

Chapter Nineteen

Attitudes, Persuasion, and Behavior

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Social psychologists conceptualize attitudes as “a psychological tendency that is expressed by evaluating a particular entity with some degree of favor or disfavor” (Eagly & Chaiken, 1993, p. 1; see chapter 20, this volume, for a review of different definitions). Although most definitions characterize attitudes as *relatively enduring* mental states, attitudes change as people interact with their social environment. In fact, the bulk of attitude research has addressed the conditions and processes of attitude change. Understanding the dynamics of attitude change is as useful for basic researchers who try to explain social information processing as it is vital for practitioners in business, health, law, marketing, or politics who are interested in effective strategies of influencing attitudes and behavior. The present chapter provides a selective review of mainstream theorizing in two key areas of attitude research. We first address attitude change through persuasion and subsequently review research into the attitude–behavior relationship. Issues pertaining to the conceptualization of attitudes and the emergence of context effects in attitude measurement are discussed by Schwarz and Bohner (chapter 20, this volume).

Persuasion

Persuasion research addresses the formation and change of attitudes as a result of information processing, often in response to messages about the attitude object. As Petty & Cacioppo (1981) noted, theories of attitude change can be classified according to the amount of cognitive effort that is involved in the change processes they address. We first review key examples of attitude change processes that involve relatively low versus relatively high cognitive effort, which have been identified in separate and largely unrelated research programs. Subsequently, we address current “dual-process” models of persuasion, which provide conceptual frameworks for the interplay of these different processes and identify the conditions under which each one is likely to come to bear.

Persuasion processes that require little cognitive effort

Starting from the assumption that attitudes are learned dispositions (Allport, 1935; Doob, 1947), early theorists tried to explain attitude change as a result of classical or operant conditioning. In classical conditioning, an initially neutral stimulus is repeatedly paired with another stimulus that strongly evokes a certain response; learning is said to have occurred when the initially neutral stimulus alone suffices to evoke the response. In operant conditioning, learning occurs when responses increase in frequency because they have positive consequences (a process called reinforcement), or decrease in frequency because they have negative consequences (a process called punishment).

Classical conditioning Attitude researchers showed that covert positive or negative evaluations can be created in humans as conditioned responses if novel stimuli are repeatedly paired with unconditioned stimuli that already elicit positive or negative responses. Razran (1940), for example, repeatedly exposed participants to various slogans, under one of three conditions: (a) eating a free lunch, (b) inhaling unpleasant smells, (c) sitting in a neutral setting. Both before and after exposure, participants' agreement with each slogan was assessed. Although participants were unable to recall which slogan was paired with which environment, they showed increased agreement with slogans that were paired with the free lunch, decreased agreement with slogans paired with disagreeable odors, and did not change their evaluation of slogans paired with the neutral setting. Staats & Staats (1958) used spoken words (e.g. sour, beautiful) as unconditioned stimuli and names of nationalities (e.g. Dutch, Swedish), presented visually, as conditioned stimuli. They found that post-conditioning attitudes toward the nationalities, assessed with a semantic differential scale, reflected the valence of the adjectives the nationalities had been paired with.

It has been disputed whether these effects are indeed due to a conditioning process or reflect conscious inferences instead. For example, participants may conclude that the nationalities actually possess the attributes with which they are presented and may infer additional, evaluatively consistent attributes. They may also infer that the researcher expects them to provide evaluations that are congruent with the nationality–adjective pairings. This explanation in terms of demand characteristics was advanced by Page (1969), who found that “conditioning” effects were in fact stronger for people who reported in post-experimental interviews that they were aware of the contingency. Staats and his colleagues, in turn, criticized the reactivity of Page's methodology: Page's extensive interviews may have created awareness of the contingency in hindsight, especially in those participants who had shown a strong conditioning effect (Staats, Minke, Martin, & Higa, 1972).

To address this issue, subsequent research separated the assessment of evaluative responses from the conditioning trials, or presented the unconditioned stimuli outside of conscious awareness. For example, Berkowitz & Knurek (1969) used the Staats & Staats (1958) procedures to create negative and positive attitudes, respectively, towards the names “Ed” and “George.” Later, in an ostensibly unrelated experiment, each of their participants met two confederates who introduced themselves as Ed and George. Participants' ratings of the confederates, as well as the confederates' ratings of the participants' behavior, showed an effect of the previous conditioning. More recently, Krosnick, Betz, Jussim, & Lynn

(1992) asked students to watch slides depicting a target person engaged in various ambiguous activities. Depending on experimental condition, these slides were immediately preceded by briefly flashed pictures of positive (e.g. a bridal couple) or negative primes (e.g. a werewolf). This variation influenced the students' attitudes toward the stimulus person, even though participants were unable to detect the affective connotations of the primes. In combination, findings of this type render a simple demand-effects explanation of attitude conditioning unlikely.

Operant conditioning Inspired by Skinner's (1957) account of human verbal behavior in terms of operant conditioning, several studies applied principles of reinforcement to attitude statements. For example, Hildum & Brown (1956) interviewed Harvard students about their attitudes toward certain university policies. In one condition, every time a student responded favorably, the interviewer reinforced this response by saying either "good" or "mm-hmm"; in another condition, the reinforcement was applied to unfavorable responses. Students who were reinforced for unfavorable statements finally reported a less positive attitude than those who were reinforced for favorable statements.

As with classical conditioning accounts, participants' awareness of the contingency (here between behavior and reinforcement) and compliance with demand characteristics may provide alternative explanations (see Dulany, 1962). However, Insko (1965) showed that attitude change as a result of verbal conditioning could still be detected after one week and in a completely different context, rendering demand characteristics an unlikely explanation. Insko & Cialdini (1969) proposed a two-factor theory of verbal reinforcement. They assumed that the interviewer's "good" or "mm-hmm" responses have two functions: they (a) serve as a cue to the position the interviewer approves of and (b) establish "rapport" between interviewer and respondent. The former represents *informational influence*; the latter, by creating a social incentive to agree with the experimenter, *normative influence*. Several experiments confirmed that both processes contribute to the effect of verbal conditioning, although they may not be necessary mediators.

To summarize, it is possible to influence people's attitudes about objects by establishing a close connection in space and time between (a) these objects and positive or negative stimuli (classical conditioning), or (b) between evaluative responses to the attitude object and reinforcements (operant conditioning). In everyday experience, we indeed consistently encounter many attitude objects in positive or negative contexts, satisfying the requirements for classical conditioning. Similarly, many evaluative responses to objects are likely to be rewarded or punished, and the formation of attitudes that maximize rewards and minimize punishments would be highly functional (see Shavitt, 1989, for a review of the functions of attitudes).

Feelings and subjective experiences as sources of attitudes Whereas conditioning studies try to induce enduring attitude change by pairing the attitude object with pleasant or unpleasant contexts or consequences, other research demonstrated that hedonic experiences may influence attitudes through other mechanisms. For example, one economic strategy of making an evaluative judgment is to rely on the *feelings* that are apparently elicited by the attitude object. After all, things we like tend to evoke positive feelings, and things we dislike evoke negative feelings, so why not use our affective responses as a shortcut to an

evaluative judgment? Unfortunately, however, it is difficult to distinguish between feelings elicited by the attitude object and feelings one happens to experience at the time of judgment, but for irrelevant reasons. Hence, when we ask ourselves, "How do I feel about this?" we may misread our pre-existing feelings as a response to the attitude object. Consistent with this notion, numerous studies demonstrated that individuals report more positive attitudes towards a wide variety of objects when they are in a happy rather than sad mood, unless they are aware that their mood is due to a source unrelated to the attitude object (for reviews see Schwarz, 1990; Bless, chapter 18, this volume). Such influences, however, are likely to be temporary and vanish as the mood dissipates.

Another subjective experience that individuals may draw on in forming an attitude judgment is the ease or difficulty with which relevant information can be brought to mind. For example, arguments that are easy to generate or process are perceived as more valid, and elicit more attitude change, than arguments that are difficult to generate or process (e.g. Wänke, Bless, & Biller, 1996; Wänke, Bohner, & Jurkowitsch, 1997). Bless (chapter 18, this volume) discusses the role of feelings and subjective experiences in information processing.

Heuristic processing Consulting one's feelings as a basis of attitude judgments ("How do I feel about this?"; Schwarz, 1990) can be conceptualized as an example of heuristic processing. While this heuristic makes use of internal cues, persuasion researchers have mostly focused on heuristics that pertain to external cues (see Eagly & Chaiken, 1993, for a review). Examples for such persuasion cues are *expertise*, *likability*, and *consensus*. Thus, people may use the heuristic rules "Experts' statements are valid," "I agree with people I like," or "The majority is usually right," which leads them to agree with experts, likable people, and majorities more than with nonexperts, dislikable people, and minorities. To do so, they must (a) perceive a relevant heuristic cue and (b) have an applicable heuristic accessible in memory. As with conditioning and the use of feelings as information, individuals need not necessarily be aware that they are applying a heuristic in arriving at an attitude judgment. Heuristics are especially influential in situations where an individual has little motivation or ability to engage in more extensive forms of processing. Their use is guided by the "principle of least cognitive effort" (Allport, 1954; see Bohner, Moskowitz, & Chaiken, 1995).

Persuasion through effortful processing

Note that none of the preceding processes involved any detailed attention to the persuasive message or the nature of the attitude object. In contrast, other lines of research have focused on recipients' thoughts about what is being said by whom and why.

Processing of message content and persuasion The importance of effortful processing of message content was first emphasized by Hovland and his colleagues in their message-learning approach to persuasion (Hovland, Janis, & Kelley, 1953). This approach does not represent a unitary theory; rather, it can be understood as an eclectic set of working assumptions. Its proponents assumed that attitude change is mediated by the learning and

recall of message content, which would be facilitated by incentives to adopt the position advocated. Their research focused on various elements of the persuasion setting that would affect message learning.

The classes of independent variables examined were the message source (e.g. its expertise or trustworthiness), the message (e.g. its length and structure), recipient characteristics (e.g. self-esteem, intelligence), and the channel of the communication (e.g. written versus spoken). Internal mediating processes that were studied include *attention* to the message, *comprehension* of its content, *rehearsal* of arguments, and *yielding* to the message position. The dependent variables assessed were changes in beliefs, attitudes, and behavior.

By structuring the persuasion process in such a way, and by examining a host of interesting phenomena, the message-learning approach had a profound impact on later generations of persuasion research (for an overview of findings, see Petty & Cacioppo, 1981, ch. 3). However, due to its lack of a unifying theory, this approach accumulated ad hoc explanations for a variety of effects, which were often contradictory and could not be meaningfully integrated.

A major tenet of the message-learning approach, which was formalized in sequential persuasion models by McGuire (1969, 1985), was that the *reception* (= attention and comprehension) of a message would mediate persuasion. As reception was assumed to be reflected in the recall of message content, high correlations of message recall and attitude change should be the rule. Empirically, however, memory for message content turned out to be a poor predictor of persuasion (see Eagly & Chaiken, 1993, for an overview). Accordingly, researchers' attention turned to other cognitive mediators of attitude change, which emphasized not the passive reception but the active transformation, elaboration, and generation of arguments.

Active thought Research into the role of active thought includes the study of role-playing as a persuasion technique (e.g. King & Janis, 1956), McGuire's work on the effects of forewarning (McGuire & Papageorgis, 1962), and the study of "mere thought" (Tesser, 1978).

King & Janis (1956) showed that participants who actively improvised a speech based on arguments they had previously read showed greater attitude change than others who merely read externally generated arguments into a tape recorder or silently to themselves. McGuire & Papageorgis (1962) proposed that forewarning recipients of the persuasive intent of a message might help them resist persuasion by stimulating the generation of counterarguments. Various studies have supported this hypothesis. They have also shown that forewarning is only effective if there is a time delay between warning and message, which enables recipients to actively generate counterarguments (for a review see Eagly & Chaiken, 1993).

Finally, work by Tesser (1978) revealed that even in the absence of a persuasive message, *mere thought* about an attitude object can lead to more extreme attitudes. This occurs because people have "naive theories" or schemata which make some attributes of an object more salient and facilitate inferences regarding related attributes. As a result of these directive influences, mere thought about the object increases the extremity of initially moderate attitudes. For example, Sadler & Tesser (1973) introduced research participants to a likable or dislikable "partner" (in fact, a tape recording). Then some participants were asked

to think about their partner, while others performed a distraction task. Subsequently, all participants rated their partner on various scales and wrote down their thoughts about him. Compared to distracted participants, nondistracted participants evaluated the likable partner more favorably and listed more positive thoughts about him, but rated the dislikable partner more negatively and listed more negative thoughts about him.

The cognitive response approach The accumulating evidence for the importance of active thought processes in attitude formation and change led to the formulation of the cognitive response approach to persuasion (Greenwald, 1968; Petty, Ostrom, & Brock, 1981). Its assumptions may be summarized as follows:

- 1 Individuals who are exposed to a persuasive message actively relate the content of this message to their issue-relevant knowledge and pre-existing attitude toward the message topic, thereby generating new thoughts or *cognitive responses*.
- 2 Attitude change is mediated by these cognitive responses.
- 3 The extent and direction of attitude change are a function of the valence of the cognitive responses in relation to the message's content and position. In this sense, cognitive responses can be (a) favorable, (b) unfavorable, or (c) neutral.
- 4 The greater the proportion of favorable responses and the smaller the proportion of unfavorable responses evoked by a message, the greater the attitude change in the direction advocated by the message.

The cognitive response approach, then, focuses on effortful, systematic processing, guided by the "naive scientist" metaphor of human information processing. To assess the mediational role of cognitive responses in persuasion, a new methodology was introduced, the *thought-listing technique*. Research participants are asked to list, within a given time, any thoughts that have come to mind while they read or heard a persuasive message. These thoughts are later content-analyzed and categorized according to their favorability (or other criteria; see Petty & Cacioppo, 1986a, pp. 38–40). To predict a variable's impact on persuasion, it is crucial to know how this variable affects recipients' cognitive responses to the message. Any factor that increases the likelihood of counterarguing (e.g. forewarning) should decrease persuasion, whereas any factor that increases the likelihood of favorable responses should increase persuasion. Furthermore, if a person's dominant cognitive responses to a message can be expected to be favorable (e.g. a political party member listening to a speech of the party leader), then any factor reducing the overall amount of processing should decrease persuasion, and the opposite should hold if a person's responses can be expected to be unfavorable. These assumptions have been incorporated and further developed in contemporary dual-process models of persuasion, and we address relevant findings in the next section.

Dual-process models of persuasion

As our selective review indicates, attitude change may occur through a variety of different processes, raising the question which one is likely to come to bear under which conditions?

Dual-process models of persuasion attempt to answer this question and have dominated persuasion research since the early 1980s (see the contributions in Chaiken & Trope (1999) for examples and reviews). The two most influential models are the elaboration likelihood model (ELM) proposed by Petty & Cacioppo (1986a, 1986b) and the heuristic–systematic model (HSM) proposed by Chaiken and colleagues (e.g. Bohnert, Moskowitz, & Chaiken, 1995; Chen & Chaiken, 1999; Eagly & Chaiken, 1993). Both models incorporate the assumptions of the cognitive response approach about active, effortful processing, but also include persuasion effects based on effortless processing. They distinguish two prototypical modes of persuasion that form the high and low ends of a continuum of processing effort.

The elaboration likelihood model In the ELM, these modes are called the *central route*, in which persuasion is mediated by effortful scrutiny of message arguments and other relevant information, and the *peripheral route*, which features the influence of peripheral cues and includes a variety of less effortful mechanisms such as conditioning, social identification, or the use of heuristics. Although these two routes have been presented as antagonistic in their impact on persuasion outcomes in early renditions of the ELM (e.g. Petty & Cacioppo, 1986a, 1986b), more recent discussions stressed that the assumed tradeoff between central and peripheral processing does not preclude a co-occurrence of both types of processes (e.g. Petty & Wegener, 1998). Which set of processes comes to bear depends on a recipient's *motivation* and *ability* to process a given message, which determines the message's "elaboration likelihood." Because people have limited time and resources, they cannot elaborate the details of every persuasive message they encounter – thus, peripheral-route processes are typically considered the default. As motivation and ability increase, however, central route processing of the message arguments becomes more likely.

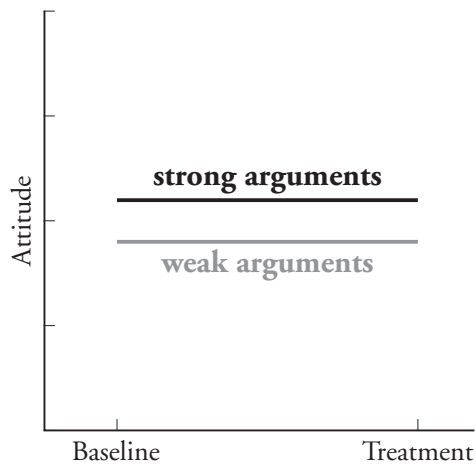
To explore the relative impact of these different processes, researchers vary the presence of peripheral cues (like the expertise or likableness of the source) and the strength of the message arguments. When motivation or ability are low, recipients are likely to rely on peripheral cues and are more persuaded by a source of high rather than low expertise, for example. When motivation or ability are high, however, recipients elaborate on the content of the message and are persuaded by messages that elicit agreeing thoughts (referred to as positive cognitive responses), but not by messages that elicit mostly disagreeing thoughts (see Petty & Cacioppo (1986a, 1986b) for a review of relevant studies).

The systematic variation of argument quality plays an important methodological role in persuasion research. Specifically, it allows researchers to infer the role of a variable in the persuasion process from the result pattern it produces (Petty & Cacioppo, 1986a, 1986b). Research using this methodology demonstrated that the same variable may influence persuasion in different ways under different conditions, as an example may illustrate.

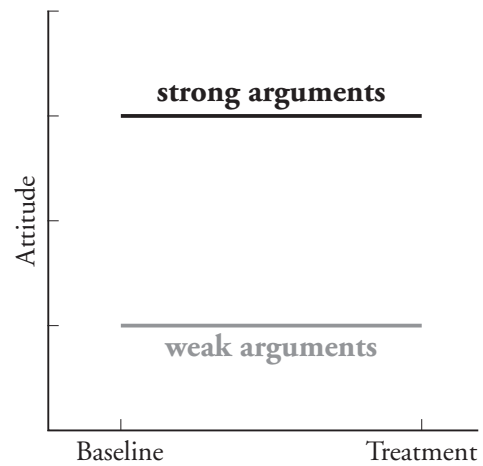
Figure 1 shows different possible patterns that may result from a treatment variable and we illustrate the use of this pattern by drawing on research into the role of distraction in the persuasion process. Early studies in the tradition of consistency theories and the message learning approach had shown that distracting recipients while they are exposed to counter-attitudinal messages *increased* persuasion, at least under certain conditions (for a review, see Petty & Brock, 1981). This effect would be in line with dissonance theory (Festinger, 1957): as the effort of listening to a message increases under distraction, recipients may justify this

(1) No effect

(a) Low elaboration

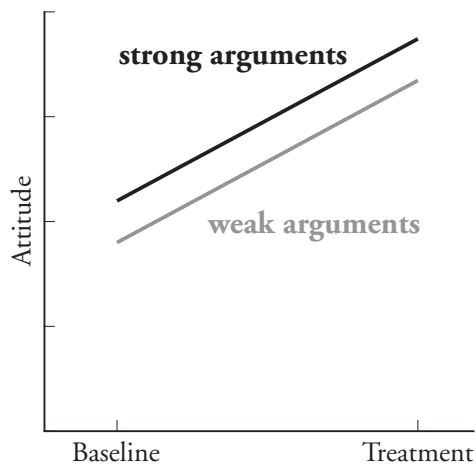


(b) High elaboration



(2) Peripheral cue effect

(a) Positive



(b) Negative

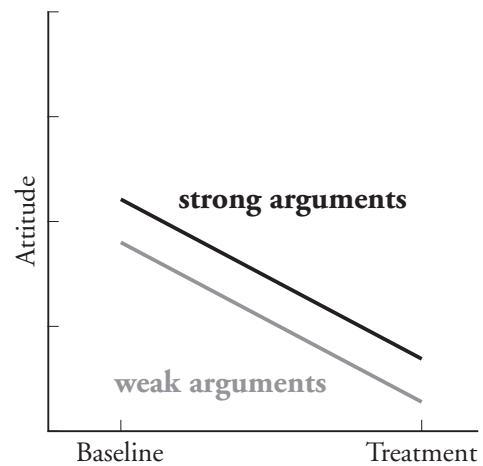
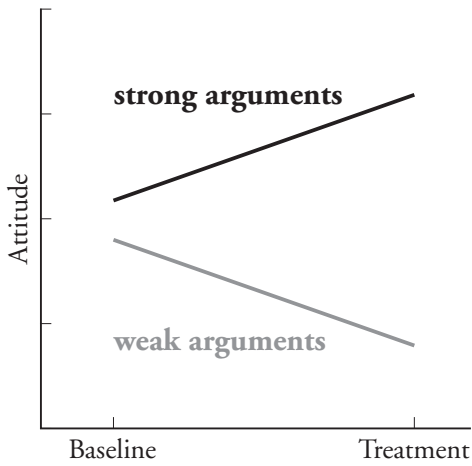


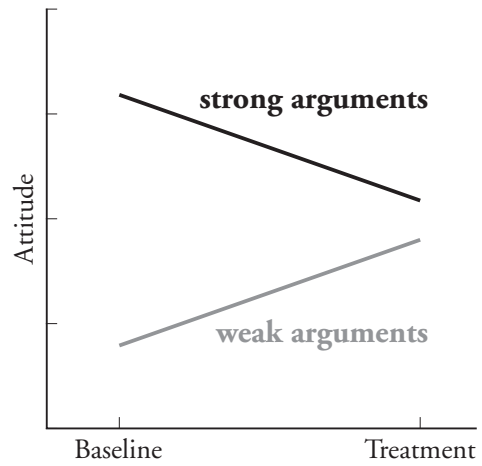
Figure 1 (*above and opposite*) Possible effects of a treatment variable in the ELM (adapted from Petty & Cacioppo, 1986a, figure 2–3, p. 34).

(3) Objective elaboration

(a) Enhance

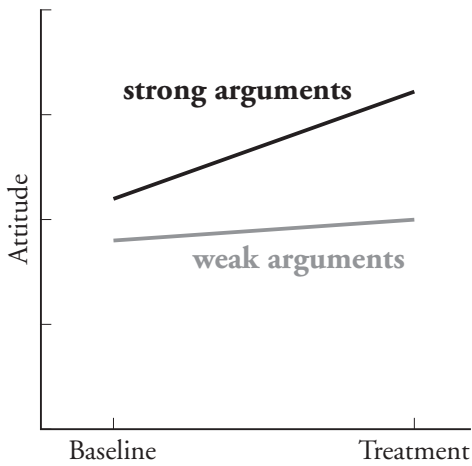


(b) Reduce

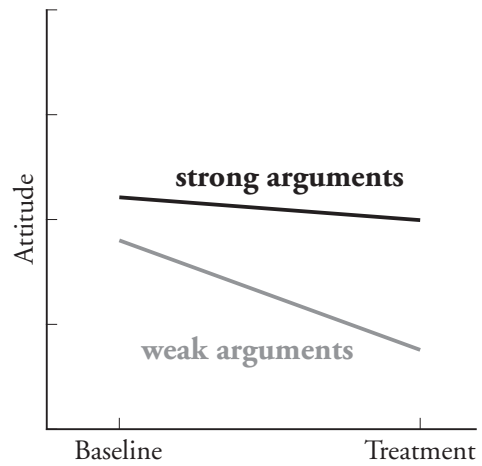


(4) Biased elaboration

(a) Positive



(b) Negative



extra effort by changing their attitude in the direction advocated. The effect would also be in line with the cognitive-response approach: the dominant response to an attitude-discrepant message would be counterarguing, and if this process is disrupted, resistance to persuasion is weakened. To disentangle these competing mediational assumptions, Petty, Wells, & Brock (1976) independently varied the level of distraction and argument quality. They reasoned that strong messages would be difficult to counterargue to begin with and thus, according to the CRA, distraction should not enhance persuasion for these messages. The effort justification hypothesis would, however, still predict greater persuasion under high distraction (= high effort) than low distraction (= low effort).

The cognitive-response interpretation both accounted for existing findings and was experimentally supported. Participants in the high-distraction condition agreed less with the message than those in the low-distraction condition when arguments were strong, but agreed more when arguments were weak; the favorability of their cognitive responses showed a parallel pattern (Petty, Wells, & Brock, 1976).

As this example illustrates, the ELM provides a useful framework for re-addressing topics in persuasion that had produced seemingly inconsistent findings. Similar interactions with argument quality have been observed for other variables that affect processing via either motivation or ability, such as message repetition, personal relevance, accountability, mood, and number of message sources (for an overview, see Petty & Wegener, 1998). An individual difference variable affecting the degree of elaboration, which was conceptualized and studied mainly in the context of the ELM, is the need for cognition (NFC; for a review see Cacioppo, Petty, Feinstein, & Jarvis, 1996). Individuals high in NFC enjoy and tend to engage in effortful thinking across situations and topics, whereas individuals low in NFC are generally unmotivated to expend much cognitive effort, unless forced to do so under situational pressure. Generally, high-NFC (as opposed to low-NFC) individuals have been found to show more central route processing of persuasive messages, but to be less susceptible to the impact of peripheral cues.

Variations in motivation and capacity may not only enhance or reduce the general amount of thinking (i.e. objective elaboration) as in the examples discussed; according to the ELM's biased elaboration postulate, variables may also introduce a positive or negative bias in central route processing. This has been shown for *prior knowledge*, which often enhances the ability to elaborate knowledge-consistent information, and for *forewarning*, which may motivate recipients to counterargue a message. In the absence of external biasing influences, however, people may show a default bias toward favorable elaboration (see Petty & Wegener, 1998, for a review).

In sum, the ELM provides a comprehensive framework of persuasion processes that can accommodate the effects of a wide range of variables and their interactions. It has been criticized, however, for its lack of predictive power (e.g. Eagly & Chaiken, 1993). Specifically, it is difficult to assess the level of elaboration likelihood independent of its effects (see figure 1), and it is often difficult to predict *a priori* in which of the multiple roles featured in the ELM a variable will serve. Furthermore, although Petty and his colleagues acknowledge that central and peripheral processes may co-occur (Petty & Wegener, 1998), they do not specify the mechanisms and conditions of their interplay. Both of these issues have been addressed more directly in the other current dual-processing framework of persuasion, the heuristic-systematic model.

The heuristic-systematic model The heuristic-systematic model (HSM) of persuasion also features two modes of processing: an effortless, top-down *heuristic* mode and an effortful, bottom-up *systematic* mode (Bohner, Moskowitz, & Chaiken, 1995; Chaiken, Liberman, & Eagly, 1989; Chen & Chaiken, 1999). According to the HSM, message recipients strike a balance between effort minimization and achieving confidence in their social judgments. The model emphasizes three broad motivational forces: *accuracy*, *defense*, and *impression* motivation. Heuristic and systematic processing can serve either of the three motives and are capable of co-occurring in an additive or interactive fashion under specified conditions.

The main similarities to the ELM lie in the HSM's concept of a processing continuum and the idea that processing effort is a function of motivation and cognitive capacity. *Systematic processing* is defined in a similar way as central route processing as a "comprehensive, analytic orientation in which perceivers access and scrutinize all informational input for its relevance and importance to their judgment task, and integrate all useful information in forming their judgments" (Chaiken, Liberman, & Eagly, 1989, p. 212). *Heuristic processing* is defined more narrowly and more specifically than the ELM's peripheral route. It entails the application of heuristics, simple rules of inference like "consensus implies correctness" or "experts' statements are valid." Although heuristic processing is thought to be a relatively effortless, default mode of processing, its occurrence does require the presence of a heuristic cue (e.g. a likable or expert source) which signals the applicability of a heuristic that is accessible in a recipient's memory.

Generally, systematic processing requires higher motivation and capacity than heuristic processing. However, the HSM's processing continuum features a restrictive and a less restrictive pole. Whereas heuristic processing predominates at low levels of this continuum, the use of more effortful strategies at higher levels does not preclude the continued operation of heuristics. At high levels of motivation and ability, both processing modes affect persuasion either independently or in an interactive fashion. The type and conditions of such interplay of processing modes are specified in four *co-occurrence hypotheses* (Bohner, Moskowitz, & Chaiken, 1995).

The *additivity hypothesis* states that heuristic and systematic processing may exert independent main effects on attitude judgments. This should mainly be the case when the outcomes of each process do not contradict each other, e.g. when an expert source presents cogent arguments. Various studies support this hypothesis (see Bohner, Moskowitz, & Chaiken, 1995, for a review). However, because systematic processing often provides the individual with more, and subjectively more relevant, information any additional effects of heuristic processing may be suppressed. This *attenuation hypothesis* also received ample support (e.g. Chaiken & Maheswaran, 1994; see Bohner, Moskowitz, & Chaiken, 1995).

A third form of interplay between the two processing modes is featured in the HSM's *bias hypothesis*. If message content is ambiguous or mixed (e.g. both strong and weak arguments), initial heuristic-based inferences may guide the interpretation of the message, leading to cognitive responses and attitudes that are assimilated to the valence of a heuristic cue. This has been demonstrated by Chaiken & Maheswaran (1994), who varied message ambiguity and source credibility. As expected, participants with high motivation and ability who received an ambiguous message assimilated cognitive responses and attitude judgments toward the credibility cue. This was not the case, however, when the message was

unambiguously strong or weak, in which case only a main effect of argument strength emerged, consistent with the attenuation hypothesis.

Finally, the mirror image of assimilative bias is expressed in the HSM's *contrast hypothesis*. If initial heuristic-based expectancies about a message are blatantly violated, systematic evaluation of the arguments may lead to contrasting interpretations. Thus, positive expectancies that are violated lead to more negative cognitive responses and attitudes, whereas negative expectancies that are disconfirmed may induce a favorable processing bias. In line with this assumption, Bohner & Ruder (1998) observed that recipients expect that experts offer strong arguments, whereas nonexperts offer weak arguments. When message content obviously contradicted these expectations, a bias opposite in valence to the expectation was introduced. For example, a message ascribed to a renowned expert that contained weak arguments led to less positive cognitive responses and attitudes than the same message ascribed to a nonexpert – a contrast effect. In the case of ambiguous arguments, however, participants' expertise-based expectations led to biased assimilation of cognitive responses and attitude judgments.

More explicitly than the ELM, the HSM specifies external criteria of processing motivation. The model's *sufficiency principle* states that people strive for sufficient confidence in their attitude judgments. What is sufficient is determined by two constructs, the sufficiency threshold (ST) or desired confidence, and the actual confidence (AC). Both of these concepts vary between persons and situations. The ST may be raised under high task importance, personal relevance, accountability and so forth, whereas the AC may be decreased by a discrepancy in the valence of heuristic cues and content information (Maheswaran & Chaiken, 1991). The HSM assumes that whenever actual confidence is lower than the sufficiency threshold, the person will be motivated to process information, and that larger gaps are likely to require systematic processing, whereas smaller gaps may be closed by heuristic processing alone (see Eagly & Chaiken, 1993). Bohner, Rank, Reinhard, Einwiller, & Erb (1998) showed that a large ST–AC gap mediates effects of task importance on processing effort only if participants expect that they have the ability to close the gap by increased processing.

Finally, the HSM embraces the view of the social perceiver as a “motivated tactician” (see Fiske & Taylor, 1991) by emphasizing multiple motives that may guide information processing: *accuracy*, *defense*, and *impression* motivation. Thus, depending on both the situation and on individual differences, people may seek to hold attitudes that are a correct reflection of reality, but they may also strive to defend important values and self-defining beliefs, or try to adopt attitudes that are functional in making a good impression and “getting along” well with others. These qualitative differences in motivation are thought to be orthogonal to the more quantitative sufficiency principle. Thus, an individual may feel more or less confident with respect to any of the processing goals implied by the multiple-motive view.

Conclusions To summarize, dual-process models have had a tremendous impact on the field of persuasion. The ELM provides the more comprehensive framework, incorporating effortful processing as well as a variety of low-effort processes, allowing distinctions between these processes and the various “roles” a persuasion variable may play on an empirical basis. The HSM is more confined in its conceptualization of low-effort processing, but

at the same time includes more specific assumptions about motivational processes and the interplay of its two processing modes. Both models fared well in empirical tests and helped to spur renewed interest in persuasion processes.

Recently, however, dual-process approaches have been challenged by the proposal of a “unimodel” alternative (Kruglanski & Thompson, 1999). Kruglanski and Thompson argue that the dual-process distinction focuses too much on *types of content* (message arguments versus cues) rather than truly different *processes*, and that persuasion can be reduced to a single process of syllogistic reasoning about persuasive “evidence.” Future research will have to show if this one-process alternative can replace the dual-process models and instigate new directions of persuasion research.

For many researchers, and all practitioners, persuasion research derives its interest value from the hope that changes in individuals’ attitudes will translate into changes in actual behavior. Next, we consider this tricky issue.

Attitudes as Predictors of Behavior

Research into the attitude–behavior relationship is devoted to explaining the conditions under which attitudes predict behavior. As discussed in more detail by Schwarz & Bohner (chapter 20, this volume), attitude researchers initially assumed that individuals’ attitudes guide their behavior toward the attitude object, resulting in a close relationship between these variables. Empirically, this hope has not been supported (see Wicker, 1969, for an early review) and by the early 1970s many researchers doubted that attitudes can be used to predict behavior. Subsequent research, however, suggests a more optimistic assessment and identified conditions under which a close relationship between attitudes and behavior can be observed.

Attitude–behavior correspondence

One reason for the failure to find strong attitude–behavior relations often lies in the lack of correspondence between the two measures. It is unlikely that one can predict with accuracy any *specific* behavior (e.g. “attending church next Sunday”) from a *global* measure of attitude (e.g. general religious attitudes). But this is exactly the approach that was taken in most early studies. According to Ajzen & Fishbein (1977), a close relation between attitude and behavior can be expected only if both measures agree in their degree of specification (*correspondence principle*). Reviewing attitude–behavior studies, these authors found that the reported correlations between attitude and behavior were indeed larger for studies in which the specification of both measures was similar (see also Kraus, 1995).

This correspondence principle was demonstrated directly by Davidson & Jaccard (1979), who predicted a specific behavior – women’s use of birth control pills over two years – from attitudinal measures that varied in specificity. Their results showed that the attitude–behavior correlation increased dramatically with increasing specificity of the attitude measure, from $r = .083$ when assessing attitudes toward “birth control” in general to $r = .572$ when

assessing attitudes toward “using birth control pills during the next two years.” Note, however, that increasing the prediction of specific behaviors involves a shift on the predictor side from attitudes toward *objects* to the more narrow concept of attitudes toward *behavior*.

As a complement to the strategy of maximizing specificity, Fishbein & Ajzen (1974) proposed that researchers should use *multiple acts* to optimize prediction from global measures of attitude. Just as specific measures of attitudes toward behavior predict specific behaviors, so do global measures of attitudes toward an object predict behaviors toward that object which are sampled and aggregated over a variety of contexts and points in time. Much as reliability increases with number of items in a scale, when aggregating across multiple behaviors any determinants of these behaviors other than the attitude in question tend to cancel each other out in the aggregate score. A compelling illustration of the aggregation principle was provided by Weigel & Newman (1976), who observed actual behavior in a field setting. These researchers assessed respondents’ general attitudes toward the environment with a 16-item scale. Later, respondents were given the opportunity to engage in various pro-environmental behaviors over several weeks (e.g. signing a petition against offshore oil drilling; participating in a waste-recycling program), and their participation was unobtrusively recorded. As expected, the general attitude measure was a poor predictor of any of the specific behaviors, yet it correlated with an *aggregated* behavioral measure at an impressive $r = .62$.

Other researchers extended the discussion of the correspondence between attitudes and behaviors from measurement issues to the correspondence of the information on which attitude judgments and behavioral decisions are made. We address this issue in more detail in chapter 20, this volume, on attitude construction.

Moderators of the attitude–behavior relationship

In recent years, various indicators of *attitude strength* have been proposed as moderators of the attitude–behavior relationship (see Petty & Krosnick, 1995). One general hypothesis guiding this approach is that strong attitudes are better predictors of behavior than weak attitudes. Below we discuss strength in terms of intra-attitudinal consistency, accessibility, and cognitive effort in attitude formation.

Intra-attitudinal consistency Attitudes have traditionally been considered to have a cognitive (beliefs), affective (feelings), and conative (behavior) component. From this perspective, the cognitive and affective components of a person’s attitude can vary in their degree of consistency with the attitude as an overall evaluation. For instance, a person may believe that many actions of a government have harmful consequences, yet evaluate the government positively on the whole. Work by Rosenberg (1968) showed that high evaluative–cognitive consistency (ECC) of an attitude is related to its temporal stability and resistance against persuasion attempts. This suggested the hypothesis that high-ECC attitudes may also be better predictors of behavior. Norman (1975) found support for this hypothesis when comparing attitude–behavior correlations between groups of high versus low ECC participants.

Accessibility Focusing on attitudes toward objects as predictors of behavior, Fazio (e.g. 1986, 1995) developed a theory that highlights the role of an attitude's *accessibility* as a moderator of attitude–behavior consistency. This development was originally inspired by work on the role of *direct experience* with the attitude object in predicting behavior. Regan & Fazio (1977) proposed that direct behavioral experience produces an attitude that is held with more clarity, confidence, and stability than an attitude formed through indirect information about the attitude object. These attributes should render experience based attitudes more accessible and should ultimately produce greater attitude–behavior consistency. These hypotheses were supported in numerous studies (for an overview see Fazio & Zanna, 1981). In a field study, for example, college students who had direct prior experience with a housing crisis showed greater attitude–behavior consistency in their attempts to alleviate the crisis than did students who held similar attitudes but had no direct experience (Regan & Fazio, 1977, Study 1).

The central process assumed to mediate this effect is the attitude's accessibility, operationally defined as the speed of attitude expression (Fazio, 1986). Conceptually, accessibility reflects the strength of association between the representation of the attitude object and an evaluation stored in memory. To guide behavior, this evaluation needs to be activated. Indeed, Fazio and colleagues have shown that attitudes based on behavioral experience are more accessible and that greater attitude accessibility goes along with greater attitude–behavior consistency. In addition to direct experience, *repeated expression* of an attitude has also been shown to increase its accessibility (see Fazio, 1986, 1995, for reviews).

Although it is plausible that attitude accessibility is an important mediator of attitudes' influence on behavior, it has been noted that both direct experience and repeated expression may bring about greater attitude–behavior consistency through other mediating processes (Eagly & Chaiken, 1998). Direct experience has been shown to increase the temporal stability of an attitude (Doll & Ajzen, 1992), and repeated expression of an attitude can increase both its extremity (Downing, Judd, & Brauer, 1992) and its importance (Roese & Olson, 1994). Further research is thus needed to disentangle the effects of accessibility from those of other aspects of attitude strength in mediating attitudes' impact on behavior.

Cognitive effort in attitude formation As discussed above, the way in which attitudes are formed is at the core of dual-process models of persuasion. High motivation and ability lead to the formation of attitudes via effortful processing of relevant detailed information, whereas either low motivation or low ability leads to lower processing effort and reliance on simple judgmental rules. Especially within the ELM, the different routes to attitude formation have been linked to different degrees of attitude–behavior consistency. Petty & Cacioppo (1986a, 1986b) postulated that attitudes which were formed via the central route are more predictive of behavior than attitudes formed via the peripheral route. Various research findings are compatible with this hypothesis by showing that the attitudes of individuals who processed under high-relevance conditions were more predictive of behavior than those of people who processed under low-relevance conditions (see Petty & Wegener, 1998).

Individual differences A number of personality variables have been linked to individual differences in attitude–behavior consistency. We can distinguish three broad mediating

processes by which these traits seem to operate. They may affect (a) *attitude strength*; (b) the *relative importance of attitude* as opposed to other determinants of behavior; and (c) the *consistency of behavior*.

We already discussed the role of need for cognition in persuasion. As individuals high in NFC tend to engage in greater processing effort, they should form stronger attitudes, which are highly persistent, resistant to change, and predictive of behavior. Consistent with this view, Cacioppo, Petty, Kao, & Rodriguez (1986) found that the attitudes toward US presidential candidates of students high in NFC were better predictors of voting behavior than the attitudes of low-NFC students.

Two personality traits that affect the relative importance of attitudes (versus other factors) in guiding behavior are self-monitoring and self-awareness. People low in self-monitoring, whose social behavior is generally more reflective of their internal states (Snyder, 1974), show higher attitude-behavior correlations than people high in self-monitoring. High self-monitors' behavior, on the other hand, is guided more by situational demands and others' expectations. Part of this difference might be due to the fact that low self-monitors prefer and seek out situations in which attitudes can be openly expressed and enacted (Snyder & Kendzierski, 1982). A closer attitude-behavior relation has also been found for persons high (as opposed to low) in self-awareness (e.g. Carver, 1975). Highly self-aware individuals are chronically more likely than people low in self-awareness to focus attention on their internal states, including their attitudes; thus, at any given point in time, attitudes are more likely to be accessed and used as a basis for behavioral decisions.

Attitudes and behavior: summary and a note on causality In sum, the correlation between attitude and behavior is strong to the extent that both measures correspond in specificity or aggregation, and that similar aspects, functions, and components of an attitude are salient at the time both attitude and behavior are measured. Furthermore, various indicators of attitude strength as well as personality variables have been identified as moderators of the attitude-behavior relation. It should be emphasized, however, that high correlations between attitude and behavior are not sufficient to infer that attitudes *cause* behavior. As discussed in more detail (chapter 20, this volume), one alternative is that behavior may influence attitudes, and another is that third variables, such as salient context-dependent beliefs, influence both attitude reports and behavior. To the extent that the context remains stable, this would result in higher attitude-behavior correlations without a direct causal link between the two constructs.

Expectancy-value models

In addressing the attitude-behavior relationship, it is important to keep in mind that attitudes are just one possible determinant of behavior. Recognizing the importance of other influential factors, a family of theories has been developed which placed attitudes in a network of predictor variables (e.g. Ajzen, 1991; Bentler & Speckart, 1979; Fishbein & Ajzen, 1975). These theories conceptualize attitudes as attitudes toward behavior; they are called *expectancy-value theories* because they define attitudes in terms of expectancy \times value products.

The initial formulation, Fishbein & Ajzen's (1975) theory of reasoned action (TRA), and its extension, the theory of planned behavior (Ajzen, 1991), the model was extended by one additional predictor: perceived behavioral control (see figure 2). According to these models, the proximal cause of behavior is the *behavioral intention*, a conscious decision to engage in a certain behavior. Any influences on behavior that the theory accounts for are assumed to be mediated by this construct. The two major determinants of intention are *attitude* and *subjective norm*. Attitude toward the behavior is defined as a sum of expectancy \times value products. Each of these products consists of the subjective probability (= expectancy) that the behavior has a certain consequence, multiplied by the value attached to this consequence. For example, a person may expect that by using the bus instead of driving she will certainly save money (a positive consequence with high likelihood) but may occasionally be late for work (a negative consequence with low likelihood). These two aspects combined would yield a moderately positive attitude toward using the bus.

The perceived social consequences of the behavior are treated separately, forming the construct of *subjective norm*. This second determinant of behavioral intention is also defined as a sum of products, each product consisting of the belief that a significant referent thinks one should perform the behavior, and the motivation to comply with this referent. For instance, a person may believe that his daughter thinks he should buy a sports car, but he may not be inclined to comply with his daughter; he may also believe that his wife would strongly disapprove of his buying the car, and he may be highly motivated to comply with his wife. If just these two referents are considered, the resulting subjective norm would be negative and would weaken the intention of buying the sports car.

Panel A

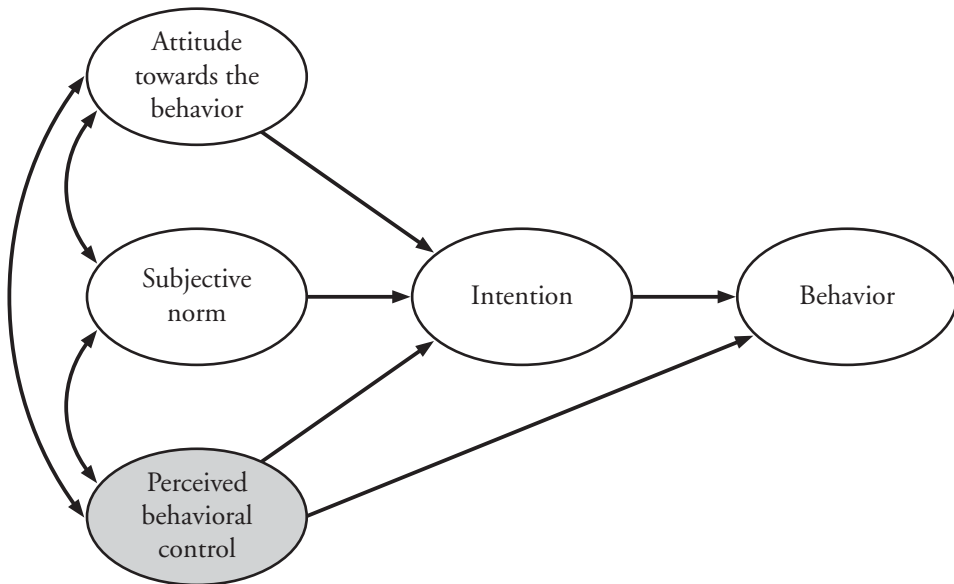
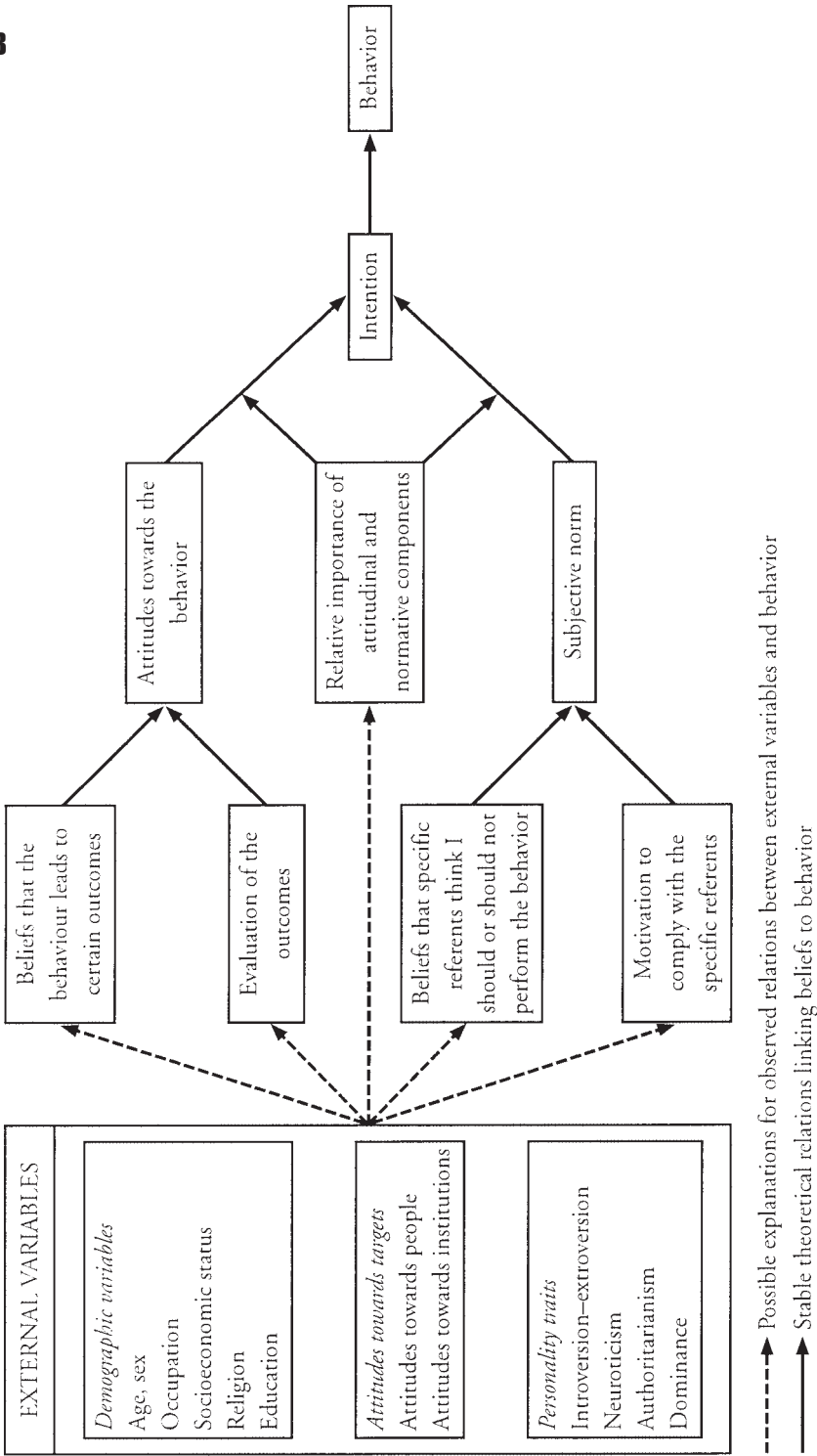


Figure 2 The theories of reasoned action (panel A adapted from Ajzen & Fishbein, 1980, figure 7.1, p. 84) and of planned behavior (panel B adapted from Ajzen, 1991).

Panel B



In the TRA, any other, more distal variables were considered “external” to the theory (see figure 2, panel A). In the TPB (Ajzen, 1991), the model was extended by one additional predictor: *perceived behavioral control* (see figure 2, panel B). This extension was assumed to improve prediction especially for behaviors over which a person does not have complete voluntary control, and complex behaviors that require extensive planning (e.g. climbing a mountain). Perceived behavioral control was conceptualized as the expected ease of actually performing the intended behavior (cf. the concept of *self-efficacy*; Bandura, 1977); it was hypothesized to influence behavior either indirectly, via the behavioral intention, or directly. For example, a person who thinks it will not be easy to climb a certain mountain may be less likely to form a behavioral intention of doing so; she may also, however, be less likely to succeed once she has formed the intention to act. Consistent with Ajzen’s reasoning, the inclusion of behavioral control provided better prediction of difficult behaviors (e.g. getting an “A” grade; Ajzen & Madden, 1986), but not of behaviors that can easily be performed (e.g. attending a meeting; Kelly & Breinlinger, 1995).

Other extensions of the TRA’s list of predictor variables have been proposed (for an overview, see Eagly & Chaiken, 1993). Most notably, some theorists pointed out that behavior can be influenced by previous behavior or habit, and that these influences are not necessarily mediated by attitudes, subjective norms, or intentions (e.g. Bentler & Speckart, 1979). A meta-analysis (Ouellette & Wood, 1998) indicates that past behavior significantly contributes to the prediction of future behavior along either of two pathways: well-practiced behaviors in stable contexts (e.g. seatbelt use) recur because the processing that controls them becomes automatic; frequency of prior behavior then reflects habit strength and *directly* affects future behavior. Behaviors that are less well learned or occur in unstable contexts tend to remain under the control of conscious processing; under these circumstances, past behavior may influence future behavior *indirectly via intentions*.

These findings relate to the more general criticism that both the TRA and the TPB are limited in scope to conscious and deliberate behaviors, whereas they do not predict well behavior that is not consciously intended and not based on utilitarian deliberation (e.g. Fazio, 1986). Ajzen & Fishbein (1980) disputed this criticism by emphasizing that their model leaves room for the possibility that a behavioral intention has once been formed in the past, and that people may retrieve this previously formed intention rather than deliberating anew each time they engage in the behavior in question. Fazio (1990), however, delineated the conditions under which *attitudes toward targets* can activate behavior immediately and automatically. In his MODE model (“motivation and opportunity as determinants”), motivation and opportunity to deliberate moderate the processes through which behavior is controlled (cf. the dual-process models of persuasion discussed above). When an individual lacks motivation or opportunity to form a deliberate decision about performing a behavior, highly accessible attitudes about the target can automatically guide behavior by affecting the perception of the situation. Although the assumption that only highly accessible attitudes can be automatically activated is controversial (cf. Bargh, Chaiken, Gollwitzer, & Pratto, 1992), Fazio’s position is generally consistent with accumulating evidence showing that social behavior may largely be subject to unconscious influences (e.g. Bargh, 1996).

In sum, expectancy-value theories have used a narrow definition of *attitude toward behavior* and have relegated the attitude concept to the background as one among many predictors

of behavior. Through this increased specification they achieved considerable predictive power, especially in applied areas in which deliberate behaviors are studied (for reviews, see Ajzen, 1991; Eagly & Chaiken, 1993). Conversely, in Fazio's (1990) MODE model, the broad concept of *attitude toward a target* (in the sense of a summary evaluation) is back at center stage when it comes to predicting behavior under circumstances of low motivation or lack of opportunity to deliberate.

Concluding Remarks

As our selective review indicates, social psychologists have made considerable progress in understanding the dynamics of attitude change and the complexities of the attitude-behavior relationship. Moreover, the development of detailed process models has linked research in the attitude domain to broader issues of judgment and cognition, resulting in considerable cross-fertilization (see the contributions in Chaiken & Trope, 1999, for examples). One of the more controversial issues emerging from this development is whether we should think of attitudes as relatively enduring dispositions or as judgments that are constructed on the spot, based on whatever information happens to be accessible at that point in time. We address this issue in chapter 20, this volume.

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