

# ATTITUDES AND ATTITUDE CHANGE

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## ABSTRACT

We review empirical and conceptual developments over the past four years (1992–1995) on attitudes and persuasion. A voluminous amount of material was produced concerning attitude structure, attitude change, and the consequences of holding attitudes. In the structure area, particular attention is paid to work on attitude accessibility, ambivalence, and the affective versus cognitive bases of attitudes. In persuasion, our review examines research that has focused on high effort cognitive processes (central route), low effort processes (peripheral route), and the multiple roles by which variables can have an impact on attitudes. Special emphasis is given to work on cognitive dissonance and other biases in message processing, and on the multiple processes by which mood influences evaluations. Work on the consequences of attitudes focuses on the impact of attitudes on behavior and social judgments.

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## CONTENTS

INTRODUCTION.....	610
ATTITUDE BASES AND STRUCTURE.....	611
<i>Structural and Functional Bases of Attitudes</i> .....	611
<i>Individual Differences as a Basis of Attitudes</i> .....	615

ATTITUDE CHANGE.....	615
<i>High-Elaboration Processes: Focus on Biased Information Processing</i> .....	616
<i>Peripheral Processes</i> .....	622
<i>Multiple Roles for Persuasion Variables: Focus on Effects of Mood on Persuasion</i> .....	624
<i>Continuing Research on Persuasion Variables</i> .....	626
CONSEQUENCES OF ATTITUDES .....	634
<i>The Impact of Attitudes on Behavior</i> .....	634
<i>The Impact of Attitudes on Information Processing and Social Judgments</i> .....	636
CONCLUSIONS .....	637

## INTRODUCTION

Because of the sheer amount of published research from 1992 to 1995, Allport's (1935) statement that "attitude" is the single most indispensable construct in social psychology may again be true. In addition, a plethora of new books (e.g. Eagly & Chaiken 1993, Perloff 1993, Petty & Krosnick 1995, Shavitt & Brock 1994, Stiff 1994) provided further testament to the vitality of the field.

Because of space limitations, many interesting applications of attitude change theory, especially in the areas of counseling and consumer psychology (e.g. Heesacker et al 1995), cannot be included in this review. We note that interest in attitude measurement remains strong. In recent years, a small cottage industry has developed around studying the best ways to ask questions in attitude surveys (e.g. Schwarz & Sudman 1996, Tanur 1992). Notable developments in attitude measurement included Roese & Jamieson's (1993) review of 20 years of research on the bogus pipeline procedure, and continuing work to develop an actual pipeline for assessing controversial attitudes. For example, Fazio et al (1995) developed an unobtrusive measure of racial prejudice based on the automatic attitude activation effect (Fazio et al 1986). Cacioppo et al (1994) developed a procedure in which the amplitude of late positive brain potentials is used to detect the extent of evaluative consistency between a target and prior stimuli. These late positive potentials were present regardless of the accuracy of participants' attitude reports (Crites et al 1995).

Two interesting new research areas emerged. One is the dynamical systems approach to attitudes (e.g. Eiser 1994). For example, Latané & Nowak (1994) derived from catastrophe theory the notion that attitudes should become more categorical with increases in involvement (see also Sherif & Sherif 1967). Another addressed implicit theories of persuasion. One study, for instance, found that although people have beliefs consistent with classical conditioning theory, they do not show a general belief in cognitive dissonance effects (Snell et al 1995). Although there was some past work on this topic (e.g. Rule & Bisanz 1987), there now appears to be a critical mass of researchers interested in this issue (e.g. Broniarczyk & Alba 1994, Friestad & Wright 1994, Kover 1995, Trafimow & Davis 1993).

Of course, most of the work during our review period continued themes that were dominant in earlier periods, falling into three traditional areas: the structure and bases of attitudes, attitude change, and the consequences of attitudes.

## ATTITUDE BASES AND STRUCTURE

Attitudes have been defined in a variety of ways, but at the core is the notion of evaluation. Thus, attitudes are commonly viewed as summary evaluations of objects (e.g. oneself, other people, issues, etc) along a dimension ranging from positive to negative (e.g. Petty et al 1994). One traditional theme in attitude research is the investigation of the underlying bases and structure of these evaluations. Much work on the bases and structure of attitudes was carried out under the label of *attitude strength* because differences in the underlying structure of attitudes is thought to produce differences in strength. A recent edited book (Petty & Krosnick 1995) contains reviews of the many variables thought to make attitudes strong (i.e. persist over time, resist counterpersuasion, and have an impact on judgments and behavior) (Krosnick & Petty 1995).

### *Structural and Functional Bases of Attitudes*

**ACCESSIBILITY** Research suggests that the strength of object-evaluation associations (i.e. the accessibility of attitudes) has important implications for understanding the functioning of attitudes (for a review, see Fazio 1995). One recent controversy has centered around the automatic attitude activation effect. Fazio et al (1986) argued that attitudes can sometimes be automatically activated from memory upon merely encountering an attitude object. They found that the strength of this effect increased as the accessibility of people's attitudes toward the attitude-object increased. Bargh et al (1992) challenged this conceptualization. First, they presented evidence that automatic activation of attitudes occurred for relatively inaccessible attitudes. Second, contrary to the model proposed by Fazio et al, they reported results suggesting that normative accessibility (i.e. differences across objects) rather than idiosyncratic accessibility (i.e. differences across individuals) determined the strength of the automatic activation effect. However, Fazio (1993, 1995) noted that although Bargh et al (1992) obtained consistent evidence for automatic activation even at low levels of accessibility, whereas his original studies did not, the strength of the automatic activation effect in Bargh et al (1992) was still moderated by attitude accessibility. Fazio (1993, 1995) also criticized evidence supporting the superiority of normative measures of accessibility by arguing that these analyses failed to adequately control for individual differences in baseline speed of responding. He noted that reanalyses of the Bargh et al (1992) data found that idiosyncratic measures of accessibility were superior to normative measures when stronger controls for individual differences in baseline responding were

included. More recently, Chaiken & Bargh (1993) have suggested that although accessibility moderates automatic activation using Fazio's traditional paradigm, it does not do so under certain procedural conditions or when the task is made nonevaluative (Bargh et al 1996). Thus, accessibility moderates automatic activation in Fazio's traditional paradigm, but perhaps not in other paradigms. Future research must clarify the psychological mechanisms responsible for regulating when accessibility does or does not moderate the automatic activation of attitudes.

Another relevant topic concerns the use of repeated attitude expressions as a manipulation of the strength of the object-evaluation association. Manipulating how often a person expresses his or her attitude has generally been thought to influence the accessibility of the attitude without changing other properties of the attitude (e.g. Powell & Fazio 1984). However, Judd and colleagues found that repeated expression manipulations also influenced the extremity of attitudes (Brauer et al 1995, Downing et al 1992; see also Judd & Brauer 1995). This effect was also obtained for nonevaluative judgments (Downing et al 1992; cf Mandler et al 1987). However, the exact mechanisms underlying these effects and their generality remain a matter of considerable speculation (Fazio 1995, Judd & Brauer 1995).

Research also examined the conditions under which repeated expression leads to enhanced attitude accessibility. Breckler & Fried (1993) investigated the moderating role of object representation. They found that responses were faster when preceded by previous ratings of objects in the same representational format (i.e. odor-odor or verbal label of the odor-verbal label of the odor) but not when preceded by previous ratings in a different representational format (i.e. odor-verbal label or verbal label-odor). In addition, Maio & Olson (1995a) found that both truthful and untruthful repeated attitude expression led to enhanced attitude accessibility as long as the untruthful responses required subjects to consciously recall their true attitude.

Although the importance of an attitude issue is determined largely by its perceived self-relevance (Boninger et al 1995a, Petty et al 1992), evidence that the importance of an attitude increases as the mere number of times a person expresses an attitude increases was obtained by Roese & Olson (1994). Mediation analyses suggested that the impact of repeated expression on importance was mediated by its influence on the accessibility of the attitude. Roese & Olson suggested that the association between accessibility and importance might occur because people use ease of retrieval as a cue for inferring importance.

**AMBIVALENCE** Another structural property of attitudes that has been the focus of recent attention is the extent to which attitudes are ambivalent (i.e. based on evaluatively inconsistent information). An interesting development in this lit-

erature is Cacioppo & Berntson's (1994) Bivariate Evaluative Space Model. Cacioppo & Berntson suggested that researchers have often assumed that positive and negative evaluative reactions are reciprocally activated (i.e. increases in one will be associated with decreases in the other), but that findings from research literatures as diverse as attitude research and animal learning suggest this assumption is often not tenable. Although explicit adoption of this assumption in the attitude literature may be rare, it is possible that some researchers improperly interpreted the ubiquitous negative correlation between positive and negative evaluative responses as implying reciprocal activation. Cacioppo & Berntson argued that the relation between positive and negative responses should be viewed as a bivariate evaluative plane in which reciprocal or coactive activation can occur. They noted the inability of traditional bipolar attitude scales to fully differentiate among these possibilities and suggested that future research use separate measures of the positive and negative bases of attitudes (perhaps in addition to the traditional bipolar assessment of attitudes; see also Kaplan 1972, Thompson et al 1995).

It is important to recognize that any measure of attitudes, be it bipolar or otherwise, will fail to capture fully the multitude of potentially important differences in the structure and bases of attitudes. Even measures that assess positivity and negativity separately will be unable to distinguish among attitudes that differ in other meaningful ways (e.g. accessibility, affective/cognitive bases, etc). Thus, although there are benefits of examining the positive and negative bases of attitudes, it is unclear whether failure to do so should be considered a fundamental measurement flaw any more than failure to assess other bases and structural properties of attitudes.

Other ambivalence research focused on a variety of empirical issues. Some research examined the validity of different formulas for combining positive and negative responses to arrive at an overall index of attitudinal ambivalence (Breckler 1994, Thompson et al 1995). Thompson & Zanna (1995) examined the role of personality dispositions (i.e. need for cognition, personal fear of invalidity) and domain-specific factors (i.e. issue involvement) as antecedents of ambivalence. Leippe & Eisenstadt (1994) found that compliance with a counterattitudinal request in a dissonance paradigm increased as attitudinal ambivalence increased. Finally, Vallacher et al (1994) used a measure that assessed moment-to-moment shifts in evaluation to demonstrate that increased ambivalence was associated with lower attitude stability.

**AFFECTIVE/COGNITIVE BASES OF ATTITUDES** Conceptualizing attitudes as having affective (emotional) and cognitive (belief) bases has been one of the most popular means of classifying the different types of information upon which attitudes are based. One theme that has emerged recently is an increased concern with appropriate measurement of attitude-relevant affect and cognition. Eagly

et al (1994) criticized past research for relying on close-ended measures of affect and cognition (e.g. rating scales, checklists), which they suggested suffered from methodological limitations. To correct these problems, Eagly et al (1994) used open-ended measures in which participants were asked to list their emotions and beliefs separately and found that these measures of affect and cognition often contributed unique explanatory power to the prediction of attitudes. Unfortunately, no empirical comparisons were made between the open-ended measures and traditional close-ended measures, so it was impossible to confirm that the new measures were an improvement over past measures.

A different approach was reported by Crites et al (1994). In an initial study, evidence was obtained suggesting that many measures used in past affect/cognition research lacked important psychometric properties (e.g. reliability, convergent validity, and discriminant validity). Two subsequent studies showed that new scales designed to assess the affective and cognitive bases of attitudes had high levels of reliability across attitude objects as diverse as social issues, academic subjects, and animals. Factor analyses of the scales also suggested that the scales had good convergent and discriminant validity. Finally, the scales could detect an experimental manipulation of the affective and cognitive bases of attitudes.

Research also continued to explore the extent to which attitudes are based on affect and cognition in various domains. Haddock et al (1993) found that, for people high in authoritarianism, attitudes toward homosexuals were driven primarily by symbolic beliefs and past experiences. In contrast, among people low in authoritarianism, attitudes were determined primarily by stereotype beliefs and affect. Rosselli et al (1995) found that postmessage attitudes were based on affective and cognitive responses when the message was emotional in nature but only on cognitive responses when the message was fact based. These results only occurred when participants were in a neutral mood. In positive moods, cognitive and affective responses had no impact on postmessage attitudes.

**VALUES AND ATTITUDE FUNCTIONS AS BASES OF ATTITUDES** Researchers continued to explore the extent to which values and attitude functions influence attitudes. Feather (1995) found that the importance people placed in specific values influenced their attitudes toward behavioral choices designed to reflect different value orientations (see also Stern et al 1995). Gastil (1992) found that the level of support for democracy was related to the extent to which democracy was seen as fulfilling a value-expressive function and an ego-defensive function. Other research examined the extent to which the functional basis of an attitude moderated the relation between values and attitudes. For instance, Mellema & Bassili (1995) found that values were more predictive of attitudes for people low in self-monitoring than for people high in self-monitoring. Similarly, Maio

& Olson demonstrated by measuring (Maio & Olson 1994) and by manipulating attitude functions (Maio & Olson 1995b) that the impact of values on attitudes and behavior increased as the extent to which attitudes served a value-expressive function increased.

### *Individual Differences as a Basis of Attitudes*

One interesting recent development has been the recognition among psychologists that attitudes can have some genetic basis (e.g. Lykken et al 1993) and the implications of this. For instance, Tesser (1993) argued that attitudes that have a substantial genetic basis will tend to be stronger than attitudes with little genetic basis. To support this assertion, he conducted a series of studies comparing attitudes that past research indicated varied in their genetic basis. Tesser found that as the amount of variance in attitudes attributable to genetic factors increased, so did the accessibility of attitudes in memory, the resistance of attitudes to conformity pressures, and the impact of the attitudes on interpersonal attraction.

Research on the genetic basis of attitudes challenges traditional attitude theories that have stressed the role of experience as the basis of attitudes (e.g. McGuire 1969). However, there are important limitations to this research. First, methodological challenges make exact estimates of the genetic versus environmental basis of attitudes controversial (e.g. Bouchard et al 1992, Olson & Zanna 1993, see Cropanzano & James 1990). A second limitation is a lack of clearly articulated or empirically verified mediating processes. Discussions of the possible mechanisms by which genetic factors might influence attitudes have been brief and speculative, though highly interesting (e.g. Tesser 1993).

## ATTITUDE CHANGE

In the 1950s, researchers assigned a critical role for memory of message arguments as a mediator of persuasion (e.g. Hovland et al 1953). Following Greenwald et al's (1968) comparison of message memory versus cognitive responses as mediators of attitude change, however, research on memory and persuasion waned. Over the past decade, however, a limited but important role for message memory has been established. Specifically, as might be anticipated from Hastie & Park's (1986) research, current work indicates that message memory is most important in predicting attitudes when elaboration of message arguments at the time of exposure is unlikely, an unexpected judgment is requested sometime after message exposure, and simple cues to message validity are relatively unavailable at the time of judgment (Frey & Eagly 1993, Haugtvedt & Petty 1992, Haugtvedt & Wegener 1994, Mackie & Asuncion 1990; for a discussion, see Petty et al 1994). In such circumstances, people apparently judge the advocacy by retrieving whatever message sub-

stance they can, and then either evaluating these recalled arguments or making an inference of validity based on the number of arguments remembered.

Much persuasion work continues to be guided by the elaboration likelihood model (ELM) (Petty & Cacioppo 1986) and the heuristic-systematic model (HSM) (Chaiken et al 1989). These models have likely maintained their popularity over the past five review periods in part because these theories encompass the effects of a multitude of persuasion variables, processes, and outcomes. Although differences between these frameworks have been noted that could be important in certain circumstances, the theories are generally more similar than different, and typically they can accommodate the same empirical results, though the explanatory language and sometimes the assumed mediating processes vary (see Eagly & Chaiken 1993, Petty 1994, Petty & Wegener 1997). In the ELM, the central route (high-effort scrutiny of attitude-relevant information) and peripheral route (less effortful shortcuts to evaluating attitude objects) anchor opposite ends of an elaboration likelihood continuum. Even though “central” processes increase in impact as elaboration increases across the continuum and “peripheral” processes decrease in impact as elaboration increases, attitude change is often determined by both central and peripheral processes (though much early research attempted to capture one or the other by examining the endpoints of the continuum; see Petty et al 1993b). The HSM also accommodates the joint impact of systematic and heuristic processing on attitudes. We organize our review of the attitude change literature by focusing first on central route (systematic) processes and then on peripheral processes, including the use of heuristics. Following this, we focus on work that has revealed the multiple roles that many source, message, and recipient variables play in persuasion processes.

### *High-Elaboration Processes: Focus on Biased Information Processing*

**OBJECTIVE VERSUS BIASED INFORMATION PROCESSING** To account for both objective and biased information processing, the HSM makes a distinction between accuracy, defense, and impression motives, with the latter two motivations producing bias (Chaiken et al 1989, 1996a). In the ELM, whether message processing is relatively objective or biased is determined by both motivational and ability factors (Petty & Cacioppo 1986, Petty et al 1994, Petty & Wegener 1997). Thus, people can engage in biased processing (an outcome) for a variety of motivational (e.g. consistency motivation, reactance, self-esteem maintenance) and ability (e.g. one-sided knowledge on a topic, mood primes favorable thoughts) reasons. Furthermore, a biased processing outcome can be produced by unbiased motivation but biased ability, or by unbiased ability but biased motivation.

For biased elaborative (i.e. central route/systematic) processing to occur, people must be both motivated and able to think (Chaiken et al 1989, Petty & Cacioppo 1986). Thus, although increased personal relevance provides a motivation to process and understand a message in a relatively objective manner when no other biasing factors are present, such as when people have no vested interest in the position taken or have little knowledge on the topic (Petty & Cacioppo 1979b, 1990), when personal relevance is combined with a vested interest or biased knowledge, then the intensive processing induced by the relevance is likely to be biased (cf Petty & Cacioppo 1979a). In a demonstration of the importance of motivational and ability variables in biased processing, Chen et al (1992) found that a forewarning of message content on a counterattitudinal issue led people to resist the message and generate unfavorable thoughts primarily when the issue was personally involving and they were not distracted. That is, a forewarning produced biased processing only when the recipients were both motivated (i.e. high relevance) and able (low distraction) to process the message. In another study, Liberman & Chaiken (1992) found that women who were personally vulnerable to a threatening message engaged in more biased processing of it than women who were not personally vulnerable to the threat. Similarly, Hutton & Baumeister (1992) found that placing message recipients in front of a mirror (enhancing self-awareness) increased their thoughtful resistance to a message that was counterattitudinal and personally important, but not to a message that was not.

One of the most well-known studies of biased processing was reported by Lord et al (1979), and it has generated considerable recent interest. Lord et al demonstrated that after examining evidence on both sides of an issue, people believed that the evidence on their side was more compelling than the evidence on the other side ("biased assimilation"), and they came to believe that their own attitudes toward the issue had polarized. In a conceptual replication of this study, Schuette & Fazio (1995) found that the biased assimilation effect was strongest when attitudes toward the topic were made highly accessible, and recipients were not made apprehensive about the accuracy of their judgments. Miller et al (1993) noted that the Lord et al study did not demonstrate any actual attitude change resulting from biased assimilation (only perceived polarization was assessed). Thus, Miller et al conducted conceptual replications of the Lord et al research and included measures of participants' attitudes toward the topic. Although they replicated the biased assimilation effect and self-reports of polarization, no evidence was obtained for actual attitude polarization. In another pertinent study using the Lord et al paradigm, Pomerantz et al (1995) examined the relations among attitude strength, biased assimilation, and attitude polarization. Several common measures of attitude strength were assessed (see Wegener et al 1995). In contrast with the inconsistent factor

structures observed in some prior research (e.g. Krosnick et al 1993), factor analyses of their measures produced a consistent two-factor structure over three samples and five attitude issues. One factor (called commitment) was associated with biased processing and attitude polarization, but the other factor (called embeddedness) was associated with more open-minded processing. In sum, current research suggests that polarization is not a necessary outcome of scrutiny of both sides of an issue. Rather, factors related to attitude strength will likely determine whether the information processing is relatively objective or biased and thus whether polarization, no change, or depolarization will occur.

In the related primacy/recency paradigm, two sides of an issue are presented as in Lord et al, but one group receives the messages in one order (e.g. pro-con) and the other group receives the messages in the reverse order. This paradigm allows one to examine whether the first or the second message has greater impact. Previous research had provided evidence for both primacy and recency effects in persuasion. On the basis of the ELM, Haugtvedt & Wegener (1994) hypothesized and found that if recipients engage in careful processing of the messages (because of high personal relevance), the strong attitudes formed after the first message bias processing of the second message, and thus relative primacy occurs (see also, Haugtvedt & Petty 1992). However, if the messages receive little scrutiny, then recency is more likely because recipients' attitudes are more influenced by their most recent message exposure.

In a surprising prediction, Lammers & Becker (1992) hypothesized that although distraction should disrupt the difficult processing involved in discerning whether the arguments in a message are strong or weak (Petty et al 1976), it might enhance the operation of simple motivated biases that can be applied independently of the actual evidence in a message. In support of this reasoning, distraction increased biased processing when people were simply instructed to pro- or counterargue a message (Lammers 1982), and it enhanced the operation of bias motivated by cognitive dissonance (Lammers & Becker 1992).

Finally, individual differences in biased processing received some attention. In one study, people who scored high in dogmatism held on to the opinions that they initially formed in the light of new information more so than nondogmatics (Davies 1993). Similarly, individuals high in need for closure whether induced situationally or assessed via individual differences (Webster & Kruglanski 1994) were more likely to hold on to their opinions when challenged if the initial opinions had an informational basis, but they were more likely to succumb to influence than those low in need for closure if they did not (Kruglanski et al 1993). Having an informational base may provide both motivation and ability to defend one's view.

**DISSONANCE THEORY** For over 30 years, dissonance theory has captivated the imagination of social psychologists as virtually no other, and it has continued to generate interesting new research in the period of our review. Four versions of dissonance phenomena are currently generating research. The first, of course, is Festinger's (1957) original proposition that inconsistency among elements in one's cognitive system produces dissonance. In support of Festinger's view, Cialdini et al (1995) developed a scale to assess individual differences in "preference for consistency" (PFC) and found that the attitudes of those high in PFC were influenced by whether their counterattitudinal behavior was performed under high- or low-choice conditions (a classic dissonance finding), but the attitudes of low-PFC people were not.

A second viewpoint on dissonance is Cooper & Fazio's (1984; Cooper 1992) "new look" approach, which holds that dissonance results from individuals feeling personally responsible for bringing about an aversive or unwanted event. In this view, inconsistency per se is not necessary for dissonance. Thus, even if a person engages in a proattitudinal action that brings about potentially foreseeable negative consequences, dissonance could occur (but see Johnson et al 1995b). Of course, one could argue that it is inconsistent with one's view of oneself as an intelligent human being to engage in any action (pro- or counterattitudinal) that results in potentially foreseeable aversive consequences (Aronson 1992). Thus, inconsistency of sorts might still be involved in the aversive consequences approach.

During our review period, additional evidence supported the view that dissonant behavior induces a general discomfort in people, and that attitude change can eliminate this discomfort (Elliot & Devine 1994). This finding is consistent with Cooper & Fazio's (1984) claim that attitude change is motivated by the uncomfortable feelings that result once individuals have attributed their arousal to a dissonant action. This view appears to assume that the more one recognizes one's discomfort because of dissonant behavior, the greater is the motivation to do something, such as changing one's attitudes. However, Pyszczynski et al (1993) suggested the opposite. They reasoned that if one function of motivated cognitive biases is to protect people from painful emotions, then perhaps acknowledging one's distress would eliminate the need to distort cognitions. In support of this view, Pyszczynski et al showed that people who were encouraged to express their emotions showed no dissonance effect, but people who were encouraged to suppress their emotions did. Unfortunately, the instructions given to the express emotions group in this research could have made subjects feel good about their discomfort (i.e. they were told their emotions were healthy), whereas the instructions to suppress emotions were not likely to do this (i.e. they were told their emotions were a sign of poor adjustment). The former instruction could attenuate the dissonance effect,

whereas the latter could enhance it if dissonance-induced attitude change is in the service of reducing a consciously experienced negative state.

A third view of dissonance is Aronson's (1968) self-concept analysis (Aronson 1992, Thibodeau & Aronson 1992), which holds that inconsistency is critical, but that the inconsistency is between some aspect of the self-concept and one's behavior. In an attempt to demonstrate this, Stone et al (1994) produced behavior change by making people aware of their past (hypocritical) behavior that was inconsistent with a proattitudinal advocacy (see also Dickerson et al 1992). Fried & Aronson (1995) showed that the hypocrisy effect could be eliminated when a plausible misattribution opportunity was presented, evidence that this hypocrisy induction works by a dissonance mechanism. Because the advocacy in hypocrisy studies is proattitudinal and would likely produce beneficial rather than harmful effects, Aronson (1992) argued that no dissonance should be produced according to the aversive consequences view. However, if one considers that in this research people are reminded that they freely chose to engage in hypocritical behavior, they could feel responsible for bringing about this unwanted and aversive state of affairs, and this would induce dissonance according to an aversive consequences (for self) approach (Petty 1995).

A fourth explanation for dissonance phenomena is Steele's (1988) self-affirmation theory, which holds that people desire to maintain a perception of global integrity and that when this perception is threatened, people attempt to restore it. According to this view, the more positive one's self-concept, the easier it is to recruit ideas that affirm one's overall self-adequacy and thus the less need there is for dissonance reduction. Others (e.g. Aronson 1968) have made the opposite argument. That is, a dissonance-provoking act is more discrepant with one's self-concept for a person of high than low self-esteem, so greater consistency restoring attitude change should occur among high self-esteem individuals. In one study (Steele et al 1993), when participants were reminded of their self-esteem just before a choice among alternatives task, low self-esteem individuals engaged in greater spreading of the alternatives than did high self-esteem individuals. When not focused on their self-evaluative resources, no differences for self-esteem emerged. Although these results appear to support the self-affirmational view, this study leaves open the question of why earlier research using a similar paradigm found that it was high self-esteem individuals who showed greater dissonance effects (e.g. Gerard et al 1964).

Just as self-affirmation theory provides an alternative account for some dissonance effects, Simon et al (1995) proposed a dissonance explanation for a typical self-affirmation finding. Simon et al noted that most dissonance research has focused on attitude change as the dominant means of dissonance

reduction but that other modes are possible. For example, Festinger (1957) noted that dissonance could be reduced by decreasing the importance of the elements involved in a dissonant relationship. To examine this, Simon et al (1995) had participants engage in a dissonant act and allowed some of them to rate the importance of the dissonant elements after the act but before the attitude measure, whereas others did the reverse. Dissonance subjects showed change on whichever measure came first. Thus, providing the opportunity to trivialize the dissonant elements eliminated the typical attitude change effect. Simon et al argued that this trivialization effect might be what is happening in the typical self-affirmation study. That is, in self-affirmation work, an important aspect of the self is made salient, and when this occurs, the dissonant elements involved could seem trivial in comparison (a contrast effect).

In another challenge to self-affirmation theory, Aronson et al (1995) found that individuals were selective in their self-affirmation strategies in a manner consistent with dissonance theory. In one study, after being induced to write an uncompassionate essay, participants selectively avoided positive personality feedback about their own compassion but not other irrelevant positive feedback because the former information would presumably be inconsistent with their essay-writing behavior. If, however, attitude change on the topic was assessed before the feedback measure, no selective avoidance was present. In a second study, people also were induced to write an uncompassionate essay but were then asked to rate the importance of various dimensions of personality. These individuals trivialized the trait of compassion (but not irrelevant traits) but only when an attitude measure was not included before the trait-rating task. This result is quite compatible with the research by Simon et al (1995). In sum, recent work on trivialization effects provides an intriguing challenge to strict self-affirmation views of dissonance effects.

Other papers on dissonance examined the utility of dissonance principles in modifying attitudes toward important social and health issues (e.g. Aitken et al 1994, Eiser et al 1995, Leippe & Eisenstadt 1994). Research also demonstrated that dissonance effects (i.e. reevaluation of a chosen alternative) are greater when an obtained object results from an act of commission (trading a current prize for another one) rather than omission (keeping one's current prize) (Gilovich et al 1995) and that increasing choice in the decision to engage in some dissonant behavior increases attitude change, but that increasing choice in the specific dissonant behavior in which to engage reduces attitude change (Beauvois et al 1995). In choosing a specific compliant behavior, people can reduce dissonance by reasoning that the other counterattitudinal acts would have been worse. Note that self-perception theory (Bem 1967), an earlier nemesis of dissonance, would have predicted that choosing the specific essay

to write would have enhanced attitude change because people would infer their attitude from their behavior.

### *Peripheral Processes*

According to the dual process models of attitude change, when motivation or ability to scrutinize attitude-relevant information is lacking, one or more peripheral processes are likely to determine persuasion outcomes. Within the ELM framework, peripheral processes include use of simple decision rules (either generated on-line or stored as heuristics), conditioning processes, mere-exposure processes, and other processes that do not involve scrutiny of the central merits of the attitude object (Petty & Cacioppo 1986). Recent research has investigated a variety of peripheral processes, and it has shown that many of those processes are more likely to operate when motivation or ability to scrutinize attitude-relevant information are relatively low.

Recent research has further developed our general knowledge of peripheral cues that have been studied a great deal in past work [e.g. communicator credibility (Hurwitz et al 1992, Tripp et al 1994), attractiveness (Shavitt et al 1994)]. Other research, especially in the consumer psychology area, has identified additional aspects of communicators or settings that act as peripheral cues to influence attitudes [and behaviors such as purchase decisions (Miniard et al 1992)]. It is important to note that many of these cues have been shown to have a greater impact when motivation and/or ability to scrutinize the central merits of the products are low [e.g. when the consumers are not knowledgeable about the product category (Maheswaran 1994) or when the purchase choice is unimportant (Darke et al 1995, Maheswaran et al 1992)]. In some recent research, motivation has been shown to moderate the impact of peripheral cues by increasing scrutiny of the central merits of the products, thereby decreasing the direct (non-thought-mediated) impact of peripheral cues (MacKenzie & Spreng 1992; see also Haugtvedt et al 1992). In addition, peripheral cues have been shown to be used more when attitudes cannot be based on central merits of the target, either because the stimuli are quite difficult to assess (e.g. Pelham & Neter 1995) or the targets are equally attractive (Heath et al 1994). As Pelham & Neter (1995) put it, "if the only tool at a person's disposal is a hammer, convincing the person to work harder only leads to more vigorous hammering" (p. 583). For similar suggestions, see Petty & Cacioppo (1986) and Chaiken et al (1989).

Although much of the work on peripheral cues has focused on variables that might operate by simple decision rules or stored heuristics [e.g. source characteristics such as credibility, attractiveness, or power (for a review, see Chaiken et al 1996b, Petty & Wegener 1997)], other peripheral processes such as classical conditioning and mere exposure have received renewed attention.

Work demonstrating that conditioning and mere exposure can occur when stimuli are presented subliminally (noted below) provides a strong challenge to those who imply that all attitude changes occur through presumably conscious belief (expectancy X value) change mechanisms (Fishbein & Middlestadt 1995).

**CONDITIONING AND AFFECTIVE PRIMING PROCESSES** Over the years, researchers have found that a number of procedures associating novel targets with actions or stimuli already associated with approach (positive feelings) or avoidance (negative feelings) can influence attitudes toward the novel targets. Cacioppo et al (1993) showed that arm flexion (typically associated with gathering in desired items) led to more favorable attitudes toward novel stimuli than arm extension [(typically associated with pushing away undesirable stimuli (Solarz 1960)]. Consistent with the view that conditioning effects can be obtained by nonthoughtful means, De Houwer et al (1994) reported evidence of evaluative conditioning even when the unconditioned stimuli were presented subliminally, ruling out a contingency awareness problem. Also consistent with the notion that conditioning processes largely act as a peripheral means to establish or change attitudes, Cacioppo et al (1992) showed that classical conditioning using electric shock had a greater impact on initially neutral nonwords (which, of course, were not associated with any preexisting meaning or knowledge) than on initially neutral words.

In a variant on conditioning procedures (“backward conditioning” or “affective priming”), research participants encounter either positively or negatively valenced stimuli immediately before encountering each target stimulus. In a variety of studies, novel targets (e.g. Chinese ideographs or unfamiliar people) encountered after positive stimuli were evaluated more positively than when the targets were encountered after negative stimuli (Krosnick et al 1992, Murphy & Zajonc 1993). This effect only occurs when the conditioning stimuli are presented “suboptimally,” with very brief exposure duration (Murphy & Zajonc 1993, Murphy et al 1995).

**MERE EXPOSURE** Another procedure that can implicitly influence attitudes (Greenwald & Banaji 1995) is mere exposure to the attitude object (Zajonc 1965). That is, the more often a person encounters a novel (usually neutral) attitude object, the more favorable he or she is likely to evaluate that object; this effect is stronger when exposure to the object is subliminal rather than supraliminal (Bornstein & D’Agostino 1992, Janiszewski 1993; cf Murphy et al 1995). In addition, the mere exposure effect is stronger if the perceptual fluency for the attitude object is not attributed to the experimental procedure [and it is weaker if people believe that the object seems familiar because of the exposure proce-

dure (Bornstein & D'Agostino 1994)]. Mere exposure effects have also been found for the number of times a target person attends a college class (Moreland & Beach 1992), a situation in which exposure to the target is incidental to the (presumably) focal task of class attendance and attention (see also Janiszewski 1993).

### *Multiple Roles for Persuasion Variables: Focus on Effects of Mood on Persuasion*

One of the hallmarks of the ELM perspective is that a given variable can impact persuasion via different processes at different levels of elaboration likelihood. That is, a given variable might act as a peripheral cue (when elaboration likelihood is quite low), might act as an argument or bias processing of information (when elaboration likelihood is quite high), or might influence the amount of message processing that occurs (when elaboration likelihood is not constrained to be particularly high or low, and especially if message recipients are not sure if the message warrants scrutiny) (Petty & Cacioppo 1986, Petty et al 1993b). Several variables have been shown to influence persuasion through different processes across different levels of elaboration likelihood, but the most discussed variable in this regard is a person's mood state. Thus, we focus on the multiple roles for mood here (for detailed discussion of mood, see Wegener & Petty 1996). In one examination of multiple roles for mood, Petty et al (1993a) found that the mood state of message recipients (induced by a television program or music) directly influenced attitudes toward a product or advocacy when elaboration likelihood was low (when the product was low in personal relevance or the message recipients were low in need for cognition). However, the same differences in mood influenced attitudes only through mood-based biases in the thoughts that were generated in response to the message when elaboration likelihood was high (when the product was high in relevance or message recipients were high in need for cognition).

Several other studies investigated the overall judgmental effects of moods, but the process producing these effects was not always clear. Many mood studies show some form of positive/negative mood congruency in evaluations (e.g. Mayer et al 1992, Mayer & Hanson 1995), although some differences among specific negative emotions have been found (e.g. Hansen & Shantz 1995), and some negative feelings, such as fear, have at times led to more favorable perceptions of message advocacies (Struckman-Johnson et al 1994), perhaps through mood-specific changes in perceptions of the arguments in the message (see Petty & Wegener 1991). Many of these overall demonstrations of effects of mood could be attributable to either direct (peripheral) effects of mood, or to mood-based biases in scrutiny of relevant information.

Although mood-based biases in processing often bring about mood-congruent persuasion outcomes, they need not. Most persuasive arguments state that good things will happen if the advocacy is adopted—a positive frame. If mood influences processing of persuasive messages in part through changes in the perceived desirability and likelihood of consequences of advocacy adoption (e.g. the good things might seem better and more likely in a good rather than neutral mood), then different forms of the message might lead to different mood-based outcomes, at least when people are engaged in enough scrutiny of the message to assess and combine these likelihood and desirability components (Petty & Wegener 1991). Consistent with this notion, Wegener et al (1994) found different mood-effects across different message frames, but only for people high in need for cognition (who were intrinsically motivated to scrutinize the messages). For those people, positively framed messages were more persuasive when message recipients were in a happy rather than sad mood. However, negatively framed messages (lack of advocacy adoption will lead to bad things) were more persuasive when people were in a sad rather than happy mood (because the bad things seemed more likely to follow from lack of advocacy adoption in the sad rather than the happy mood).

In addition to studies of cue or biased processing effects of mood, recent research has investigated effects of mood on the amount of scrutiny given to persuasive message arguments (which, according to the ELM, should be most likely to emerge when nonmood factors do not constrain elaboration likelihood to be particularly high or low). The conclusion of several researchers has been that people in sad or neutral moods spontaneously process information more effortfully than people in happy states (e.g. Bless et al 1992, Bohnet et al 1992; see also Bohnet et al 1994) unless attention is drawn to the nonmessage source of the mood (Sinclair et al 1994). Recent research suggests, however, that this might be only a piece of the entire picture. That is, according to the hedonic contingency position (Wegener & Petty 1994), happy moods can foster greater mood management efforts than sad or neutral moods. Given that most demonstrations of processing deficits in positive moods involved counterattitudinal and/or depressing messages, it is plausible that these effects were due to attempts by happy people to maintain their positive feelings. In fact, in a critical test of the hedonic contingency position, Wegener et al (1995) found that sad message recipients processed message arguments more than happy message recipients when the message advocated a counterattitudinal/depressing position, but happy message recipients processed message arguments more than sad message recipients when the same message advocated a proattitudinal/uplifting position. Consistent with the hedonic contingency framework, happy message recipients processed uplifting more than depressing messages,

but processing by sad message recipients was unaffected by valence of the position being advocated (cf Howard & Barry 1994).

In addition to work on happiness and sadness, some work investigated the effects of fear on scrutiny of persuasive messages. Gleicher & Petty (1992) found that moderately fearful message recipients processed messages less than message recipients who were not fearful, but only when the solution in the message was presented as highly efficacious. Baron et al (1992) also found that fearful message recipients processed messages less than those who were not fearful (but see Baron et al 1994 for the opposite result).

One emerging theme in the mood literature is the contextual nature of mood effects. That is, mood effects on judgment, persuasion, and processing are not universal but depend on such factors as the baseline level of elaboration likelihood (Petty et al 1993b, Wegener et al 1994), framing of the message arguments (Wegener et al 1994), awareness of the source of the mood state (Gorn et al 1993, Martin et al 1990, Petty & Wegener 1993, Sinclair et al 1994), activated "stop rules" (Martin et al 1993), and the perceived valence of the processing task (Wegener et al 1995). Like the ELM perspective, Forgas's (1992, 1995a) recent Affect Infusion Model (AIM) also postulates that mood can influence attitudes through heuristic (peripheral) processes, by biasing information processing or by affecting the amount of processing of information. Evidence cited as supporting this model includes results suggesting that mood-congruent outcomes are stronger for atypical rather than for typical targets (Forgas 1993, 1995b). Unlike attitude models such as the ELM, however, the AIM posits a role for a previously stored evaluation only when the judgment task is perceived as unimportant [although attitudes perceived as important tend to persist longer and have greater impact on other judgments than attitudes perceived as unimportant (see Boninger et al 1995b)]. In addition, the AIM posits that the effect of mood on the amount of message processing is for negative states to instigate greater processing than positive states, although the empirical evidence shows that positive moods can sometimes instigate greater processing than negative states (Wegener et al 1995).

### *Continuing Research on Persuasion Variables*

Within the ELM framework, many variables can influence persuasion through the multiple roles identified above. For most variables, the recent research has focused on just one or another of the possible roles, though eventually many of the variables might be shown to influence persuasion by serving as cues or arguments, biasing processing, and determining the amount of scrutiny given to a message.

**SOURCE FACTORS** The source factors receiving the most attention were credibility, attractiveness, and minority/majority status.

*Credibility/attractiveness* In recent work, a variety of effects of source credibility have been researched. Cue effects of source credibility have been investigated as a means of stereotype change, and they have been found to operate under conditions of low but not high task involvement (Johnston & Coolen 1995) [though credibility might also affect stereotypes through changing perceptions of stereotype-inconsistent behaviors, which would likely occur at a higher level of processing of those behaviors (see Macrae et al 1992)]. In addition, such source effects have been shown to be most likely when source perceptions are relatively accessible in memory (Roskos-Ewoldsen & Fazio 1992b). Researchers have also investigated the relations between perceptions of sources and other variables in the persuasion setting. For instance, Smith & Shaffer (1995) found that increases in speed of speech were associated with perceptions of higher source credibility, and that these source perceptions mediated persuasion effects of speed of speech when involvement was low rather than high.

Research has also expanded our knowledge of the effects of various source characteristics on the amount of scrutiny given to message arguments. For example, Priester & Petty (1995) showed that perceiving a source as low in trustworthiness increases message processing for people not intrinsically motivated to scrutinize messages (i.e. people low in need for cognition). Consistent with the notion that people high in need for cognition are intrinsically motivated to engage in effortful cognitive activities, these individuals effortfully processed the messages regardless of source trustworthiness. In another study, DeBono & Klein (1993) found that people low in dogmatism tended to process a message regardless of the expertise of the source, but people high in dogmatism tended to process only when the source was not an expert. Source attractiveness/likability can also influence the amount of message processing. White & Harkins (1994) showed that a disliked source can instigate greater processing than a liked source. In one study, White & Harkins provided Caucasian message recipients with a message presented by either a Caucasian or African-American source and found that message recipients processed the message more effortfully when presented by an African American. This increase of processing generalized to other ethnic minorities that this population disliked (e.g. Hispanic), but not to minorities that were not negatively evaluated (e.g. Asian).

Some research has explicitly addressed multiple roles of source characteristics within the same study. For example, Chaiken & Maheswaran (1994) showed that the impact of source credibility on attitudes was greater under low

than high task importance conditions when message arguments were unambiguous (and effects of the source were more likely to serve as a persuasion cue). When message arguments were ambiguous, however, source credibility affected attitudes under both low and high task importance conditions—an effect that was mediated by a bias in thoughts about the attitude object under high but not low importance conditions. Such a result supports the idea that some level of message ambiguity is necessary for biased processing to occur.

In a study examining multiple roles for source attractiveness, Shavitt et al (1994) manipulated the attractiveness of an endorser in an ad, the salient (central) features of the product (either unrelated to attractiveness—taste and aroma—or related to attractiveness—public image), and motivation to process the ad. When endorser attractiveness was unrelated to the central merits of the product (and the ELM would predict that any impact of attractiveness would be due to its impact as a peripheral cue), endorser attractiveness had an impact on evaluations of the product under low but not high motivation (and had little impact on thoughts about the product). However, when endorser attractiveness was related to the central merits of the product (and thus could itself act as an argument), the same variation in endorser attractiveness influenced evaluations of the product under high but not low motivation (and under high motivation, influenced the favorability of cognitive responses to the ad).

*Minority/majority status* Research continues to show that message sources who are in the numerical minority create influence that could be characterized as “indirect,” and they especially do so when they are consistent over time in their advocacy of a position (see Wood et al 1994).

In persuasion settings, some work has shown that minority influence is greater when the personal relevance of the message is low (Trost et al 1992), when much of the message is assumed to be censored (Clark 1994), or when the minority speaks to a highly cohesive group (Kozakai et al 1994). Some have recently suggested that the dichotomy of minority versus majority influence might be less extreme than has been the case in much of the theorizing in this area (Clark 1995; cf Perez et al 1995). Consistent with this notion, Baker & Petty (1994) showed that either majority or minority sources can instigate greater processing of message arguments, depending on the position advocated. When the position was counterattitudinal, majority sources fostered greater message elaboration, but when the position was proattitudinal, minority sources led to greater elaboration. This occurs, at least in part, because people are surprised when a majority disagrees or a minority agrees with them (both of which imply that the message recipient is in the numerical minority). Levine & Russo (1995) also found results consistent with the notion of similarities between majority and minority influence processes. Levine & Russo

found that anticipation of disagreement creates greater seeking of information supporting (rather than opposing) one's view, and that this tendency was stronger when the disagreement was with a numerical majority rather than with a minority. However, seeking of supporting rather than opposing information was greater to the extent that the opposing side had more supporters, regardless of whether that opposition constituted a majority or minority (which could also account for the majority/minority difference). Although much of the existing work has used numerically defined majority/minority status in which the status of the person is related to the focal task itself (e.g. one is in the majority because most people agree with the person on the topic to be discussed in the focal experimental task), future work is likely to expand into majority/minority status identified separate from the focal experimental activity (see Crano & Hannula-Bral 1994).

Similar to the minority/majority literature, recent work on persuasive effects of in-group versus out-group sources has shown that sometimes out-group sources produce greater scrutiny of their statements [when their statements are inconsistent with the stereotype of the group (Vonk & van Knippenberg 1995)], but sometimes in-group sources produce greater scrutiny [when the in-group member is believed to be prototypical of the in-group (van Knippenberg & Wilke 1992) or when the position the prototypical in-group member would take was not known in advance (van Knippenberg et al 1994; see also Mackie et al 1992)].

**MESSAGE FACTORS** Message framing, scarcity, one- versus two-sided communications, and sporadic other features of persuasive messages were also studied.

*Message framing* Initial research tended to suggest that messages that use negatively framed arguments were more effective than messages that use positively framed arguments (e.g. Meyerowitz & Chaiken 1987). More recent studies indicate that which framing is more effective depends on various situational and dispositional factors. Recall that Wegener et al (1994) found that frame interacted with mood and processing motivation to influence attitudes. Rothman et al (1993) found that negative framing tended to be superior for influencing people with respect to high-risk behaviors, but that positive framing tended to be better for influencing low-risk behaviors. Tykocinski et al (1994) found that a positive outcome message was more effective than a negative outcome message for recipients with a chronic actual-ought discrepancy, but that the reverse was the case for recipients with an actual-ideal discrepancy (Higgins 1989). The authors argued that the appropriately framed messages were least likely to activate the vulnerability system of the recipient and cause distress. At the moment, there is no coherent framework for understanding the complex effects observed for different message frames. Integration of message

framing research with multiprocess models of persuasion could prove productive.

*Scarcity* An entire issue of *Basic and Applied Social Psychology* was devoted to the psychology of scarcity (Lynn 1992), with a number of authors providing their conceptual analysis of the effects of scarcity on evaluation. For example, in an integration of commodity theory (Brock 1968) with the ELM (Petty & Cacioppo 1986), Brock & Brannon (1992) argued that scarcity has its impact on attitudes by increasing elaboration of messages. This hypothesis was supported in a study by Bozzolo & Brock (1992) but only for individuals low in need for cognition. High need for cognition individuals showed the reverse pattern. Worchel (1992) also argued that scarcity does not invariably lead to increased liking of objects. Specifically, when people do not have access to a commodity, their desire for it increases with the number of other people who have the commodity. Thus, the distribution of supply rather than supply per se is an important factor in determining the effects of scarcity on value.

*One-sided versus two-sided and comparative messages* Considerable interest was also shown in understanding when and why two-sided (e.g. Crowley & Hoyer 1994) and comparative (Snyder 1992, Rose et al 1993) advertising is more effective than one-sided and noncomparative ads. For example, in a study exploring multiple roles for upward comparative ads, Pechmann & Esteban (1994) established three levels of motivation to process an advertisement using a combination of instructions and situational distraction. Consistent with the ELM multiple roles notion, under low motivation conditions, argument quality did not influence purchase intentions, but comparative ads elicited more favorable intentions than noncomparative ads (cue effect). Under high motivation, only argument strength influenced intentions. Under moderate motivation, comparative ads elicited greater message scrutiny than noncomparative ads. The data further suggested that this enhanced scrutiny was biased in a favorable direction.

*Other message factors* Many other isolated message factors received treatment. For example, Frey & Eagly (1993) attempted to understand why vivid messages typically are either no more effective than pallid messages or are sometimes less effective (see Taylor & Thompson 1982). They argued that vivid elements in messages can interfere with recipients' cognitive elaboration of messages and appraisal of arguments they contain. This distraction should reduce persuasion when the arguments are strong (Petty et al 1976). To examine this, they exposed recipients to pallid and vivid messages designed to be persuasive. Under low processing conditions, vividness reduced persuasion, but under high elaboration conditions, vividness had no impact. A surprising result from this study was that in the pallid conditions, high elaboration recipients

generated more counterarguments and were less persuaded than low elaboration recipients. This suggests that the messages were actually mixed or weak rather than strong as the authors intended (Petty & Cacioppo 1986). Thus, vividness may not have affected persuasion under low elaboration conditions by disrupting elaboration of strong arguments. Rather, if both vivid and pallid message recipients attempted to retrieve message arguments to form a memory based judgment (Hastie & Park 1986), and vividness interfered with reception, then use of a "more is better" heuristic would have produced the obtained result. Future work on vividness could vary argument quality to examine these issues.

Siero & Doosje (1993) measured recipients' motivation to think about the message topic and varied whether they received a message containing strong or weak arguments that fell in their latitude of acceptance, noncommitment, or rejection. Consistent with much work on social judgment theory (Sherif & Sherif 1967), the message falling in the latitude of noncommitment was most persuasive. Consistent with the ELM, high-motivation recipients were more influenced by argument quality than low-motivation recipients, but this was especially the case when the message fell in the latitude of noncommitment where message processing would be expected to be the most objective (Petty et al 1992).

Van Schie et al (1994) demonstrated that providing people with evaluatively biased words with which to construct a persuasive message could influence the nature of the essays written and attitudes formed (see also Eiser & Pancer 1979). Exposure to the words by having subjects copy them was insufficient to produce attitude change, however, which suggested that the effect of evaluatively biased language on attitudes requires active cognitive effort rather than passive exposure alone (Cialdini et al 1981). Finally, Simonson et al (1993) examined the effectiveness of using "irrelevant" arguments in a message. As would be expected if irrelevant arguments are weak for most people, this research showed that people are less likely to accept an option supported by irrelevant reasons and are less likely to reject an option discounted by irrelevant reasons.

**RECIPIENT FACTORS** Research examined a number of individual differences. Rhodes & Wood (1992) meta-analyzed the literature on intelligence and self-esteem. Much of this work was guided by McGuire's (1968) two-factor reception/yielding model of persuasion which predicts a curvilinear effect on persuasion of both variables. The meta-analysis revealed that intelligence showed a linear effect (more intelligence associated with less persuasion), whereas the latter showed the expected curvilinear effect (with moderate self-esteem individuals being most influenceable). The mediation of these effects is unclear, however, and work on these traditional variables has yet to be guided by the more recent multiprocess models. New primary research during the

review period focused on recipient knowledge, and individual differences such as self-monitoring and need for cognition.

*Prior knowledge/experience* Like other variables, recipient knowledge should be capable of serving in multiple roles. For example, perceived knowledge could function as a peripheral cue (e.g. "I'm the expert so I already know what's best"), could affect the extent of information processing through either motivational ("I've never heard of that, so I'm curious about it" or "I've heard so much about that, I'm bored with it") or ability factors (e.g. providing sufficient background to discern the merits of strong arguments and the flaws in weak ones), or could bias information processing by motivating or enabling pro- or counterarguing (Petty & Cacioppo 1986, Petty et al 1994). Some of these possible roles for knowledge were documented empirically during the review period. In one study (DeBono 1992), people who had previously sampled a product were less attentive to the quality of the arguments in a subsequent message about the product than people who had no prior experience, which suggested that prior knowledge reduced the need for further information. In another study, Johnson (1994) found that prior knowledge interacted with message relevance to influence information processing. Under low-knowledge conditions, increased relevance enhanced message processing replicating prior work (Petty & Cacioppo 1990). When knowledge was high, however, people processed to a similar extent regardless of message relevance. Viewed differently, Johnson found that under low-relevance conditions, increased knowledge tended to increase message processing, but that under high-relevance conditions, increased knowledge tended to decrease message processing.

Much prior work has suggested that people with many issue-relevant beliefs tend to resist influence on a counterattitudinal issue but also process the message more (see Wood et al 1995). Consistent with this, Smith (1993) found that previous negative experience with a product produced more negative evaluations of a subsequent advertisement for the product. Johnson et al (1995a) found that high-knowledge individuals tended to process a proattitudinal message more, but that the more beliefs people could list about the issue, the more persuaded they were by the message. This work is consistent with the notion that prior knowledge can both foster thinking about a message and help people bolster their initial opinions (i.e. engage in biased processing). It is likely that to fully explicate the effects of knowledge on information processing and persuasion, future researchers will need to consider factors such as the extent and accessibility of the prior knowledge as well as its valence and relevance to evaluating the message information.

*Matching messages* A popular general hypothesis is that persuasion can be increased by matching messages to some aspect of the message recipient. For

example, additional evidence was obtained for the view that matching messages to the psychological functions served by recipients' attitudes (e.g. value expressive, utilitarian) enhances persuasion (Clary et al 1994). In a variation of the typical function matching study, Shavitt et al (1992) had high and low self-monitors construct persuasive messages. When the attitude object could serve multiple attitude functions, high self-monitors tended to generate social arguments, and low self-monitors tended to generate utilitarian arguments. However, for objects that tend to serve just one function, both high and low self-monitors generated arguments consistent with that function. In other matching research, Edwards & von Hippel (1995) provided further evidence for the view that affective persuasive appeals are more effective in changing affectively rather than cognitively based attitudes. Han & Shavitt (1994) found that matching messages to one's culture enhanced persuasion, and Strathman et al (1994) found that people who chronically consider the future consequences of potential behaviors were more persuaded by a message that included such consequences than one that did not. Although these matching effects are robust, it is not entirely clear why they occur. For example, matching could work because of a peripheral process (e.g. "it speaks to my values, so I like it") or because matching enhances scrutiny of the information presented. If the information is cogent, matching would enhance persuasion, but if not, it could reduce persuasion. Future work should pay greater attention to the processes mediating matching effects and attempt to account for when mismatching is superior (Millar & Millar 1990).

*Need for cognition* In addition to the need for cognition effects mentioned earlier, research reinforced the view that people high in need for cognition engage in greater message processing than those low in need for cognition (for a thorough review, see Cacioppo et al 1996). Specifically, Haugtvedt et al (1992) found that high need for cognition individuals were more influenced by the substantive arguments in an advertisement and less influenced by peripheral cues than individuals low in need for cognition. Stayman & Kardes (1992) found that high need for cognition individuals were more likely to draw inferences about omitted conclusions in messages than were low need for cognition individuals. This study also revealed that inferences about omitted conclusions had a greater impact on the attitudinal judgments of low rather than high self-monitors, consistent with the view of these individuals as more guided by their internal reactions (Snyder 1979).

**CONTEXT FACTORS** In recent years, the most researched contextual factor concerned the effects of contextually induced mood. Although other context factors have received some attention, no cluster of studies on one topic appeared. Researchers have found, however, that a number of contextual factors can influence the amount of scrutiny given to persuasive messages. For example,

faster speech in an orally presented message reduces scrutiny of the merits of the position [probably by making it more difficult to scrutinize the externally paced information (Smith & Shaffer 1995)]. Similarly, involvement in a television program decreases scrutiny of an advertising message [probably because of distraction from message content as the message recipient continues to think about the program content (Anand & Sternthal 1992)]. In addition, high levels of self-awareness (e.g. when in front of a mirror) encourages high levels of message scrutiny (Hutton & Baumeister 1992), as does deprivation of control before receipt of a persuasive appeal (Pittman 1994). Although repetition of a message can enhance message scrutiny, it can also be used to strengthen the association between a message and peripheral cues. This cue-repetition strategy can enhance attitude persistence though it has little effect on making attitudes more resistant to counterpersuasion (Haugtvedt et al 1994; for further discussion, see Petty et al 1995).

## CONSEQUENCES OF ATTITUDES

Along with work on the underlying structure of attitudes and attitude change, a substantial amount of both basic and applied research continues to be conducted on the consequences of attitudes, especially the impact of attitudes on behavior and judgments.

### *The Impact of Attitudes on Behavior*

**THE MODERATING ROLE OF ATTITUDE STRENGTH** One continuing theme in attitude strength research has been examining the moderating role of attitude strength in attitude-behavior consistency (for reviews of the moderating impact of numerous attitude strength variables, see Petty & Krosnick 1995). Of the different strength dimensions, attitude accessibility has received the most attention. For instance, Bassili (1993, 1995) obtained evidence from computer-assisted telephone interviewing (CATI) surveys that voting intentions became more predictive of self-reports of voting behavior as the accessibility of voting intentions increased. A meta-analysis by Kraus (1995) also found that increased accessibility was associated with greater attitude-behavior consistency. However, Doll & Ajzen (1992) failed to find evidence that attitude accessibility moderated attitude-behavior consistency for playing with video games. Fazio (1995) suggested that this failure might have been due to methodological problems in the way response latencies were measured as well as analyses that failed to fully control for individual differences in baseline speed of responding. Other research has found that attitude-behavior consistency is moderated by amount of cognitive elaboration (Pieters & Verplanken 1995; see also MacKenzie & Spreng 1992), certainty/confidence (Kraus 1995, Petkova et al 1995), attitudinal ambivalence (Sparks et al 1992), attitudinal stability (Doll & Ajzen

1992, Kraus 1995), affective-cognitive consistency (Kraus 1995), and direct experience (Kraus 1995).

**PERSONALITY AS A MODERATOR OF ATTITUDE-BEHAVIOR CONSISTENCY** Self-monitoring (Snyder 1979) is probably the most widely researched personality moderator of attitude-behavior consistency. Self-monitoring refers to how much people rely on internal cues such as attitudes (low self-monitoring) versus situational cues (high self-monitoring) as a guide to behavior. In a meta-analysis, Kraus (1995) found that low self-monitors showed higher attitude-behavior consistency than high self-monitors. DeBono & Snyder (1995) found that one's history of choosing attitude-relevant situations predicted willingness to engage in future behavior more for low than high self-monitors. They also found that repeated attitude expression had a greater impact on accessibility among low self-monitors than high self-monitors, and that people's history of choosing attitude-relevant situations predicted accessibility more among high than among low self-monitors. Along similar lines, other individual difference variables thought to reflect internal versus external focus such as autonomous-control behavioral self-regulation (Koestner et al 1992) and action-state orientation (Bagozzi et al 1992) have been found to moderate attitude-behavior consistency.

**OTHER IMPACTS ON ATTITUDE-BEHAVIOR CONSISTENCY** Many studies of attitude-behavior consistency have focused on factors that cannot readily be classified as dimensions of attitude strength or dimensions of personality. Some of these investigations have examined factors that moderate the impact of attitudes on behavior relative to other constructs such as subjective norms (Fishbein et al 1992, Trafimow 1994, Trafimow & Fishbein 1994), habitual behavioral tendencies (Verplanken et al 1994), and emotional reactions (Allen et al 1992). Other research has explored the impact of introspecting about the reasons for holding an attitude on attitude-behavior consistency. This work has found that introspection reduces postchoice satisfaction for those who generate evaluatively inconsistent rather than consistent reasons for their choice (Wilson et al 1993). Introspecting about behavior that is evaluatively inconsistent compared with consistent with one's attitude toward the object of the behavior has been found to cause poorer self-prediction of behavior related to the object (Wilson & LaFleur 1995). Finally, research has suggested that introspection causes people to focus on highly accessible thoughts (Wilson et al 1995) and that the disruptive impact of introspection on attitude-behavior consistency occurs primarily for attitudes low in accessibility (Hodges & Wilson 1993).

**MODELS OF ATTITUDE-BEHAVIOR CONSISTENCY** Research continues to be conducted on general models of attitude-behavior consistency. Among the various attitude-behavior theories, the Theory of Reasoned Action (TORA) (Fishbein

& Ajzen 1975, Ajzen & Fishbein 1980) and the Theory of Planned Behavior (TOPB) (Ajzen 1985) continue to generate the most research. New studies have applied these theories to a wide variety of domains. Perhaps the most common recent application has been in the area of AIDS-related sexual behavior, where both the TORA (e.g. Cochran et al 1992, Fishbein et al 1992) and the TOPB (e.g. Richard et al 1995, White et al 1994) have been examined.

Other research focused on comparing the effectiveness of the two models, which differ in that the TOPB includes perceived behavioral control as an antecedent of intentions and behaviors, whereas the TORA does not. Madden et al (1992) found that the TOPB predicted behaviors and intentions better than the TORA across 10 different types of behaviors varying in perceived control. This was particularly true when the behavior was perceived as difficult to control. Similar results have been obtained in other domains of behavior (Kurland 1995, Giles & Cairns 1995). However, some studies have failed to find improvements in prediction of intentions and/or behaviors when measures of perceived behavioral control were included in analyses (Chan & Fishbein 1993, Kelly & Breinlinger 1995). Thus, it is important to determine when behavioral control will be important and when it will not.

### *The Impact of Attitudes on Information Processing and Social Judgments*

ATTITUDE STRENGTH AS A MODERATOR OF ATTITUDINAL CONSEQUENCES  
Recent research suggests that strong attitudes facilitate the ease and quality of decision making involving preferences. Fazio et al (1992) found that people showed less autonomic reactivity during a preference decision task when their attitudes toward the targets of judgment were high in accessibility compared with when they were low (see also Blascovich et al 1993). Decision choices also tended to be more stable when attitudes toward the judgment targets were relatively high in accessibility (Fazio et al 1992). Other research has suggested that attitude strength might moderate the extent to which attitudes serve an orienting function to stimuli in the environment. Roskos-Ewoldsen & Fazio (1992a) found that people devoted greater visual attention to objects for which they had attitudes high in accessibility. Finally, Fabrigar & Krosnick (1995) examined the extent to which attitude strength moderated the impact of attitudes on perceptions of others. They found a consistent false consensus effect (i.e. tendency to see one's own attitudes as common relative to attitudes one does not hold) but no evidence that this effect was influenced by the importance of the attitude.

PSYCHOLOGICAL MECHANISMS UNDERLYING ATTITUDINAL CONSEQUENCES  
Another theme in recent research on social judgment and information processing consequences of attitudes has been a focus on clarifying the underlying mecha-

nisms of many well established attitudinal effects. One interesting development has been the work on implicit social cognition. Greenwald & Banaji (1995) noted that an attitude can have implicit effects on social judgments (i.e. effects on judgments of which a person is not consciously aware). They suggested that many well-known social judgment effects—including halo effects, mere exposure effects, subliminal attitude conditioning, and context effects in surveys—can be regarded as implicit effects of attitudes. They also argued that explicit measures of attitudes (i.e. direct self-reports of attitudes) might fail to capture many implicit effects and that researchers need to increasingly use implicit (i.e. indirect) measures of attitudes. Although increased use of implicit measures of attitudes has the potential to advance our understanding, it is worth noting that explicit attitude measures are not inherently unable to detect implicit effects. This is supported by the fact that most of the literature demonstrating implicit attitude effects reviewed by Greenwald & Banaji was based on explicit measures of attitudes. Finally, we note that work on implicit attitudes has much in common with work on implicit personality (McClelland et al 1989), and thus integration of this work seems potentially fruitful.

Other research on attitudinal consequences examined the extent to which the false consensus effect can truly be regarded as a judgmental bias or a result of sound statistical reasoning (Krueger & Clement 1994, Krueger & Zeiger 1993). This research suggested that the false consensus effect does in fact represent an overuse of self-information and thus should be regarded as a bias. Other research examined the mechanisms underlying the hostile media bias effect (Giner-Sorolla & Chaiken 1994) and the attitude similarity-interpersonal attraction effect (Drigotas 1993, Hoyle 1993, Tan & Singh 1995). Finally, Klauer & Stern (1992) reported evidence that attitudes bias judgments of the traits of objects in an evaluatively consistent manner. They found that this bias was particularly strong when judgments were made under time pressure.

## CONCLUSIONS

Our examination of the past four years of research on attitudes clearly indicates that the field is robust. As predicted by McGuire (1985), research on attitude structure has become an indispensable and vibrant part of the literature. Much of this work is aimed at understanding what structural features of attitudes contribute to their strength (e.g. stable attitudes that predict behavior). There were two noteworthy trends. First, research has revealed new complexities in well-established effects in the attitude accessibility literature. The generality of accessibility as a moderator of the automatic activation effect has been debated, and the repeated attitude expression manipulation, once thought to only influence accessibility, has been shown to also influence other dimensions of attitudes. A second trend has been the (re)emergence of ambivalence

and structural consistency as a major focus of theoretical and empirical investigation. The work on attitude structure and strength has made it abundantly clear that assessing features of attitudes other than the overall summary evaluation such as accessibility, affective-cognitive consistency, ambivalence, and so forth can be very informative.

In addition, work on attitude change continues to flourish. In the 1970s and 1980s researchers moved away from asking the first generation question of whether some variable (e.g. source expertise) was good or bad for persuasion and began to address the fundamental processes by which variables had their impact (Petty 1996). Questions such as whether variables increased or decreased cognitive elaboration, or served as positive or negative cues dominated research efforts. During the past four years, the manner in which variables bias information processing became a major theme. We anticipate that this theme will continue and that work on bias correction (e.g. Petty & Wegener 1993, Wilson & Brekke 1994) will become integrated with work on persuasion (Wegener & Petty 1997). For example, once people become aware that some variable has biased their information processing, or led to an inappropriate cue-based judgment, how are attitudes debiased? Of the work on biases in information processing, studies of dissonance effects were especially prolific. However, there are still several viable accounts for dissonance effects that assume different fundamental motivations are at work. Given the strong evidence for each of these motivations, we suspect that future research will not select one motivation as the correct one, but will specify when each motivation operates.

It is noteworthy that investigators have made considerable additional progress in recognizing the complexities of persuasion processes. For example, research has clearly demonstrated that the same variable that enhances message elaboration in one setting can reduce it in another (Baker & Petty 1994, Wegener et al 1995). Furthermore, researchers have moved away from asking which role (e.g. cue effect, influence processing, bias processing) a variable takes on in persuasion settings and toward asking when variables take on each role (Chaiken & Maheswaran 1994, Pechmann & Esteban 1994, Petty et al 1993a). In the future it is likely that even more attention will be paid to the multiple processes by which any one variable has an impact on persuasion.

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