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Attitudes and Attitude Change

Edited by William D. Crano and Radmila Prislin

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This book is dedicated with love to Suellen and Igor

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About the Editors

William Crano is the Oskamp Professor of Psychology at Claremont Graduate University. Before Claremont, he was Professor of Psychology at Michigan State University, Texas A&M, and the University of Arizona. His work is concerned with minority influence, and the application of persuasive principles to prevention of drug abuse and HIV/AIDS in young adolescents.

Radmila Prislin is Professor of Psychology at San Diego State University. Her research interests are in the areas of social influence and social change, group dynamics in the aftermath of social change, attitudes and persuasion, and the evaluation of public health programs.

Contributors

Icek Ajzen, PhD
Department of Psychology
University of Massachusetts—Amherst

Dolores Albarracín, PhD
Department of Psychology (and Marketing)
University of Florida

Christopher J. Armitage, PhD
Centre for Research in Social Attitudes
Department of Psychology
University of Sheffield

John N. Bassili, PhD
Department of Life Sciences
University of Toronto at Scarborough

Gerd Bohner, PhD
Faculty of Psychology and Sport Science
Department of Psychology
University of Bielefeld

Mark Conner, PhD
Institute of Psychological Sciences
University of Leeds

Nicole Gilbert Cote
Department of Psychology
University of Massachusetts—Amherst

Thierry Devos, PhD
Department of Psychology
San Diego State University

Hans-Peter Erb, PhD
Faculty for Humanities and Social Sciences
Helmut Schmidt University, Hamburg

Nicholas C. Fernandez
Department of Psychology
University of Arizona

Joseph P. Forgas, PhD
School of Psychology
University of New South Wales

Antonis Gardikiotis, PhD
School of Psychology
Aristotle University of Thessaloniki

Geoffrey Haddock, PhD
School of Psychology
Cardiff University

Miles Hewstone, PhD
Professor of Social Psychology
University of Oxford

Michael A. Hogg, PhD
School of Behavioral & Organizational Sciences
Claremont Graduate University

Blair T. Johnson, PhD
Department of Psychology
University of Connecticut

Richard V. Kendrick, PhD
Department of Psychology
University of Tennessee

Tina Langer, PhD
Department of Psychology
University of Trier

Hong Li
Department of Psychology
University of Florida

Gregory R. Maio, PhD
School of Psychology
Cardiff University

Pearl Y. Martin, PhD
Work & Organisational Psychology Group
Aston Business School
Aston University

Robin Martin, PhD
Work & Organisational Psychology Group
Aston Business School
Aston University

Kenji Noguchi, PhD
Department of Psychology
University of Florida

Michael A. Olson, PhD
Department of Psychology
University of Tennessee

Tania Rendón
Department of Psychology
California State University, San Marcos

P. Wesley Schultz, PhD
Department of Psychology
California State University, San Marcos

Norbert Schwarz, PhD
Institute for Social Research
University of Michigan

Frank Siebler, PhD
Department of Psychology
University of Tromsø, Norway

Joanne R. Smith, PhD
School of Psychology
University of Exeter

Jeff Stone, PhD
Department of Psychology
University of Arizona

Jennifer J. Tabanico, PhD
Department of Psychology
California State University, San Marcos

Zachary L. Tormala, PhD
Graduate School of Business
Stanford University

Eva Walther, PhD
Department of Psychology
University of Trier

Wei Wang
Department of Psychology
University of Florida

Susan E. Watt, PhD
School of Psychology
University of New England

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Introduction

1

Attitudes and Attitude Change
The Fourth Peak

RADMILA PRISLIN
San Diego State University

WILLIAM D. CRANO
Claremont Graduate University

> The field [social psychology] has been a mosaic of heterogeneous pieces from the start, but attitudes have always been one of the central elements of the design. (McGuire, 1985)

It is reasonable to begin a text on attitudes with Allport's (1935, p. 798) famous dictum that attitudes are "the most distinctive and indispensable concept in American social psychology." The gist of Allport's observation undoubtedly was true at the time of its publication, and is largely true even today, more than seven decades later, but McGuire's measured appraisal also is true, and reflects social psychology's less than unremitting romance with attitudes over the past half-century. An attitude

> represents an evaluative integration of cognitions and affects experienced in relation to an object. Attitudes are the evaluative judgments that integrate and summarize these cognitive/affective reactions. These evaluative abstractions vary in strength, which in turn has implications for persistence, resistance, and attitude-behavior consistency. (Crano & Prislin, 2006, p. 347)

Our best chroniclers have noted the ebb and flow of the field's fascination with attitudes (Jones, 1988), and McGuire (1985, p. 235) even identified "Three peakings of attitude research," which describe periods of the field's most insistent focus on this construct. The first peaking, in the1920s and 1930s, reflected social psychology's concern with the fundamental nature of attitudes and their measurement. The second peaking, which occurred in the 1950s and 1960s, was

focused on factors that affected attitude change. The third peaking, from the1980s and (McGuire predicted) into the 1990s, was focused on attitude systems, a "structuralist surge" that focused on the "content, structure, and functioning of attitude complexes" (p. 236).

To McGuire's three peaks we suggest a fourth peaking, the Modern Era, which reflects trends in the field that have occurred since his seminal publication, and whose description constitutes the core of the present volume. This fourth peaking has been stimulated largely by three important movements: the development of dual process models, which absorbed the energies of a considerable fraction of the field for a number of years; the revitalization of the field that followed Moscovici's (1980, 1985) seminal work on the persuasive power of minorities (Crano, 2000); and a new focus on the *implicit* measurement of attitudes, and the follow-on possibility that attitudes implicated by these measures are in some ways qualitatively different from attitudes tapped via traditional self-reports. The parallels between the earlier peak usage periods and theorizing and research in the fourth peaking are intriguing. Certainly, continuity between prior theory and research and today's contributions is obvious, but just as certainly, we not only have consolidated prior knowledge, but also have added to it in significant and qualitatively different ways. Perhaps Ecclesiastes was wrong—maybe there is something new under the sun.

ATTITUDES: NATURE AND MEASUREMENT

The Basics

The first of the organizing themes of the book is concerned with the fundamental nature of attitudes and their measurement. This section corresponds to the first peak period in McGuire's framework, when attitude theorists were concerned with the basic elaboration and identification of the attitude construct. This process was materially facilitated by an evolving sophistication in measurement. The pioneering work of Thurstone and his contemporaries (Guttman, 1944; Likert, 1932; Thurstone & Chave, 1929) and later researchers (Osgood, Suci, & Tannenbaum, 1957) laid the essential foundation, which allowed those who followed to study attitudes in a rigorous and scientifically defensible manner. Arguably, the measurement approach developed by Thurstone set the stage for almost all that has followed in the field of attitudes and, by extension, social psychology. Thurstone's insistence on the fundamental evaluative nature of attitudes, which can be inferred clearly from his measurement model, and which was reinforced later by the work of Osgood and his colleagues (1957), has shaped theory and measurement in the field up to the present day. Although definitions of attitude have evolved over time, a central core of all of them follows from the assumption that attitudes are fundamentally concerned with evaluation (Albarracín, Johnson, Zanna, & Kumkale, 2005; Zanna & Rempel, 1988).

In the opening substantive chapter of this volume, Albarracín, Wang, Li, and Noguchi discuss the basic structure of attitudes. By its very nature, this chapter anticipates almost all that follows in this text. It provides a general overview of

many of the central issues considered, and provides a framework within which the various constructs under consideration may be integrated.

In much previous theorizing, in addition to being seen primarily as evaluative structures, attitudes were conceptualized as representational. That is, attitudes were "things" that in some way resided in memory. When asked about an attitude, the memory trace that held the requisite information was polled, and the attitude was produced. Of course, it has long been recognized that social and contextual features might influence an attitude's expression, but the trace was accepted as an established feature of the reporter's memory. More recent constructionist views conceptualize attitudes as judgments that are formed on the spot, and whose expression is dependent on the social context in which they are assessed, the internal state of the attitude reporter, and so on. Albarracín and her colleagues, as well as Schwarz, consider these contrasting views of attitudes, as representational vs. constructed, and discuss the implications of these conceptualizations for our understanding of attitude development, attitude structure, and attitude change.

Measurement Then and Now

The classic scaling approaches of Thurstone, Guttman, Likert, and Osgood, the latter two still widely used today, require respondents to report their evaluations and beliefs overtly. Recently, these manifest response methods were extended by measures that purport to assess attitudes implicitly (e.g., Greenwald & Banaji, 1995). These newer approaches seek to provide information about respondents' attitudes and beliefs unfettered by their concerns to paint a flattering self-portrait. The data generated with these measures are viewed as being largely outside the conscious control of the respondent, and thus may supply a more accurate picture of the individual's true attitudes. The search for evaluations unadulterated by mundane extraneous factors, social psychology's Holy Grail, has been a consistent theme in the field at least since Asch's (1951) time. However, establishing the validity of the novel implicit approaches is daunting. Echoing Campbell's (1969, p. 16) plaint, we are faced with "a very unsatisfactory predicament: We have only other invalid measures against which to validate our tests: we have no 'criterion' to check them against." In validations of implicit measures, we sometimes find researchers comparing responses obtained through these approaches with those collected via more standard manifest (or overt) response formats. We can guess that Campbell would not see this approach as entirely satisfactory, inasmuch as a positive, null, or even negative relation between implicit and manifest measures could be taken as supportive of the validity of the implicit (or explicit) measure, depending on the attitude of the researcher. More promising by far are studies in which a behavioral outcome is used as a criterion, and the implicit (or manifest) measure the predictor.

Schwarz provides a useful consideration of the implicit approaches, along with a discussion of the more traditional manifest response methods. The logic of the chapter is evident from the start. It begins with a consideration of direct attitude measurement, including a consideration of the cognitive processes involved in

answering direct (or manifest) attitude questions. It then moves on to a consideration of the implicit approaches, most of which are dependent on response latency measurement. As Schwarz suggests, many of the context dependencies found to affect manifest attitude measures affect implicit measurements as well. The final section of this chapter is devoted to a consideration of the representational vs. constructed nature of attitudes, an issue raised earlier by Albarracín and her colleagues.

Implicit Attitudes: A Closer Look

Devos continues the conversation with a chapter focused on the theoretical underpinnings of implicit attitudes. Among other issues considered in this chapter are the relationship between implicit and explicit attitudes, and the association of implicit attitudes with behavior. Devos's chapter supplies an insightful correction to much of the earlier work in this area which, perhaps unavoidably, focused on the measurement of implicit attitudes (a reliability issue) at the expense of considerations of validity.

ATTITUDES: FORMATION AND ORIGINS

Attitude Formation

Allied with the consideration of implicit (measures of) attitudes and cognitions are the processes of evaluative conditioning. Chapters by Walther and Langer and Olson and Kendrick both weigh in on this topic. The historic link of evaluative conditioning to earlier attitude research is very strong. It was not too long ago that social psychology was behavioristic in its orientation. The seminal work of Hovland and his colleagues (e.g., Hovland, Janis, & Kelley, 1953), after all, was framed largely in terms of Hovland's translation and extension of Clark Hull's learning theory model to issues of communication and persuasion. With Festinger's (1957) classic theory of cognitive dissonance, all of that changed, and we moved to a more intense consideration of the cognitive features of attitudes and the attitude-behavior link. It would be a mistake, however, to throw out the baby with the bathwater. There is no doubt that evaluative conditioning plays a role in our attitudes and actions. Walther and Langer detail the manner in which this phenomenon operates and distinguish evaluative conditioning from more traditional forms of S-R conditioning. The utility of the evaluative conditioning model, among others, is that this form of influence can occur without conscious awareness of the contingency between conditioned and unconditioned stimuli, and appear highly resistant to extinction. Earlier research had suggested that evaluative conditioning was a force to be reckoned with only when dealing with attitude formation: In other words, evaluative conditioning could facilitate the development of attitudes, but not their change. Walther and Langer challenge the validity of this comforting thought.

Origins

Olson and Kendrick continue with a consideration of the origins of attitudes, and bring our story back to the beginning chapters, which were concerned with the fundamental nature of attitudes. They show how attitudes may form either through implicit, or unconscious processes, or through more explicit, conscious, overtly thoughtful means. Neither is favored, both appear to operate, and these authors describe the conditions that facilitate the occurrence of one or the other. In developing their position, Olson and Kendrick frame their early discussion in terms of the tripartite model of attitude structure, in which cognition, affect, and behavior independently contribute to the content of the attitude. This model has been a part of the literature for many years (Katz, 1960), but its relevance to current considerations of attitude development is reestablished here. In addition to the tripartite model, Olson and Kendrick discuss the possible roles of evolution and genetics in attitude formation, the topic of rising interest and controversy in social psychology (Forgas, Haselton, & von Hippel, 2007).

Affect: A Corrective to the Common Cold Cognition Approach

Forgas's discussion of the role of affect in attitudinal phenomena touches on another topic of enduring interest to the field—that of the interplay between the emotional and the rational aspects of human nature. Long neglected in attitude research, affects or temporary feelings are increasingly considered in theorizing about attitude structure, content, and change. Defying simplistic views of affects as saboteurs of thoughts, recent research demonstrates that affective influences go beyond thought suppression to include thought selection and channeling into complex processing strategies that underlie attitude formation, maintenance, and change.

ATTITUDES: CHANGE AND RESISTANCE

Information Processing Approaches to Persuasion

In McGuire's (1985) classification, the second peaking of the attitude construct occurred in the 1950s and 1960s. He identified this period as the decades of attitude change. Some earlier efforts had been devoted to attitude change, but it was during this period that persuasion came into full flower in social psychology. Persuasion remains a staple of attitude research, with dual-process models, the elaboration likelihood model (Petty & Cacioppo, 1986) and the heuristic-systematic model (Chaiken, 1987), reigning supreme. Their generative power is evident in an impressive library of research that accounts for a host of persuasive phenomena. As detailed in Bohner, Erb, and Siebler's chapter, these models differentiate two qualitatively different types of processing: one relatively effortful that parses information in a persuasive message, and another relatively effortless that focuses on superficial, extraneous (e.g., source attractiveness) information. Both models postulate motiva-

tion and ability as conditions sine qua non for effortful processing. The main difference between the two models is their conceptualization of the effortless processing. Both models have evolved since their inception in the 1980s, increasing in complexity to provide a comprehensive framework for the study of persuasion.

The basic tenet of dual-process models has been challenged by an approach that postulates persuasion as a single process of drawing conclusions from available information (Kruglanski & Thompson, 1999). The unimodel functionally equates message-related and extraneous information, postulating that both are processed as evidence for persuasive conclusions depending on their subjective relevance. Introduction of the unimodel to persuasion research created quite a stir (*Psychological Inquiry*, 1999), suggesting that Bohner et al.'s claim about the model representing an evolution rather than a revolutionary break from dual process models is not uniformly shared. Clearly, discussion about the nature of information processing in persuasion continues (e.g., Kruglanski et al., 2006), with new accounts including the connectionist approach (Van Overwalle & Siebler, 2005), contributing to the discourse.

Attitude Functions in Persuasion

Extending attitude theory to the motivational domain, the functionalist approach to persuasion posits that any information processing in a persuasive context is motivated. Motives that guide information processing in persuasive contexts are encapsulated in the functions that targeted attitudes serve. Initial formalizations of this idea—a trio of motives proposed by Smith, Bruner, and White (1956) and Katz, McClintock, and Sarnoff's (1957) quartet of functions—were short-lived. Their near-tautological reasoning, difficulties in identifying attitude functions a priori, and an overall unwelcoming theoretical (cognitive) zeitgeist conspired to cause their early demise.

Improvements in a priori means for identifying and manipulating functions of attitudes have breathed new life into this approach. Watt, Maio, Haddock, and Johnson review these newer developments, along with evidence showing that persuasive information tailored to match a functional need is more effective in changing attitudes than persuasive information unrelated to such a need. Watt and her colleagues take theorizing about attitude functions beyond enumeration of motives (functions). They argue that those functions that have been consistently identified are best understood within a hierarchical framework. Modeling attitude functions as a hierarchical structure requires further conceptual clarifications of specific functions to stipulate how some functions may be nested within others. Initial steps toward this goal by Maio and Olson (2000) suggest that hierarchical approach may constructively inform research on the role of psychological needs in persuasion.

Resistance to Persuasion

A recent revival of a long-dormant interest in resistance to persuasion (McGuire, 1964) combines earlier motivational with more contemporary process-oriented

approaches to examine resistance as the outcome of a persuasive attempt (Wood & Quinn, 2003). Implied in much of this research is the idea that successful resistance to persuasion leaves targeted attitudes intact. Tormala challenges this assumption, postulating instead that resistance has important consequences for targeted attitudes. Highlighting the role of meta-cognitive factors, Tormala and his colleagues document how perceptions of resistance and the context in which resistance occurs combine to affect postresistance attitude strength. The innovative predictions of the resistance appraisal framework lend themselves to applications in many domains, including health interventions. Together with other approaches to attitude resistance (Knowles & Linn, 2004), the resistance appraisal approach provides a valuable alternative view of persuasive phenomena.

ATTITUDES: BEYOND EVALUATION

Attitude Strength

Not all attitudes are created equal. This holds true even for attitudes that seem identical in terms of responses to attitudinal inquiries. This fact became painfully obvious after the first generation of research on the predictive validity of attitudes revealed that seemingly identical attitudes could result in hugely variable behaviors (Wicker, 1969). This sobering observation sent attitude researchers back to the drawing board to rethink the very nature of their construct. Correcting their initial and, in retrospect, naïve assumption that attitudes always guide behavior, attitude researchers acknowledged that some (but not all) attitudes do so, just as some (but not all) attitudes are resistant to change, and are persistent over time. This recognition gave rise to the construct of attitude strength, which encapsulates the idea of variability in attitude impact and durability (Krosnick & Petty, 1995; Scott, 1959).

The search for properties that make an attitude strong has been fruitful (Petty & Krosnick, 1995), naturally leading to questions about the dimensionality of more than a dozen strength indicators that have been discussed in the literature. Bassili's chapter on attitude strength documents how thorny the issue of strength dimensionality is. Beyond a repeated finding that strength cannot be reduced to a single latent dimension, there is little agreement in the literature about the structure of attitude strength. Bassili reasons that the structure emerges from the processes underlying attitudinal responses. His distinction between meta-attitudinal indicators that are based on one's impressions about one's own attitudes, and operative indicators of strength that originate from the judgmental processes responsible for attitude responses, has paved the way for more theory-based approaches to dimensionality of strength. Recent attempts have focused on the antecedents and consequences of various strength features (Visser, Bizzer, & Krosnick, 2006). The logic guiding these attempts is that to the extent that strength-related features reflect the same latent dimension, they should originate from the same antecedents and generate the same consequences, but they should not cause each other. Research based on this reasoning requires comparing the commonalities and divergencies of the causes and consequences of various pairs or sets of strength features. Given

that more than a dozen identified strength features could be paired and organized in numerous sets, this is quite a formidable task. Obviously, the Gordian knot of the dimensionality of attitude structure awaits its Alexander.

Attitudinal Ambivalence

Conner and Armitage's chapter on attitudinal ambivalence nicely illustrates how reasoning about this feature of attitude strength evolved from the conceptualization of an attitude as a concurrent set of positive and negative evaluations. Moreover, the conceptualization of an attitude as a situated construal (rather than a representation stored in memory) accounts for the evidence that features of the environment, typically the attitude object itself, give rise to ambivalence. Intuitively, ambivalence should weaken attitudes. The evidence supporting this intuition, however, is equivocal. On the one hand, higher levels of ambivalence appear to make attitudes more susceptible to persuasion and less likely to guide behavior. On the other hand, higher levels of ambivalence do not necessarily lower the impact of attitudes on information processing or their temporal stability.

Some of this complexity may stem from two different operational definitions of the ambivalence construct: felt or self-reported ambivalence, and potential ambivalence derived from attitude judgment processes or its outcomes. In Bassili's categorization, the former would represent a meta-attitudinal index and the latter would represent an operative index of strength. Importantly, some attitudinal effects appear due to felt ambivalence, others to potential ambivalence, and still others to both. Conner and Armitage point out that the apparent independence of the two operationalizations of ambivalence may suggest different origins—a possibility that warrants investigation. Future research also should clarify how ambivalence involving two components of an attitude—affective-cognitive inconsistency in the parlance of consistency theories (Rosenberg, 1956, 1968)—relates to ambivalence within a single component. This research may reconcile some contradictions in the findings about strengthlike aspects of ambivalence.

ATTITUDES: MUTUAL IMPACTS OF BELIEFS AND BEHAVIORS

Attitudes as Predictors of Behavior

The continuing popularity of the construct of attitudes stems from the assumption that attitudes predict behavior. This assumption has survived numerous challenges (Wicker, 1969), which have inspired theorizing about conditions under which the assumption is tenable and the processes responsible for linking attitudes and action. Aiding in the understanding of the link is Ajzen and Cotes's distinction between global attitudes and attitudes toward behavior. Both are related to behavior according to the principle of compatibility, which asserts that a strong attitude–behavior relationship will ensue when the measures of both constructs correspond in terms of action, target, content, and time elements.

Processes linking attitudes to behavior have been formalized in several models. The MODE (motivation and opportunity as determinants of behavior) model (Fazio, 1990) assumes that attitudes guide behavior either through spontaneous (automatic) or deliberate (reasoned) processes. The former depends on the strength of the attitude-evaluation association (accessibility); the latter is activated by strong motivation and the opportunity to engage in conscious deliberation. The most prominent of the deliberative process models is the theory of planned behavior (Ajzen, 1985), in which overt actions are thought to originate from behavioral intentions, which are derived from attitudes toward behavior, subjective norms or perceived social pressure regarding behavior, and perceived behavioral control or perceived capability of behavior. The latter component also may influence behavior directly, bypassing intentions. As Ajzen and Cote explain, the core assumption of the theory of planned behavior is the reasoned nature of human action. Behavioral intentions are formed and translated into behavior through the process of logical, though not necessarily unbiased, reasoning. The impressive volume of research that the theory has inspired in various behavioral domains speaks eloquently about its impact on field. Such a large volume allows for quantitative syntheses that examine each of the paths postulated by the theory. Emerging from these meta-analyses is reasonably strong support for the theory. Equally important, these analyses have uncovered questions to be addressed in future research (Sheeran, 2002). These developments suggest that the generative power of the theory of planned action matches its explanatory power.

Behavior as a Predictor of Attitudes: The Cognitive Dissonance Approach

The attitude–behavior relationship is a two-way street, with influence flowing in both directions. Of the several accounts of the effects of behavior on attitudes, none has had more impact than cognitive dissonance theory. Since its inception (Festinger, 1957), the theory has provided insights into people's capacity to justify their counterattitudinal behavior, difficult decisions, and ill-invested efforts. In the engaging overture to their chapter, Stone and Fernandez illustrate how this justification process operates in the contemporary political arena.

The original formulation of dissonance as a negative motivational state created by the presence of two inconsistent cognitions has inspired many revisions, including those that situate the motivational source of dissonance in the aversive consequences of any behavior, consistent and inconsistent alike. The self-consistency and the self-affirmation versions agree that the (positive) self plays an important role in dissonance but disagree about the nature of that role. Reconciling divergent views, the self-standards model holds that inconsistent results might be attributed to dissimilar standards that people set for themselves, and the consequences of variations in self-esteem for discrepancies between these standards and actions. Because of varying self-standards, discrepancies between standards and actions could cause differences in dissonance.

Discrepancies from standards involve actions that contradict standards, and also failures to act in accordance with one's self-standards. The latter is an example

of hypocrisy that presumably challenges a sense of self-integrity that people are motivated to uphold. Recent studies have documented that this hypocrisy may motivate behavioral changes toward the advocated standard. Extending dissonance research to the cross-cultural domain, recent studies suggest that dissonance may be universal in that it involves anxiety about the self, but also culture-specific in that it is differently configured in terms of the culture-specific views of the self. Yet, dissonance does not appear to be a solely intraindividual phenomenon. Recent research on groups as sources of dissonance and a means of its reduction (Norton, Benoit, Cooper, & Hogg, 2003) takes dissonance research back to the group setting where it began (Festinger, Riecken, & Schachter, 1956).

ATTITUDES: THE SOCIAL CONTEXT

Social Identity and Attitudes

Although early research conceptualized attitudes as social commitments, much contemporary research examines attitudes in socially impoverished contexts. Making a strong case for socially situated study of attitudes, Smith and Hogg describe how social identity theory can inform the study of attitudinal phenomena. In this approach, attitudes are inextricably blended with group membership, in that they originate from group prototypes in an expression of one's identification with the group. This group-based approach to attitudes has important implications for understanding persuasion. Because the phenomenological validity of persuasive information is derived from in-group norms, persuasive communication from in-group sources, including those in numerical minority, should be more carefully scrutinized and ultimately more influential than persuasive communication from out-group sources. Also, attitudes and behaviors should be aligned to the extent that they are normatively consistent with important reference groups. This implies that individual attitudes of group members are manifested in collective action when both are derived from and contribute to salient social identities. These hypotheses are amply supported in empirical research reviewed in Smith and Hogg's chapter.

The motivational aspect of the social identity approach to attitudes accounts not only for its explanatory but also its generative power. Recent theorizing about the reduction of self-related uncertainty as a primary motive driving group dynamics opens new avenues for the study of attitudinal phenomena (Hogg, in press). The motivational approach championed in this framework represents an important counterpoint to the dominant information-processing orientation. Together, they hold promise to contribute to much needed cumulative understanding of attitudes (Prislin & Wood, 2005).

Persuasion from Majority and Minority Groups

Attitude change induced by groups that differ in size, normativeness, and power over others is a special case in persuasion. In their review of research on this group-induced attitude change, Martin, Hewstone, Martin, and Gardikiotis follow

four chronological phases. The initial, functionalist, approach placed the power to influence solely in the hands of the majority, because of its presumed means of control over others (minority). This asymmetrical, dependency-based model of influence was overthrown with Moscovici's seminal demonstrations of the power of minorities to influence. His conceptualization of influence as originating from conflict between source and target balanced the scale, in that both minorities and majorities could create conflict and therefore exert influence. Moscovici's position, clearly in the minority when it was introduced, single handedly changed the field to become an example par excellence of the power of minority to influence.

Once adopted, the symmetrical approach to influence flourished in comparisons involving variations in minority and majority influence. This third phase of research produced numerous models of social influence that focus on either conflict resolution or the role of social identification. Incorporated in some of these models is consideration of intraindividual processes that are activated in response to minority or majority advocacy—a theme that dominates current research on social influence. A hallmark of the prevailing information-processing approach is the examination of cognitive responses, either in their own right or as mediators of attitude change. Importantly, these processes are examined in a socially impoverished context. Martin and his collaborators recognize theoretical and methodological advantages of this approach, but they justifiably call for a broader approach that would account for a more complex social context and causal processes underlying majority and minority influence.

Normative Beliefs and Influence

Though typically not included in volumes on attitudes and persuasion, research on normative influence is important for the understanding of these phenomena as it underscores their social foundation. In their review of normative influence, Schultz, Tabanico, and Rendón emphasize how descriptive norms or perceptions of what others do, and injunctive norms or perceptions of what others approve of (or should do), can powerfully regulate behavior not only in controlled laboratory settings but also in various applied domains. Numerous accounts of normative influence clearly call for future integrative theorizing that should clarify the processes through which different types of norms influence behavior.

We hope this brief introduction has served to motivate readers to delve deeply into the many interesting and useful chapters contained here. There is much we know about attitudes—how they are formed, their structures, the ways they may be measured, and the implications of their change. The work presented on the following pages represents the richness of a mature field that is still in the process of dynamic growth, for although we know much, there is much still to know.

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II

Attitudes
Nature and Measurement

2

Structure of Attitudes
Judgments, Memory, and Implications for Change

DOLORES ALBARRACÍN, WEI WANG,
HONG LI, & KENJI NOGUCHI
University of Florida

Attitudes are important because they shape people's perceptions of the social and physical world and influence overt behaviors. For example, attitudes influence friendship and animosity toward others, giving and receiving help, and hiring of ethnic minority job candidates. More dramatically, attitudes are at the heart of many violent attacks, including master-minded crimes against humanity (e.g., the Holocaust and the terrorist attacks in New York City on September 11, 2001), but also, attitudes promote major philanthropic enterprises such as a current campaign to end poverty in the world.

When defined as evaluations, attitudes refer to associations between an attitude object and an evaluative category such as *good* vs. *bad* (Albarracin, Johnson, Zanna, & Kumkale, 2005; Zanna & Rempel, 1988). The attitude object can be a concrete target, a behavior, an abstract entity, a person, or an event (Fishbein & Ajzen, 1974). For example, individuals form evaluations of social groups (e.g., prejudice), their own behaviors (attitude toward the behavior; Fishbein & Ajzen, 1975), themselves (self-esteem; Brown, 1998), and other people (person impressions: Wyer & Srull, 1989).

Attitudes have memory and judgment components (Albarracin, Johnson et al., 2005). The memory component involves representations of the attitude in permanent memory; the judgment component involves on-line evaluative thoughts generated about an object at a particular time and place. In this chapter, the structure of attitudes in memory is reviewed, with particular attention to implicit and explicit attitudes. In reviewing memory-structures, we first talk about the internal

structure of attitudes and the relation between implicit and explicit attitudes. This section is followed by an account of how judgments are structured by means of reasoned, associative, and configural processes, and a discussion of models depicting the relation between memory structures and judgments.

ATTITUDE REPRESENTATION IN MEMORY

Explicit and Implicit Representations

Learning occurs when one clearly recalls having learned a particular task (explicit memory), but also when skills are acquired in subtle, difficult to recollect ways (implicit memory; Richardson-Klavehn & Bjork 1988; Roediger 1990). Using this explicit/implicit memory distinction, automatic or implicit attitudes have been contrasted with deliberate, explicit attitudes. Whereas explicit attitudes are measured with self-reported evaluations ("President Bush is *good* vs. *bad*"), implicit attitudes are measured with methods that assess the time to link the good vs. bad category with a particular object (e.g., President Bush; Fazio, Jackson, Dunton, & Williams, 1995; Greenwald, McGhee, & Schwartz, 1998; Wittenbrink, Judd, & Park, 1997). For a detailed discussion of implicit attitude measures, see Schwarz (this volume).

The implicit-measurement methods have yielded an impressive amount of evidence about attitudes, as well as generating considerable speculation about the nature of the constructs captured with these measures (see Devos, this volume). In the upcoming sections, we describe various structural aspects of attitudes and the relations between implicit and explicit attitudes.

Internal Structure of Explicit and Implicit Attitudes

Bipolarity A common measure of explicit attitudes is the semantic differential, a 7-point scale with a negative adjective on the left end (-3) and a positive adjective on the right end (+3). The underlying premise of this technique is that ratings of an object as *positive* have extremely high negative correlations with ratings of an object as *negative*. Some evidence suggests that this is in fact the case. For example, according to Watson and Tellegen (1985, 1999), ratings of pleasantness and unpleasantness are bipolar, leading people who report experiencing high pleasure also to report experiencing low displeasure in relation to the same object. More direct evidence comes from work conducted by Judd and Kulik (1980). Their observation that attitudes promote retention and retrieval of both consistent and inconsistent information led them to conclude that the structure of attitudes in memory is bipolar. Specifically, in their work, bipolar questions were more readily answered than unipolar ones, and information processed with bipolar questions was more easily and accurately recalled.

Ambivalence Social psychologists have long identified attitudes entailing simultaneous positive and negative evaluations of an object (Fabrigar, MacDonald, & Wegener, 2005; also see Conner & Armitage, this volume). Ambivalence

can occur because of conflict between the implications either among the various beliefs associated with an object or between the beliefs and the affect associated with an object (Ajzen, 2001). Thus, one limitation of bipolar measurement procedures is that it may mask simultaneous negativity and positivity with respect to an object.

Implications of Negative and Positive Evaluations Even in the absence of ambivalence, the negative and positive dimensions of attitudes have an interesting asymmetry. Specifically, compared with positive information, negative information tends to have a greater impact on attitudes and decisions (Cacioppo, Gardner, & Berntson, 1997; Fiske & Taylor, 1991; Klein, 1996; Matthews & Dietz-Uhler, 1998). People also tend to have better memory for negative vs. positive stimulus words (Ohira, Winton, & Oyama, 1998), and the negative (vs. positive) aspects of an ambivalent attitude can have stronger effects on behavior (Cacioppo & Berntson, 1994; Cacioppo et al., 1997; N. E. Miller, 1944). Also, supporting the notion of greater sensitivity to negative than positive information, an advertising study (Yoon, 2003) revealed that respondents exposed to fictitious brands were slow to perceive the negativity of the information but were more likely to be influenced by it. In contrast, respondents exposed to real brands were quicker to perceive the negativity of the information but were less likely to be influenced by it.

Other lines of research, however, suggest that negative information has greater impact only under certain conditions. For example, messages that are framed negatively or contain negative information are more persuasive than their positive counterparts if the information is difficult to process or recipients are accuracy motivated (Ahluwalia, 2002; Block & Keller, 1995; Homer & Batra, 1994; Meyers-Levy & Maheswaren, 2004; Shiv et al., 2004). However, negative information is not always more powerful in determining attitudes. It is less effective when people have to imagine a story about a potential negative outcome (having a problem during a vacation), presumably because they construct these stories under the most favorable possible light (Adaval & Wyer, 1998). Consistent with this interpretation, the effects of negative (vs. positive) information decrease when people are motivated to process information in an even-handed fashion, but increase when people are motivated to see themselves in a positive light (Ahluwalia, 2002).

Scale Researchers have developed a variety of scales to assess people's explicit attitudes (Fishbein & Ajzen, 1975; Krosnick, Judd & Wittenbrink 2005; Tesser, Whitaker, Martin, & Ward, 1998). Interestingly, of more than 100 studies of social psychological and political attitudes, 37 used 2-point scales, seven used 3-point scales, 10 used 4-point scales, 27 used 5-point scales, six used 6-point scale, and 21 used 7-point scales (Robinson, Shaver, & Wrightsman, 1999). Despite this diversity, dichotomous-response options appear to have advantages when it comes to understanding the scale (Krosnick et al., 2005) and may appropriately reflect the nature of the representation of evaluations in memory.

It seems unlikely that people have -3 to +3 scales stored in memory. With the exception of specific external requests to use a complex scale, or the need to compare similar objects, most judgments probably entail *good* vs. *bad* options

rather than finer distinctions. Moreover, implicit evaluative associations likely link an object with representations or manifestations of visceral affect. Hence, implicit attitudes may be insensitive to variations in the evaluative intensity of the material (Wang, 2005).

Structural Relations between Implicit and Explicit Attitudes

There are at least three possible models of the relation between implicit and explicit attitudes. The following sections address (1) a model in which the explicit and the implicit attitudes are separate (Greenwald & Banaji, 1995); (2) a model in which these two attitudes reflect different levels of processing—and censure—but are not structurally separate (Fazio, 1989); and (3) a model in which the two attitudes are separate but interact (Gawronski & Bodenhausen, 2006; Petty & Briñol, 2006).

Dissociated Systems Greenwald and Banaji (1995) defined implicit attitudes as introspectively unidentified (or inaccurately identified) traces of past experience that mediate favorable or unfavorable feeling, thought, or action toward an object. These researchers proposed that implicit attitudes reflect unconscious evaluations of an attitude object, whereas explicit attitudes reflect conscious evaluations of an attitude object (Banaji, Lemm, & Carpenter, 2001). Unlike explicit attitudes, implicit measures reflect attitudes of which the person may not be aware, and are not subject to conscious editing on the basis of social or personal concerns. Thus, awareness and disapproval of either negative or positive associations can trigger a dissociation in which the implicit and explicit attitudes can have contradictory implications, or at least low correlations.

This dissociative model is undoubtedly parsimonious and has received support in studies of attitudes toward gender (Greenwald & Farnham, 2000), race, (Banaji, Greenwald, & Rosier, 1997; Greenwald et al., 1998), ethnicity (Greenwald et al., 1998), and age (Mellott & Greenwald, 2000). These findings may be contrasted with lack of dissociation obtained in studies of attitudes toward political candidates (Nosek, Banaji, & Greenwald, 2002) and some consumer products (Brunel, Collins, Greenwald, & Tietje, 1999; Maison, Greenwald, & Bruin, 2001). Presumably, prejudice, but not consumer attitudes, produces dissociations due to attempts at disguising spontaneous yet socially sanctioned negative associations about minority groups.

A meta-analysis of this research (Hofmann, Gawronski, Gschwendner, Le, & Schmitt, 2005) revealed a mean $r = .24$ between IAT measures and self-reported attitudes. This overall low correlation is higher when individuals are likely to rely on their "gut feeling" in a particular domain (as decided by Hofmann et al.'s coders). Correspondingly, the correlation is lower when social desirability is high for a given domain than when it is not. A similar analysis of IAT data collected via the Internet also suggests that self-presentation has a small attenuating effect on the same correlation ($d = .04$), as does believing that one's explicit attitudes are disapproved by one's social group ($d = .24$). In any case, there is no perfect relation between self-presentational concerns and dissociation, as exemplified with a .33

correlation for racial attitudes and a .37 correlation for attitudes about the seasons (i.e., winter and summer).

Separate Interacting Systems

It also is possible to conceive of separate yet interacting explicit and implicit attitudes. For example, Gawronski and Bodenhausen (2006) stated that implicit and explicit attitudes are the result of two different underlying mental processes: associative and propositional processes. Associative evaluations can be activated regardless of whether or not a person considers these evaluations accurate. In contrast, explicit attitudes are evaluative judgments about an attitude object that are rooted in the processes of propositional reasoning.

Importantly, Gawronski and Bodenhausen pointed out that explicit and implicit attitudes have reciprocal influences on each other. People often use automatic-affective reactions (implicit attitudes) towards an object as a basis for evaluative judgments (explicit attitudes) about the object. This influence, however, should occur if and only if the automatic affective reaction is considered valid (i.e., consistent with other propositions). There also are potential influences of evaluative judgments on implicit associations. Presumably, if new propositions make connections between an object and an evaluative category, these connections should be represented as implicit attitudes.

Continuum

Fazio and Olson (2003) have questioned the hypothesis that implicit and explicit attitudes are two different attitudes. They argued that research participants are likely unaware that their attitudes are being assessed by means of some implicit measure. However, successful concealment of the research question does not imply that participants are unaware that they possess these attitudes. That is, people may be aware of the evaluative material in implicit measures, but they may lack the opportunity and motivation to correct for their reactions to it. The more sensitive the issue, the greater the likelihood that people will be motivated to exert an influence on overt responses to an explicit measure. In this situation, the implicit measure captures relatively raw material in memory, whereas the direct measure captures reactions altered by the opportunity and motivation to conform to a normative standard (social desirability).

Hypothesizing specific roles for motivation and opportunity leads to the prediction that when an issue is sensitive, motivation and opportunity influence what measure predicts behavior. Clearly, when motivation and opportunity are high, explicit measures should be more predictive because the more desirable associations have been deliberatively selected. Further, Fazio and Olson (2003) also predicted that implicit measures should be more predictive when motivation and opportunity are low. That is, if one cannot engage in careful correction, disguise, or selection of the implicit associations, the explicit measures should be direct translations of the implicit ones.

Distributed Networks

A model by Bassili and Brown (2005; also see Bassili, this volume) suggests that attitudes emerge from microconceptual networks that are activated by particular context configurations. In this model, microconcepts are molecular elements of knowledge that may yield evaluations in combination

with other microconcepts in the network. For example, for a person who played competitive tennis as an adolescent, tennis is represented as a collection of microconcepts having to do with the joys of winning, the disappointments of losing, traveling to tournaments, competition, discipline, pressures, fairness, and hanging out with other competitors. These prior experiences together comprise the microconcepts by which the woman evaluates the sport of tennis.

With the framework above, it is relatively easy to explain the structure of explicit and implicit attitudes. According to the model, explicit and implicit attitudes share the same base of microconcepts, but differ in potentiation, which is akin to level of activation. Potentiation depends on recent and current information about the attitude object and cognitive activity in working memory. Implicit attitudes are activations under the potentiation level, which therefore preclude the involvement of deliberate processes. In contrast, explicit attitudes are activated by deliberative process facilitated by working memory.

ATTITUDINAL JUDGMENTS

Processes Underlying Judgments and Corresponding Structures

Online judgments are formed when one considers evaluative aspects of an object either explicitly or spontaneously. Explicitly, one may open a clothing catalog with the intent of evaluating the designs. Alternatively, one may browse the catalog with the intent of selecting pictures for a child's school project and incidentally conclude that some of the designs are attractive. In the following section, we consider whether the processes are associative, reasoned, or configural.

Associative Processes Staats and Staats (1957) showed that pairing nonsense syllables with positive or negative words altered the affective response to the nonsense syllables. That is, the evaluation of the words apparently transferred to initially neutral stimuli by what is referred to as *evaluative conditioning*. In this phenomenon, the positivity of a stimulus transfers to another regardless of the order of presentation. The valenced stimulus can precede, follow, or appear at the same time as the neutral stimulus, suggesting that mere associative processes are at stake.[1] These same processes can explain how one particular association can influence other associations as they come into working memory (see Walther & Langer, this volume).

Reasoned Processes Attitude judgments also can emerge from the application of formal reasoning. For example, expectancy value models have been prominently applied to describe how attitudes are derived from beliefs through the process of formal reasoning. When purchasing a car, people often form their attitudes about a particular car by determining the car's attributes and the desirability of each attribute. In this case, the judgment is determined by the evaluations of attributes or outcomes associated with the car, the strength of the car-attribute associations, and the rule used to combine these cognitions. In Fishbein and Ajzen's (1975)

formulation, A_B is the attitude toward the behavior, b_i is the strength of the belief that the behavior will lead to outcome i, e_i is the evaluation of outcome i, and the sum is over all salient outcomes (Fishbein & Ajzen, 1975; also see Ajzen & Gilbert Cote, this volume).

$$A_B = \Sigma b_i e_i \quad [1]$$

Similarly, a conceptualization proposed by McGuire (1960, 1981) and extended by Wyer and Goldberg (1970; see also Wyer, 1974, 2003) addressed how prior beliefs can influence new beliefs and attitudes. McGuire (1960) stated that two cognitions, *A* (antecedent) and *C* (conclusion), can relate to each other by means of a syllogism of the form "*A*; if *A*, then *C*; *C*." This structure implies that the probability of *C* (e.g., "an event is good") is a function of the beliefs in the premise or antecedent, and beliefs that "if *A* is true *and* if ~*A* (Not *A*) is true, *C* is true." Further, Wyer (1970; Wyer & Goldberg, 1970) argued that *C* might be true for reasons other than those included in these premises. That is, beliefs in these alternate reasons should also influence the probability of the conclusion ("not *A*; if not *A*, then *C*"). Hence, the belief that C is true, *P*(*C*), should be a function of the beliefs in these two mutually exclusive sets of premises, or:

$$P(C) = P(A)P(C/A) + P(\sim A)P(C/\sim A), \quad [2]$$

where *P*(*A*) and *P*(~*A*) [= 1-*P*(*A*)] are beliefs that *A* is and is not true, respectively, and *P*(*C*/*A*) and *P*(*C*/~*A*) are conditional beliefs that *C* is true if *A* is and is not true, respectively.

A limitation of the conditional inference model described above is the use of a single premise. Although other criteria are considered, these criteria are lumped together in the value of *P*(*C*/~*A*), or the belief that the conclusion is true for reasons other than *A*. In contrast, other formulations consider multiple factors. Slovic and Lichtenstein (1971), for example, postulated that people who predict an unknown event from a set of cues are likely to combine these cues in an additive fashion. Therefore, regression procedures can be used to predict beliefs on the basis of several different pieces of information. In this case, the regression weights assigned to each piece provide an indication of its relative importance (Wiggins, Hoffman, & Taber, 1969). Nevertheless, the assumptions that underlie these linear approaches often are incorrect (Anderson, 1974, 1981; Fishbein & Ajzen, 1975; Tversky, 1969; Wiggins & Hoffman, 1968). Birnbaum and Stegner (1979), for example, found that participants' estimates of a car's value was an *average* of its blue book value and the opinion of another person, with the weight of each piece of information depending on the credibility of its source. Hence, nonlinear models are necessary to understand the influence of beliefs on attitudes.

Configural or Structural Processes In many instances, neither summative nor averaging models may be applicable (Anderson, 1959; Fishbein & Ajzen, 1975). Kahneman and Tversky (1982) provide strong evidence that people's estimates of the conjunction of two features (e.g., the likelihood that a woman is a feminist bank

teller) are not predictable from their estimates of each feature (i.e., being a feminist or being a bank teller) considered in isolation. In these instances, people appear to process the information configurally rather than construing the implications of each piece of information separately (Wyer & Carlston, 1979). One possible configural or structural arrangement relates to *good form,* in the spirit of Gestalt psychology. For example, information that is easier to process often is associated with positive affective reactions. Hence, harmoniously organized information is likely to produce more positive attitudes than disorganized information. Consistent with this hypothesis, Simmons and Nelson (2006) found that people were less confident in predicting the winning of their favorite team over the underdog when the game information was presented in poor, difficult-to-read (vs. easy-to-read) font, which reduced fluency and positive affect (Werth & Strack, 2003).

Another configural process relates to the organization of information in a *familiar form*. As research on mere exposure shows, neutral information gains in favorability with its mere presentation (Zajonc, 1968; see Bornstein, 1989, for a review). For example, Law, Schimmack, and Braun (2003) presented brief video sketches containing one of two brands of food products to a group of participants. One week later, despite their lack of recall or recognition of the presentation, participants liked the previously presented brands better than the unpresented ones.

A third type of configural process is *syntactic parsing, or the arrangement of stimuli using propositional structures* (e.g., a subject-action pair). Judgments emerge from temporally organized information stored in working memory. As stimuli flow through working memory in a particular sequence, the order of stimuli can determine judgments. For example, linguistic propositions may emerge when the order of relatively random material in working memory is syntactically compatible with a given proposition (Chomsky, 1959). Noguchi, Albarracín, and Fischler (2006) investigated the formation of intentions based on implicit propositions formed from random environmental inputs. They reasoned that people could form intentions on the basis of the mere succession of certain words presented in a given behavioral context. In this study, participants who previously played a prisoner's dilemma game (the behavioral context) engaged in a word-detection task. The word-detection task, introduced as a filler while awaiting the scores of the game, required participants to press a key when words began with certain letters (e.g., *A* or *N*). In a series of trials, two sets of words comprised the experimental manipulation. The manipulated words were synonyms of either "act" or "nice." In one condition, participants were exposed to the "act" words (e.g., "play"), followed by "nice" words (e.g., "fair"). In the other condition, participants were exposed to the same words in the opposite order ("nice"—"act").

After the word-detection manipulation, participants played another prisoner's dilemma game. The prediction was that the implicit proposition "act"—"nice" might motivate participants to cooperate because the order suggests a command. In contrast, the implicit proposition "nice"—"act" could be perceived as a compliment. As a result, "nice"—"act" may suggest that participants had already been nice in the prior game. In turn, this assessment may reduce the perceived need to be nice on a future game. Supporting these expectations, the "act"—"nice" sequence

increased cooperativeness from the first to the second game. Correspondingly, the "nice"—"act" sequence decreased cooperativeness from the first to the second game. Importantly, these findings were produced with the combination of words; they were not the result of a recency effect in the "be"—"nice" sequence.

Meta-cognitive Processes Human metacognitive capacity allows individuals first to form attitude judgments, then form judgments about those judgments (Jost, Kruglanski, & Nelson, 1998). These types of processes form multilayered judgments in which each judgment is the object of another judgment. For example, analyses of metacognitive principles have been applied to attitude confidence, defined as a subjective sense of certainty or validity regarding one's attitudes (see Tormala, this volume). In this case, the object of the attitude is the attitude itself, and the metacognitive judgment of attitude confidence entails a judgment about one's attitude. Attitude confidence is higher when one has been repeatedly exposed to the source of the attitude (e.g., an advertisement; Berger & Mitchell, 1989), when one experiences positive affect (Werth & Strack, 2003), and when beliefs and attitudes are univalent rather than complex (Jonas, Diel, & Bröemer, 1997; Prislin, Wood, & Pool, 1998). Attitude confidence has several notable consequences, including using the particular attitude as a basis for later behaviors (Albarracin, Glasman, & Wallace, 2004; Berger, 1992; Fazio, Zanna & Cooper, 1978), and increasing the attitude's resistance to change (Babad, Ariav, Rosen, & Salomon, 1987; Krosnick & Abelson, 1992; Swann et al., 1988).

In addition to studying attitude confidence, researchers have examined confidence in the beliefs or evaluations that underlie a particular attitude toward an object. According to Petty, Briñol, and Tormala (2002), people's confidence in the validity of their thoughts about an object, and the valence of these thoughts influence attitudes. That is, when positive thoughts dominate responses to a communication, increasing confidence in those thoughts makes attitudes toward the message topic more favorable. In contrast, when negative thoughts dominate responses, increasing confidence makes attitudes toward the message topic less favorable.

Another meta-cognitive aspect examined in past research is the perceived strength of the persuasive attack. In a series of studies, Tormala and his collaborators (see Tormala, this volume) demonstrated that participants were more certain about their attitudes after resisting an ostensibly strong message than after resisting an ostensibly weak message or after resisting arguments of undetermined normative strength. The authors concluded that people interpret their personal success in protecting their attitudes from a strong attack as evidence of the correctness of their attitude (thus increasing attitude certainty).

Conventional strength, however, is not the only judgment people make of their attitudes. How intuitive a judgment is, for example, can influence attitude confidence (Simmons & Nelson, 2006). Moreover, judgments based on what is subjectively defined as "intuitive" can last longer than judgments based on what is subjectively defined as "reasoned." Presumably, these intuitions are not questioned, or cognitive resources are recruited to bolster them. Both of these processes can explain the durability of intuitions.

MODELS OF THE RELATION BETWEEN MEMORY REPRESENTATIONS AND JUDGMENTS

Up to now, we considered the structure of attitudes in memory and also the structure of judgments as formed on line without clarifying how memory and online aspects relate to each other. In the following sections, we discuss models that emphasize memory-based influences on judgments, models that assume exclusively on-line influences, and models that consider both memory-based and online influences.

REPRESENTATIONAL MODELS OF ATTITUDES

Memory as the Primary Basis for Judgments

Fazio (1986, 1990, 1995; Fazio & Towles-Schwen, 1999) has stated that attitudes are represented in memory as summary evaluations associated with the attitude object. Although the object-evaluation associations are supposedly integrated into broader representational networks, the model concentrates on the strength of the association between an evaluation and an attitude object. Attitudes are thought to fall on a continuum defined on one end by representations of attitude objects that are not associated with a summary evaluation (i.e., *nonattitudes*, see Converse, 1964, 1974), and on the other end, by representations of attitude objects that are strongly associated with a summary evaluation.

According to this model, attitude accessibility is determined by the strength of the association between an attitude object and its evaluation. When the object-evaluation link is strong, the attitude is highly accessible and exposure to the attitude object will activate the prior evaluation. This automatic process is important because activated evaluations can guide thought and behavior in the presence of the attitude object (Fazio, Powell, & Herr, 1983; also see Ajzen, this volume). For example, highly accessible attitudes exert strong influences on behavior (Fazio, 1990) and can bias perceptions of attitude objects (Fazio, Ledbetter, & Towles-Schwen, 2000). To this extent, information about an object is likely to have a different impact depending on whether or not people possess a prior accessible attitude. Fazio's model, however, does not describe how specific representations are incorporated with other information at the time of making an evaluative judgment.

Models of Rigid Implicit Attitudes

Another example of emphasis on memory-based processes is the assumption that implicit attitudes do not change. Although this assumption later changed, implicit attitudes were initially believed to be difficult to change because they are formed gradually though experiences and learning (see Devos, this volume; Gregg, 2000; Smith & DeCoster, 1999). For example, counterattitudinal information that reliably changes explicit attitudes does not affect implicit attitudes (Gawronski & Strack, 2003; Gregg, Seibt, & Banaji, 2006); McDell, Banaji, & Cooper, 2004). In

the area of racial attitudes, white participants directly instructed not to show a bias while performing an Implicit Association Test persisted in showing it (Kim, 2003). Other research suggests that changes that are apparent in explicit attitudes are not observed in implicit ones. In particular, a rise in explicit self-esteem from older to newer generations of East Asian immigrants to the United States is not accompanied by a rise in implicit self-esteem (Hetts, Sakuma, & Pelham, 1999), nor are there cross-generational differences in implicit attitudes toward age (young vs. old) and academic disciplines (math vs. arts) (Nosek, Banaji, & Greenwald, 2002). These findings all support the possibility that implicit attitudes can be stable).

MODELS EMPHASIZING ONLINE INFORMATION

In contrast to traditional representational models of attitudes, constructionist models emphasize that judgments derive from whatever information happens to be accessible at the time. The weak form of Schwarz and Bohner's (2001) model implies that memory-based evaluative information about an attitude object plays a role in current judgments, but this role is not necessarily more important than that of external inputs. The strong form of this argument implies that evaluative judgments are exclusively guided by information present in the external context (Schwarz & Bohner, 2001). For example, individuals may use momentarily experienced affective reactions (e.g., Schwarz & Clore, 1983) or physiological arousal (e.g., Valins, 1966; Wells & Petty, 1980) to determine their evaluations of objects. They may do this without ever bothering to retrieve a previously stored prior attitude about these objects. In this strong version, even when a prior judgment serves as a basis for a subsequent judgment, the judgment is still constructed anew—it is just constructed using old information from memory.

Online use of information as a basis for judgments can be effectively modeled with an inclusion/exclusion model (see Schwarz, this volume). For example, Stapel and Schwarz (1998) drew participants' attention either to Colin Powell's decision (he was a highly popular military leader at the time) to join the Republican Party or his decision to reject an offer to run as a presidential candidate for the Republican Party. Subsequent evaluations of the party were more favorable when participants had thought of Powell joining rather than rejecting a party offer. Presumably, including Powell into the evaluation led to assimilating the party to the highly popular leader. In contrast, distancing Powell from the party led to contrasting the party from him.

MODELS INTEGRATING MEMORY REPRESENTATIONS AND ONLINE INFORMATION

Social Judgment Theory

According to social judgment theory (Eiser, 1973; Eiser & Mower White, 1974; Sherif & Hovland, 1961; for an excellent review, see Eagly & Chaiken, 1993),

attitude change is the result of a perceptual process. When the position of the communication appears close to recipients' attitudes, people become closer to the position advocated in the communication by "assimilating" their own attitude to the advocacy. In contrast, when the communication is subjectively distant from their attitudes, there is a "contrast" effect, or perception that one's attitude is more discrepant from the communication than it actually is. In these situations, people resist change, occasionally even changing in opposition to the communication.

Several other predictions of social judgment theory concern the conditions leading to contrast versus assimilation. A chief assumption is that attitude change is a function of the range of positions a person accepts and rejects. When the message position falls within this latitude of acceptance, people assimilate this position to their attitudes. When the position falls within the latitude of rejection, people contrast their attitudes with that position. Furthermore, topics that are highly involving shrink the latitudes of acceptance and expand the latitudes of rejection. The assumption that heightened involvement increases resistance to change has not received consistent support (for reviews, see Eagly & Chaiken, 1993; Johnson, Maio, & Smith-McLallen, 2005).

Information Integration Theory

Anderson (1974) was one of the first researchers to statistically model the effects of prior attitudes and new information. According to his (1959, 1974) *information-integration theory*, if a person receives n items of information, the response (R) to the set of items ($s, i \ldots n$) is given by:

$$R = w_0 s_0 + w_1 s_1 + w_2 s_2 + \ldots + w_n s_n, \qquad [1]$$

where w_i are the weights and s_i are the scale values of each item. Based on the assumption that information is normally combined by averaging rather than adding, the sum of the weights is typically set to 1. Supporting the averaging model, Birnbaum and Stegner (1979) found that estimates of a car's value were an average of information from the Blue Book and the opinion of another person, each weighted by the credibility of each source of information. However, Fishbein and Ajzen (1975) argued that an additive model is more plausible. The main source of controversy between the additive and averaging models is their ability to account for the set size effect. Whereas additive models naturally account for increases in extremity as new elements of the same value are incorporated (set-size effect), the averaging model needs to assume an initial moderate attitude to account for the set-size effect (Anderson, 1981).

The Activation and Comparison Model

Albarracin, Glasman, and Wallace (2004) also attempted to conceptualize the role of memory representations and online information in producing evaluative judgments. They proposed an activation and comparison model in which attitude change depends on three processes: (1) activating the prior attitude (retrieving it

from memory); (2) activating information related to the prior attitude (which can come from memory or an external source); and (3) comparing the prior attitude with the related information. People presumably can activate their prior attitudes as well as information relevant to those attitudes.

Consider the case in which both prior attitudes and new information from a persuasive message (e.g., a political ad) are activated. If one recognizes the message information as being the basis for the prior attitude (redundancy), one may simply select the prior attitude that summarized the information. However, if the retrieved information is new, one may attempt to integrate this information. Integrating this information may entail assigning equal weights by default. Then, both the prior attitude and the new information will be combined through simple average (Anderson, 1974). Alternatively, comparison may ensue (Muthukrishnan, Pham, & Mungalé, 1999, 2001; Pham & Muthukrishnan, 2002). Then, both perceptual comparison as well as comparative validation may determine how the information will be integrated. Perceptually, the new information may appear more invalid when juxtaposed to prior confident attitudes than it would appear alone (Sherif & Sherif, 1964; a perceptual effect). In addition, people may reason that if the new information appears valid even when it is discrepant with one's prior attitudes, this attitude may be more valid when juxtaposed to the attitude than alone (an inferential or comparative validation process). That is, the weights of the prior attitude and the new information may become interdependent.

These observations suggest that there are lower-level, perceptual types of comparative processes as well as inferential forms of comparative validation. Either form of comparison can involve a number of elements. One may simply wish to compare one's prior attitude with a current attitude to determine if the attitude has changed. Or one may compare the direction or validity of the prior information with the direction or validity of the current information. Importantly, these comparisons may be performed very quickly or may require more time. When they require time, the ability to activate the prior attitude quickly increases the chance of comparative processes that modify the weights of the information. Thus, although in many conditions quick recall of the prior attitudes increases stability (Fazio, 1989), by facilitating comparison high prior-attitude activation can also produce *change*.

Models of Malleable Implicit Attitudes

Several recent studies have suggested that implicit attitudes are more flexible than previously thought (Blair & Banaji, 1996; Blair, Ma, & Lenton, 2000). For example, Dasgupta and Greenwald (2001) found that white participants exposed to favorable exemplars of black Americans and unfavorable exemplars of white Americans showed weaker implicit prowhite preferences than did control participants. In addition, levels of automatic racial prejudice decrease with casual social encounters with members of the target group (Lowery, Hardin, & Sinclair, 2001), suggesting that implicit attitudes are fairly malleable.

The above findings of malleability of implicit attitudes greatly interested social psychologists, producing a sizable literature (see Devos, this volume). Reviews of