

Chapter 1

Attitudes and the Attitude–Behavior Relation: Reasoned and Automatic Processes

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ABSTRACT

The chapter re-examines, in light of recent developments, the reasoned action perspective inherent in the expectancy–value model of attitude and in the theory of planned behavior. According to this perspective, people’s attitudes follow spontaneously and consistently from beliefs accessible in memory and then guide corresponding behavior. The number and types of beliefs that are accessible vary with motivation and ability to process attitude-relevant information and with the context. Based on these considerations, it is shown that the reasoned action perspective is compatible with evidence for automatic processes in the activation of attitudes and behavior, and with the finding that attitudes can vary with the context in which they are expressed. Implications for the attitude–behavior relation and for the role of habit in human behavior are discussed.

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Contemporary social psychology delights in exposing the limitations of human information processing and behavior. Accepting the premise of bounded rationality (Simon, 1955), social psychologists have shown that people take intuitive short-cuts to arrive at their judgments and decisions (Nisbett & Ross, 1980; Tversky & Kahneman, 1974, 1981), often base their impressions of others on pre-existing categories or schemas (Fiske & Neuberg, 1990), and are ready to change their attitudes and opinions on the basis of superficial peripheral cues or heuristic rules of thumb (Chaiken, 1980; Petty & Cacioppo, 1986). More than that, some have gone on to argue that human behavior often proceeds automatically, habitually, or mindlessly, bypassing conscious reasoning altogether (e.g., Bargh, Chen, & Burrows, 1996; Cialdini, 1993; Fazio, 1990; Langer, 1978). Contrasting sharply with most classical views, this emphasis on the automatic or effortless facets of human cognition and action dominates current research on attitudes (see Bargh & Chartrand, 1999; Gollwitzer, 1999; Wegner & Wheatley, 1999). The present chapter examines recent theorizing, compares it to more traditional views, and evaluates its implications for our understanding of the attitude construct and the attitude-behavior relation.

CLASSICAL VIEWS OF ATTITUDE

A hypothetical construct, social attitudes are assumed to be residues of past experience that guide future behavior (Campbell, 1963). Social psychologists initially encountered great difficulty in their attempts to identify the essential characteristics of this construct and to arrive at an agreed-upon definition (see Allport, 1935). After much debate, the development of standard attitude scaling techniques, and a great deal of empirical research, most theorists have come to view *evaluation* as the primary component of attitudinal responses (Eagly & Chaiken, 1993; Fazio, 1986; Fishbein & Ajzen, 1975; Giner-Sorolla, 1999; Osgood, Suci, & Tannenbaum, 1957).

Evaluation vs. Affect

Although there is now general agreement that attitude is best considered to be a person's degree of favorableness or unfavorableness with respect to a psychological object, certain ambiguities remain. Perhaps most conspicuous is the lack of a clear distinction between overall evaluation (or attitude) and affect. Early theorists tended to use the term "*affect*" to denote an attitude's valence, i.e., its overall degree of favorability, as is illustrated in Thurstone's (1931) well-known definition of attitude as affect for or against a psychological object. Consistent with this perspective, many social psychologists have

employed the terms “affect” and “evaluation” interchangeably (e.g., Chen & Bargh, 1999; Fishbein & Ajzen, 1975; Murphy & Zajonc, 1993; Rosenberg, 1956). However, in a parallel development, other psychologists applied the term “affect” to mood, emotion, and arousal (see Giner-Sorolla, 1999; Schwarz & Clore, 1983, 1996).

Despite the resulting confusion at the conceptual level, careful examination of operationalizations used in attitude research reveals that most investigators assess attitudes in terms of overall evaluations. Just as the attitude scaling method developed by Thurstone (1928) relied on evaluative rather than affective scale values to infer a person’s “affect for or against a psychological object”, participants in later research were asked to label psychological objects as “good” or “bad” (Bargh, Chaiken, Govender, & Pratto, 1992), to judge them for degree of liking or disliking (Murphy & Zajonc, 1993), to rate them on a series of evaluative semantic differential scales, such as desirable–undesirable and pleasant–unpleasant (Ajzen & Fishbein, 1970), or to indicate how much they favor or oppose a certain policy (Rosenberg, 1956). Clearly, even when the term “affect” is used to describe the attitudinal response, in practice the dimension assessed is evaluative rather than emotional in nature. In contrast, affect in the contemporary use of the term tends to be assessed by means of physiological indicators, mood adjective check lists, or emotion inventories (see Giner-Sorolla, 1999; Petty & Cacioppo, 1983).

To avoid confusion, we propose to use the term “attitude” to refer to the *evaluation* of an object, concept, or behavior along a dimension of favor or disfavor, good or bad, like or dislike. Examples of responses reflecting attitude are approval or disapproval of a policy, liking or disliking of a person or group of people, and judgments of any concept on such dimensions as enjoyable–unenjoyable, desirable–undesirable, good–bad, or pleasant–unpleasant. By way of contrast, and consistent with contemporary usage, we propose to reserve the term “affect” for a separate response system with a somatic component characterized by some degree of arousal (Crites, Fabrigar, & Petty, 1994; Greenwald, 1968; see Giner-Sorolla, 1999, for a discussion). Affect includes generalized mood states without a well-defined object of reference (sadness vs. happiness), as well as qualitatively different emotions (anger, fear, pride) with evaluative implications.

Although we draw a clear distinction between attitude (evaluation) and affect, we recognize that attitudes may be influenced by moods and emotions. Thus, fear of flying may well predispose a negative evaluation of airplanes, independent of any other factors that influence this attitude. In our view, then, evaluation differs from affect, although affect may influence overall evaluation (see Eagly & Chaiken, 1993, for a similar perspective). Some evidence for the effect of affect on attitudes will be considered below in our discussion of automatic attitude activation.

Attitude Formation and Change: Information-processing Perspectives

Following a brief flirtation with behavior theory (Doob, 1947; Fishbein, 1963; Staats & Staats, 1958), research on attitude formation and change was soon dominated by the information-processing perspective advanced by Carl Hovland and his associates at Yale University (Hovland, Janis, & Kelley, 1953, see also McGuire, 1972). Implicit in their approach was the assumption that attitudes are based on information about the attitude object, and that attitudes can therefore be changed by imparting new information in the form of a persuasive communication. Reception and acceptance of this new information would lead to attitude change. Although this approach guided theory and research for many years, we now know that this is an oversimplified view of the persuasion process (see Ajzen, 1992; Petty & Cacioppo, 1986).

The Expectancy-Value Model of Attitude

While the role of affect in attitude formation and change has only recently become a focus of attention, the role of *cognitions* as antecedents of attitude has been widely recognized for many years. The relation between cognitions or beliefs and the overall evaluative attitude is embodied in the most popular model of attitude formation and structure, the expectancy-value model (see Feather, 1959, 1982). One of the first and most complete statements of the model can be found in Fishbein's (1963, 1967) summation theory of attitude, although somewhat narrower versions were proposed earlier by Peak (1955), Carlson (1956), and Rosenberg (1956). In Fishbein's theory, people's evaluations of, or attitudes toward, an object are determined by their accessible beliefs¹ about the object, where a belief is defined as the subjective probability that the object has a certain attribute (Fishbein & Ajzen, 1975). The terms "object" and "attribute" are used in the generic sense and they refer to any discriminable aspect of an individual's world. For example, a person may believe that physical exercise (the attitude object) reduces the risk of heart disease (the attribute).

Each belief thus associates the object with a certain attribute. According to the expectancy-value model, a person's overall attitude toward an object is determined by the subjective values or evaluations of the attributes associated with the object and by the strength of these associations. Specifically, the evaluation of each attribute contributes to the attitude in direct proportion to the person's subjective probability that the object possesses the attribute in question. The basic structure of the model is shown in the following equation (Fishbein & Ajzen, 1975):

¹ In the original formulation, attitudes were said to be based on *salient* beliefs about the attitude object (Fishbein, 1967; Fishbein & Ajzen, 1975). We now use the term *accessible* beliefs in keeping with the currently favored terminology (see Higgins, 1996).

$$A \propto \sum_{i=1}^n b_i e_i$$

where A is the attitude toward the object, b_i is the strength of the belief that the object has attribute i , e_i is the evaluation of attribute i , and n is the number of accessible attributes (see Fishbein & Ajzen, 1975). As indicated, beliefs strength is here simply defined as the subjective probability of a link between the attitude object and an attribute. The higher this subjective probability, the stronger the belief. In our attitude model, belief strength is not identified with any of the large number of conceptually related constructs that have been proposed by other investigators, such as extremity, centrality, or importance (see Krosnick, Boninger, Chuang, Berent, & Carnot, 1993; Petty & Krosnick, 1995).

On-line attitude formation. One important implication of the expectancy-value model is that attitudes toward an object are formed automatically and inevitably as we acquire new information about the object's attributes, and as the subjective values of these attributes become linked to the object (Fishbein, 1967). This process of on-line attitude formation is perhaps best illustrated by research on impression formation. In the typical impression-formation paradigm, individuals are exposed to concrete items of information about another person, usually in the form of trait adjectives, and are asked how much they would like or dislike the person thus described. Research has shown that respondents tend not only to use the information provided but, in addition, draw wide-ranging inferences about the other person that go beyond the information given (see Ajzen, 1977; Schneider, 1973). The overall impression or attitude toward the other person is based on all beliefs formed in this fashion.

People can, of course, form many different beliefs about an object, but it is assumed that only a relatively small number influence attitude at any given moment. It is these *accessible* beliefs that are considered to be the prevailing determinants of a person's attitude. Some correlational evidence is available to support the importance of belief accessibility. The subjective probability associated with a given belief, i.e., its strength, correlates with the frequency with which the belief is emitted spontaneously in a sample of respondents, i.e., with its accessibility (Fishbein, 1963) as well as with order of belief emission (Kaplan & Fishbein, 1969); and highly accessible beliefs tend to correlate more strongly with an independent measure of attitude than do less accessible beliefs (Petkova, Ajzen, & Driver, 1995; van der Pligt & Eiser, 1984). Furthermore, the likelihood that a given belief will be emitted in a free-response format is found to correspond to its accessibility as measured by response latency (Ajzen, Driver, & Nichols, 1995).

Attitude construction in real-time. The expectancy-value model can also be used to describe the formation of attitudes in real-time. When new issues arise requiring an evaluative response, people can draw on relevant information (beliefs) stored in memory. Because each of these beliefs carries evaluative implications, attitudes are automatically formed. Many people have given little or no thought to their positions on such issues as term limits for elected officials, protection of endangered species, the desirability of space exploration, or legislation to make English the official language of the USA. Yet they hold beliefs relevant to these issues. When, in the course of an attitude survey or in conversation with others, they are asked to express their attitudes on issues they have not deliberated before, they can produce an evaluation in real-time by considering the existing and accessible beliefs.

Attitude change. The processes of on-line and real-time attitude formation described above also reveal how the expectancy-value model approaches the question of attitude change. According to the model, attitudes are, in an immediate sense, based on the beliefs about the attitude object that are presently accessible. Any change in the set of accessible beliefs, or in the evaluations associated with them, can lead to a change in attitude.² From an expectancy-value perspective, therefore, attitudes have an emergent quality. They develop in the course of acquiring information about the attitude object, and they keep evolving as existing beliefs change and new beliefs are formed. On-line attitude change is expected when new information about a familiar attitude object becomes available, as when a person accepts the arguments in a persuasive communication. Information retrieval in real-time can also produce attitude change, as is well illustrated by the finding that thinking about an attitude object tends to polarize evaluative responses to it (Tesser & Conlee, 1975; Tesser & Leone, 1977; see Tesser, 1978). This effect of "mere thought" indicates that retrieval of information in real-time can strengthen existing beliefs or make new attitude-consistent beliefs accessible, with the result that initially positive attitudes become more favorable and initially negative attitudes become more unfavorable.

Discussion

Traditionally, attitude was viewed as a stable disposition to respond in a consistently favorable or unfavorable manner to a psychological object. According to the expectancy-value model, this evaluative response tendency derives

² This observation must be qualified, however, because in the expectancy-value model, the attitude toward an object is given by the aggregated evaluation inherent in the *total set* of accessible beliefs, irrespective of the number and kind of beliefs involved. Theoretically, therefore, two very different sets of accessible beliefs could result in the same or very similar overall attitudes.

from the prevailing accessible beliefs about the attitude object. The idea that attitudes are based on relevant information accessible in memory imbues them with a degree of reasonableness. This is not to say that people are assumed to form attitudes in a "rational" manner by conducting an unbiased review of all relevant information and integrating it according to formal rules of logic. On the contrary, the expectancy-value model, as well as other traditional approaches to attitude formation and change, recognize that beliefs—although often quite accurate—can be colored by a variety of cognitive and motivational processes, that they may be based on invalid or selective information, be self-serving, or otherwise fail to correspond to reality (Allport, 1954; Eagly & Chaiken, 1993; Fishbein & Ajzen, 1975). However, once a set of beliefs is formed and is accessible in memory, it provides the cognitive foundation from which attitudes are assumed to follow automatically in a reasonable and consistent fashion.

This emphasis on a reasonable and consistent link between information about an object and attitude toward that object has often been misconstrued to imply a conscious and effortful mode of attitude formation. To be sure, the expectancy-value model, as originally formulated and used over the years, has dealt more with the role of accessible beliefs and their relations to an evaluative response than with the question of automaticity. Nevertheless, the model did *not* assume deliberate and conscious attitude construction. Instead, as noted above, attitudes were assumed to emerge automatically and spontaneously as beliefs are formed about the attitude object, and these attitudes were thought to be immediately available when a person is confronted with the attitude object. Attitudes may be based on few or many beliefs, and these beliefs may or may not accurately reflect reality, but the evaluative meaning they carry is automatically activated. Just as the denotative meaning of any concept with which a person is familiar is immediately available and need not be constructed, so too is its evaluative meaning or attitude (see Osgood, Suci, & Tannenbaum, 1957). Thus, when people are asked to indicate their attitudes regarding a social issue, such as capital punishment, they need not review their beliefs about it before they can express a position. Because of the beliefs people hold about capital punishment, this concept carries meaning for them—including evaluative meaning—which is automatically available. Only when acquiring new information, or when dealing with an issue that has not been considered before, will people have to engage in a review of their relevant beliefs.

It may be worth addressing a related issue that has sometimes been raised with respect to the formal structure of the expectancy-value model. The equation used to compute an attitude estimate on the basis of accessible beliefs may seem to imply that people go through a complex calculus, involving multiplication of belief strength by attribute evaluation and summation of the resulting product terms. In actuality, although the investigator does perform

these computation, people are *not* assumed to do so. We merely propose that attitude formation may be *modeled* in this fashion. The psychological processes involved in arriving at an attitude are assumed to take account of belief strength as well as attribute evaluation, roughly in the form described by the formal model: the more strongly a belief is held, and the more positive or negative that belief, the greater is its expected contribution to the overall attitude.

Expectancy–Value Explanations of Attitude

The EV model suggests that the cognitive foundation of an attitude can be understood by studying a person's accessible beliefs about the attitude object. In practice, these accessible beliefs are ascertained by asking respondents to list the attributes of an object or the consequences of an action (see Ajzen & Fishbein, 1980). The beliefs that are most accessible are likely to vary greatly from one object or behavior to another, from one situation to another, and from one population to another. However, the model itself makes no prior assumptions about the beliefs that will be accessible. Accessible beliefs must be elicited anew in any given application of the model. Once elicited, examination of the accessible beliefs can help explain why people hold positive or negative attitudes toward the attitude object.

It is possible, of course, to formulate hypotheses about the kinds of accessible beliefs one might expect to find, or about potential differences in the beliefs of different types of individuals. Thus, an investigator might propose that attitudes toward taking a certain preventative action in the health domain are based on beliefs about the effectiveness of this measure; or that women's attitudes are more likely to be based on beliefs regarding effectiveness than are men's attitudes. Hypotheses of this kind may be derived from other theories or ideas entertained by the investigator. The expectancy–value model could then be used to test these predictions by eliciting salient beliefs about taking the preventative action under consideration, examining the contents of these beliefs, and comparing the beliefs of men and women. Variables that may determine accessibility of particular beliefs are thus external to the expectancy–value model and are considered distal determinants of attitudes. The proximal or immediate determinants of attitude are the accessible beliefs themselves.

CONTEMPORARY PERSPECTIVES ON THE ATTITUDE CONSTRUCT

Research on attitudes and attitude change conducted over the past 20 years has challenged some of the basic assumptions inherent in the classical view.

In the present section we examine two major developments that have had a profound impact on the field. One line of work has drawn a distinction between attitudes that are based on systematic analysis of available information and attitudes that are produced without much conscious deliberation. The second challenge to the classical view comes from the suggestion that attitudes are not nearly as stable as initially assumed, and that evaluations can shift as a result of changing circumstances or perspectives. These developments have led some investigators to a serious reassessment of the attitude construct and of the role attitudes play as determinants of human behavior.

Depth of Information Processing

The Information Processing Continuum

Limited information processing capacity dictates that close scrutiny and extensive deliberation be reserved for matters of importance, and that less weighty issues be dispensed with expeditiously. Consistent with this idea, contemporary theories distinguish between two modes of information processing, the systematic or central mode and the peripheral or heuristic mode (e.g., Chaiken, 1980; Fazio, 1990; Petty & Cacioppo, 1986). Known collectively as dual-mode processing models (see Chaiken & Trope, 1999), these theories assume that effortful, central processing of information requires ability and motivation to devote cognitive resources to the task. One way to bypass excessively effortful considerations of an issue's pros and cons is to rely on cognitive heuristics or rules of thumb to arrive at an evaluative judgment. The most explicit assumption of heuristic processing as a basis for attitude formation and change can be found in Chaiken's (1980) heuristic-systematic model of persuasion. Under conditions of low motivation or limited cognitive capacity, receivers of a persuasive communication are said to rely on relatively simple cognitive heuristics to form their opinions. Consistent with this view, it has been found that under the conditions specified to favor heuristic processing (low motivation or limited cognitive capacity), receivers tend to rely on such relatively superficial cues as the communicator's attractiveness or the number of arguments contained in the message (for a review, see Eagly and Chaiken, 1993). Only when individuals have the motivation and capacity to devote cognitive resources to the task are they found to engage in extensive deliberation of available information and to be influenced by the quality of arguments in favor of or against a given attitudinal position (Petty & Cacioppo, 1986).

The dual-mode processing models are usually thought to imply two distinct and qualitatively different ways of processing information. However, closer scrutiny reveals that the peripheral and systematic modes differ in degree rather than kind, representing opposite poles of an information processing

continuum that ranges from shallow to deep (Ajzen & Sexton, 1999; Fiske & Neuberg, 1990; Kruglanski & Thompson, 1999). Reliance on cognitive heuristics or peripheral cues often involves relatively superficial processing whereas deliberation of issue-relevant arguments is likely to require more in-depth consideration of information.³

Implications for reasoned evaluation. The expectancy–value model of attitude described earlier implies a degree of systematic processing by postulating that attitudes are based on accessible beliefs about the attitude object. However, it does not require extensive deliberations and is quite consistent with the idea of a processing continuum. When people are confronted with an important decision, attitudes can be based on considerable reflection, taking into account all available information, while in other instances they may be expressed with little contemplation, drawing on only a small number of immediately accessible beliefs. The only requirement imposed by the expectancy–value model is that attitudes follow consistently from the set of accessible beliefs, no matter how extensive the preceding deliberation.

The distinction between issue-relevant and peripheral information poses a somewhat greater challenge. In applications of the expectancy–value model, attitudes toward a person, for example, are assumed to be based on beliefs about the person's qualities, characteristics, or attributes (Fishbein, 1963; Fishbein & Ajzen, 1975), and attitudes toward performing a behavior are said to be a function of beliefs about the behavior, primarily its positive or negative consequences (Ajzen & Fishbein, 1980). There is no ready place in the model for peripheral cues, such as the number of arguments in a message, or the likability of a person who espouses a certain position on an issue. Factors of this kind would have to influence attitudes by affecting existing attitude-relevant beliefs, either their strength or accessibility, or by adding new accessible beliefs relevant to the attitude object. As is true of any variable external to the model, formulating hypotheses about such factors requires additional auxiliary assumptions that link peripheral information to accessible beliefs. For example, it might be argued that increasing the number of arguments in a message lends each a degree of credibility or authority. As a result, the subjective probability associated with each argument, i.e., the strength of the corresponding beliefs, would be expected to go up as well. If we further assume that these beliefs remain accessible following exposure to the message, then we could predict that the impact of the message on the receivers' attitudes should increase with the number of arguments it contains. Note, however, that

³ Kruglanski & Thompson (1999), however, have argued persuasively that the distinction between peripheral and issue-relevant thinking is independent of processing depth. Reliance on peripheral cues can involve extensive deliberation and analysis of issue-relevant information can be cursory and shallow.

this prediction cannot be derived directly from the expectancy–value model; it requires additional considerations that are not part of the model itself. By the same token, if an empirical investigation fails to confirm the hypothesized relation between number of arguments in a message and attitude change, this negative finding could not necessarily be taken as evidence against the expectancy–value model.

Automatic Attitude Activation

As noted earlier, the expectancy–value model assumes that attitudes are activated automatically, without conscious intent or cognitive effort, at the mere exposure to the attitude object. There is now substantial empirical support for this assumption (see Bargh, 1989; Bargh, Chaiken, Gendler, & Pratto, 1992; Greenwald & Banaji, 1995; Fazio, Sanbonmatsu, Powell, & Kardes, 1986). Perhaps the strongest evidence for automatic attitude activation without conscious reflection comes from research on evaluative priming. Stimuli with pre-existing positive or negative evaluative meaning, usually words, serve as priming events. Presented at subliminal exposure times, these primes are found to influence the speed at which subsequent target stimuli, usually adjectives, are judged to be good or bad. Judgments are faster when the valence of the target adjective matches the valence of the prime. It is assumed that evaluative priming makes positive or negative valence momentarily more accessible, thus facilitating subsequent prime-consistent evaluative judgments.

The expectancy–value model also suggests that automatic activation does not depend on the strength or accessibility of the beliefs on which it is based. Any concept is assumed to carry evaluative meaning which is automatically activated. Some theorists, however, have proposed that only strongly established attitudes can become active automatically (Fazio, Sanbonmatsu, Powell, & Kardes, 1986; see Fazio, 1990). In this view, attitude toward an object is defined as the link between the object and an evaluation. The strength of this link, i.e., attitude strength, is operationalized as the latency of responses to attitudinal inquiries. Consistent with expectations, Fazio, Sanbonmatsu, Powell, and Kardes (1986) reported that the facilitating effect of priming occurred only for strongly-held attitudes, i.e., only when evaluative responses to the priming stimuli had relatively low latencies. However, subsequent research has shown that all attitudes, strong and weak, can become automatically active (Bargh, Chaiken, Raymond, & Hymes, 1996; see Bargh, 1996). Consistent with the expectancy–value model, therefore, a high degree of accessibility (low response latency) is not a prerequisite for automatic attitude activation.

Similar to research on automatic attitude activation, research on affective primacy (Murphy & Zajonc, 1993) has shown that affective primes, such as happy or sad faces, presented subliminally, can influence subsequent

evaluative judgments. Because affective primes are presented outside awareness, their effects on evaluations clearly do not involve deliberate retrieval of beliefs and attitudes in real-time. In fact, it has been found that directing conscious attention to the evaluation task undermines the automaticity effect (Bargh, Chaiken, Raymond, & Hymes, 1996; Murphy & Zajonc, 1993). According to the affective primacy hypothesis (Zajonc, 1980), affect activated outside awareness is diffuse and non-specific, generalizing to the unrelated target words in the priming paradigm, whereas controlled activation of affect is more focused and does not generalize to unrelated stimuli. In fact, Zajonc's (1980) affective primacy hypothesis assumes that automatic activation of affect—and its effects on evaluations—can occur without preceding cognitive activity. Other theorists, however, disagree with this strong claim, proposing instead that the automaticity effect depends on limited cognitive processing of relevant information, albeit at a preconscious level (see Tesser & Martin, 1996, for a discussion).⁴

Whether preceded by preconscious cognitive activity or not, once an affective state is induced, it seems to color evaluative judgments. Across a broad spectrum of content domains, ranging from satisfaction with consumer products (e.g., Isen, Shalke, Clark, & Karp, 1978) to general life satisfaction (e.g., Schwarz & Clore, 1983), evaluative judgments are found to be more favorable in happy than in sad moods (see Schwarz & Clore, 1996, for a discussion of underlying processes). These effects are found even though the research design assures that respondents see no connection between the mood induction and the evaluative judgments. In fact, when participants become aware of the possible impact of their mood, they may take steps to counteract it (e.g., Berkowitz & Troccoli, 1990; Ottati & Isbell, 1996; Schwarz & Clore, 1983; Wegener & Petty, 1997).

To summarize briefly, the expectancy-value model of attitude is consistent with the findings of research stimulated by dual-mode processing models as well as with work on automatic attitude activation. Under conditions of high motivation and cognitive capacity, information is scrutinized systematically, leading to the formation of many new issue-relevant beliefs. These beliefs (if they are accessible at the time) serve as the determinants of attitude. With less motivation or capacity, attitudes are found to be based on a smaller number of beliefs. And at very low levels of motivation or capacity, beliefs and attitudes may be influenced largely by heuristic cues that require a minimal degree of processing. Irrespective of the number of accessible beliefs on which they are based, and independent of their strength, attitudes are found to be capable of automatic activation. This phenomenon is consistent with

⁴ Interestingly, recent research on conditioning of fear has provided evidence for a direct neural path to the amygdala, bypassing higher mental processing centers of the brain (see LeDoux, 1996).

the view that attitudes represent the evaluative component of a concept's meaning and are thus spontaneously available without the need for conscious deliberation.

Instability of Attitudes

Early attitude research focused on targets and issues of considerable breadth and generality, such as racial groups, integration, conservatism, and communism. Attitudes of this kind were assumed to be stable over time and context and adequate measures were required to exhibit high test-retest reliability. In support of this expectation, there is in fact considerable evidence that broad sociopolitical attitudes can be quite stable even over extended periods of time (e.g., Jennings, 1996), and it has been proposed that many attitudes of this kind may have a strong biological component (Tesser, 1993; Tesser & Martin, 1996).

However, the classical view that attitudes are relatively stable response dispositions is challenged by the demonstrations of mood effects on evaluations discussed above. In fact, diffuse affective states, such as moods, are not the only factor that can influence evaluative judgments without conscious awareness. The way in which an issue is framed (Kahneman & Tversky, 1982), the linguistic context in which the evaluation is expressed (Schwarz, Strack, & Mai, 1991), as well as processing goals (Chaiken, Liberman, & Eagly, 1989) can all bias evaluations in a positive or negative direction without a person's awareness. In addition, at a more conscious level, directed thinking (McGuire & McGuire, 1996), consideration of a biased sample of past experiences (Salancik & Conway, 1975), and time perspective (Lewin, 1935) can also have profound effects on evaluative judgments (see Ajzen & Sexton, 1999, for a discussion of these factors).

The finding that contextual factors can shift attitudes in a favorable or unfavorable direction appears to undermine their assumed stability. The impact of contextual factors on attitudes has been demonstrated with respect to direct expressions of evaluation, typically using a small number of items. For example, in the mood and evaluative priming research discussed earlier, automatic attitude activation is evidenced by response times for single evaluative judgments of target stimuli. Similarly, inducing respondents to scan their past religious behavior in a biased fashion was found to influence attitudes toward being religious, assessed by means of two self-report items and a few evaluative semantic differential scales (Salancik & Conway, 1975). A few evaluative semantic differential items were also used to assess self-esteem in a demonstration of the effects of directing participants to think about their own positive or negative personality traits (McGuire & McGuire, 1996). Finally, the linguistic context has been shown to influence expressed life satisfaction, as assessed by means of a single rating scale (Schwarz, Strack, & Mai, 1991).

Attitude representation. Use of a single or a few direct questions to assess evaluation raises the issue of the measure's representativeness, i.e., what exactly is being evaluated. In traditional attitude scaling methods, as developed by Thurstone (1928) or Likert (1932), the attitude domain is defined by the broad sample of items included in the questionnaire, items that address the respondent's opinions about many different facets of the attitude in question. By contrast, when respondents are asked to express their attitudes toward a psychological object in a direct evaluation, it is not clear which facet or facets of the object they are to consider. Focusing on different facets can produce very different evaluations. For example, when asked to evaluate the President's job performance, a focus on the economy may result in a favorable evaluation, whereas attention to foreign affairs or social issues could result in an unfavorable evaluation.

Attitude representation theory (Lord & Lepper, 1999) makes a strong case for the dependence of evaluation on the subjective representation of the attitude object. In one experimental test of the theory, it was shown that measured attitudes remain relatively stable over time to the extent that the same representations of the attitude object are accessed on different occasions (Sia, Lord, Blessum, Ratcliff, & Lepper, 1997). Attitude objects in this study were such social categories as politicians, homosexuals, and rock musicians. On two occasions, respondents were asked to judge these attitude objects on a single evaluative scale and to name the first specific exemplar of the category that came to mind. Test-retest correlations between the evaluations given on the two occasions were higher when the same exemplars came to mind.

It can be argued that different attitude representations involve attitudes toward different objects. Such differences in representation can help account for some of the effects of contextual factors on evaluative judgments. When a problem is framed in terms of gains as opposed to losses, the issue by definition is represented in different ways. Similarly, placing an evaluative question in varying linguistic contexts is likely to influence the subjective representation of the attitude object. Other kinds of biases, however, are not so easily explained in terms of attitude representations or different attitude objects. For example, inducing participants to think about their own positive or negative personal qualities does not necessarily change the subjective representation of the self, nor does biased scanning of past religious behavior necessarily affect the subjective representation of religiosity. In these instances, the evaluation of a given attitude object seems to shift.

Reasoned evaluation. Attitudinal instability produced by varying contextual factors, including instability that is not the result of shifts in attitude representation, can be explained in the framework of the expectancy-value model. We propose to take seriously and quite literally the notion inherent in the model that attitudes follow from accessible beliefs. An evaluative reaction to

an attitude object thus depends on the particular beliefs that are associated with the attitude object and are accessible at the time of observation. Attitudes should vary with the *number* of accessible beliefs, with their *strength* (i.e., the subjective probabilities of the object–attribute associations), and with their *evaluative implications* (i.e., the subjective values of the associated attributes).

According to this view, contextual factors exert their influence on evaluations by biasing the set of accessible beliefs.⁵ For example, it has been shown that positive and negative moods influence subjective probabilities, such that negative events appear more likely under dejection and positive events more likely under elation (Johnson & Tversky, 1983). Effects of this kind would also be expected to produce mood-consistent *evaluative* judgments because, according to the expectancy–value model, evaluations are based on probabilistic beliefs. Thus, if favorable beliefs about an attitude object increase in likelihood under positive mood, then the overall favorability toward the object should increase; and the opposite effect would be expected under negative mood. Evidence for the effect of mood on evaluation is reviewed in Schwarz and Clore (1996). In a similar manner, it may be proposed that different attitude representations, selective scanning of past behavior, directed thinking, linguistic context, or any other contextual factor can influence the kinds of beliefs that are accessible, their judged likelihood, or the associated evaluative implications. Such biasing effects would then be reflected in the overall evaluative attitude (see Ajzen & Sexton, 1999, for a discussion).

Discussion

In comparison to earlier views of the attitude construct, contemporary theory and research have shifted attention to the difference between controlled and automatic attitude activation, and from relatively stable to relatively unstable dispositions. We have tried to show that the revised views of the attitude construct are not incompatible with a reasoned evaluation perspective, as embodied in the expectancy–value model. According to this perspective, evaluative attitudes derive from accessible beliefs about the attitude object. However, consistent with current dual-mode processing models, the amount of deliberation that goes into attitude formation or change can vary considerably, from a shallow consideration of a few items of information to extensive and systematic incorporation of all available evidence. Consistent with research on

⁵ One possible exception is the automatic activation of attitudes demonstrated in priming research. To account for evaluative priming, we would have to assume that even automatic attitude activation is preceded by preconscious and effortless scanning of relevant cognitions. Although possible, it remains unresolved whether evaluative or affective responses can occur without prior cognitions (see Tesser & Martin, 1996).

automatic attitude activation, the expectancy-value model assumes that once formed, attitudes are available spontaneously, without much conscious deliberation.

Regarding the question of attitude stability, the expectancy-value model traces situational fluctuations in evaluation to context-induced shifts in accessible beliefs. Any factor that directs attention to either positive or negative aspects of an attitude object is expected to produce corresponding changes in attitude.

THE ATTITUDE-BEHAVIOR RELATION

Defined as a disposition to respond with some degree of favorableness or unfavorableness to a psychological object, attitudes are expected to predict and explain human behavior. Positive attitudes should predispose approach tendencies whereas negative attitudes should predispose avoidance tendencies. Investigators reacted with considerable dismay, therefore, when early research revealed only very weak relations between verbal attitudes, representing latent response dispositions, and manifest behavior (Wicker, 1969; see Ajzen, 1988; Fishbein & Ajzen, 1975).

Principle of Compatibility

Resolution of the inconsistency dilemma involved two related insights (see Ajzen, 1982). The great majority of negative findings were obtained in studies that assessed general attitudes toward such targets as racial or ethnic groups, the church, one's job, or the protection of the environment, and tried to predict specific actions toward the target in a given context (see Ajzen & Fishbein, 1977, for a review). This approach failed to recognize the situational specificity of much human behavior (Epstein, 1983) as well as the fact that attitudes toward targets represent generalized response tendencies. To produce correspondence between general attitudes toward targets and actual behaviors directed at those targets, it is necessary to observe various target-relevant actions performed in different situations. Multiple-act measures of this kind are indeed found to be highly consistent with attitudes toward the target of the behaviors (Fishbein & Ajzen, 1974; Weigel & Newman, 1976).

Further insight into the attitude-behavior relation came with the recognition that attitudes can be measured not only with respect to general targets but also with respect to specific behaviors (Fishbein, 1967). Investigators interested in predicting and explaining the performance of specific behaviors in a given context can assess behavior-specific attitudes. Consider, for example, a study designed to further our understand of paper recycling. Instead of measuring broad attitudes, such as attitudes toward protection of the environment,

we can assess attitudes toward recycling of paper. Such attitudes toward a behavior are found to predict actual behavior very well and much better than attitudes toward the target at which the behavior is directed (e.g., Ajzen & Fishbein, 1970; Kothandapani, 1971).

The idea of behavioral aggregation to produce multiple-act criteria and the idea of behavior-specific attitudes to predict corresponding behaviors, taken together, comprise the *principle of compatibility* (Ajzen, 1988; Ajzen & Fishbein, 1977). According to this principle, attitudes predict behavior only to the extent that the two refer to the same underlying evaluative disposition. Because they reflect a general evaluation of the attitude object, behavioral aggregates (multiple-act criteria) are compatible with attitudes toward the target of the behaviors, whereas a specific action performed in a particular context is compatible only with the evaluation of the specific behavior in question.

Theory of Planned Behavior

The principle of compatibility is embodied in what has become the most popular theory for the prediction of behavior, the *theory of reasoned action* (Ajzen & Fishbein, 1980; Fishbein, 1967; Fishbein & Ajzen, 1975) and its expanded version, the *theory of planned behavior* (Ajzen, 1988, 1991). Briefly, according to the theory of planned behavior, human action is guided by three kinds of considerations: beliefs about the likely consequences of the behavior (behavioral beliefs), beliefs about the normative expectations of others (normative beliefs), and beliefs about the presence of factors that may further or hinder performance of the behavior (control beliefs). In their respective aggregates, behavioral beliefs produce a favorable or unfavorable *attitude toward the behavior*; normative beliefs result in perceived social pressure or *subjective norm*; and control beliefs give rise to *perceived behavioral control*, the perceived ease or difficulty of performing the behavior. Like attitudes, subjective norms and perceptions of behavioral control are assumed to emerge spontaneously and automatically as people form normative and control beliefs, respectively. In combination, attitude toward the behavior, subjective norm, and perception of behavioral control lead to formation of a behavioral *intention*. As a general rule, the more favorable the attitude and subjective norm, and the greater the perceived control, the stronger should be the person's intention to perform the behavior in question. Finally, given a sufficient degree of *actual control* over the behavior, people are expected to carry out their intentions when the opportunity arises. Intention is thus assumed to be the immediate antecedent of behavior, and to guide behavior in a controlled and deliberate fashion. However, because many behaviors pose difficulties of execution that may limit volitional control, it is useful to consider perceived behavioral control in addition to intention. To the extent that people are

realistic in their judgments of a behavior's difficulty, a measure of perceived behavioral control can serve as a proxy of actual control and contribute to the prediction of the behavior in question.

Automaticity in Human Behavior

Clearly, like the expectancy-value model in relation to attitude formation, the theories of reasoned action and planned behavior assume that human social behavior is reasoned, controlled, or planned in the sense that it takes account of the behavior's likely consequences, the normative expectations of important referents, and factors that may impede performance. Although the beliefs people hold may sometimes be unfounded or biased, their attitudes, subjective norms, and perceptions of behavioral control are thought to follow spontaneously and reasonably from these beliefs, produce a corresponding behavioral intention, and ultimately result in behavior that is consistent with the overall tenor of the beliefs. Again, however, it should be noted that this does not necessarily imply a deliberate, effortful retrieval of information and construction of attitudes prior to every behavior. Attitudes, subjective norms, and perceived behavioral control are assumed to be available automatically as performance of a behavior is being considered.

This reasoned action perspective has been challenged by many theorists who argue that human behavior is often automatic, mindless, or habitual (e.g., Aarts, Verplanken, & van Knippenberg, 1998; Bagozzi, 1981; Cialdini, 1993; Fazio, 1990; Langer, 1978; Ouellette & Wood, 1998; Ronis, Yates, & Kirscht, 1989; Triandis, 1977). In the present section we examine the question of automaticity in human behavior, its meaning and empirical support.

Automatic Attitude-Behavior Sequences

Investigators appear to agree that automatic processes meet all or most of the following criteria: they are unintentional in the sense that no act of will is required to initiate them; they occur outside awareness; they are uncontrollable, such that a person cannot stop the process once it has started; and they are effortless or efficient in that they do not interfere with other (conscious or unconscious) cognitive processes (see Bargh, 1996; Posner & Snyder, 1975). There is considerable evidence for automatic *cognitive* and *evaluative* processes (see Wegner & Bargh, 1998), some of which we reviewed earlier in relation to priming research, but the evidence for automaticity in overt *behavior* is scant.

Perhaps the strongest indication that behavior can be activated and performed automatically comes from research by John Bargh and his associates. In one series of experiments (Bargh, Chen, & Burrows, 1996), it was shown that subliminally priming the concept of rudeness increases the speed and like-

likelihood with which participants engage in rude behavior (interrupting the experimenter), while priming the concept of politeness decreases the speed and likelihood of this behavior. Similarly, priming the stereotype of the elderly was found to induce participants to walk more slowly. In the second of two subsequent experiments, participants were instructed to respond as quickly as possible to positive or negative stimulus words by pushing or pulling a lever (Chen & Bargh, 1999). To ensure that response latency would be influenced by *automatic* attitude activation (and not by intentional evaluation), participants were simply instructed to push or pull the lever, not to evaluate the stimulus words. Consistent with expectations, they were faster to push the lever away (avoidance tendency) in response to negative stimuli than to positive stimuli and to pull it toward themselves (approach tendency) in response to positive as compared to negative stimuli.

Other evidence for the automatic influence of attitudes on behavior can be found in research on racial prejudice. Unobtrusive measures of attitude toward African-Americans are found to predict non-verbal expressive responses of which people are not aware and which they can not easily control (Dovidio, Kawakami, Johnson, Johnson, & Howard, 1997; Fazio, Jackson, Dunton, & Williams, 1995). When the behavior can be controlled, and when people are motivated to do so, prejudicial attitudes are no longer found to have an effect and may even be overcompensated for (Fazio & Dunton, 1977).

Experiments of this kind can be interpreted as demonstrating automatic activation of behavior as well as an automatic attitude-behavior sequence. The evaluative response, as well as the actual behavior, are activated automatically. Although these findings have potentially important implications for social behavior, the responses studied—interrupting another person to ask a question, slowing down one's speed of walking, pulling or pushing a lever as quickly as possible, and non-verbal expressive responses—are quite rudimentary and require little conscious control for their execution. It is not clear to what extent these demonstrations of automaticity apply to more complex social action sequences. We examine this question in the remainder of the present chapter.

Dual-mode Processing: The MODE Model

One attempt to account for complex, everyday human behavior in terms of automatic processes can be found in Fazio's (1990; Fazio & Towles-Schwein, 1999) motivation and opportunity as determinants of processing (MODE) theory. A dual-mode processing model, MODE assumes that attitudes can guide behavior in two ways: in a controlled or deliberate fashion and in an automatic or spontaneous fashion. In the deliberate mode, attitudes are retrieved or constructed in an effortful manner and they are assumed to guide

behavior in a controlled fashion. The deliberate mode is said to characterize the theories of reasoned action and planned behavior but, as we saw earlier, these theories actually allow for spontaneous activation of attitudes, subjective norms, and perceptions of behavioral control, and assume that these automatically activated dispositions guide the formation of intentions and performance of behavior. The MODE model further stipulates that when motivation or opportunity to process information is limited, the controlled process cannot be employed. Under these conditions, attitudes can guide behavior only if they become active *automatically* and effortlessly. Furthermore, the model assumes that such automatic activation occurs only for strong attitudes, i.e., only when a strong link has been established between the attitude object and an evaluation. Strong attitudes are assumed to be highly accessible in memory and, for this reason, can become active automatically. Weak attitudes, according to the model, are not activated automatically and can thus not serve as spontaneous guides to behavior.

The spontaneous mode, then, delineates as follows the ways in which attitudes can guide behavior automatically. When processing motivation or capacity is low, and a strong attitude of relevance has been established, mere exposure to the attitude object leads to automatic activation of the attitude toward that object. The activated attitude produces selective perception of the situation in an attitude-consistent manner. That is, the situation is defined in more favorable or attractive terms when the activated attitude is positive and in more negative or repulsive terms when the activated attitude is negative. Approach or avoidance behavior follows automatically from the biased definition of the situation and is thus consistent with the activated attitude. This entire sequence, from attitude activation through selective perception of the situation, to performance of the behavior, can occur automatically, without conscious effort, and outside awareness (Fazio, 1990; Fazio & Towles-Schwein, 1999).

Empirical support. Fazio and his associates have published a number of studies whose findings have often been cited as support for the spontaneous aspects of the MODE model. Closer examination, however, reveals some weaknesses in the empirical evidence. First, as noted earlier, research has shown that all attitudes, not only highly accessible ones, can become automatically active (Bargh, Chaiken, Gvender, & Pratto, 1992; Bargh, Chaiken, Raymond, & Hymes, 1996). Second, to the best of our knowledge, no single study has examined the complete postulated sequence. Some studies have shown that manipulating attitude strength by varying the type of experience on which the attitude is based (direct vs. second-hand), or by having respondents express their attitudes repeatedly, increases attitude accessibility, that is, lowers latency of responses to attitudinal inquiries (Berger & Mitchell, 1989;

Fazio, Chen, McDonel, & Sherman, 1982; Powell & Fazio, 1984). Other studies have demonstrated an impact of type of experience on the attitude-behavior relation, with direct experience resulting in stronger relations than indirect experience (Fazio & Zanna, 1978; Regan & Fazio, 1977). And still other investigations have focused on the correlation between response latencies and attitude-behavior correspondence, showing that individuals with strong attitudes (relatively low response latencies) exhibit greater consistency between their attitudes and behavior than do individuals with weak attitudes (Fazio, Powell, & Williams, 1989; Fazio & Williams, 1986). None of these studies, however, examined directly whether attitude accessibility mediates the effect of attitude strength on attitude-behavior correspondence (see Doll & Ajzen, 1992).

Finally, and perhaps most disconcerting, studies that are purported to demonstrate the effects of automatic attitude activation have failed to consider attitudes and behaviors that meet the criteria of the spontaneous processing mode. For example, prior to the 1984 Presidential elections in the USA, voters expressed their attitudes toward the two major candidates, Reagan and Mondale, on single five-point scales (Fazio & Williams, 1986). Their attitudinal positions and the latencies of their responses were recorded. Based on the latencies of their responses, participants were then divided into those with strong and weak attitudes toward the candidates. The correlation between attitudes and reported voting choice was found to be higher for participants with strong attitudes than for participants with weak attitudes. In addition, the study also found that attitudes toward the candidates correlated with perceptions of the candidates' performance during the nationally televised debates prior to the election. This study has been taken as support for the proposition that strong, highly accessible attitudes are automatically activated and guide behavior spontaneously by biasing perception of the situation.

Note, however, that this study did not create a situation that would be expected to invoke the spontaneous processing mode, i.e., the respondents appear to have had sufficient motivation and ability to process attitude-relevant information. Attitudes toward candidates for president are formed over a period of time on the basis of much information about the candidates. This information can be processed at leisure, in a controlled and effortful manner. And even if attitudes toward the candidates should be too weak to emerge spontaneously, there is nothing to prevent voters from retrieving their relevant beliefs in a controlled manner, hence effortfully activating the attitudes in question. Once activated—whether spontaneously or deliberately—the attitudes can influence interpretation of the situation and guide voting behavior. There is no obvious justification for assuming that attitudes in this study could only be activated spontaneously or that the behavior was performed automatically.

Similarly, when attitudes toward intellectual puzzles—established on the

basis of direct experience or indirect information—are used to predict time spent working on the puzzles in a free-activity period, automatic attitude activation is irrelevant. Direct experience may well produce more spontaneously accessible attitudes, but there is nothing in the indirect experience condition to prevent participants from retrieving their beliefs in an effortful manner. They have plenty of opportunity to do so in the free-activity period. And once retrieved, these beliefs should result in an attitude that is then available to produce selective perception and guide behavior, in accordance with the assumptions of the MODE model.

Belief Congruence

In research stimulated by the MODE model, the behavior itself (e.g., voting, solving intellectual puzzles) is clearly not performed automatically. Instead, only the processes postulated to lead up to the behavior have the hallmarks of automaticity: attitudes are said to become active automatically and to guide behavior in an effortless manner by way of biased perception of the situation. Attitudes based on direct experience are assumed to be sufficiently strong to become automatically active, whereas attitudes based on second-hand information are not. However, as we have seen above, automatic attitude activation cannot explain these results because even weak attitudes (with high latencies) are activated automatically and, in any event, the behavioral situation is such as to permit controlled belief retrieval and consequent attitude activation.

Instead of assuming that, in the situations studied, attitudes guide behavior only if they are automatically activated, we propose that in these situations attitudes are always spontaneously activated. We would agree that strength is an important attitude dimension (see Petty & Krosnick, 1995), that strong attitudes indeed tend to be highly accessible, to bias perceptions, and to influence behavior. However, we believe that they do so not because they are automatically activated but because strong attitudes tend to be well-grounded in accessible beliefs and relatively stable over time (Doll & Ajzen, 1992).

Our reasoned action perspective suggests that attitudes as well as behaviors are guided, respectively, by the beliefs that are accessible in the context in which attitudes are expressed and in the context in which behavior is performed. According to the *principle of belief congruence* (Ajzen, 1996; Ajzen & Sexton, 1999), we would expect a strong attitude-behavior relation only if the beliefs in the two contexts are the same or similar (see also Millar and Tesser, 1986). The predictive validity of attitudes should decline to the extent that the beliefs accessible in the attitudinal context differ from the accessible beliefs in the behavioral context.

A study by Shavitt and Fazio (1991) illustrates the importance of belief congruence. These investigators theorized that for any given attitude object,

certain dimensions are naturally salient, and are therefore the prime determinants of behavior with respect to the object. It follows that attitudes should predict behavior best when the dimensions that are salient at the time of attitude assessment are those that are naturally salient at the time of the behavior. This hypothesis was confirmed in two laboratory experiments that first manipulated the accessibility of a selected dimension prior to attitude assessment and then used the expressed attitudes to predict behavioral intentions with respect to objects whose naturally salient attributes either did or did not match the attributes that had been made accessible in the attitudinal context.

The principle of belief congruence can be used to account for the moderating effect of experience type on the attitude-behavior relation if we assume that the beliefs formed under direct experience with a behavior differ from those formed on the basis of second-hand information. Specifically, it may be argued that beliefs formed in the direct-experience condition are based on more accurate information regarding the nature of the behavior and its consequences because the information is obtained in the course of actually performing the behavior. As a result, these beliefs will undergo little change in the free-activity period when a person has the opportunity to perform the behavior again. In contrast, because they are not derived from personal experience, beliefs based on second-hand information may be quite inaccurate. For example, when given information about different intellectual puzzles (Regan & Fazio, 1977), participants may misjudge the difficulty, challenge, or interest value of a particular puzzle type. These misconceptions would become apparent in the free-activity period, leading to a revision in beliefs and attitudes. As a result, attitudes in the direct experience condition of the experiment would remain more stable than attitudes in the indirect experience condition, with predictable effects on the attitude-behavior relation.

A conceptual replication of the Regan and Fazio (1977) experiment provides support for this analysis (Doll & Ajzen, 1992). Results of the replication showed that, in comparison to attitudes based on second-hand information, attitudes based on direct experience are significantly more stable. In addition, a mediational analysis confirmed the expectation that the moderating effect of experience type is due to the greater stability of direct experience attitudes rather than to their enhanced accessibility.

Past Behavior and Habit

Even though questions can be raised with respect to the spontaneous attitude activation aspects of the MODE model, the distinction between spontaneous and controlled processes linking attitudes to behavior is of potential importance. The MODE model provides an explicit theoretical account of the ways in which automatically activated attitudes may be able to guide

behavior without a person's awareness or control. This contrasts with another line of theory and research on automaticity in human behavior which does not provide an explicit theoretical rationale. It is based on the idea that frequent performance of a behavior leads to the formation of a *habit*, and that once established, this habit controls later behavior without conscious cognitive mediation (e.g., Aarts, Verplanken, & van Knippenberg, 1998; Bagozzi, 1981; Ronis, Yates, & Kirscht, 1989; Triandis, 1977). According to this view, frequency of past behavior is an indicator of habit strength, and it can be used as an independent predictor of later action (Ouellette & Wood, 1998). Taking the bus to work on a regular basis eventually becomes a habit in the sense that little cognitive effort is required for continued execution of the behavior.

The predictive utility of past behavior has often been studied in the context of the theories of reasoned action or planned behavior. When added to the regression equation, past behavior is typically found to significantly improve the prediction of later behavior, over and above the effects of intentions and perceptions of behavioral control (for reviews, see Ajzen, 1991; Ouellette & Wood, 1998). Findings of this kind are generally taken to mean that the behavior under consideration, rather than being reasoned, is at least in part under the direct control of the stimulus situation, i.e., that it habituates with repeated performance.

A direct test of this account requires an independent measure of habit, separate from the behavior it is supposed to explain. To the best of our knowledge, only one systematic attempt has been made to develop such an independent measure of habit, based on the idea that accessibility of a behavioral alternative increases with habit strength (Verplanken, Aarts, van Knippenberg, & van Knippenberg, 1994), and some evidence in support of this approach is available (Aarts, Verplanken, & van Knippenberg, 1998). The measure confronts respondents with a set of alternative behavioral choices (e.g., different travel modes, such as car, bus, train, bicycle) and asks them to indicate, *as quickly as possible*, which option they would select in a number of hypothetical situations (e.g., when going to the beach, visiting friends, etc.). Frequency of choice across situations is assumed to indicate habit strength.

One part of a recent study (Bamberg, Ajzen, & Schmidt, 1999) examined the mediating effect of habit, as assessed by this fast-response index. In accordance with the theory of planned behavior, students' use of the bus to get to the campus could be predicted quite accurately from intentions and perceptions of behavioral control. However, consistent with past research, addition of prior behavior to the model resulted in a significant increase in explained variance. But contrary to the habit perspective, the fast-response index of habit was not found to mediate the relation between prior and later behavior.

Habitual social behavior. Although the habit perspective has an intuitive appeal, it is not clear what it means to say that a complex social behavior is

performed automatically or habitually. Consider, for example, such a mundane behavior as going to see a movie with friends. Even if we have performed this behavior numerous times in the past, we never engage in it without some conscious cognitive mediation. We have to make a conscious decision to go to the movies on a particular night, choose the film we want to see, make arrangements to meet our friends, go to the movie theater, buy tickets, and so forth. To be sure, some aspects of this complex series of acts have been performed so frequently that they are enacted routinely without much cognitive effort, as when we drive our car to the theater while conducting a conversation with passengers; but clearly, much conscious regulation is required to perform most other aspects of the behavior we call "going to the movies". In fact, this behavior appears to meet none of the generally accepted criteria of automaticity. It takes an act of will to initiate it, we are aware of performing it, we can stop it once it has started, and watching the movie does interfere with other processes. Our view of such routinized behavior as going to the movies is more akin to the description of *semi-automatic* response patterns, that involve controlled processes as well as interspersed autonomous phases (Bargh, 1989; Logan & Cowan, 1984; Posner & Rothbart, 1989; Wegner & Bargh, 1998).

Past behavior as reasoned action. An alternative explanation for the predictive power of past behavior relies on the recognition that a strong relation between prior and later behavior only proves the temporal stability of the behavior in question. It may be argued that observation of a behavior's temporal stability tells us very little about the factor or factors responsible for the stability. Clearly, "habit" is only one of many possible mediating factors and, indeed, may not be needed at all to account for behavioral stability.

Under certain conditions, it is virtually assured that frequency of prior behavior will be a powerful predictor of later behavior. A measure of prior behavior reflects the operation of all factors, internal and external, that controlled performance (or non-performance) of the behavior in the past. Thus, taking the bus to work on a regular basis may reflect a positive value placed on public transportation, the convenience of nearby bus stops, lack of alternative modes of transportation, a feeling of relative security on the bus, and so forth. So long as the configuration of controlling factors remains stable over time, there is no reason for the behavior to change. Later behavior, being under the control of an unchanging set of factors, will by necessity resemble previous behavior. In the context of the theory of planned behavior, we would attribute behavioral stability over time to the stability of intentions and of perceived behavioral control. These factors presumably determined the behavior in the past and, if they remain unchanged, will produce corresponding behavior in the future (Ajzen, 1991; Bamberg, Ajzen, & Schmidt, 1999).

There is thus no need to assume that the behavior has come under the control of habit.

This analysis also implies that should attitudes, perceptions of behavioral control, and intentions change drastically, the residual effect of past on later behavior would diminish or disappear. Support for this expectation was obtained in the study of bus use among university students mentioned earlier (Bamberg, Ajzen, & Schmidt, 1999). Data relevant to the theory of planned behavior were collected in two waves, separated by 1 year. Although the theory afforded accurate prediction of bus ridership in the first wave, addition of past bus use significantly improved prediction. Prior to the second wave of data collection, the university introduced a new bus plan that required students to purchase a pre-paid semester ticket as part of their tuition. This intervention was found to have marked effects on attitudes, subjective norms, perceived behavior control, and intentions, making students more favorably disposed toward use of the bus to get to the campus. Prediction of actual bus use in the second wave of data collection was again quite accurate, but this time, addition of past behavior no longer improved prediction. It thus appears that even such a routine and high-frequency behavior as taking the bus to get to the campus does not habituate to the point that its performance becomes automatic. Instead, people are found to monitor their behavior sufficiently to become aware of changed circumstances. These changes influence beliefs, attitudes, and intentions and disrupt the temporal stability of the behavior.

SUMMARY AND CONCLUSION

Over the past two decades, theoretical developments have led to a re-evaluation of the attitude construct. Emphasis has shifted to the distinction between controlled and automatic processes in dealing with the activation of attitudes and from controlled to automatic features of social behavior. In addition, attitudes are now seen as much less stable than initially thought, changing with the context in which evaluations are expressed. We have tried to show that the divergence of controlled and automatic processes, and the demonstrated instability of many evaluative judgments, can be accommodated within the expectancy-value model. In fact, this perspective has stood up remarkably well to the challenges. According to the model, evaluative attitudes are formed as information about the attitude object is acquired, and they are available directly, without the need to reconsider the information or beliefs on which they were based. This idea is consistent with findings indicating that attitudes tend to become active automatically in the mere presence of the attitude object.

However, attitudes are not always formed and retrieved automatically and effortlessly. With sufficient motivation and cognitive capacity, they can be acti-

vated by deliberate retrieval of beliefs in real-time or on-line as new information becomes available. The expectancy–value perspective is thus consistent with the idea of an information-processing continuum inherent in contemporary dual-mode processing models. Our approach only assumes that these processes are reasonable, in that the resulting evaluation follows consistently from accessible beliefs. It does not require that attitude activation involve extensive deliberation. If motivation to process is low or cognitive capacity is limited, attitudes can emerge from a few accessible beliefs.

The reasoned action perspective was also shown to be consistent with the results of recent research on the attitude–behavior relation. According to this perspective, strong attitude–behavior correspondence depends on congruence of accessible beliefs in the attitudinal and behavioral contexts. Within this framework, the theories of reasoned action and planned behavior are found to be very useful tools for predicting and understanding complex social behavior. Only relatively simple motor responses have been shown to be capable of proceeding in a completely automatic fashion. There is little evidence that *complex* sequences of behavior occur automatically or habitually without cognitive intervention. Complex social behavior seems to be cognitively regulated, even if only at a low level of conscious awareness and it is, in this sense, reasoned in nature.

REFERENCES

- Aarts, H., Verplanken, B., & van Knippenberg, A. (1998). Predicting behavior from actions in the past: Repeated decision making or a matter of habit? *Journal of Applied Social Psychology*, **28**, 1355–74.
- Ajzen, I. (1977). Information processing approaches to interpersonal attraction. In S. Duck (Ed.), *Theory and Practice in Interpersonal Attraction* (pp. 51–77). London: Academic Press.
- Ajzen, I. (1982). On behaving in accordance with one's attitudes. In M. P. Zanna, E. T. Higgins, & C. P. Herman (Eds), *Consistency in Social Behavior: The Ontario Symposium* (Vol. 2, pp. 3–15). Hillsdale, NJ: Erlbaum.
- Ajzen, I. (1988). *Attitudes, Personality, and Behavior*. Chicago: Dorsey.
- Ajzen, I. (1991). The theory of planned behavior. *Organizational Behavior and Human Decision Processes*, **50**, 179–211.
- Ajzen, I. (1992). Persuasive communication theory in social psychology: A historical perspective. In M. J. Manfredo (Ed.), *Influencing Human Behavior: Theory and Applications in Recreation, Tourism, and Natural Resource Management* (pp. 1–27). Champaign, IL: Sagamore.
- Ajzen, I. (1996). The directive influence of attitudes on behavior. In P. M. Gollwitzer & J. A. Bargh (Eds), *The Psychology of Action: Linking Motivation and Cognition to Behavior* (pp. 385–403). New York: Guilford.
- Ajzen, I., Driver, B. L., & Nicholas, A. J., III (1995). Identifying salient beliefs about leisure activities: Frequency of elicitation versus response latency. *Journal of Applied Social Psychology*, **25**, 1391–410.

- Ajzen, I., & Fishbein, M. (1970). The prediction of behavior from attitudinal and normative variables. *Journal of Experimental Social Psychology*, **6**, 466-87.
- Ajzen, I., & Fishbein, M. (1977). Attitude-behavior relations: A theoretical analysis and review of empirical research. *Psychological Bulletin*, **84**, 888-918.
- Ajzen, I., & Fishbein, M. (1980). *Understanding Attitudes and Predicting Social Behavior*. Englewood Cliffs, NJ: Prentice-Hall.
- Ajzen, I., & Sexton, J. (1999). Depth of processing, belief congruence, and attitude-behavior correspondence. In S. Chaiken & Y. Trope (Eds), *Dual Process Theories in Social Psychology* (pp. 117-38). New York: Guilford.
- Allport, G. W. (1935). Attitudes. In C. Murchinson (Ed.), *A Handbook of Social Psychology* (pp. 798-844). Worcester, MA: Clark University Press.
- Allport, G. W. (1954). *The Nature of Prejudice*. Reading, MA: Addison Wesley.
- Bagozzi, R. P. (1981). Attitudes, intentions, and behavior: A test of some key hypotheses. *Journal of Personality and Social Psychology*, **41**, 607-27.
- Bamberg, S., Ajzen, I., & Schmidt, P. (1999). Past behavior, habit, and reasoned action: Choice of travel mode in the theory of planned behavior. Unpublished manuscript, Department of Psychology, University of Giessen, Germany.
- Bargh, J. A. (1989). Conditional automaticity: Varieties of automatic influence in social perception and cognition. In J. S. Uleman & J. A. Bargh (Eds), *Unintended Thought* (pp. 3-51). New York: Guilford.
- Bargh, J. A. (1996). Automaticity in social psychology. In E. T. Higgins & A. W. Kruglanski (Eds), *Social Psychology: Handbook of Basic Principles* (pp. 169-83). New York: Guilford.
- Bargh, J. A., Chaiken, S., Govender, R., & Pratto, F. (1992). The generality of the automatic attitude activation effect. *Journal of Personality and Social Psychology*, **62**, 893-912.
- Bargh, J. A., Chaiken, S., Raymond, P., & Hymes, C. (1996). The automatic evaluation effect: Unconditionally automatic attitude activation with a pronunciation task. *Journal of Experimental Social Psychology*, **32**, 104-28.
- Bargh, J. A., & Chartrand, T. L. (1999). The unbearable automaticity of being. *American Psychologist*, **54**, 462-79.
- Bargh, J. A., Chen, M., & Burrows, L. (1996). Automaticity of social behavior: Direct effects of trait construct and stereotype activation on action. *Journal of Personality and Social Psychology*, **71**, 230-44.
- Berger, I. E., & Mitchell, A. A. (1989). The effect of advertising on attitude accessibility, attitude confidence, and the attitude-behavior relationship. *Journal of Consumer Research*, **16**, 269-79.
- Berkowitz, L., & Troccoli, B. T. (1990). Feeling, direction of attention, and expressed evaluations of others. *Cognition and Emotion*, **4**, 305-25.
- Campbell, D. T. (1963). Social attitudes and other acquired behavioral dispositions. In S. Koch (Ed.), *Psychology: A Study of a Science* (Vol. 6, pp. 94-172). New York: McGraw-Hill.
- Carlson, E. R. (1956). Attitude change through modification of attitude structure. *Journal of Abnormal and Social Psychology*, **52**, 256-61.
- Chaiken, S. (1980). Heuristic versus systematic information processing and the use of source versus message cues in persuasion. *Journal of Personality and Social Psychology*, **39**, 752-66.
- Chaiken, S., Liberman, A., & Eagly, A. H. (1989). Heuristic and systematic processing within and beyond the persuasion context. In J. S. Uleman & J. A. Bargh (Eds), *Unintended Thought* (pp. 212-52). New York: Guilford.
- Chaiken, S., & Trope, Y. (Eds) (1999). *Dual Process Theories in Social Psychology*. New York: Guilford.

- Chen, M., & Bargh, J. A. (1999). Consequences of automatic evaluation: Immediate behavioral predispositions to approach or avoid the stimulus. *Personality and Social Psychology Bulletin*, **25**, 215–24.
- Cialdini, R. B. (1993). *Influence: Science and Practice* (3rd edn). Glenview, IL: Scott, Foresman.
- Crites, S. L., Fabrigar, L., & Petty, R. E. (1994). Measuring the affective and cognitive properties of attitudes: Conceptual and methodological issues. *Personality and Social Psychology Bulletin*, **20**, 619–34.
- Doll, J., & Ajzen, I. (1992). Accessibility and stability of predictors in the theory of planned behavior. *Journal of Personality and Social Psychology*, **63**, 754–65.
- Doob, L. W. (1947). The behavior of attitudes. *Psychological Review*, **54**, 135–56.
- Dovidio, J. F., Kawakami, K., Johnson, C., Johnson, B., & Howard, A. (1997). On the nature of prejudice: Automatic and controlled processes. *Journal of Experimental Social Psychology*, **33**, 510–40.
- Eagly, A. H., & Chaiken, S. (1993). *The Psychology of Attitudes*. Fort Worth, TX: Harcourt Brace Javanovich.
- Epstein, S. (1983). Aggregation and beyond: Some basic issues on the prediction of behavior. *Journal of Personality*, **51**, 360–92.
- Fazio, R. H. (1986). How do attitudes guide behavior? In R. M. Sorrentino & E. T. Higgins (Eds), *The Handbook of Motivation and Cognition: Foundations of Social Behavior* (pp. 204–43). New York: Guilford.
- Fazio, R. H. (1990). Multiple processes by which attitudes guide behavior: The MODE model as an integrative framework. In M. P. Zanna (Ed.), *Advances in Experimental Social Psychology* (Vol. 23, pp. 75–109). San Diego, CA: Academic Press.
- Fazio, R. H., Chen, J., McDonel, E. C., & Sherman, S. J. (1982). Attitude accessibility, attitude-behavior consistency, and the strength of the object-evaluation association. *Journal of Experimental Social Psychology*, **18**, 339–57.
- Fazio, R. H., & Dunton, B. C. (1997). Categorization by race: The impact of automatic and controlled components of racial prejudice. *Journal of Experimental Social Psychology*, **33**, 451–70.
- Fazio, R. H., Jackson, J. R., Dunton, B. C., & Williams, C. J. (1995). Variability in automatic activation as an unobtrusive measure of racial attitudes: A bona fide pipeline? *Journal of Personality and Social Psychology*, **69**, 1013–27.
- Fazio, R. H., Powell, M. C., & Williams, C. J. (1989). The role of attitude accessibility in the attitude-to-behavior process. *Journal of Consumer Research*, **16**, 280–88.
- Fazio, R. H., Sanbonmatsu, D. M., Powell, M. C., & Kardes, F. R. (1986). On the automatic activation of attitudes. *Journal of Personality and Social Psychology*, **50**, 229–38.
- Fazio, R. H., & Towles-Schwein, T. (1999). The MODE model of attitude-behavior processes. In S. Chaiken & Y. Trope (Eds), *Dual Process Theories in Social Psychology* (pp. 97–116). New York: Guilford.
- Fazio, R. H., & Williams, C. J. (1986). Attitude accessibility as a moderator of the attitude-perception and attitude-behavior relations: An investigation of the 1984 presidential election. *Journal of Personality and Social Psychology*, **51**, 505–14.
- Fazio, R. H., & Zanna, M. (1978). Attitudinal qualities relating to the strength of the attitude-behavior relationship. *Journal of Experimental Social Psychology*, **14**, 398–408.
- Feather, N. T. (1959). Subjective probability and decision under uncertainty. *Psychological Review*, **66**, 150–64.
- Feather, N. T. (Ed.) (1982). *Expectations and Actions: Expectancy-Value Models in Psychology*. Hillsdale, NJ: Erlbaum.

- Fishbein, M. (1963). An investigation of the relationships between beliefs about an object and the attitude toward that object. *Human Relations*, **16**, 233–40.
- Fishbein, M. (1967). Attitude and the prediction of behavior. In M. Fishbein (Ed.), *Readings in Attitude Theory and Measurement* (pp. 477–92). New York: Wiley.
- Fishbein, M., & Ajzen, I. (1974). Attitudes toward objects as predictors of single and multiple behavioral criteria. *Psychological Review*, **81**, 59–74.
- Fishbein, M., & Ajzen, I. (1975). *Belief, Attitude, Intention, and Behavior: An Introduction to Theory and Research*. Reading, MA: Addison-Wesley.
- Fiske, S. T., & Neuberg, S. L. (1990). A continuum of impression formation, from category-based to individuating processes: Influences of information and motivation on attention and interpretation. In M. P. Zanna (Ed.), *Advances in Experimental Social Psychology* (Vol. 23, pp. 1–74). San Diego, CA: Academic Press.
- Giner-Sorolla, R. (1999). Affect in attitude: Immediate and deliberative perspectives. In S. Chaiken & Y. Trope (Eds), *Dual Process Theories in Social Psychology* (pp. 441–61). New York: Guilford.
- Gollwitzer, P. M. (1999). Implementation intentions: Strong effects of simple plans. *American Psychologist*, **54**, 493–503.
- Greenwald, A. G. (1968). Cognitive learning, cognitive response to persuasion, and attitude change. In A. G. Greenwald, T. C. Brock, & T. M. Ostrom (Eds), *Psychological Foundations of Attitudes* (pp. 147–70). New York: Academic Press.
- Greenwald, A. G., & Banaji, M. R. (1995). Implicit social cognition: Attitudes, self-esteem, and stereotypes. *Psychological Review*, **102**, 4–27.
- Higgins, E. T. (1996). Knowledge activation: Accessibility, applicability, and salience. In E. T. Higgins & A. W. Kruglanski (Eds), *Social Psychology: Handbook of Basic Principles* (pp. 133–68). New York: Guilford.
- Hovland, C. I., Janis, I. L., & Kelley, H. H. (1953). *Communication and Persuasion*. New Haven, CT: Yale University Press.
- Isen, A. M., Shalke, T. E., Clark, M. S., & Karp, L. (1978). Affect, accessibility of material in memory, and behavior: A cognitive loop? *Journal of Personality and Social Psychology*, **36**, 1–12.
- Jennings, M. K. (1996). Political knowledge over time and across generations. *Public Opinion Quarterly*, **60**, 228–52.
- Johnson, E. J., & Tversky, A. (1983). Affect, generalization, and the perception of risk. *Journal of Personality and Social Psychology*, **45**, 20–31.
- Kahneman, D., & Tversky, A. (1982). The psychology of preferences. *Scientific American*, **246**, 160–73.
- Kaplan, K. J., & Fishbein, M. (1969). The source of beliefs, their saliency, and prediction of attitude. *Journal of Social Psychology*, **78**, 63–74.
- Kothandapani, V. (1971). Validation of feeling, belief, and intention to act as three components of attitude and their contribution to prediction of contraceptive behavior. *Journal of Personality and Social Psychology*, **19**, 321–33.
- Krosnick, J. A., Boninger, D. S., Chuang, Y. C., Berent, M. K., & Carnot, C. G. (1993). Attitude strength: One construct or many related constructs? *Journal of Personality and Social Psychology*, **65**, 1132–51.
- Kruglanski, A. W., & Thompson, E. P. (1999). Persuasion by a single route: A view from the unimodel. *Psychological Inquiry*, **10**, 83–109.
- Langer, E. J. (1978). Rethinking the role of thought in social interaction. In J. H. Harvey, W. Ickes, & R. F. Kidd (Eds), *New Directions in Attribution Research* (Vol. 2, pp. 35–58). Hillsdale, NJ: Erlbaum.
- LeDoux, J. E. (1996). *The Emotional Brain*. New York: Simon & Schuster.
- Lewin, K. (1935). *A Dynamic Theory of Personality*. New York: McGraw-Hill.

- Likert, R. A. (1932). A technique for the measurement of attitudes. *Archives of Psychology*, **140**.
- Logan, G. D., & Cowan, W. B. (1984). On the ability to inhibit thought and action: A theory of an act of control. *Psychological Review*, **91**, 295–327.
- Lord, C. G., & Lepper, M. R. (1999). Attitude representation theory. In M. P. Zanna (Ed.), *Advances in Experimental Social Psychology* (Vol. 31, pp. 265–343). San Diego, CA: Academic Press.
- McGuire, W. J. (1972). Attitude change: The information-processing paradigm. In C. G. McClintock (Ed.), *Experimental Social Psychology* (pp. 108–41). New York: Holt.
- McGuire, W. J., & McGuire, C. V. (1996). Enhancing self-esteem by directed-thinking tasks: Cognitive and affective positivity asymmetries. *Journal of Personality and Social Psychology*, **70**, 1117–25.
- Millar, M. G., & Tesser, A. (1986). Effects of affective and cognitive focus on the attitude-behavior relation. *Journal of Personality and Social Psychology*, **51**, 270–76.
- Murphy, S. T., & Zajonc, R. B. (1993). Affect, cognition, and awareness: Affective priming with optimal and suboptimal stimulus exposures. *Journal of Personality and Social Psychology*, **64**, 723–39.
- Nisbett, R. E., & Ross, L. (1980). *Human Inference: Strategies and Shortcomings of Social Judgment*. Englewood Cliffs, NJ: Prentice-Hall.
- Osgood, C. E., Suci, G. J., & Tannenbaum, P. H. (1957). *The Measurement of Meaning*. Urbana, IL: University of Illinois Press.
- Ottati, V. C., & Isbell, L. M. (1996). Effects of mood during exposure to target information on subsequently reported judgments: An on-line model of misattribution and correction. *Journal of Personality and Social Psychology*, **71**, 39–53.
- Ouellette, J. A., & Wood, W. (1998). Habit and intention in everyday life: The multiple processes by which past behavior predicts future behavior. *Psychological Bulletin*, **124**, 54–74.
- Peak, H. (1955). Attitude and motivation. In M. R. Jones (Ed.), *Nebraska Symposium on Motivation* (Vol. 3, pp. 149–88). Lincoln, NE: University of Nebraska Press.
- Petkova, K. G., Ajzen, I., & Driver, B. L. (1995). Salience of anti-abortion beliefs and commitment to an attitudinal position: On the strength, structure, and predictive validity of anti-abortion attitudes. *Journal of Applied Social Psychology*, **25**, 463–83.
- Petty, R. E., & Cacioppo, J. T. (1983). The role of bodily responses in attitude measurement and change. In J. T. Cacioppo & R. E. Petty (Eds), *Social Psychophysiology: A Sourcebook* (pp. 51–101). New York: Guilford.
- Petty, R. E., & Cacioppo, J. T. (1986). The Elaboration Likelihood Model of persuasion. In L. Berkowitz (Ed.), *Advances in Experimental Social Psychology* (Vol. 19, pp. 123–205). New York: Academic Press.
- Petty, R. E., & Krosnick, J. A. (Eds) (1995). *Attitude Strength: Antecedents and Consequences*. Mahwah, NJ: Erlbaum.
- Posner, M. I., & Rothbart, M. K. (1989). Intentional chapters of unintended thoughts. In J. S. Uleman & J. A. Bargh (Eds), *Unintended Thought* (pp. 450–69). New York: Guilford.
- Posner, M. I., & Snyder, C. R. R. (1975). Attention and cognitive control. In R. L. Solso (Ed.), *Information Processing and Cognition: The Loyola Symposium* (pp. 55–85). Hillsdale, NJ: Erlbaum.
- Powell, M. C., & Fazio, R. H. (1984). Attitude accessibility as a function of repeated attitudinal expression. *Personality and Social Psychology Bulletin*, **10**, 139–48.
- Regan, D. T., & Fazio, R. H. (1977). On the consistency between attitudes and

- behavior: Look to the method of attitude formation. *Journal of Experimental Social Psychology*, **13**, 38–45.
- Ronis, D. L., Yates, J. F., & Kirscht, J. P. (1989). Attitudes, decisions, and habits as determinants of repeated behavior. In A. R. Pratkanis, S. J. Breckler, & A. G. Greenwald (Eds), *Attitude Structure and Function* (pp. 213–39). Hillsdale, NJ: Erlbaum.
- Rosenberg, M. J. (1956). Cognitive structure and attitudinal affect. *Journal of Abnormal and Social Psychology*, **53**, 367–72.
- Salancik, G. R., & Conway, M. (1975). Attitude inferences from salient and relevant cognitive content about behavior. *Journal of Personality and Social Psychology*, **32**, 829–40.
- Schneider, D. J. (1973). Implicit personality theory: A review. *Psychological Bulletin*, **79**, 294–309.
- Schwarz, N., & Clore, G. L. (1983). Mood, misattribution, and judgments of well-being: Informative and directive functions of affective states. *Journal of Personality and Social Psychology*, **45**, 513–23.
- Schwarz, N., & Clore, G. L. (1996). Feelings and phenomenal experiences. In E. T. Higgins & A. W. Kruglanski (Eds), *Social Psychology: Handbook of Basic Principles* (pp. 433–65). New York: Guilford.
- Schwarz, N., Strack, F., & Mai, H. (1991). Assimilation and contrast effects in part-whole question sequences: A conversational logic analysis. *Public Opinion Quarterly*, **55**, 3–23.
- Shavitt, S., & Fazio, R. H. (1991). Effects of attribute salience on the consistency between attitudes and behavioral predictions. *Personality and Social Psychology Bulletin*, **17**, 507–16.
- Sia, T. L., Lord, C. G., Lepper, M. R., Blessum, K. A., & Ratcliff, C. S. (1997). Is a rose always a rose? The role of social category exemplar change in attitude stability and attitude-behavior consistency. *Journal of Personality and Social Psychology*, **72**, 501–14.
- Simon, H. A. (1955). A behavioral model of rational choice. *Quarterly Journal of Economics*, **69**, 99–118.
- Staats, A. W., & Staats, C. K. (1958). Attitudes established by classical conditioning. *Journal of Personality and Social Psychology*, **57**, 37–40.
- Tesser, A. (1978). Self-generated attitude change. In L. Berkowitz (Ed.), *Advances in Experimental Social Psychology* (Vol. 11, pp. 289–338). New York: Academic Press.
- Tesser, A. (1993). The importance of heritability in psychological research: The case of attitudes. *Psychological Review*, **100**, 129–42.
- Tesser, A., & Conlee, M. C. (1975). Some effects of time and thought on attitude polarization. *Journal of Personality and Social Psychology*, **31**, 262–70.
- Tesser, A., & Leone, C. (1977). Cognitive schemas and thought as determinants of attitude change. *Journal of Experimental Social Psychology*, **13**, 340–56.
- Tesser, A., & Martin, L. (1996). The psychology of evaluation. In E. T. Higgins & A. W. Kruglanski (Eds), *Social Psychology: Handbook of Basic Principles* (pp. 400–32). New York: Guilford.
- Thurstone, L. L. (1928). Attitudes can be measures. *American Journal of Sociology*, **33**, 529–54.
- Thurstone, L. L. (1931). The measurement of social attitudes. *Journal of Abnormal and Social Psychology*, **26**, 249–69.
- Trandis, H. C. (1977). *Interpersonal Behavior*. Monterey, CA: Brooks/Cole.
- Tversky, A., & Kahneman, D. (1974). Judgment under uncertainty: Heuristics and biases. *Science*, **185**, 1124–31.
- Tversky, A., & Kahneman, D. (1981). The framing of decisions and the psychology of choice. *Science*, **211**, 435–58.

- van der Pligt, J., & Eiser, J. R. (1984). Dimensional salience, judgment, and attitudes. In J. R. Eiser (Ed.), *Attitudinal Judgment* (pp. 161–77). New York: Springer-Verlag.
- Verplanken, B., Aarts, H., van Knippenberg, A., & van Knippenberg, C. (1994). Attitude versus general habit: Antecedents of travel mode choice. *Journal of Applied Social Psychology*, **24**, 285–300.
- Wegener, D. T., & Petty, R. E. (1997). The flexible correction model: The role of naive theories of bias in bias correction. In M. P. Zanna (Ed.), *Advances in Experimental Social Psychology* (Vol. 29, pp. 141–208). San Diego, CA: Academic Press.
- Wegner, D. M., & Bargh, J. A. (1998). Control and automaticity in social life. In D. Gilbert, S. T. Fiske, & G. Lindzey (Eds), *Handbook of Social Psychology* (4th edn, pp. 446–96). New York: McGraw-Hill.
- Wegner, D. M., & Wheatley, T. (1999). Apparent mental causation: Sources of the experience of will. *American Psychologist*, **54**, 480–92.
- Weigel, R. H., & Newman, L. S. (1976). Increasing attitude–behavior correspondence by broadening the scope of the behavioral measure. *Journal of Personality and Social Psychology*, **33**, 793–802.
- Wicker, A. W. (1969). Attitudes versus actions: The relationship of verbal and overt behavioral responses to attitude objects. *Journal of Social Issues*, **25**, 41–78.
- Zajonc, R. B. (1980). Feeling and thinking: Preferences need no inferences. *American Psychologist*, **35**, 151–75.