is very small compared with the size of the problems whose solution is required for objectively rational behavior in the real world...” (Simon, 1957, p. 198)

One manifestation of individuals' tendency to cope with these limitations is reflected in the tendency to “satisfice” or to choose an option that is “good enough” rather than performing the complex cognitive activity that would be required to identify the option that is objectively the best (Simon, 1955, 1957). The limitations on individuals' processing capacity are also reflected in Slovic's (1972) concreteness principle. According to this principle, a decision maker uses only the information that is explicitly displayed in making a judgment or decision without considering other, previously acquired knowledge that might be relevant and without mentally transforming the information into a form that might permit its implications to be more clearly assessed.

These earlier formulations had a profound impact on behavior decision research for many years. However, the advent of information processing theories has led more recent research to depart from these formulations in two important ways. First, the concreteness principle implies that the cognitive operations that underlie decisions can be inferred from an analysis of the specific features of the stimulus information alone. In contrast, current research in consumer decision making gives attention to the effects of past experience on the comprehension of new information and the processes that govern its use. Second, both Simon (1957) and Slovic (1972) attributed individuals' failure to process information optimally to

limitations on their *ability* to engage in this processing. In more recent consumer research, this failure has more often been attributed to *motivational* factors (but see Baumeister, Bratslavsky, Muraven, & Tice, 1998, for a possible exception).

The general principles that underlie consumer judgment and decision processes (for a summary, see Kardes & Wyer, *in press*) reflect these shifts in focus. In conceptualizing the factors that influence the procedures that individuals employ in making decisions, three principles of particular importance concern the role of (a) cognitive efficiency, (b) knowledge accessibility, and (c) subjective experience. The three principles are interrelated. In fact, the knowledge accessibility and subjective experience principles might be considered corollaries the more general principle of cognitive efficiency. Nevertheless, a separate consideration of the principles will be useful in conceptualizing the research to be reported. Although the principles are applicable to all types of knowledge, I will focus in this article on their implications for the use of cognitive procedures.

General principles

Principle 1. (Cognitive efficiency.) Individuals typically do not engage in any more extensive cognitive processing than is necessary to attain the goal they happen to be pursuing at the time.

This principle was first formalized in social cognition research by Taylor and Fiske (1978) in their conception of “top of the head” phenomena. That is, individuals are “cognitive misers” and may not expend any more effort than necessary to attain the goal they have in mind. Consequently, if a judgment or decision is not particularly important, and if individuals can apply a particular decision criterion quickly and easily, they are likely to use this criterion without considering others that are equally or more applicable. Second, when more than one alternative procedure can be used to make a judgment or decision, the procedure that can be applied more easily and, therefore, yields a decision more quickly, is likely to be employed (see Logan, 1988, for a formal theoretical formulation of this possibility). Third, when a cognitive procedure involves several steps, the steps that can be completed more easily are performed first and other, more difficult steps may not be performed at all unless they are necessary to attain the objective at hand. In this regard, Anand and Sternthal (1989) note that individuals are typically willing to expend only a certain amount of cognitive effort in making a judgment or decision. Therefore, if some steps of a procedure (e.g., comprehending the information) require cognitive effort, other steps (e.g., counterarguing the validity of the information) may be ignored.

Although the cognitive efficiency principle implies that the procedures that come to mind most quickly and easily are most likely to be applied in attaining the goal to which they are relevant. However, it does not specify the factors that determine which applicable procedure this is likely to be. A second principle accomplishes this:

Principle 2. (Knowledge accessibility). Cognitions that have been involved in processing information in one

situation become more accessible in memory. Consequently, they are more likely to be retrieved and used in later situations in which they are applicable.

This principle has a corollary: after a judgment or decision has been made and a representation of it has been stored in memory, this representation may later be retrieved and used as a basis for other judgments and decisions independently of the information on which it was originally based (Carlston, 1980; Sherman, Ahlm, Berman, & Lynn, 1978; Srull & Wyer, 1980).

The power of the knowledge accessibility principle derives from the diversity of the cognitions to which it applies. These cognitions can include single concepts that are used to interpret individual pieces of information (Higgins, Rholes, & Jones, 1977; Srull & Wyer, 1979). However, they can also include (a) sets of interrelated concepts (e.g., schemata) that can be applied to a configuration of stimulus features as a whole, (b) prototypic event sequences, or “implicit theories” that are used as a basis for reconstructing and explaining past events or predicting future ones, (c) beliefs and attitudes that are used as bases for evaluation, (d) social norms and values, and (e) representations of prior judgments or decisions. (For reviews of research bearing on these effects, see Förster & Liberman, 2007; Higgins, 1996; Wyer, 2008.) In addition, they can include procedures, or sequences of temporally and thematically related concepts that denote the steps required to attain an objective (Kruglanski et al., 2002). The principle implies that if a cognitive procedure or set of procedures has recently been employed in the course of processing information in one situation, it becomes more accessible in memory and, therefore, is likely to be used in the pursuit of subsequent goals to which it is applicable. Moreover, as implied by the cognitive efficiency principle, this may occur without considering other procedures that are as or more applicable but come to mind less quickly and easily.

The implication that the accessibility of knowledge is determined by the frequency of its prior use as well as the recency of its use is important. Although situational factors that have led a concept or procedure to be used can increase its accessibility and lead it to be used again a short time later, the frequency of its use over a long period of time can lead it to become chronically accessible. Furthermore, frequency-induced (chronic) and recency-induced (transitory) accessibility have similar effects (Bargh, Bond, Lombardi, & Tota, 1986; Srull & Wyer, 1979).

Affect and subjective experience

A third principle concerns the role of subjective experience.

Principle 3. (Subjective experience). Individuals who experience subjective reactions at the time they process information are likely to use these reactions as a basis for judgments or decisions independently of the information that gave rise to them. Feelings that individuals happen to be experiencing for reasons that are objectively irrelevant to an object they are considering can be misattributed to this object and, therefore, have an impact on judgments or decisions that concern it.

The most obvious subjective experience is affect. However, the principle applies to other experiences as well (e.g., feelings of difficulty, fatigue, assertiveness, etc.; for reviews see Schwarz, 1998, 2004). The validity of this principle is suggested in part by Principles 1 and 2. Feelings are often elicited spontaneously by stimuli with which they have become associated and, therefore, are likely to be easily accessible. Moreover, people's use of their feelings as a basis for judgment and decisions takes little effort and deliberation under conditions in which they are applicable. For both reasons, therefore, they can have a pronounced influence on information processing.

Perhaps the most important effect of subjective experiences from the perspective of this article, however, is implied by Principle 2. That is, if affect or other subjective reactions have been elicited in the context of performing a task, and consequently are accessible in memory, they are likely to be applied in later situations to which they are relevant. Examples of these carry-over effects of affect are well documented (Schwarz & Clore, 1983, 1996, 2007; Wyer, Clore, & Isbell, 1999). For example, individuals typically have difficulty distinguishing between the various sources of affect they happen to be experiencing at any given time. Therefore, under conditions in which individuals are inclined to base their judgment or decision on the affect they are experiencing, irrelevant feelings they happen to be experiencing can become confused with the feelings that are objectively relevant and consequently can influence the judgment or decision they make. These judgments can pertain to not only to the object being evaluated but also the processing strategy that individuals decide to use. For example, it may influence the decision to use heuristic bases for judgment rather than engaging in more extensive processing (Schwarz, 1990; Bless, Bohner, Schwarz, & Strack, 1990) or to persist in goal-directed activity (Martin, Ward, Achee, & Wyer, 1993). These possibilities will be elaborated presently.

Deliberative versus automatic processing

It is important to distinguish between processes that are deliberately activated and applied in the course of conscious goal-directed activity and those that are performed spontaneously, with little if any cognitive effort and often without awareness. Goal-directed activity is likely to be a mix of both deliberate and automatic processes, and the two types of processes are often difficult to distinguish. However, they may be governed by different cognitive systems (Strack & Deutsch, 2004; Wyer, Shen, & Xu, *in press*).

Deliberative goal-directed processing

Deliberate goal-directed activity is guided by procedures that are stored as part of declarative knowledge and individuals retrieve and consciously consult these procedures in deciding how to attain the objective they are pursuing. The structure and use of these procedures are described in some detail by Wyer and Xu (2010; see also Wyer et al., *in press*). Briefly, a procedure is represented in memory by a goal concept along

with a number of sub-goal concepts that, in combination, constitute a plan for attaining this goal (Kruglanski et al., 2002; see also Schank & Abelson, 1977). These goal and subgoal concepts exist at different levels of abstractness, and more than one concrete concept may exemplify the same, more general one. For example, (a) comparing two animals in order to decide which animal is larger and (b) comparing two products in order to decide which one to buy both exemplify the more general concept of "making a comparison." Goal concepts and plans for attaining them are associated in memory. However, the network of goal and subgoal concepts in memory is obviously complex. That is, several plans, or the subgoals that compose them, can be associated with the same superordinate goal. Moreover, a given plan or subgoal can be associated with more than one superordinate ones (Kruglanski et al., 2002).

As a result of these associations, the knowledge accessibility principle implies that activating a general subgoal concept can increase the accessibility of exemplars of the concept, increasing the likelihood that these exemplars are reactivated and applied in the pursuit of other goals to which it may be relevant. For example, concepts that are activated in the course of deciding which of two animals is larger could activate a more general goal concept (making comparisons). Consequently, the increased accessibility of this goal concept could increase the likelihood that other exemplars of the concept (e. g., deciding which of two products to buy) are activated and applied in a later, unrelated purchasing situation. Several examples of this phenomenon are described in later sections of this article.

Automatic processing

The goal-directed processes outlined in the previous paragraphs should be distinguished from the processes that occur automatically, without cognitive deliberation. Wyer et al. (*in press*) assume that the latter processes are governed by a number of "if [X], then [Y]" productions similar to those postulated by Anderson (1982, 1983), where [X] is a configuration of stimulation from both external and internally generated sources and [Y] is a sequence of behaviors that has become associated with [X] through learning and is elicited automatically, with little cognitive mediation and without awareness, when the conditions specified in [X] are encountered. Thus, the preconditions of a production, like those that stimulate deliberate goal-directed activity, can include features that are stored as part of declarative knowledge. However, preconditions are responded to configurally without articulating their individual features. Therefore, the behavior associated with them can be elicited without awareness of all of the features that they contain.

Numerous phenomena identified in both social psychology (for a review, see Dijksterhuis & Bargh, 2001) and consumer research (Shen, Cai, et al., 2010; Shen & Wyer, 2008) can be interpreted in terms of the operation of a production, and a complete conceptualization of consumer information processing will require a consideration of this construct. However, productions typically come into play in the *implementation* of a behavioral decision and not in the course of deciding whether to engage in the behavior. Thus, for example, a production might

determine whether individuals walk quickly or slowly when leaving an experiment (Bargh, Chen, & Burrows, 1996), whether they work rapidly or slowly in completing a survey (Shen, Cai, et al., 2010; Shen, Jiang, et al., 2010) or whether they attend to high prices before low prices when estimating the average cost of hotels in a city (Shen & Wyer, 2008). Although participants were presumably aware the goals to which these behaviors were relevant (leaving the experiment, completing the survey, or computing an average price), they were *not* aware of how they performed the behavior required to attain it.

However, the effects of productions should be distinguished from the effects of more deliberative processing of the sort I consider in this article. Decisions are conscious by definition. That is, they are made deliberately in the pursuit of a goal to which they pertain. Individuals may often be unaware of why they have decided to pursue one goal rather than another, or of the factors that led them to engage in a particular course of action in pursuing this goal. However, they are aware of the decision itself.

The remainder of this article summarizes research in a number of areas that has implications for conscious decision making. In doing so, I review the effects of procedures that operate at both the initial, comprehension stage of processing and those that come into play at a later, inference stage. The examples I discuss are drawn largely from research conducted in our own laboratory. They are nevertheless diverse, ranging from the role of narratives in the comprehension of information to the operation of behavioral mindsets and the impact of affect on judgments. In each case, however, they exemplify the need to consider factors that influence the selection of processing strategies at a pre-decision stage of cognitive activity in order to understand the nature of the judgment or decision that is made.

Comprehension processes

Judgments and decisions may be based on a cognitive representation of their referents that people either construct on the basis of new information they receive or retrieve from memory. Two general types of representations can be formed. One, *categorical* representation consists in part of a central concept that is applied to individual features of a stimulus object or to the stimulus as a whole, implications of which are later used as a basis for a judgment. A second, *narrative-based* representation consists of a spatially- and temporally-organized sequence of thematically-related events, often involving oneself as an actor or observer (Wyer, Adaval, & Colcombe, 2002). In many instances, the type of representation that is formed from information can depend on the procedure that is used to comprehend it, and the selection of this procedure may depend on its accessibility in memory at the time. The activation and use of these procedures are reviewed in this section. I first consider the processes that influence the construction and use of category-based representations per se. I then consider the conditions that determine whether narrative-based representations are constructed and used under conditions in which both these and other types of representations are potentially applicable. The research paradigms used to identify these

processes and their effects are quite different from those that are normally employed in research on behavior decision making, perhaps because early stages of information processing are not often considered in this research. As I will indicate, however, these processes have implications for the decisions that are made at later stages.

Category-based comprehension processes

The role of categorical representations of knowledge in consumer judgment is well documented (Loken, Barsalou, & Joiner, 2008). These representations may be constructed either automatically, deliberately, or both. For example, Lazarus (1982, 1991) postulates a two-step comprehension process. That is, individuals who encounter a new stimulus situation spontaneously appraise it in terms of broad evaluative criteria without articulating its individual features. Thus, the initial categorization process may occur automatically, whereas a more detailed analysis of the situation's individual features requires cognitive deliberation. Fiske and Pavelchak's (1986; see also Fiske & Neuberg, 1990) theory of person impression formation also assumes that individuals first attempt to assign a person to a social category on the basis of a global impression of its features. The category that is used may depend in part on its accessibility in memory, as implied by Principle 2. Then, if the person appears to be a typical member of this category and if positive or negative affect is associated with the category, individuals base their evaluation of the person on their reactions to the category as a whole (Principle 3). If the person is atypical, however, they resort to a more detailed analysis of his or her individual attributes.

The categorization processes implied by these formulations are likely to occur automatically at the time information is acquired and comprehended. Situational factors can nevertheless influence this process. Three studies we have personally performed provide examples of this influence. The specific objectives of the studies are quite different. However, each has implications for the conditions in which individuals are disposed to construct and use a categorical representation rather than computing a representation on the basis of an object's individual features.

Effects of temporal distance on consumer judgments

Evidence for the two-stage categorization process described in the previous section was obtained by Kim, Park, and Wyer (2009) in examining implications of temporal construal theory (Trope & Liberman, 2003). According to this theory, individuals apply global evaluative concepts in evaluating a course of action that they do not consider taking until sometime in the distant future. However, they apply more specific criteria if the decision is imminent. Thus, for example, people might evaluate a vacation trip in terms of its desirability if they do not contemplate taking the trip until a year from now, but consider more situation-specific factors that have implications for the feasibility of taking the trip if they consider making the trip next week.

The research conducted by Kim et al. (2009) qualifies this conceptualization. They assumed that individuals who consider a course of action assign it to a global evaluative category spontaneously at the time they first consider it, possibly based on their affective reaction to it, and that this occurs regardless of when they anticipate engaging in it. However, if the decision to engage in the action is imminent, they take more specific considerations (e.g., feasibility) into account *as well*. This means that although the representation they construct in the course of making a decision for the future is likely to consist of only a global evaluative category that has implications for its desirability alone, the representation they construct when making an immediate decision is also likely to contain feasibility-related features. In each case, the representation they form is stored in memory and consequently can be retrieved and used as a basis for later decisions to which it is relevant independently of the original information presented (see Principle 2). In the first case, however, the representation has implications for desirability alone, but in the second case, it has implications for both desirability and feasibility.

To examine this possibility, Kim et al. gave participants information about an apartment that consisted of both positive descriptions of its quality and negative features associated with the feasibility of renting it (e.g., its distance from campus) and asked them to imagine the prospect of renting it for either immediate occupancy or future occupancy. Consistent with the implications of temporal construal theory, participants were less disposed to rent the apartment in the first case than in the second. However, after making this decision and a short delay, they were asked to reconsider the apartment for occupancy either at the same point in time or at a different time. When participants had initially evaluated the apartment for immediate occupancy and had formed a representation of it with implications for both desirability and feasibility, they were again less inclined to rent it immediately than in the future. However, when participants had initially considered the apartment for future occupancy and had formed a category-based representation of it that included only desirability-related features, they were inclined to rent it regardless of when they considered occupying it. In both cases, therefore, the comprehension process that participants employed in making their first judgment influenced the judgment they made subsequently.

Effects of pictures on category-based appraisals and decisions

Schooler (2002) suggests that pictures are processed holistically. To this extent, presenting a picture may induce global, category-based processes that once activated, influence the impact of other information. Yeung and Wyer (2004) obtained evidence of this influence in an investigation of the impact of affect on judgments (see Principle 3). In one study, participants were induced to feel either happy or unhappy by recalling a positive or negative past experience. Then, in some conditions, they received verbal descriptions of a product's attributes. Consistent with Pham's (1998) finding that individuals use affect as a basis for judgments only if they perceive it to be relevant, the extraneous affect that participants were

experiencing affected their reactions to the product when its attributes were hedonic but not when they were utilitarian.

In other conditions, however, the attribute information was preceded by a picture that was itself either affect-eliciting or not. In these conditions, participants formed a global category-based appraisal of the product on the basis of the picture and used this appraisal as a basis for their later judgments independently of the verbal attribute descriptions they received. Consequently, the extraneous affect they were experiencing had an impact on their evaluations when the picture elicited affect but not when the picture described non-affect eliciting (functional) features. In each case, however, the type and implications of the verbal attribute descriptions had no impact.

Yeung and Wyer's findings could be attributed to differences in the criteria that participants brought to bear on their judgments as well as the processes that govern the use of these criteria. However, a study of political decision-making by Wyer et al. (1991) provides more direct evidence that the comprehension of a picture induces a disposition to engage in global processing that, once activated, affects the way that later information is comprehended and the decisions that were based upon it. Participants first viewed a videotaped nonpolitical speech by a political candidate. Then, either immediately or a day later, they listened to a radio program in which the candidate's stands on a number of social issues were described. In some cases, these stands reflected a liberal ideology and in other cases, they reflected a conservative philosophy. In each case, participants evaluated the candidate. Finally, they indicated their personal agreement with each of the candidate's issue positions and reported their own general political orientation.

Participants presumably formed a global concept of the candidate on the basis of the video-taped speech, and this induced a more general disposition to apply global criteria in making judgments. However, when participants received information about the candidate's issue stands 24 h later, this disposition was not salient to them. In this condition, therefore, participants based their evaluations of the candidate on their agreement with the candidate's specific issue stands and the ideology conveyed by these stands had no effect. When the speech immediately preceded the issue stand information, however, the disposition to comprehend information in terms of global concepts generalized to the processing of the issue stand information as well. That is, participants based their evaluations on the ideology implied by the issue stands and its similarity to their own, independently of their agreement with the specific positions that the candidate espoused.

A qualification

A possible contingency in the conclusions drawn from the above study should be noted. In a study of country-of-origin effects, Sung-tai Hong (Hong & Wyer, 1990) found that when a product's country of origin was conveyed in the context of relevant product attribute information, it simply functioned as another attribute, affecting product evaluations positively or negatively, depending on its favorableness. When it was conveyed 24 h earlier, however, participants formed an initial

concept of the product on the basis of its country of origin as a whole, and this concept affected the interpretation of the attribute information they encountered later. Thus, categorical information had greater effects on the interpretation of later information when it was presented separately from others, in contrast to the implications of Wyer et al.'s (1991) findings. Although numerous factors might account for this difference (e.g., the modality of the category-based information and the vividness of the concept it elicited), the difference is nonetheless worth noting.

Narrative-based comprehension processes

To reiterate, individuals who are confronted with a behavioral decision (e.g., whether to purchase a product, to vote for a political candidate, or to take a vacation in Hawaii) might sometimes compute the desirability of the decision alternatives by subjectively summing or averaging the evaluative implications of their individual features (Anderson, 1971; Fishbein & Ajzen, 1975). Or, as suggested in the previous section, they might form a global evaluative concept of the referent based on the configuration of information presented as a whole. However, these comprehension strategies are by no means universal. In many instances, individuals might mentally construct a narrative, or story, about the consequences of each decision alternative and base their judgment on these consequences without considering the implications of any particular feature (for a review of narrative-based information processing, see Wyer et al., 2002). Thus, for example, consumers' decision to purchase a product could be made by imagining themselves using the product and experiencing the pleasure that would result from doing so. Or, they might decide whether to vote for a candidate by imagining how their own or the society's conditions would change over the years if the candidate was elected.

Differences in piecemeal and narrative-based comprehension strategies were first examined by Pennington and Hastie (1988, 1992). Mock jurors read a transcript of witnesses' testimony in an actual murder trial. However, the order of presenting the testimony was varied. In *witness order* conditions, the testimony was organized according to the witness who provided it. In *narrative order* conditions, it was presented in the order it became relevant in reconstructing the crime (e.g., the events leading up to the crime, the event itself, and the aftermath). The order of the prosecution testimony and the order of the defense testimony were manipulated independently. Participants after receiving the testimony decided the guilt of the defendant and indicated their confidence in their judgment.

When the prosecution and the defense testimonies were conveyed in different orders, 70% of the participants decided in favor of the side whose evidence was presented in narrative order. When the evidence for both sides was conveyed in the same order, participants were equally likely to decide in favor of the prosecution and the defense. However, they were more confident of their decisions when the information was conveyed in narrative order. In short, presenting information in a way that was conducive to the construction of a narrative representation

of the situation described increased the ease with which participants could comprehend the information and affected their decisions accordingly.

In the conditions that Pennington and Hastie investigated, the construction of a narrative representation of the crime was necessary to evaluate how the crime occurred and its antecedents. In many instances, however, piecemeal-based and narrative-based strategies might be equally applicable. In a series of studies by Adaval and her colleagues, participants received information about either a vacation package (Adaval & Wyer, 1998) or a political candidate (Adaval, Isbell, & Wyer, 2007). The events described in the information (either the activities that would occur on the vacation or the events in the political life of the candidate) were conveyed either in temporal order or in an ostensibly unordered list. When the events were conveyed in temporal order, participants constructed a narrative-based representation of the stimulus being judged and evaluated it on the basis of the favorableness of the sequence of events as a whole. When the events were conveyed in a list, however, individuals apparently computed an evaluation on line, as the information was presented, updating their evaluation as each new piece of information was encountered.

On a priori grounds, the impact of using each strategy would be hard to predict, as it could depend on idiosyncratic features of the individual pieces of information presented. When the verbal descriptions were accompanied by pictures, however, clear differences emerged that were similar in both sets of studies. That is, when the verbal information was conveyed in a narrative, the pictures apparently provided cognitive "glue" that facilitated the construction of a coherent representation and increased the extremity of evaluations that were based on it. When the information was conveyed in a list, however, the pictures apparently interfered with the on-line computation and integration of the individual features and consequently decreased the effectiveness of the information.

Adverse effects of pictures on narrative-based processing

The results reported by Adaval and her colleagues should not be overgeneralized. That is, the facilitating effect of pictures on narrative-based processing of information does not always guarantee that this information will be effective. This depends on whether the implications of the narrative that is formed are plausible. Participants in a study by Iris Hung (Hung & Wyer, 2008) were exposed to a "problem-solving" print ad consisting of a description of a problem, a product, and the positive consequences of using it (the "solution"). However, the modality of both the problem and the solution description (picture vs. a verbal description) was independently varied. (Thus, for example, an ad for a toupee contained either a picture of a man with hair loss or the verbal description, "hair loss is a problem for men." This information was followed by a picture of the product and then by either a picture of a man with a full head of hair or the verbal description "hair loss is less apparent.") Presenting one component in pictures and the other component verbally increased participants' willingness to purchase the product being advertised. However, presenting both components in pictures *decreased* the ad's effectiveness.

These findings can be interpreted in terms of the cognitive efficiency principle. As noted earlier, individuals are willing to devote only a limited amount of effort to an assessment of the implications of an advertisement (Anand & Sternthal, 1989). The pictures conveyed in the ads presented by Hung and Wyer had clear implications, whereas the verbal descriptions were somewhat ambiguous. Consequently, when participants received a picture of either the problem or the solution, they interpreted the verbal description of the other component in a manner that was consistent with the picture. This activity required some cognitive effort, and so participants were unwilling to devote further effort to a critical appraisal of the ad's implications. Consequently, the ad had a positive impact on their evaluations of the product and their willingness to purchase it. When both components were pictured, however, the implications of the information were clear and little effort was required to interpret it. Consequently, participants were more willing to devote cognitive effort to a critical evaluation of these implications, and the ad's effectiveness decreased accordingly.

The effects of self-referent narratives

In many instances, individuals may construct a narrative-based representation of a stimulus spontaneously, independently of any information about it. This is particularly likely when individuals are disposed to think about themselves and to imagine their personal reactions to the stimuli they are considering. Two quite different series of studies conducted by Iris Hung exemplify this possibility.

In one set of studies (Hung & Wyer, 2011), participants evaluated a set of products described by name alone. Some products (e.g., popcorn) were typically used in social situations and others (e.g., herbal tea) were normally used in relaxing, nonsocial situations. In the absence of specific information about the product, participants might employ one of two strategies in evaluating it. On one hand, they might retrieve individual features of the products and evaluate it by estimating the favorableness of these features. Alternatively, they might simply retrieve and use a previously formed concept of the product as a basis for judgment. Another possibility, however, is that individuals construct a narrative-based image of themselves using the product and base their evaluation on the subjective reactions they imagine having as a result of doing so. Which strategy individuals employ can depend on both (a) participants' disposition to focus their attention on themselves and thus to think about using the product rather than considering specific attributes of the product itself, and (b) characteristics of the judgment context that stimulate thoughts about the type of situation in which the product is normally found.

To examine these possibilities, some participants' self-focused attention was manipulated by having them participate in front of a small mirror that was ostensibly left on their table as part of an unrelated experiment (as evidence of the effect of this procedure, see Duval & Wicklund, 1972). To manipulate the judgment context, participants in one experiment evaluated products while listening to background music associated with

either social situations or relaxing, nonsocial situations. In another experiment, participants took part in the study either with a number of other persons or alone. The results were very similar in each case. That is, inducing self-focused attention increased participants' evaluations of products that were typically used in the type of situation cued by features of the judgmental context. (Thus, they evaluated products that were typically used in a social situation (e.g., popcorn) more favorably when either social music was playing or they participated with others, and evaluated products that were typically used in a nonsocial situation (e.g., herbal tea) more favorably when either nonsocial music was playing or they participated alone.) When individuals are not motivated to focus their attention on themselves, however, these differences are not apparent.

Narrative conflict

In many situations, the self-referent narratives that individuals are likely to construct have positive implications for their evaluations of a behavior and their decisions to engage in it. In some instances, however, these narratives could conflict with other decision-relevant representations that individuals might form in the course of comprehending the information and, therefore, might have a detrimental effect. One example arises in the case of donation appeals. That is, many appeals for a charitable donation use self-referencing in an attempt to induce recipients to imagine themselves in the situation confronting the persons in need of help. This technique may stimulate the recipients to form a narrative-based representation of the situation from the victims' point of view. At the same time, the effectiveness of the appeal requires recipients to focus their attention on themselves as a potential *donor*. If individuals have a donor's perspective at the time they encounter information that requires them to imagine the situation from the victims' perspective, this conflict in perspectives could increase difficulty in comprehending the appeal and could consequently decrease its effectiveness.

A third series of studies by Hung (Hung & Wyer, 2009) confirmed this speculation. Participants read an appeal for money to help combat child trafficking. In some cases, the information was self-referential, inducing participants to imagine themselves in the situation confronting the victims. In other conditions, the information was impersonal. Moreover, the self-referencing appeal in some conditions was accompanied by a picture of the victim, thus increasing the ease with which readers could imagine the situation being described. When participants were not asked to help until after the victims' plight was described, encouraging them to take the victims' perspective increased their urge to help and, in some cases, increased the actual amount of money they actually donated. In some conditions, however, participants before receiving information about the read the phrase "Would you be willing to help?", thus inducing them to consider the appeal from the donor's perspective at the outset. In this case, the self-referential nature of the appeal *decreased* its impact on participants' urge to help and monetary donations.

The influence of affect on decision-relevant comprehension processes

Numerous studies in both social and cognitive psychology demonstrate the informational influence of affect on judgments (for reviews, see Cohen, Phan, & Andrade, 2008; Schwarz & Clore, 1996; Wyer et al., 1999). These effects normally occur at the time of judgment (but see Yeung & Wyer, 2004). However, affect can play a role at earlier stages of processing as well. Schwarz (1990), for example, notes that positive affect can induce a more global processing strategy, whereas negative affect stimulates attention to details. Research by Bless (2001) provides evidence that this is the case.

Research by Adaval (2001, 2003) provides insight into two other ways in which affect can influence the comprehension of information. In one series of experiments (Adaval, 2001), she showed that when the feelings that participants happen to be experiencing at the time they receive product information are similar to the affect that is spontaneously elicited by an attribute of the product, they feel more confident of their interpretation of the attribute's implications and weight the attribute more heavily when combining it with other information to make a judgment. By the same token, when the feelings that participants experience are inconsistent with the affect elicited by the attribute, they experience uncertainty about the attribute's implications and weight it less heavily than they otherwise would.

A quite different series of experiments concerned the influence of affect on the impact of brand name information (Adaval, 2003). Schwarz (1990; see also Bodenhausen, 1993) assumed that positive affect increases the disposition to use heuristic bases for judgments. To this extent, it might be expected to increase the impact of brand name on product evaluations relative to the effect of more detailed attribute information. Although Adaval found this to be the case, however, the effect is *not* due to the use of brand name as a heuristic. Rather, consumers who experience positive affect, and thus focus their attention on categorical bases for judgment, think more extensively about brand name and the attributes that are associated with it. This more extensive processing increases the *extremity* of participants' perceptions of its evaluative implications for reasons suggested by Tesser (1978). Moreover, this interpretation, once made, has an impact on judgments even after the affect that participants were experiencing has dissipated.

Comparative judgment processes

The research summarized in the previous section focused on the effects of different processing strategies at an early, comprehension stage of processing. Processing strategies that operate at the inference stage of decision making can come into play as well. The selection of these strategies is also governed by the cognitive efficiency and knowledge accessibility principles. To reiterate, the use of a procedure in the course of attaining a particular objective can increase the accessibility of more general goal-related concepts that the objective exemplifies and of the procedures for attaining this goal. Conse-

quently, other exemplars of these concepts come to mind more easily in the course of later goal-directed activity in which they are applicable and, therefore, the procedure that exemplifies these concepts is more likely to be applied than other, equally applicable but less accessible procedures.

These effects are particularly evident in making decisions that involve a comparison between choice alternatives. The research to be described in this section provides several examples. In each case, a strategy that is used in the course of processing information at one point in time affects the decision strategy that is applied at a later time, often in a quite different type of situation and in pursuit of a quite different objective than the one to which the strategy was first applied.

Decoy effects on the preference for choice alternatives

Consider two alternatives, each described by a set of attributes. Two strategies might be employed in computing a preference for these alternatives. One, independent-judgment strategy would involve computing the evaluation of each alternative separately, based on the set of attributes describing it, and then comparing the favorableness of these overall evaluations. If the choice alternatives can be compared along a common set of dimensions, however, an easier strategy might be to make dimension-by-dimension comparisons of the alternatives along these dimensions and base a preference on the number of dimensions on which one alternative is superior to the other.

Because the first strategy is effortful, it might normally be applied only when the alternatives cannot be directly compared. However, suppose consumers have previously computed separate evaluations of the alternatives before they are asked to make a comparative judgment and have stored these evaluations in memory. Then, they can easily retrieve and compare these evaluations without making a dimension-by-dimension analysis at all. In this case, therefore, the relative effort required to use the two comparative judgment strategies, and the relative likelihood of invoking them, might be reversed.

The effects of using the different strategies can be difficult to distinguish. The well-known research on the decoy effect (Huber, Payne, & Puto, 1982; Simonson, 1989) provides an example. This effect refers to the fact that although two choice alternatives may be considered equally attractive when considered in isolation, the addition of an alternative that is clearly inferior to at least one of them can increase the relative preference for one of the original alternatives over the other. Thus, assume that the values of two products, T and C, along two dimensions are shown in Table 1. If the dimensions are equally important, each alternative is equally likely to be

Table 1
Hypothetical values of a target product (T), a competitor (C) and two decoys (D and D_{inf}) along two attribute dimensions.

	Target (T)	Competitor (C)	Standard decoy (D)	Inferior
Decoy (D _{inf})				
Dimension 1	4	2	4	2
Dimension 2	2	4	1	1

chosen. However, suppose the alternative D is added to the choice set. D is clearly inferior to T, and is not itself a viable candidate. It nevertheless increases the likelihood of choosing T over C.

Either of the two alternative decision strategies described earlier could account for the effects. For example, suppose individuals compute the overall attractiveness of each alternative separately and base their decision on the relative magnitude of these independent judgments. Because the decoy, D, has a lower value than either T or C, it expands the range of values along this dimension that individuals consider and decreases the subjective difference between T and C along this dimension (Parducci, 1965). Thus, values along this dimension have less impact on judgments than values along the first dimension, leading T to be judged as more attractive. (For variants of this interpretation, see Pan & Lehmann, 1993; Wedell & Pettibone, 1996).

A second, simpler decision strategy is suggested by Simonson (1989; Shafir, Simonson, & Tversky, 1993). That is, individuals attempt to justify the choices they make (to themselves as well as to others even if the justification is not logically valid). In the present example, there is little apparent justification for choosing one alternative over the other when T and C are considered in isolation. When D is added, however, the selection of T can be justified because it is superior to D whereas C is not.

The “sufficient justification” criterion suggested by Simonson is obviously easier to apply than the first and, therefore, is most likely to be used. However, suppose individuals have had an occasion to evaluate each choice alternative before being called upon to choose between them. Then, its relative ease of applying the two strategies would be reversed.

In the conditions I have described, both strategies predict that adding D to the choice set will increase the relative preference for T. However, Park and Kim (2005) constructed conditions in which the two strategies have different implications. For example, suppose a different decoy, D_{inf} , is added to the choice set. Both T and C are superior to D_{inf} , and so the addition of this alternative should not provide a sufficient reason to choose one over the other. However, D_{inf} , like D, expands the range of values along dimension 2 and, therefore, should decrease the weight attached to this dimension in making an overall evaluation. Thus, if individuals base their choice on a comparison of the products’ overall evaluations, their relative preference for T should still be affected.

To distinguish the two strategies, Park and Kim had participants in some conditions evaluate the choice alternatives separately before stating their preferences. Other participants stated preferences at the outset. In the latter condition, adding D increased participants’ preference for T over C, whereas adding the inferior decoy had no impact on their relative preferences. When participants had previously evaluated each alternative separately and presumably had these evaluations stored in memory at the time they reported their choices, adding D_{inf} increased their preference for T, just as adding D did. Other studies by Park and Kim (2005) provide additional evidence of the conditions in which the two alternative strategies are employed.

The importance of this research for the issues of concern in this article lies in its demonstration that cognitive procedures that are employed prior to the decision stage of processing can influence the strategy that is later used in making decisions and, therefore, can influence the nature of these decisions. In Park and Kim’s studies, of course, the stimuli to which the strategies were initially applied and the stimuli involved in the decisions were the same. In the remainder of the research described in this section, this is not the case. This research provides evidence of the processes outlined earlier. That is, if individuals have employed a specific decision strategy in pursuit of a goal in one situation, general concepts associated with this strategy should become more accessible in memory. Then, if a second exemplar of the general strategy is applicable for attaining a quite different goal that participants are called upon to pursue, this exemplar is likely to be activated and applied rather than other, alternative strategies that might be equally applicable. Furthermore, this may occur without awareness of the factors that lead the strategy to be selected. In short, performing goal-directed behavior in one situation can induce a *behavioral mindset* that persists to influence behavior in other, quite unrelated situations that are encountered later. Wyer and Xu (2010) review numerous examples of these mindsets. Several studies conducted in our own laboratory may suffice to illustrate the effects and their pervasiveness.

Which-to-choose mindsets

As Gollwitzer, Heckhausen, and Steller (1990) suggest, goal-directed decision processes can involve at least two steps: deciding whether to pursue the goal in question and then, if the decision is affirmative, deciding how to implement the attainment of the goal. When individuals are confronted with a choice among alternatives, however, an intermediate step is involved, namely, which alternative to choose. Xu (2010; Xu & Wyer, 2007, 2008) postulated that if this (which-to-choose) component of the sequence is accessible in memory, individuals are likely to apply it without activating concepts associated with other components (e.g., whether to choose anything at all).

To demonstrate this, participants in an initial series of studies (Xu & Wyer, 2007) were first given descriptions of two products (e.g., two computers). In one condition, they were asked to decide if they would be willing to purchase one of them without specifying which. In a second, preference-only condition, they were asked which product they preferred. Then, all participants were asked to consider two vacation packages, X and Y, and to indicate whether they would choose X, choose Y, or choose neither. Participants in preference-only conditions, unlike those who had considered whether they wanted to make a choice at all, were expected to acquire a “which-to-choose” mindset that would persist to the second choice task, increasing their likelihood of making a choice rather than deferring. This was the case. Participants were more likely to choose one of the two vacation packages in preference-only conditions (68%) than in control conditions (44%).

Although participants’ choices in the aforementioned study were hypothetical, a study of actual purchasing decisions had

identical implications. Near the end of an experimental session, some participants were given descriptions of five pairs of options (class electives, restaurants, etc.) and asked in each case to indicate which option they preferred. Then, after the experiment had been completed, both these participants and others who had not made preference decisions were given the opportunity to purchase one of two types of candy that had been used as incentives in an earlier study and were on sale for half price. Although only 6% of control participants decided to make a purchase, 28% of participants who had reported preferences did so.

If the conceptualization of the processes underlying these effects is valid, however, it has more interesting implications. According to this conceptualization, stating preferences in one situation can activate a more general concept associated with the procedure of making comparative judgments. The increased accessibility of this concept in memory increases the likelihood that other exemplar of the concept will be activated and applied. If this is so, however, *any* task that requires comparative judgments might have the same effect.

Further studies by Xu (Xu & Wyer, 2008) confirmed this possibility. One study, for example, showed that asking participants to indicate which of two vacation packages they *disliked* more increased their likelihood of choosing one of two computers in a later decision task, and this was true regardless of the vacation packages they had considered. In a more provocative set of experiments, a which-to-choose mindset was activated by decisions that had nothing to do with products at all. Three experiments were run that differed only in the dependent variable. In each study, participants in *preference-judgment* conditions were given pairs of wild animals and asked to indicate which they liked better (e.g., “which do you like better, a bear or an elephant?”). Participants in *attribute-judgment* conditions were asked to compare animals with respect to a physical attribute (e.g., “which is larger, a bear or an elephant?”). Participants in a control condition performed neither of these tasks. Results of these experiments showed that participants in preference-judgment and attribute-judgment conditions were both more likely than control participants (a) to choose one of two products to purchase rather than deferring (.66 vs. .40), (b) to choose one of two dating partners, based on descriptions of their attributes (.73 vs. .47), and (c) to purchase a candy or snack that was on sale after the experiment (.51 vs. .37). Moreover, the effects were virtually identical regardless of whether participants had made preference judgments of the animals or had compared their physical attributes.

Cancellation effects

Other effects of making comparative judgments are suggested by research on cancellation and direction-of-comparison effects (Brunner & Wänke, 2006; Dhar & Sherman, 1996; Houston & Sherman, 1995). This research suggests that when two products that being compared have attributes in common, these attributes tend to be ignored. Moreover, these attributes, having been ignored in the course of making comparative judgments, are *also*

ignored when participants later make overall evaluations of each alternative separately.

Thus, for example, suppose the positive attributes of two products are unique but their undesirable attributes are the same. In making comparative judgments, participants are likely to ignore the unfavorable attributes and base their preferences on the favorable ones. If they later evaluate each alternative separately, they are again likely to base their judgments on the favorable attributes alone. As a result, they should evaluate both the chosen and the rejected alternative more favorably than they would if the comparative judgment had not been made. Correspondingly, comparing alternatives with common favorable features but unique unfavorable ones should lead both alternatives to be evaluated less favorably than they would otherwise. In short, the “cancellation” process that was employed in the comparative judgment task activated a disposition that generalized to the absolute evaluations that participants performed later.

If this is the case, however, the process should also generalize to comparisons of other choice alternatives than the ones that were involved in the initial task. Wang and Wyer (2002) confirmed this prediction. Participants read descriptions of two products. In some cases, the products had unique favorable attributes and common unfavorable ones. In other cases, the products had unique unfavorable attributes and common favorable ones. In *comparative-judgment* conditions, participants first indicated their preference for the two products and then evaluated each product separately. In *control* conditions, however, participants evaluated the two products at the outset. As expected, participants in comparative-judgment conditions evaluated the products more favorably when they had unique positive (and common negative) features than when they had unique negative (and common positive) features, thus replicating findings reported by Houston and Sherman (1995). Moreover, this difference was evident for both the chosen alternative and the rejected one. The difference was not evident, however, when participants evaluated the two products at the outset without making comparative judgments first.¹

After either a short delay or a delay of 24 h, participants were then given a description of a *new* product whose positive and negative attributes differed from any of those that had composed the original choice alternatives and were asked to compare this product with the one they recalled having chosen earlier. (The description of this product was not again presented.) Finally, they evaluated both products independently. Participants' evaluations of the original product were similar to those they had made earlier. That is, they evaluated the product more favorably if they had originally compared it to a product with unique favorable features than if they had compared it to a product with unique unfavorable features. However, participants' evaluations of the new product were *also* more favorable in the first case than in the second. Moreover, the difference was

¹ In a more recent study, Brunner and Wänke (2006) found that cancellation effects were evident even when participants did not make comparative judgments before reporting their overall ratings. The reason for the different results obtained in their study and Wang and Wyer's is not completely clear.

actually greater 24 h after the original comparative judgment task than it was immediately afterward. Thus, the process of comparing products in the first situation disposed participants to focus on either favorable or unfavorable attributes and this disposition, once activated, affected their later judgments of not only the products they had compared but a new product whose features all differed from those of the alternatives they had considered earlier. Moreover, this disposition persisted over a period of 24 h.

Multiple-choice decision situations

Consumers often make multiple purchases of a product for use over a period of time. In some instances, they may be inclined to choose the same product for use on each occasion, and in other cases they may prefer to vary their choices. These strategies are likely to depend on the type of product (e.g., bottled water vs. fresh vegetables). However, they could often be influenced by a more general disposition to make the same choice or a variety of choices that is independent of the type of product involved.

To demonstrate this possibility, Shen (Shen & Wyer, 2010) asked participants to answer a series of multiple-questions about animals (a dog, a tiger, a chicken or a pig). In some cases, the answer to each question was the same (e.g., “Which animal is most ferocious...?” “Which animal lives in the jungle...?” etc.). In another condition, the answer to each question differed (“Which animal is most ferocious...?” “Which animal makes the best pet...?”, etc.). Later, as part of a different study, participants were given a number of types of tea and asked to indicate which they would be likely to purchase on each of the next four days. Participants who had made different responses to the animal questions distributed their choices over a greater number of products than those who had made the same response to each question. Interestingly, when participants were asked to recall the number of different responses they made to the animal questions before performing the product choice task, the effect of the task on the variety of products they chose was eliminated. Thus, the strategy they employed in responding to the first task generalized to the second only when participants were unaware of the reason why the strategy came to mind.

Promotion and prevention focus

Suppose participants are confronted with three choice alternatives, A, B and C, each of which is described along two dimensions. Suppose further that A has the values +3 and -3 along these dimensions, B has the values -3 and +3, and C has the values +1 and -1. The preference for these alternatives is likely to depend on the relative weight that individuals attach to positive and negative consequences of the decision. That is, a person who is primarily concerned about attaining positive outcomes is likely to choose either A or B, whereas an individual who is primarily concerned about minimizing the negative consequences of his choice is likely to choose C. These different orientations, which are analogous to promotion and

prevention focus, respectively (Higgins, 1997, 1998), may be either chronic or situationally induced.

Chronic differences in these decision strategies may be associated with individuals' cultural background. That is, Asians tend to be more prevention focused than North Americans are (Aaker & Lee, 2001; Lee, Aaker, & Gardner, 2000), a disposition that could be traceable to differences in child rearing practices (Miller, Wiley, Fung, & Liang, 1997). Briley, Morris, and Simonson (2000) found that when Asians were confronted with a choice situation similar to that described in the preceding paragraph, they were disposed to choose C when they were asked to give a reason for their choice, whereas North Americans were more inclined to choose either A or B under these conditions. Another study (Briley, Morris, & Simonson, 2005) found that Chinese bilinguals were more disposed to choose C when the experiment was conducted in Chinese than when it was conducted in English. Thus, in both cases, stimulating individuals' attention to norms and values associated with their culture (either by giving a reason for their choice or speaking a language with which the norms were associated) affected the decision strategy they applied.

However, situational factors can also induce these dispositions, and the dispositions, once accessible, generalize to situations that are unrelated to those in which they were activated. In one study by Briley and Wyer (2002), for example, participants were led to believe they were participating in the experiment either as part of a group or as individuals. In a second study, both Chinese and North Americans were primed with cultural icons that made their cultural identity salient. Both manipulations apparently induced participants to consider themselves as part of a collective. As a result, it increased their feelings of social responsibility and their disposition to minimize the negative consequences of their behavior. Once this disposition was activated, however, it affected choice behavior in situations that had little to do with the conditions that gave rise to it. Thus, participants not only were more likely to choose the “compromise” option in the task constructed by Briley et al. (2000), but were more inclined to distribute money on the basis of equity in a hypothetical resource allocation task, and were more likely to choose candy of different kinds rather than a single kind (thereby minimizing the risk of an incorrect choice) upon leaving the experiment.

The effects of affect on behavioral decision processes

Effects of affect on comparative judgments

When individuals happen to be experiencing positive or negative affect at the time they are making a judgment or decision, this extraneous affect can become confused with their affective reactions to the stimuli they are considering and consequently can influence their evaluations of the stimulus (Schwarz & Clore, 1983, 1996). These effects have often been demonstrated in consumer judgment as well as social psychology more generally (Adaval, 2001; Pham, 1998; Yeung & Wyer, 2004, 2005). However, the effects of affect might seem less relevant when individuals make comparative judgments. If the extraneous affect that consumers are

experiencing influences their evaluation of each choice alternative to an equal extent, its effects on their relative preference for the alternatives might cancel. However, Qiu and Yeung (2008) found that the affect that consumers happen to be experiencing influences their perception of their feelings about only the first alternative they consider. Therefore, when the first alternative they consider is the first one presented, they are more inclined to choose this alternative when they are happy than when they are not. In some cases, however, individuals may forego comparing the products until complete information about all of alternatives is available. In this case, their affective reactions influence their evaluation of the *last* (most recent) alternative they encounter rather than the first one, and influence their preference for this alternative instead.

Effects of affect on persistence decisions

Although Qiu and Yeung's (2008) study suggests that the impact of affective reactions depends on the decision strategy that individuals use when they make comparative judgments. A quite different series of studies by Martin et al. (1993) indicates that their reactions can influence the decision strategy itself, depending on the goal that individuals are pursuing. In one study, individuals were given a set of cards, each describing a behavior, and were asked to form an impression of the person described. In some cases, they were told to continue turning over cards until they had enough information. In this case, individuals used the affect they happened to be experiencing as a basis for deciding if they had attained this goal, stopping sooner if they felt happy than if they did not. In other conditions, however, they were told to continue as long as they were enjoying what they were doing. In this case, they persisted longer if they were feeling happy (and thus inferred that they were enjoying themselves) than if they were not. In other words, the affective reactions they were experiencing influenced their interpretation of whether they had successfully attained the particular goal they happened to be pursuing.

It is interesting to speculate about the implications of these findings for shopping behavior. If individuals in a department store are simply browsing and shopping for enjoyment, they may spend more time in this activity if the ambiance in the store is pleasant, and elicits positive affect, than if it is not. However, if they are shopping with a particular goal in mind (e.g., to purchase a sweater), they may consider fewer alternatives, and spend less time shopping, in the first case than in the second.

Concluding remarks

In one sense, the objective of this article amounts to beating a dead horse. It is undoubtedly obvious to consumer researchers, whatever their philosophical predilections, that people's behavioral decisions can be influenced not only by the characteristics of the information available about the choice alternatives but also by the cognitive processes they employ in the course of making these decisions. Moreover, these processes can operate both at the decision stage of processing and at earlier stages.

The research I reviewed exemplifies the implications of three general principles of information processing: cognitive efficiency, knowledge accessibility, and the impact of subjective reactions. These principles are themselves well known and might well go without saying. The application of these principles in conceptualizing the role of the procedures that underlie consumer decisions rather than the content of the information on which the decisions are based, some new insights into decision making have hopefully been revealed that could be incorporated into a more general theoretical formulation of behavioral decision making. I look forward to the emergence of such a formulation.

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