Chapter 10

Attitudes

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From the simplest and most ordinary acts to the highly complex and rare ones our species can perform—eating a fruit or spitting out a chili pepper, gazing intently into an infant's face or scrupulously avoiding a neighbor, saving a life or taking one at a moment's notice—we are creatures of preferences. Bundles of preferences characterize every living organism; without them, plants would not turn toward the Sun and cockroaches would not run away from it. In us, preferences exist not only in these built-in forms shared with other living beings but in distinctly human ways, such as the consciously molded attitudes we convey through artistic expression, the moral codes by which we judge our worth and our failings, or the words we craft to describe imagined utopias.

The group that gave this concept scientific birth in the early 20th century chose *attitude* as the name to refer to such preferences. So intently did the pioneers focus on a study of attitudes that the field of social psychology came to be synonymous with the study of this single concept (Bogardus, 1931; Thomas & Znaniecki, 1918). It is, in this sense, the oldest of the children displayed in the family photographs that constitute these handbooks, the oldest child that is assured front and center seat in every previous photograph taken (see Gilbert, Fiske, & Lindzey, 1998; Lindzey, 1954; Lindzey & Aronson, 1969, 1985; Murchison, 1935).

Why does the study of attitudes have this status? What made the first social psychologists decide, even as they were still marking the boundaries of their new country, that evaluations along the good-bad continuum should be the central concept? To these pioneers, understanding the predisposition *to treat entities with favor or disfavor* seemed even more basic to understanding social relations than the faculties of thought and knowledge. Writing in the first handbook, Gordon Allport (1935) provided some insight when he says that the popularity of the attitude concept "is not difficult to explain. It has come into favor, first of all, because it is not the property of any one psychological school of thought . . . furthermore, it is a concept which escapes the ancient controversy concerning the relative influence of heredity and environment . . . The term is likewise elastic enough to apply either to the dispositions of single individuals or to broad patterns of culture" (p. 798). Indeed, as Ross, Lepper, and Ward (this volume) point out, the study of attitudes has continued to be a cornerstone of social psychology.

A hundred years after the study of attitudes came to be a legitimate science, Mitchell (2009) has offered an intriguing pair of observations: First, a small set of concepts involving preferences and attitudes, as well as an understanding of the minds of others and ourselves (see Epley & Waytz, this volume), have been the core concerns of social psychology. Second, although this cluster of *self, mind perception,* and *attitude* has seemed to be a somewhat arbitrary grab bag, it may not be so at least in one sense; it now appears that these processes share a common neural substrate in the medial prefrontal cortex.

So vast is the topic of attitudes—covering as it does all forms of preferences and evaluations, measured in a diversity of ways, toward all manner of things, events, ideas and

people—that even before the research had acquired today's sprawl, some questioned the value of a term that seemed to be so undiscriminating in scope (McDougall, 1933). It is hardly surprising, then, that different periods of the last century have been partial to particular aspects of the concept of attitude, attending more to the questions of structure, function, or mechanisms of change. Likewise, different questions have varied in dominance, depending on the availability of new technologies and innovations such as census tracking, surveys, telephones, the computer, and the Internet, not to mention the ability to measure electrical activity and blood oxygenation levels.

Moreover, at different periods in American history, ideology and propaganda, consumer behavior, and intergroup relations have differentially grabbed interest and dictated where the most precious attitudes may be excavated. (For previous chapters on the topic of attitudes in earlier handbooks in this series, see Allport, 1935; Eagly & Chaiken, 1998; Green, 1954; McGuire, 1968, 1985; Petty & Wegener, 1998; for major volumes devoted to the concept of attitudes published since the late 1980s, see also Albarracin, Johnson, & Zanna, 2005; Eagly & Chaiken, 1993; Gawronski, 2007; Maio & Olson, 2000; Petty, Fazio, & Brinol, 2008; Petty & Krosnick, 1995; Pratkanis, Breckler, & Greenwald, 1989). Because the research covered here must necessarily be limited to works appearing since the publication of the last handbook in 1998, this chapter mentions some of the foundational research topics that must be largely set aside. There is no danger in doing so, however, given the remarkable treatment these subjects have received in previous handbooks and other current volumes.

The experimental analysis of attitudes, as well as its classical and modern history, could not have had a more painstaking reviewer than William J. McGuire, who wrote both the 1969 and 1985 chapters on the subject and even attempted to predict what the two decades beyond would hold. The 1998 handbook was the first to include two chapters on attitudes: one focusing on the basics of structure and function (Eagly & Chaiken, 1998) and the other focusing on persuasion and attitude change (Petty & Wegener, 1998). They likewise provide excellent closure on the first century's contributions.

LANDMARKS

The earliest decades of attitude research, the 1920s and 1930s, were marked by a strong commitment to measurement (Bogardus, 1925; Guttman, 1941; Likert, 1932; Thurstone, 1928a; see Himmelfarb, 1993). From these early contributors psychologists have the staples of formal scaling techniques. If this era of attitude research made

no other contributions, modern researchers should still be grateful. These measurement men achieved the previously unthinkable; for the first time ever, they took the ephemeral mental quality of *favoring and disfavoring* and rendered it the subject of scientific study. Writing under the title "Attitudes Can Be Measured," Thurstone (1928a) intended to erase all doubt about whether feelings toward things could be measured by comparing them with physical objects such as tables: "We say without hesitation that we measure a man when we take some anthropometric measures of him . . . his height or weight or what not. Just in the same sense we shall say here that we are measuring attitudes" (p. 530).

Eighty years later, psychologists must show whether they have delivered on this remarkable first attempt to measure the immeasurable—people's likes and dislikes. This chapter engages the question of measurement more so than some others because the decades since the 1980s have witnessed a surge of measures that involve response latencies and other ways of inferring preferences (Bargh, Chaiken, Govender, & Pratto, 1992; Fazio, Sanbonmatsu, Powell, & Kardes, 1986; Greenwald, McGhee, & Schwartz, 1998). In addition, researchers have developed and enhanced measures of physiology (Blascovich & Mendes, this volume) and brain activity (Lieberman, this volume). Since the publication of the last handbook, the very first studies of attitudes using functional magnetic resonance imaging (fMRI) have appeared (Cunningham, Johnson, Gatenby, Gore, & Banaji, 2003; Hart et al., 2000; Phelps et al., 2000). In the time since these first tentative fMRI experiments, there is already a trajectory pointing out the subcortical and cortical systems that support attitude formation, which may be involved in the subjective experience of preference, and the control exerted by conscious processes to modulate less conscious ones.

After the 1930s, measurement ceased to be as intense a focus, although there were consistent contributions motivated by various factors, including concerns about threats to validity, the specificity of measures (Ajzen & Fishbein, 1980), recognition of the interdependence of theory and method (Ostrom, 1989), and statistical advances (Bentler, 1980). This new century returns to the fore a set of epistemological questions concerning how scientists may know the nature of preferences. Such a focus is possible because the field as a whole has turned toward the study of the cognitive unconscious (see Gilbert, 1991; Hassin, Uleman, & Bargh, 2005; Uleman & Bargh, 1989). This chapter describes dozens of experiments concerning unconscious attitudes as a substantial contribution of the attitude literature.

The 1950s and 1960s witnessed the grand era of attitude research with one stream of work beginning at Yale

University and expanding to Ohio State University. Early research using behaviorist learning theory as a model for understanding attitude change emerged out of the World War II program of Hovland, Lumsdaine, and Sheffield (1949), and prospered in the work of Hovland's student William McGuire (1960, 1961). In the decades that followed, these ideas gave birth to the notion of cognitive responses as determinants of attitude change, and a series of edited volumes on attitudinal foundations, structure, function, strength, and implicit measures have appeared, continuing to this day (Greenwald, Brock, & Ostrom, 1968; Petty & Krosnick, 1995; Petty et al., 2008; Petty, Ostrom, & Brock, 1981; Pratkanis et al., 1989). Two significant dual-process models of attitude change were offered by Petty and Cacioppo (1984) and Chaiken and Eagly (1983; see also Eagly & Chaiken, 1993). Their theories may be viewed as precursors to the spurt of later research on dual-process accounts of attitudes, that is, processes that divulge their conscious and unconscious components (Albarracin & Vargas, this volume; Chaiken & Trope, 1999; Devine, 1989; Gawronski & Bodenhausen, 2007; Lieberman, Gaunt, Gilbert, & Trope, 2002; Payne, Burkley, & Stokes, 2008; Wilson, Lindsey, & Schooler, 2000).

A second stream of attitude research that developed in the 1950s and 1960s came from the ideas of Fritz Heider, Charles Osgood, and Leon Festinger, each of whom was uniquely inspired by the idea of the consistency between mental components and the complex processes that are set in motion to achieve mental alignment (see Abelson et al., 1968). Even today, the sophistication of the theorizing and the quintessential style of research on cognitive dissonance capture the imagination of students, so counterintuitive the ideas and so extravagant the experiments. These scholars emphasized attitude change and the bidirectional relationship between attitudes and behavior. Perhaps it was the public's engagement in social change during the 1960s that kept this interest in questions of attitude change alive, and psychologists studied transformations of all kinds of preferences—those toward widgets, robots, and Fidel Castro being not the strangest of them all. The idea of cognitive-affective consistency and its consequences displayed in some of the most prominent psychological research of that time continue to have direct bearing on modern work on cognitive dissonance (see Cooper, 2007; Harmon-Jones, 1999).

The study of attitude change and persuasion is not limited to the most well-known laboratories. This topic has dominated research since the mid-20th century, and this is visible in the much larger proportion of pages devoted to this subject in most previous reviews of the concept in this handbook's predecessors. For readers who are interested in the question of persuasion, several noteworthy treatments are available in the 2005 *Handb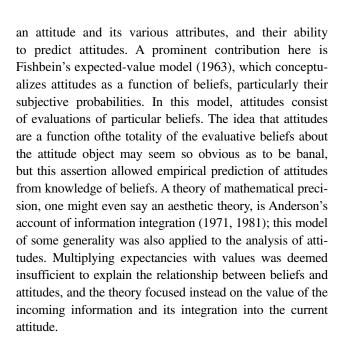ook of Attitudes* by Albarracin, Johnson, and Zanna (specifically see chapters by Brinol & Petty, 2005; Johnson, Maio, & Smith-McLallen, 2005; Prislin & Wood, 2005; Wegener & Carlston, 2005; Wyer and Albarracin, 2005).

If attitudes are predispositions to act favorably or unfavorably, then the attitudes that one has should predict one's behaviors. From the 1930s on, however, studies showed the weak prediction of behavior from attitude (e.g., LaPiere, 1934). This conception escalated in the writings of Wicker (1969), who provided an analysis of 42 studies that produced a low overall attitude-behavior correlation. Over the past several decades, scholars have devoted a great deal of attention to figuring out when attitudes and behaviors are related and when they are not. Research shows that the attitude-behavior relationship depends on the person, the situation, the attitude (e.g., how much knowledge people have about the attitude object), and the measurement match between attitudes and behavior (e.g., are researchers measuring specific attitudes and specific behaviors or specific attitudes but general behaviors; see Ajzen & Fishbein, 1975, 1977; Fabrigar, Petty, Smith, & Crites, 2006; Fazio & Zanna, 1981; Kelman, 1974; Lord, Lepper, & Mackie, 2008; Smith, Terry, & Hogg, 2006).

The engagement with questions of persuasion and attitude change has slowed down relative to the intensity of such work in the decades of the 1960s to 1990s, whereas other areas of interest have grown. Fortunately, a pair of chapters on the topic of attitudes is offered in this handbook, and other experts fully cover persuasion and attitude change (see Albarracin & Vargas, this volume).

When considering the structure of attitudes, a dominant way of thinking of evaluations as consisting of three components—affect, cognition, and behavior—has been a guiding force for much of the century; only in recent years has this perspective faded as the preferred way of thinking. Because of the influence of this tradition, studying what Eagly and Chaiken (1993) refer to as intra-attitudinal structure has involved a close look at the interrelationships among these three variables, with a focus on beliefs as the building blocks of attitudes. A second way to study attitude structure has involved looking at interattitudinal structure—that is, the relationship between and among multiple attitudes—and here focus has been directed to the consistency among various evaluations. Among the important analyses of intra-attitude structure, a primary one has been on the question of how attitudes are represented, and specifically their possibly bipolar structure (Judd & Kulik, 1980; Sherif, Sherif, & Nebergall, 1965; for an argument against the view of attitudes as bipolar, see Kerlinger, 1984). The remainder of the research on intra-attitudinal structure has been consumed with the all-important question of the role of beliefs, conceived of as associations between

an attitude and its various attributes, and their ability to predict attitudes. A prominent contribution here is Fishbein's expected-value model (1963), which conceptualizes attitudes as a function of beliefs, particularly their subjective probabilities. In this model, attitudes consist of evaluations of particular beliefs. The idea that attitudes are a function of the totality of the evaluative beliefs about the attitude object may seem so obvious as to be banal, but this assertion allowed empirical prediction of attitudes from knowledge of beliefs. A theory of mathematical precision, one might even say an aesthetic theory, is Anderson's account of information integration (1971, 1981); this model of some generality was also applied to the analysis of attitudes. Multiplying expectancies with values was deemed insufficient to explain the relationship between beliefs and attitudes, and the theory focused instead on the value of the incoming information and its integration into the current attitude.

A final landmark from the first century concerns the basic question of pragmatics: Why do people have attitudes? As the first to explicitly theorize about attitude functions, M. B. Smith (1947) laid out several objectives that evaluations can accomplish (see Kruglanski & Stroebe, 2005). For instance, attitudes can serve the function of appraisal, informing individuals as to whether approach or avoid is the correct response. However, different attitudes may serve this function to different degrees; this role is fulfilled more by readily accessible attitudes, and this concept of attitude accessibility has dominated current thinking (Fazio, 2000).

Katz (1960) proposed four functions of attitudes that have intuitive appeal even today. They include a utilitarian function, a knowledge function, an ego-defensive function, and a value-expressive function. *Utilitarian* attitudes are those that help individuals obtain rewards and avoid punishments. For example, holding a positive attitude toward capital punishment might create a feeling of belonging within a certain ideological group while avoiding potential rejection from these socially significant others. Indeed, Kelman (1958) pointed out that attitudes can foster identification with social groups, and Shavitt and Nelson (1999; see Shavitt, 1989) added that attitudes toward specific issues assist in conveying critical information about ourselves to others. Attitudes that meet the second, or *knowledge*, function allow an understanding of the situations in which one finds oneself. Those that meet the third, *ego-defensive,* function (or externalization; Smith, Bruner, & White, 1956), protect the individual from psychic threats. Katz (1960) associated this purpose primarily with prejudice, arguing from psychodynamic principles that individuals may project feelings of inferiority onto stigmatized outgroups (see Fein & Spencer, 1997). An attitude toward

the self, better known in the field as self-esteem, is another example of an ego-enhancing preference that keeps the self "lifted" and able to function in a world that constantly demands comparisons with others.

Finally, attitudes that help individuals express their core values or foundational aspects of themselves are assumed to serve the fourth, or *value-expressive,* function. These attitudes may be inherently rewarding insofar as expressing one's core values is gratifying. Just such a process may be at work in the process of self-affirmation, which among other consequences demonstrates the power of value-expression to diminish feelings of self-threat (e.g., eliminates dissonance effects; Steele & Liu, 1983). Value-expressive attitudes are privileged in other ways as well; research has shown that such attitudes are particularly resistant to change (Maio & Olson, 1995) and promote commitment to relevant behaviors (e.g., volunteerism; Lydon & Zanna, 1990; Murray, Haddock, & Zanna, 1996). The final section of this chapter takes on the question of ideology; underlying that discussion is the assumption that "thick" attitudes such as ideology, composed as they are of several strands of individual attitudes, especially may serve a value-expressive function.

DEFINITIONS OF ATTITUDE

Definitions are hair-raising, in the sense of creating excitement and terror. Allport (1935) offered 16 definitions of attitude that others before him had generated, only to slip in a 17th of his own that has been so well-cited that any student of attitudes is able to recite it even when half asleep: "A mental and neural state of readiness, organized through experience, exerting a directive or dynamic influence upon the individual's response to all objects and situations with which it is related" (p. 810).

McGuire (1968) regarded definitions to be "stifling and yet, since we have to use words when we talk, it probably helps to sketch out occasionally what we mean by our terms" (p. 142). Instead of providing a new one, he brilliantly sidestepped the issue by using Allport's definition and dissecting each of its terms and phrases not only to focus on the various meanings of "mental and neural" and "organized" but also to riff on the philosophical orientations, from positivist to interactionist, that a phrase such as "readiness to respond" evokes. In the 1985 handbook chapter, McGuire is no more forthcoming regarding a definition, offering only that empirical investigations have used as a working definition of attitude "responses that locate 'objects of thought' on 'dimensions of judgment'" (p. 239).

Eagly and Chaiken (1993, 1998) provided a simple and intuitive definition that wins on ease and broad endorsement. According to them, an attitude is "a psychological

tendency that is expressed by evaluating a particular entity with some degree of favor or disfavor" (1993, p. 1). Others have agreed that the concept of evaluation is central to the definition of attitude, noting that "[a]ttitudes have been defined in a variety of ways, but at the core is the notion of evaluation" (Petty, Wegener, & Fabrigar, 1997, p. 611). Likewise, Crano and Prislin (2006) brought together diverse characterizations of attitudes through their definition: "Attitudes are the evaluative judgments that integrate and summarize . . . cognitive/affective reactions" (p. 347). Among the changes that the concept of attitude has undergone over the century, none is as clear as the stripping away of all ancillary items to leave the core idea of "favor and disfavor" intact.

The major objection to such a definition comes from those who endorse the position that attitudes have been mischaracterized as entities of some permanence. The boldest criticism of the standard view of attitudes is found in the position of Schwarz and Bohner (2001), who take their lead from theories of situated cognition (e.g., Barsalou, 2005; Smith & Semin, 2004). Their view can be summarized as follows: Attitude theorists have traditionally defined their construct as if it represents fixed "things" that sit in memory waiting to be pulled out, used, and put back in place. Instead, Schwarz and Bohner claim that attitudes are more parsimoniously conceived of as evaluations that are "formed when needed, rather than enduring personal dispositions" (Schwarz, 2007, p. 639; see also Wilson & Hodges, 1992). The intuitive appeal of the standard definition that attitudes represent "a tendency," that is, a thing of stability, he argues, comes from the appeal of all dispositional accounts such as the fundamental attribution error (Ross, 1977). Instead, in line with other commentaries that are consistent in their rendition of the attitude concept (e.g., Lord & Lepper, 1999; Smith & DeCoster, 2000; Zaller & Feldman, 1992), Schwarz favors the idea of attitude construal—the view that attitudes do not necessarily exist in some preformed state but can be built, created, generated, on the spot, in fine-tuned response to contextual demands. Attitudes, conceived of in this way, are viewed as potentially adaptive reactions to environmental demands. Such a view is in synch with mounting empirical evidence pointing toward attitude variability across time and situations, often producing large differences with minimal variation in the instantiation of the attitude object.

An argument of this nature is not entirely new to psychology. A similar challenge was put forth in the influential view Mischel (1968) offered concerning the concept of personality. Mischel argued that, to a large extent, the idea of personality, the very essence of a person, the dimensions that are assumed to lie in the disposition of the person and that seemingly provide stability, may be a mirage created by other factors inherent in the viewer's perceptual and reasoning systems. Given the data using implicit measures of attitudes that have accumulated since the 1980s, this is an attractive way of thinking about preferences.

Attitudes are extraordinarily malleable: Implicit preference for Whites decreases in the presence of a Black experimenter (Lowery, Hardin, & Sinclair, 2001) and a likable experimenter who is perceived as holding egalitarian views (Sinclair, Lowery, Hardin, & Colangelo, 2005). Implicit racial preferences also change depending on the stimulus materials: Participants who viewed a photograph of African Americans taken in front of a church showed less bias than those who saw a photograph taken on an urban street corner (Wittenbrink, Judd, & Park, 2001), and participants who saw pictures of popular Blacks before taking an Implicit Association Test (IAT) showed less racial bias than those who did not view the positive pictures (Dasgupta & Greenwald, 2001). Emphasizing sex rather than race can also decrease bias (Mitchell, Nosek, & Banaji, 2003). Malleability is not limited to racial attitudes; context also influences evaluations of everything from cigarettes to Bill Clinton, Mike Tyson, chocolate, and the beach (see Ferguson & Bargh, 2004; Ferguson, Bargh, & Nayak, 2005; Pratto & Shih, 2000; Seibt, Hafner, & Deutsch, 2007; Sherman, Rose, Koch, Presson, & Chassin, 2003). These data support a constructionist-contextualist view that is counterintuitive; it seems easier to imagine preferences as enduring because that is the intuitive, self-reflective sense most people have of their own preferences.

In response to such evidence regarding the malleability of attitudes, Fazio (2007) has offered a persuasive counterpoint to the radical notion of attitudes-as-constructions. Although fully open to the idea of the flexibility of attitudes, he points out that an extreme "attitudes as on-the-spot constructions" view must deal with the opposing evidence that some attitudes seem to consistently pop out in the same form across time and situations. Given that human beings do learn, and learning means remembering in some form, why should attitudes not reveal some stability? They are, after all, products of repeated experiences that reinforce particular object-attribute pairings and provide similar responses to the same stimulus over repetitions. Thus, a strong constructionist view must answer the question of why savings in memory would explain other aspects of mental function (e.g., semantic knowledge) but not involve simple learning and retrieval of preferences.

Greenwald and Banaji (1995) attempted to reflect the field's engagement with relatively less conscious and less controlled forms of attitudes by offering a definition of implicit attitudes as "introspectively unidentified (or inaccurately identified) traces of past experience that mediate attributions of qualities to members of a social category"

(p. 15). Unlike the Allport definition, no student, however awake, has been known to recite this definition, but with it, the assumption inherent in the way attitudes were traditionally measured—that they must be consciously accessed contents of the mind—was explicitly set aside.

ATTITUDES ARE BASIC

The introductory material that sets the background to this chapter closes with a selection of empirical discoveries, each of which points to the basic nature of attitudes. Together, the nuggets that follow show that the evaluative dimension of information has robust orienting power, and that the human predisposition to evaluate is fundamental to all aspects of social behavior. Readers may use this as a starter list and add their own favorite demonstrations that reveal the fundamental nature of attitudes and why they remain social psychology's "most central and indispensable construct" (Allport, 1935).

In the mid-twentieth century, Osgood, Suci, and Tannenbaum (1957) analyzed the structure of ordinary words' meanings along three dimensions: evaluation (good-bad), potency (strong-weak), and activity (active-passive). They found that the first dimension, captured through poles as warm-cold, good-bad, and favorable-unfavorable, accounted for most of the variance in meaning more than twice that of the other two dimensions.

Zajonc's (1980) influential view that "preferences need no inferences" alerted scientists to the possibility that even when an evaluative response is not requested, the good-bad dimension of information "pops out" and cannot be set aside; it is automatically detected, engages, and registers in some way. Bargh, Chaiken, Raymond, and Hymes (1996) showed that such is the case by asking for mere pronunciation of words and demonstrating an evaluative priming effect even so (see Giner-Sorolla, Garcia, & Bargh, 1999, for a similar effect with pictures). In the original article (Fazio et al., 1986), evidence for evaluative priming led to a reconceptualization of attitudes as *simple associations between an object and its evaluation*. This was based on their previous research (Fazio, Chen, McDonel & Sherman, 1982; Fazio, Powell, & Herr, 1983).

Because a "need to evaluate" is regarded to be universal, Jarvis and Petty (1996) developed a measure of it, showing that the tendency to evaluate is a highly consistent and reliable single factor. Individual differences in the need to evaluate (measured by face valid items such as "It bothers me to remain neutral") are meaningful predictors of behavior.

In early research on brain activity, Cacioppo, Crites, Berntson, and Coles (1993; Cacioppo, Crites, & Gardner, 1996) provided the first evidence using the late positive potential (LPP) of the event-related brain potentials (ERP) showing that evaluative responses (e.g., answering the question, Is this good or bad?) are qualitatively distinguishable from nonevaluative responses (e.g., answering the question, Is this a vegetable or not?). The former showed significantly larger spread over the right scalp region, whereas the latter showed equal spread over right and left scalp regions.

In line with classic Eastern and Western notions of the three spheres of *thought, feeling,* and *action,* the earliest framework for grappling with the concept of attitude involved a similar tripartite configuration. Attitudes were assumed to consist of affective, cognitive (belief), and conative (behavioral) components, a view that "came early and stayed late" (McGuire, 1968; cf. Brown, 1965; Krech & Crutchfield, 1948; Sherif & Cantril, 1945). In recent years, this conceptualization has been given up in favor of one that privileges the feeling component, and such a view has been helped by discoveries that demonstrate the primacy of this factor. For example, the affective component of attitudes is more readily accessible than other components (Verplanken, Hofstee, & Janssen, 1998), and when beliefs and feelings toward presidential candidates are in conflict, feelings are stronger predictors of voting (Lavine, Thomsen, Zanna, & Borgida, 1998).

To investigate the automatic nature of preferences, Glaser (1999) and Gregg (2000) attempted to derive a series of nonsense syllables (e.g., RAS, FEQ, DAT) that should carry no particular evaluation and serve as the perfect material that could, via association, be imbued with positive and negative meaning. To their surprise, they discovered that it was nearly impossible to find nonsense words that did not evoke some relative positive or negative evaluation.

Increasingly, the idea that social judgments across a variety of domains can be meaningfully separated into goodness/warmth and agency/competence dimensions has proved to be useful (see Fiske, Cuddy, Glick, & Xu, 2002). Its appeal draws from supporting empirical evidence and the intuition that even in the late Pleistocene, social interaction must surely have required two basic assessments: how good is the other (i.e., is help or harm likely?) and how competent is the other (i.e., how effective will action based on intention be?). Items that belong to the warmth category (sincere, generous) are more readily accessible, spontaneously generated, and regarded as more important in assessing others than items that belong to the competence category (intelligence, foresight; Wojciszke, Bazinska, & Jaworski, 1998). This is different from the assumption made by some intergroup theorists, who argue that competence, but not warmth, is associated with high status (e.g., Fiske et al.; Jost, Banaji, & Nosek, 2004).

OVERVIEW OF REMAINING SECTIONS

The remainder of the chapter presents an overview of the attitude literature, focusing on the contributions that were offered between 1995 and 2010. These analyses have been conducted almost entirely with human subjects, using language and pictures as the primary vehicle to probe and elicit evaluations, and staying close to questions of measurement, structure, and change. Many of the theoretical questions originate in the need to make sense of the overlapping and divergent patterns of data across implicit and explicit measures of attitude, and this chapter describes both types of measures in depth.

The next section on measurement carries substantial detail because a cluster of new conceptual questions about the nature of attitudes has emerged through attention to methods. To signal its importance, a new entry in this chapter concerns the origins of attitudes, highlighting some of the research on the development of preferences in infants and young children. The remaining pages analyze self-attitudes (e.g., self-esteem), attitude dissociations and malleability, and ideological systems. Clear overlap exists between some of these topics and other chapters in this handbook, and readers are referred to the appropriate experts in those areas. Between 1995 and 2010 alone, more than 13,000 articles on the topic of attitudes have appeared. The remainder of the chapter presents a small sample of them to demonstrate the progress that has been made on this fundamental orientation to evaluate.

MEASURING ATTITUDES: CONCEPTUAL ISSUES AND SPECIFIC TECHNIQUES

Everybody loves a good theory. Theories represent the core of creating new knowledge because theories provide explanations. They help people understand why they might have attitudes at all, why preferences express themselves as they do, what evaluations are related to, and how attitudes dictate actions. But theories that make people rub their bellies with satisfaction are not easy to come by, and in the last 50 years, only a handful of attitude theories or models have guided substantial programs of research and survived experimental wear and tear: Festinger's (1957) theory of cognitive dissonance, Ajzen and Fishbein's (1980) theory of reasoned action, and Fazio's (1990) MODE model to explain attitude-behavior consistency; Petty and Cacioppo's (1981; 1986) Elaboration Likelihood Model; and Chaiken's (1980; Chaiken, Liberman, & Eagly, 1989) Heuristic-Systematic Model of attitude change.

Even within this top-notch collection, nobody will claim to have grand (or even grandish) unifying theories of attitudes.

Rather, these accounts provide excellent explanations for miniature pieces on the attitude landscape. The contributions of laborers in attitude villages are primarily in the form of new discoveries. To a large extent, their tractability and quality depend on the methods, increasingly the technologies, scientists are able to invent or adopt to study attitudes. Some have argued that the lack of a primary focus on theory building is hardly an embarrassment. Quite the contrary, in the other natural and life sciences, theoretical contributions are rarely significant enough or frequent enough to deserve the highest recognitions. Instead, advances that are regarded as the most important typically involve the development of a method or technology and the new discoveries that these inventions permit.

Greenwald (2004) offered such a view, noting the additional difficulty that theoretical differences are rarely successfully resolved, often resembling the argument about whether the parrot is alive or dead in Monty Python's sidesplitting skit. Suggesting that perhaps Lewin's famous dictum may be usefully reversed to read that there is "nothing so theoretical as a good method," Greenwald's assertions are not meant to claim that theory is unimportant; rather, the point is to convey that method development and empirical discoveries more often lead to, rather than follow, theory development. If this is the case, the importance of each individual contribution need not be judged solely on the grounds of advance in theory.

The following section is divided into four parts. First, traditional methods that have relied on posing questions that require introspectively rich answers using verbal self-report are examined. Here, the chapter focuses on improvements that have been made to methods that have existed for several decades. Next, in a departure from previous handbook chapters, this one focuses on measures of implicit attitude. For those whose interests have included questions of method and technique, the last decade of the 20th century has been rich in discovery and invention. Thus, the section on implicit attitude measures is longer than most and is divided into three parts: measures based on response latency, autonomic responses, and neural activity, including earlier work using ERPs and more recent work focusing on fMRI as indicators of attitudes.

Advances in Survey-type Measures of Attitudes

Most commonly, psychologists have measured behavior via verbal self-reports of mental states, the exception being those who could not, such as those working with babies and nonhuman animals. The study of attitudes has been no exception; verbal self-reports are of great interest because they provide an assessment of the knower's subjective assessment of preferences, opinions, beliefs, or values. For

much of what the psychologist seeks to understand, there is little of greater value than what is elicited through simple questions such as: What do you like? How much do you like it? Do you like this better than that?

Early measures, including Thurstone's (1928b) Equal-Appearing Intervals Method, Likert's (1932) Method of Summated Ratings, and Osgood et al.'s (1957) Semantic Differential, all relied on participants circling, marking, checking off, and otherwise offering some behavioral indicator of their accessible mental states. These three measures provide the foundation for most self-report measures that are used even today. Their advantage is a relatively low rate of random error variance because of the large number of items that usually compose each scale or test. However, because building a true Thurstone or Likert scale from scratch can be difficult and expensive, psychologists have rendered some scales simpler and easier to use.

Those who attempt to construct scales that measure traits, such as "the need for evaluation" scale (Jarvis & Petty, 1996), need to follow the standard components of scale construction, paying particular attention to reliability and validity. However, experimental psychologists who study attitudes tend to be more interested in constructing independent variables and presenting particular stimuli. Posing questions that measure attitudes has been largely a matter of keeping them simple and clear. If one is interested in the effects of misattributing one's affective state to life overall rather than the beautiful or dreary weather on a particular day, the question is posed as directly as possible: "How happy do you feel about your life as a whole?" (Schwarz & Clore, 1983, p. 519). It is remarkable how much valuable information can be learned by posing a single, simple question if the idea underlying the questioning is important and clever.

The bulk of the attention to the question of how best to measure deliberately reportable attitudes has come from social scientists, including sociologists, political scientists, and psychologists, all of whom are interested in the designs of surveys. Agreement exists that a paradigm shift has occurred in survey measurement, with the emphasis having shifted from the statistical models of sampling errors (with a focus on the effects of survey errors on estimates) to a psychological concern with the interpretation of questions, the reasons for nonresponses, and the effects of context on responses (with a focus on the causes of errors on surveys; see Tourangeau, 2003). The influence of models of cognition, including social cognition, is evident in the questions that have been posed about the self-report data. These models shifted the focus to understanding the mind of the respondent and the natural correlates of self-report data, including age, culture, and context effects of every form (see Schwarz, 1996; Schwarz & Sudman, 1996; Sudman,

Bradburn, & Schwarz, 1996). The question of data analysis is paramount in understanding the data obtained by all measures, and detailed coverage of this topic is provided by Judd and Kenny (this volume).

In a comprehensive chapter on attitude measures, Krosnick, Judd, and Wittenbrink (2005) detail the considerations that must go into creating self-report scales (see also Krosnick & Fabrigar, in press), with issues of reliability and validity of paramount importance. There are, indeed, ways to improve the reliability and validity of self-report scales. Open-ended questions, though requiring a great deal of care at the coding stage, are typically more reliable and valid than close-ended questions. Researchers who desire close-ended questions should choose a proper number of points. Scales with too few (e.g., 2–3) or too many (e.g., more than 11) points from which to choose have less reliability than scales with approximately 4 to 10 points, and validity, which increases quickly with each additional point in short measures, begins to flatten for long scales. A moderate number of points make it easier to label each one, a practice that improves interpretability, and scales of moderate length also decrease error variance because of question order.

Likewise, creators of a self-report scale must pay attention to the absolute versus relative manner in which attitude questions are posed. Here one is reminded of William McGuire, who when asked, "How was your trip to London?" would reply, "Compared to what?" Attitude questions are often posed without sufficient comparison context, and although both types are appropriate, relative questions can reduce error variance by giving all respondents a fixed comparison. In some cases, relative scales predict reported behavior, domain knowledge, and peer reports of attitude and behavior better than absolute scales (Olson, Goffin, & Haynes, 2007).

Rather than providing participants with a numeric scale, some measures may be more suited to including a set of response options. For example, rather than asking participants to rate how likely they are to vote for each candidate in an election, researchers may provide the names of all the candidates and ask participants to select the one for whom they will most likely cast their ballot. When many responses are present, however, participants may be more likely to select from the first few options presented to them, either because they are uninterested in the question or because the various options become difficult to remember. Though this difficulty can be attenuated through the use of counterbalancing, doing so introduces error variance that may not be completely random. It is helpful to take steps to prevent order effects from turning into a problem in the first place, such as shortening the length of the questionnaire to increase participant motivation and

providing response options that are easy to remember and understand (Krosnick et al., 2005).

Although most social psychologists rarely conduct research using random probability samples (because their interest is in a psychological process rather than where the country stands on a particular issue), obvious connections exist between those who study the processes of attitude formation and change, and those whose concern is measuring respondents' positions on the big issues of the day. Studying the content of a particular attitude and its changing nature, such as why changes in death penalty attitudes are rapid at particular moments in history, often provides useful information not only about such attitudes per se but about the process of attitude change itself. However, concerns involving the administration and interpretation of data from large samples selected to randomly reflect the population (e.g., of all Americans) are also a part of the study of attitudes.

Interviews conducted in person, over the phone, or online are a part of the data-gathering machine, and researchers have given the limits and flexibilities of these a great deal of thought. Recent attempts have focused almost exclusively on the manner in which the respondent understands the question—its syntax, semantics, and pragmatics—as well as cognitive biases in encoding and memory (see Tourangeau, Rips, & Rasinski, 2000). For example, a particular difficulty with phone surveys involves their auditory nature and the inability of participants to reread options. Because of other concerns, such as the lack of response in random-digit-dialing sampling, researchers often deem in-person administration to be superior when resources permit. To obtain large sample sizes, researchers may also conduct studies via the Internet, where it is possible to obtain responses from several thousand participants simultaneously. Internet sampling provides the added benefit of demographic diversity in all regards except socioeconomic; participants from any state and almost any country may complete an online measure (Gosling, Vazire, Srivastava, & John, 2004; Kraut et al., 2004; Reis & Gosling, this volume). Until Internet fatigue in responding to surveys sets in, as it did with the telephone, this technology is a useful way to generate both random and nonrandom samples.

None of the issues raised here is rocket science; yet without attention to these empirically derived solutions and improvements to survey measurement, the ability to obtain an accurate read of preferences can be poor. Among the most interesting research on attitudes, with vast implications for survey research, is work on the cognitive processes that inform the posing of questions, the effects of context, and the limits of respondents (see Sirken et al., 1999). Such work has simultaneously provided a deeper

understanding of the nature of attitudes and suggested improvements in survey measures of attitudes.

Measures of Automatic Attitudes

Psychologists have sought and used indirect attitude measures for decades. Unobtrusive measures have always been of interest in social psychology because of engagement with topics that naturally breed a concern to appear socially desirable (Webb, Campbell, Schwartz, & Sechrest, 1966). What is distinct about the modern era of interest in unobtrusive measures is a simpler worry about the lack of access to the contents of the mind. This concern is based on discoveries about the mind's two modes of operation: the conscious, deliberate, explicit, aware, intended, controlled aspects, as well as the less conscious, mindless, implicit, unaware, unintended, and automatic aspects. This chapter tends to use the terms "deliberate" or "automatic" to refer to attitudes appearing to be under the respondent's control to a greater or lesser extent. On the other hand, terms such as "conscious" or "nonconscious" and "explicit" or "implicit" refer to attitudes that are more or less within the respondent's perimeter of conscious awareness.

Speaking of the mind's two modes of operation provides a way of speaking about data that points to dissociations in the attitudes that emerge based on variations in methods used to measure attitudes; it is not meant to imply, except where directly stated, that the underlying representations are independent. Questions of whether the implicit and explicit versions of attitude toward an attitude object are two representations or a single one are difficult to test (see Conrey, Sherman, Gawronski, Hugenberg, & Groom, 2005; Greenwald & Nosek, 2008), although in some cases, as described later, neural data may give some indication.

In many circumstances, the most appropriate measure of attitude or preference is obtained by asking participants for a verbal self-report. Preferences do not have a right or wrong answer in many situations—one can express a preference pro or con for anchovies or liver, for bell-bottoms or dreadlocks, for socialism or libertarianism. In each such case, because the person's expressed preference and sometimes the reasons for that preference are of interest, a perfectly good avenue is to ask the traditional direct questions (e.g., Why do you like liver?).

The difficulty with relying solely on self-report measures stems from two sources. First and most obviously, not all attitudes are equally socially desirable. One would not be caught dead confessing a love of liver in a junior high cafeteria, much less speaking one's mind about condom use. In ways that psychologists do not understand fully, the attitudes people express are ones they are often "trying out" or representing in ever-so-slightly different ways

because of the situations in which they find themselves. Such attitudes may or may not predict later expressions or behaviors.

Because social psychologists have always gravitated toward studying the contents of consciousness that matter to people, this question of reaching the core of what a person "really thinks" has been a perennial worry. In the course of ordinary experimentation, researchers use several procedures to reduce the effects of social desirability: They create environments in which all attitudes are equally easily expressed, provide assurances and evidence that the reports are anonymous, measure the attitude unobtrusively, and mask the true purpose of the questioning (see Campbell, Kruskal, & Wallace, 1966; Crosby, Bromley, & Saxe, 1980; Devine, 1989; Dovidio & Fazio, 1992; Fazio, Jackson, Dunton, & Williams, 1995; Gaertner & Bickman, 1971; Jacoby, Toth, Lindsay, & Debner, 1992; Milgram, Mann, & Harter, 1965; Nuttin, 1985; Schwarz & Clore, 1983; Webb et al., 1966; Word, Zanna, & Cooper, 1974).

Even more interesting is the second threat to the assumption of introspective ability. The issue was brought home most strikingly by Nisbett and Wilson (1977), who showed that human beings may not know and, therefore, may be unable to report the reasons for their behaviors. Through argument and evidence, Nisbett and Wilson offered a major blow to standard assumptions about introspective access. People do not know, these psychologists showed, why they are better able to fall asleep some nights, why they fear particular objects, why they are willing to accept greater amounts of physical pain in the form of electric shocks, or why they prefer one item or sound to another. Furthermore, once people change their mind about issues such as busing, they misremember their previous attitude as matching their current one. Even people with the best of intentions may be unable to provide accurate information about their own attitudes because they simply do not know.

Looking at the same question from another angle, one can ask why psychologists should expect that people ought to know their preferences in many or most situations. Scientists do not make such assumptions about other aspects of human beings. They do not think that a good way to know about somebody's blood pressure is to ask them what it is; most people could not provide an honest and accurate answer even if they wished to.

Nisbett and Wilson's statement (1977) was well ahead of its time, offered as it was before any of the attitude measures described here were invented. By now a significant amount of research and theorizing has focused on exactly the questions they posed: What can people know about their attitudes and, more importantly, what can they not know? The interest in this epistemological question also originated because of data about the split between conscious and unconscious ways in which the mind works. Verbal self-report measures are a fine way to tap the conscious aspects of the mind's functioning, but if, indeed, a large amount of cognitive and affective processing happens without reliance on some facet of consciousness (as Bargh & Chartrand, 1999 have indicated), how should such content be accessed and understood? These questions have been asked about all aspects of social cognition, and this chapter pays close attention to the discussion as it has affected the measurement of attitudes.

Researchers have often examined hidden attitudes while studying prejudice and intergroup relations. Social scientists discovered dramatic transformations of attitudes toward members of social groups, especially those that are stigmatized, over time. For example, the attitudes and stereotypes expressed about Black Americans, Asian Americans, and Jews are vastly different today than they were even a few decades ago (Katz & Braly, 1933; Devine & Elliot, 1995; Madon et al., 2001). Behavioral shifts reflect these attitude changes, but not to nearly the same extent as one might predict.

Group differences in access to housing, education, health care, jobs, and political power have raised questions about why such discrimination continues when, in fact, attitudes show much weaker evidence of animus. Might measures of attitude be limited to particular aspects of evaluation that are visible, leaving aside important determinants of behavior that are untapped (Crosby et al., 1980; Fazio & Dunton, 1997; Gaertner & Dovidio, 1986; Greenwald & Banaji, 1995; Wilson & Brekke, 1994)?

Such concerns are not new, and alternatives to standard measures of social attitudes have been of interest for many decades. For example, in the "bogus pipeline" technique (Jones & Sigall, 1971), participants are led to believe that the researcher has a foolproof way of detecting the truthfulness of their answers by tapping into physiological processes. This is typically accomplished by attaching physiological sensors to participants and convincing them that these sensors function as lie detectors. If attitudes are solicited under such circumstances, it is assumed that the subject will not lie because of a belief that the experimenter would ferret out the right answer anyway. A meta-analytic review indicates that bogus pipeline procedures elicit more honest responses than do control conditions, particularly when participants are asked to guess the physiological output of the "lie detector test" (Roese & Jamieson, 1993). That is, participants who were connected to an apparatus that they believed was capable of determining their true attitudes responded in a less socially desirable way than participants who were not connected to such an apparatus. Furthermore, participants who were presented with a Likert-type scale asking them to report what they believed

the apparatus had recorded were even less likely to respond in a socially desirable manner.

However, self-presentation concerns are not the only reason to be interested in implicit measures (Nosek, 2007). As noted earlier, the thornier problem of attitude measurement remains the issue of measuring what is unknown to the respondent. The remainder of the tests described in this section, and the work that has commanded the greatest attention by far, falls into the category of measures that assume that respondents do not and cannot, by and large, have access to particular preferences they hold and act on. The assumption is that this state of affairs in the realm of attitudes is similar to what is true of other mental faculties such as perception, attention, memory, and reasoning, all of which are subject to veiled access.

Measures of Implicit Memory as a Model for Measures of Implicit Attitudes

Students of memory know that their field changed in significant ways starting in the late 1970s. Evidence converged from patients with striking memory disorders, as well as from the more mundane behavior of ordinary college students, showing the existence of entirely new forms of memory never previously seen. If there was any doubt that the mind is only as knowable as the techniques or technologies available to know it, these studies provided the evidence. For 100 years, since Ebbinghaus, the gramophone needle of measurement had been stuck in a single groove of repeatedly asking one form of question: to recollect what had happened before. But beginning in the 1970s, even though they were interested in the same thing (memory for an event), scientists did not just ask for recollections of times past. Instead, they asked what seemed like odd questions to understand memory: "Do you see this to be a word or nonword?" (lexical decision task); "What, if anything, did you see flash by?" (perceptual identification); "Can you complete this fragment to make a meaningful word?" (word-fragment completion); and even, "How much do you like this?" (Jacoby, 1993; Richardson-Klavehn & Bjork, 1988; Roediger, 1990; Roediger & McDermott, 1993; Schacter, 1987).

Following on the heels of substantial research using lexical decisions to understand semantic memory (Meyer & Schvaneveldt, 1971; Neely, 1977; Posner & Snyder, 1975), these new tasks transformed how episodic memory, or memory for events, was studied. If subjects had seen the information before, whether they consciously remembered seeing it or not, they were faster to say it was a word, more likely to see it even though it whizzed by at high speed, and more likely to use the word to fill in the blanks. These tests served as indices of what was saved in memory and whether the person was able to recollect it when asked, "What do you remember?"

A growing repertoire of measures expanded the very notion of what memory is. At least on the surface, the newly discovered types of memory bore faint resemblance to the familiar meaning of this construct, but these new measures were revealing intriguing dissociations between different measures of memory. What the measures of conscious recollection were detecting seemed dull when probed by indirect measures and vice versa. From such discoveries, the same construct of memory came to be expanded to include varyingly named extensions such as unconscious memory, implicit memory, automatic memory, indirect memory, and procedural memory.

Evaluative Priming

Starting in the 1980s, Gaertner and his collaborators (e.g., Dovidio, Evans, & Tyler, 1986; Gaertner & McLaughlin, 1983), Fazio and his colleagues (see Fazio et al., 1986), and Chaiken and Bargh (1993; see Bargh et al., 1992; Duckworth, Bargh, Garcia, & Chaiken, 2002) developed and used a measure of evaluative (attitude) priming. Evaluative priming tasks are based on the assumption that, if an object (e.g., candy) elicits a positive evaluation, it should facilitate responses to other positive things such as "good" and "pleasant" because the two sets of stimuli are evaluatively congruent. Likewise, if an object (e.g., Brussels sprouts) elicits a negative evaluation, it should facilitate responding to other negative items such as "bad" or "unpleasant" because of the shared negativity. Importantly, priming effects should hold only in relevant domains. That is, evaluative priming should be seen in situations where participants are asked to decide whether something is "good" or "bad," but facilitation should not be seen in other kinds of judgments (e.g., "object" or "person"; see Wittenbrink, 2007).

Response latencies, that is, the time taken to respond to a word measured in milliseconds, provides an indirect measure of attitude strength. Participants see primes (attitude objects such as candy or Brussels sprouts) for a short duration (e.g., 200 ms). Primes are followed by targets (evaluative words such as "good" or "bad"), and the participants then have the job of determining whether the target word describes the prime. If participants hold a strong association between the prime and the target word, they ought to respond faster that the word describes the prime than if they hold only a weak association between the two.

Moreover, if evaluation is a strong driver of judgment, the priming result should be obtained even when the judgment is itself nonevaluative, such as when the task the subject performs does not involve a good-bad decision but is, for example, a simple pronunciation task (see Bargh et al., 1996; Giner-Sorolla et al., 1999). Results obtained through priming techniques may be influenced by factors such as attitude strength or accessibility, the representation

of the prime (whether it is a picture or a word), and task instructions (Wittenbrink, 2007).

Psychologists have created several variations on this basic priming paradigm. In some work (e.g., Giner-Sorolla et al., 1999, Study 2), participants are exposed to a prime and are then asked to pronounce a word that appears immediately afterward. In studies such as this, participants are not required to make an explicit evaluative judgment. The crucial dependent variable is the length of time participants take to pronounce the words, which is shorter when the word is evaluatively congruent with the prime. In other variations, primes are presented in such a way that participants are unaware of what they have seen (either because the prime appeared for too short a time or because it was immediately covered by another object on the screen). Nevertheless, even in these cases, the primes have been found to influence evaluative judgments (e.g., Croizet, 1998; Greenwald, Klinger, & Liu, 1989; Otten & Wentura, 1999; Weinberger & Westen, 2008).

Consider a typical priming experiment: participants are told that they will be taking part in a study on "word recognition and meaning," and will be asked to perform several word judgment tasks of increasing complexity (Fazio et al., 1986). Participants are seated in front of a computer, and their first task is to decide whether particular words are "good" or "bad" using unique keys on a keyboard to answer as quickly and accurately as possible. After completing this task, they are excused for a short break while the experimenter selects 16 of the 70 words to which they have responded. These special 16 are chosen on the basis of each participant's reaction time: The four words that they have most quickly judged to be good or bad are chosen as instances of strong primes. Likewise, the four that they were slowest to label good or bad serve as weak primes.

Participants then reenter the room and are given a second task. They will again see words to be judged as good or bad, but this time, each adjective will be preceded by a "memory word" (either 1 of the 16 surreptitiously chosen words or a nonsense string such as BBB). Participants must pronounce the word or string aloud while making their judgment. The results are clear: Participants are faster to judge words as "good" or "bad" in the second task if they are busy pronouncing a word of the same valence, particularly when the "memory word" is a strong rather than a weak prime. A participant who has quickly judged the word "cake" to be positive in the first task, for example, is significantly faster to rate the word "delightful" as good when pronouncing the word "cake."

The magnitude of such priming effects seem to influence a plethora of behaviors. For example, an implicit preference for White over Black, as indicated by performance on tasks such as those described earlier, predicts the degree of bias in nonverbal behavior suggestive of racial discomfort among a sample of Whites interacting with Blacks (Fazio et al., 1995). Furthermore, racial cues can prime an association with violent objects. For example, White participants tended to misidentify harmless tools carried by Blacks as guns, though they made this mistake significantly less often when examining White targets (Payne, 2001). Even people with the best of intentions are prone to errors such as this, perhaps because stereotypes (e.g., Blacks are violent) are automatically activated in the presence of a relevant group member, regardless of one's level of prejudice or stereotype endorsement (Devine, 1989). Evaluative priming is not confined to the racial realm but also predicts social distance from other stigmatized groups (e.g., obese people; Bessenoff & Sherman, 2000), as well as nonintergroup experiences such as anxiety during an interview (Spalding & Hardin, 1999). As Wittenbrink (2007) points out, priming techniques generally predict such behaviors better than do self-report measures.

Not all priming methods rely on presentations that are too quick for conscious processing. In the Affect Misattribution Procedure, participants view photographs of smiling or scowling faces and then rate Chinese pictographs as either "more pleasant than average" or "less pleasant than average." Participants who saw scowling faces tended to rate the pictographs less favorably even when they were specifically instructed that the photographs they had previously seen might bias their responses (Payne, Cheng, Govorun, & Stewart, 2005). These findings demonstrate that even conscious priming, which the participant has been told is a source of bias, can have a strong influence on attitudes, even attitudes toward unrelated objects.

Implicit Association Test

The IAT, like evaluative priming, estimates the strength of association between concepts (the attitude objects) and attributes (Greenwald et al., 1998). When the attribute involved is the good-bad or pleasant-unpleasant dimension, the resulting outcome is deemed to be a measure of implicit attitude. When the attribute involved represents a stereotype (e.g., violent/nonviolent), the resulting outcome is considered a measure of belief (see Banaji, 2001).

Used prominently in the study of attitudes toward social groups, an example of the IAT as a measure of attitudes toward people of different ages would unfold in the following manner (for details on constructing an IAT, see Lane, Banaji, Nosek, & Greenwald, 2007): Participants would first classify pictures of faces by pressing one key if the face is that of a young person and a different key if the face is that of an elderly person. Next, participants would respond to various words by pressing one key if the word is positive (e.g., joy, love) and a different key if the

word is negative (e.g., terrible, agony). In the following block of trials, participants would see either a word or a picture of a face. They would be asked to press one key if they see either a positive word or a young face and a different key if they see either a negative word or an elderly face. In the last block of the IAT the pairing would be reversed; now participants would be asked to press one key if they see either a positive word or an elderly face and a different key if they see either a negative word or a young face. The order of blocks is counterbalanced across participants such that some are first asked to pair good+young/bad+old, whereas others are first asked to pair good+old/bad+young. The IAT score is obtained by subtracting mean reaction times to the unexpected or counterstereotypical pairing (in this case, good+old/young+bad) from mean reaction times to the opposite pairing. In this case, positive scores reflect a tendency to respond faster when young is paired with good and old is paired with bad. Greenwald, Nosek, and Banaji (2003) have offered a new scoring algorithm based on data of thousands of participants.

To someone whose conscious attitude toward the elderly is negative, the typical age attitude result on the IAT should come as no surprise. Most people who have taken the test show some level of elderly/bad association; however, for the vast majority who do not sense in themselves any negative attitude toward the elderly—especially those who are elderly themselves—the IAT result can be surprising and not necessarily acceptable. In an attempt to raise awareness about dissociations between explicit and implicit attitudes and beliefs (discussed further in the Attitude Dissociations section later in this chapter), several tests that often divulge such dissociations are available online at: http://implicit.harvard.edu. To date, more than 10 million tests have been administered.

Although it has been used as a measure of implicit attitudes, the IAT can easily be adapted to provide a measure of implicit beliefs. Such a test may involve comparison of performance in male-female concepts with strong-weak attributes or Black-White concepts with scholar-athlete attributes. Likewise, the IAT can be turned into a measure of implicit self-attitude by measuring the association of self with the good-bad dimension (Greenwald et al., 2002; see the section entitled, "The Attitude Toward Oneself").

In the years after its development, the IAT was used to study intergroup attitudes more than other types of evaluations; however, it is increasingly visible in other research programs, including those concerning consumer behavior (Janiszewski, 1988; Maison, Greenwald, & Bruin, 2004; Shapiro, 1999) and attitudes of interest to clinical psychologists. For example, the test has been used to study attitudes in clinical samples toward phobia-producing stimuli

(Teachman, Marker, & Smith-Janik, 2008), in psychopaths toward violence (Gray, MacCulloch, Smith, Morris, & Snowden, 2003), and in adolescents toward self-harm (Nock & Banaji, 2007). Researchers have also used the IAT to study happiness (Walker & Schimmack, 2008), alcohol consumption (Ostafin & Palfai, 2006), smoking (Robinson, Meier, Zetocha, & McCaul, 2005), and achievement (Brunstein & Schmitt, 2004), among other topics.

Questions of validation have been addressed most reassuringly though through studies of the relationship between IAT scores and behaviors that satisfy the desire for ecological validity. The IAT has been shown to predict a vaiety of such outcomes including the voting behaivor of undecided voters (Arcuri, Castelli, Galdi, Zogmaister, & Amadori, 2008); political attitudes toward enlarging a U.S. military base (Galdi, Arcuri, & Gawronski, 2008); actual suicide attempts (Nock, Park, Finn, Deliberto, Dour, & Banaji, in press); response to treatment for panic disorder (Teachman, Marker, Smith-Janik, in press); adolescents' development of alcohol and drug addiction (Thrush, Wiers, Ames, Grenard, Sussman, & Stacy; 20007; Wiers, Houben, & de Kraker, 2007); hiring of ethnic minorities in an Arab vs. Swedish applicant pool (Rooth, 2009); intent to change jobs (von Hippel, Brener, & von Hippel, 2008); and nation-level gender differences in 8th grade science and math achievement (Nosek, et al, 2009).

Among the questions of interest has been the relationship between measures of implicit and explicit attitudes. These two families of measures can be quite dissociated from each other (the signature result from this area of research), but the domain in which they are implemented predicts the degree of association that will be obtained. In some domains, such as voting behavior close to an election, implicit and explicit evaluations are substantially correlated, but in many domains, such as intergroup attitudes, a two-factor solution offers the best fit (e.g., ethnocentrism; Cunningham, Nezlek, & Banaji, 2004). Nosek's extensive research on the topic of implicit-explicit convergence and divergence (see Nosek, 2005, 2007; Nosek & Smyth, 2007) shows that this relationship varies as a function of self-presentation demands, evaluative strength of the attitude, dimensionality (i.e., whether the measured attitude consists of two distinctive poles), and evaluative distinctiveness (i.e., how much one perceives the attitude to differ from the average attitude of the group).

The IAT is easily adaptable, and researchers have created many variations. To overcome the limitation of relying on two distinct categories (e.g., Black and White), the Go/No-go Association Task (Nosek & Banaji, 2001) presents participants with one target item (e.g., Black faces) and numerous distracter items (e.g., Latino, Asian, and White faces) to which they must inhibit a response. Other variants present

participants with only one category (e.g., Black faces; Karpinski & Steinman, 2006) or ask subjects to categorize according to both category and attribute at the same time. In the latter case, participants may see a picture of a face and a word presented together in the middle of the screen and be asked to press one of four keys: one key if they see a picture of a Black face paired with a positive word, another key if they see a picture of a White face paired with a negative word, and so on (Bar-Anan, Nosek, & Vianello, 2009). Similarly, another variant presents stimulus items in this same way but includes neutral categories such as "furniture," as well as more traditional categories (e.g., faces and positively or negatively valenced words; Blanton, Jaccard, Gonzalez, & Christie, 2006). In other variations, the number of blocks and trials has been reduced (Sriram & Greenwald, 2009; Teige-Mocigemba, Klauer, & Rothermund, 2008) to further shorten the duration of the IAT and make it appropriate for inclusion in large-scale data-gathering exercises involving multiple sites. Another variant of the IAT asks participants to respond by moving a joystick, thus indexing unconscious preference through automatic behaviors (Schnabel, Banse, & Asendorpf, 2006). Finally, the IAT has been adapted for use with children as young as 6 (Baron & Banaji, 2006).

Other Response Latency Measures of Implicit Attitudes

In addition to evaluative priming and the IAT, which are the two most widely used measures of unconscious attitudes, researchers have developed numerous other measures. The first of these, developed in the late 1970s, is quite similar to a derivation of the IAT. Known as the Eriksen Flanker Task (Eriksen & Schultz, 1979), this measure asks participants to respond to a stimulus surrounded by distracter items. Congruent sets consist of items (e.g., arrows) pointing in the same direction, whereas incongruent sets contain distracter items pointing in different directions. Participants are expected to respond faster to congruent rather than incongruent sets, indicating the orientations that they find most related.

A second task adapts the original Stroop task to the study of attitudes. Known as the Emotional Stroop Task (e.g., Mogg, Mathews, & Weinman, 1989; Pratto & John, 1991), this measure requires participants to pronounce the color in which a word is written rather than saying the word itself. Positive and negative words are presented, and the response latency to name the color in which the word is written is used as an index of attention resources. Participants are slower to respond with the color name when undesirable traits are presented, indicating that such words require more attention than desirable trait labels (Pratto & John, 1991). This task could, therefore, be used to determine which of two stimuli a participant favors,

based on the expectation that a participant will respond with the color name faster when they evaluate a particular stimulus as positive (de Houwer, 2003).

Another test, the Extrinsic Affective Simon Task (de Houwer, 2003), uses differently colored words to determine participants' evaluations of stimulus items. Instead of pairing attributes with categories, this task utilizes white and colored words. Participants are asked to categorize the white words based on their valence and the colored words based on their color, the expectation being that participants will respond more quickly when the white and colored words assigned to the same key share valence. For example, a participant may be asked to respond with one key whenever a positive white word or any blue word appears, and to respond with another key when a negative white word or any green word appears. In this case, participants should be faster to categorize the word "joy" written in blue and the word "vomit" written in green, because "joy" is paired with positive white words and "vomit" is paired with negative white words.

Finally, another task based on response times engages the participant physically. Using Evaluative Movement Assessment (Brendl, Markman, & Messner, 2005), researchers ask participants to categorize stimuli by moving a joystick toward or away from their own body. For instance, participants may be required to pull a joystick toward themselves if they see positive words and away from themselves if they see negative words. This measure allows researchers to measure attitudes toward several different objects using one scale that is centered on a neutral point. That is, because the crucial dependent measure is a difference in reaction times (how long the participant took to push or pull the joystick in response to the same word), the true zero point reflects no difference in reaction time.

Criticisms of Response Latency Measures

The measures described earlier have not been immune from criticism, and critics have posed three main clusters of challenges: psychometric properties, procedural features, and predictive validity. It has been argued that response latency measures do not necessarily correlate highly with each other (Bosson, Swann, & Pennebaker, 2000) and that response latency measures lack a nonarbitrary zero point (Blanton & Jaccard, 2006). Yet others have questioned the proper interpretation of the scores from such tests, drawing a distinction between the individual's own attitude versus cultural learning (Karpinski & Hilton, 2001; Olson & Fazio, 2004), and posed alternative explanations in terms of greater familiarity or greater salience as the determining reason for the obtained outcome rather than attitude per se (Brendl, Markman, & Messner, 2001; Rothermund & Wentura, 2004). These debates have enhanced an understanding of the IAT and other response latency measures

that share its properties. (Some definitive responses, as well as ongoing debates, can be found in Banaji, 2001; Banaji, Nosek, & Greenwald, 2004; Dasgupta, McGhee, Greenwald, & Banaji, 2000; Greenwald, Nosek, Banaji, & Klauer, 2005; Greenwald, Nosek, & Sriram, 2006; Greenwald, Rudman, Nosek, & Zayas, 2006; Lane et al., 2007; Nosek & Hansen, 2008; Ottaway, Hayden, & Oakes, 2001; and Rudman, Greenwald, Mellott, & Schwartz, 1999.) Perhaps not surprisingly, these measures being so counter to the standard method of measuring attitudes, some have posed questions about the predictive validity of response latency measures. What can scientists learn about meaningful human behavior by knowing that individuals respond to some words or pictures faster than others? Given the hundreds of studies that are now available using such methods, a great deal is now known about the various forms of validity of the measures. Response latency measures correlate with neural activation patterns, fall into line with expected "known-groups" differences in attitude, and predict nonverbal responses of friendliness, the choice of a partner, performance ratings, and the treatment of others (Greenwald, Poehlman, Uhlmann, & Banaji, 2009; Jost et al., in press).

Other Indirect Measures of Attitudes

Another commonly-used group of indirect attitude measures are linguistic in nature. Language reveals much about thoughts and emotions, and some of these revelations are unconscious and unintended. In a thorough review of the revelations language provides about preferences, von Hippel, Sekaquaptewa, and Vargas (2008) suggest that people's words may reveal more about themselves than they might know. For example, the number of plural pronouns (we, us) as compared with the number of singular pronouns (I, he, she) participants used when writing about relationships has proved to be a strong predictor of their friendship quality (Agnew, van Lange, Rusbult, & Langston, 1998), and priming people with plural pronouns causes them to feel greater interdependence (Brewer & Gardner, 1996; Gardner, Gabriel, & Lee, 1999). Likewise, people may reveal their attitudes through their choice of adjectives, relying on broader adjectives to describe attitude-consistent behaviors. For example, if a favored in-group member behaves positively, people may say that the action is nice, which is perceived to be a stable quality. However, if a disliked group member performed the same action, individuals might label it "generous" (if the person has just offered them money) or "helpful" (if they have just opened a door for someone), implying that the outgroup member is not "nice" in general but performs only specific positive behaviors (Hamilton, Gibbons, Stroessner, & Sherman, 1992). People may also refer to the ingroup member as "nice" and say that the outgroup

member "sometimes lets me borrow money from him," again implying that similar others are stably nice, whereas dissimilar others may only do nice things on occasion (Walton & Banaji, 2004).

Although this section provides an extensive list of implicit behavioral measures of attitude currently in use, the list is not complete. Other such measures include the name-letter effect (e.g., Koole, Dijksterhuis, & van Knippenberg, 2001; Nuttin, 1985), the stimulus response compatibility task (Mogg, Bradley, Field, & de Houwer, 2003), the implicit association procedure (Schnabel, Banse, & Asendorpf, 2006), the single association test (Blanton et al., 2006), the approach-avoid task (Rinck & Becker, 2007), the implicit relational assessment procedure (e.g., Barnes-Holmes, Hayden, Barnes-Holmes, & Stewart, 2008), and the word association task (Stacy, Leigh, & Weingardt, 1997). All together, the development of such measures has been an extensive preoccupation of scientists interested in attitudes and other aspects of social cognition.

Measures of the Autonomic Nervous System

The rapid blink of an eye, the rush of sweat to the palms, and the hastening of a heartbeat are, according to some psychologists, useful indicators of a person's attitude toward the thing that is responsible for such bodily responses. Blascovich and Mendes (this volume) thoroughly review common physiological measures and describe several ways in which researchers have used these techniques to study attitudes. This section elaborates on the ways in which scientists have applied biological psychology to the study of preferences.

In spite of the obvious advantage of stealth, physiological measures did not fare well enough to become broadly used as a means of measuring attitudes for a variety of reasons, including the inability to distinguish positive from negative responses. For many decades they played a more minor role in understanding attitudes, and such techniques have even been viewed as the poor cousins of more expensive measures of brain activity. However, because physiological measures provide an intriguing glimpse into the structure and functions of attitudes, this section describes some of the more commonly used physiological techniques in the hopes of enhancing understanding of this important methodology.

Cacioppo and colleagues (Cacioppo, 1982; Cacioppo & Sandman, 1978) used such measures quite early and extensively to understand the nature of attitudes (Cacioppo, Petty, Losch, & Kim, 1986; Cacioppo & Sandman, 1981; Ito & Cacioppo, 2007), and Blascovich and Mendes have added substantially to the continued application of these methods in many aspects of social cognition, including attitudes (see

Blascovich & Mendes, this volume). Like other measures of implicit attitudes, physiological recordings allow researchers to gain access to attitudes that participants may be unwilling or unable to report. Unlike other techniques, physiological measures also allow for continuous recordings and, therefore, may provide an index of attitude shifts over a brief time span (Cunningham, Packer, Kesek, & van Bavel, 2008).

One of the earliest measures of physiological responding is electrodermal activity (EDA, also known as skin conductance response [SCR] or galvanic skin response). EDA measures the amount of sweat produced by the eccrine glands, which are found throughout the body but are heavily concentrated on the hands and feet (for more details on this method, see Mendes, 2008). Among the first experiments to use EDA as an attitude measure demonstrated that participants showed greater EDA increases when interacting with a Black rather than a White experimenter (Rankin & Campbell, 1955). Later researchers have pointed out that physiological responses can be nonspecific and may indicate general levels of arousal; in Rankin and Campbell's (1955) study, for instance, it is not possible to determine whether increases in EDA signaled a positive or negative evaluation (Krosnick et al., 2005; Mendes, 2008). However, physiological changes can provide information about particular attitudes in constrained settings. For instance, if the experimental situation is limited to fear, EDA activity may be used as an index of fear responding; in other situations, the same marker may simply indicate greater arousal or attention to particular stimulus items.

Since the development of EDA measures, psychologists have continued to adopt an increasing number of techniques used by physiologists. For instance, participants evaluated ideographs more favorably when they were presented during arm flexion than during arm extension (Cacioppo, Priester, & Berntson, 1993). It has also been shown that physical approach behaviors (e.g., pulling a lever toward oneself) improved interracial attitudes compared with avoidance behaviors (e.g., pushing a lever away; Kawakami, Phills, Steele, & Dovidio, 2007).

Though EDA is often used as an index of arousal in response to a particular stimulus, it is a poor indicator of valence. Individuals may show an increase in EDA because they are looking at something they really like or something they really do not like, and it is impossible to differentiate these responses by examining EDA alone (Cunningham et al., 2008). For this reason, other measures are necessary to accomplish such a task. Facial electromyography (EMG) can reveal negative or positive affect associated with a particular target, even when independent judges are unable to detect an evaluative response (see Krosnick et al., 2005). EMG measures electrical activity created in response to muscle contraction, with stronger contraction force resulting in higher measurements (Hess, 2008).

From EMG, much has been learned about the unconscious nature of attitudes. Participants in one study, for example, showed more cheek area activity (associated with smiling) when exposed to a smiling face, even when they did not consciously process the stimulus. Likewise, participants showed greater brow activity in response to an angry face as compared with a neutral-face baseline (Dimberg, Thunberg, & Elmehed, 2000). Such facial expressions can indicate positive (in the case of smiling) or negative (in the case of frowning) attitudes. People continue to be influenced by faces seen long enough to be processed consciously; when viewing positively evaluated targets, participants engaged in more facial mimicry than when viewing negatively evaluated targets. In fact, negative targets can elicit opposing facial expressions (e.g., zygomaticus major activity, associated with smiling, in response to a sad expression; Likowski, Muhlberger, Seibt, Pauli, & Weyers, 2008). The relationship here is reciprocal; not only do people mimic those they like, but they can facilitate liking by copying others. In one study, participants who interacted with a mimicking confederate later reported more liking of their interaction partner than did those who interacted with a nonmimicking person (Chartrand & Bargh, 1999, Study 2).

Although EMG is a powerful measure because of its capacity to index microscopic activity that cannot be detected by the naked eye, other researchers have focused on changes that are even more difficult to see, diving beneath the skin to explore the autonomic nervous system. In one study, researchers measured ventricular contractility (the time from the beginning of the left ventricular contraction to the opening of the aortic valve of the heart), cardiac output (the amount of blood being pumped by the heart), and total peripheral resistance (the overall amount of vasoconstriction or vasodilation occurring in regions outside the brain and heart) during interactions with expectancy-violating partners (e.g., an Asian confederate speaking with a Southern accent). They found that participants interacting with an expectancy-violating partner exhibited less ventricular contraction, lower cardiac output, and greater total peripheral resistance than did participants interacting with a non-expectancy-violating confederate (Mendes, Blascovich, Hunter, Lickel, & Jost, 2007). These reactions are consistent with threat responses and indicate that participants interacting with unexpected others felt threatened rather than challenged by the interaction. Participants whose expectations had been violated also exhibited less positive affect and rated their partners less positively than participants whose partners matched expectations, indicating that

people may hold more positive attitudes toward individuals whose behaviors are in line with their expectations.

It is clear that measures of autonomic arousal can provide a rich picture of attitudes when used and interpreted properly by experts who understand their virtues and limits, as is true of most modern measures of attitudes. Psychologists will most likely make greater use of physiological measures in conjunction with response latency tests, as well as direct measures of brain activity as a means of studying attitudes in the future.

Measures of Neural Activity

With the ability to measure the brain's electrical activity and blood flow/oxygenation levels, neuroscientists have looked directly at the boss of the autonomic nervous system. Developments in social neuroscience have included attention to understanding ordinary preferences, fear, and valence effects, all of which are relevant to understanding attitudes (see Lieberman, this volume). Together with behavioral measures that have attempted to elaborate on the responses participants give to direct questions, neural activity provides yet another way of looking at dissociations between conscious and less conscious attitudes. Because fMRI and other technologies used to study the brain are relatively new, scientists' understanding of the data presented here will likely grow exponentially in the years to come. Thus, the findings described here should be taken as a starting place for future work, not a final say on the role of neural activity in evaluation.

ERPs have been used for quite some time to determine the consistency and affective valence of attitudinal reports. ERPs measure brain activity in response to specific events. Notably, ERPs are capable of measuring rapid neural changes, providing the only noninvasive measure to date of recording neural firing. Neuronal activity results in measurable electrical activity at the scalp, and ERPs correlate this activity-specific stimuli or behavior. ERP waveforms contain multiple components, or deflections in either the positive or negative direction (not valence), and the magnitude of these deflections can provide information concerning the strength of the stimulus's influence (Bartholow & Amodio, 2008; Berger, 1929; Moruzzi & Magoun, 1949).

One such deflection is the P300 (e.g., a positive deflection occurring at a latency of about 300 ms). Judgments concerning evaluatively inconsistent objects (e.g., exposure to a series of negative objects after exposure to positive traits) tend to elicit a larger amplitude P300-like wave (Cacioppo, Crites, Berntson, & Coles, 1993). Such judgments also elicit an N400 wave not found when participants viewed evaluatively congruent stimuli, a result that replicates findings from the semantic literature, suggesting

that the N400 indicates the presence of semantically incongruent targets (Morris, Squires, Taber, & Lodge, 2003).

Furthermore, evaluatively inconsistent stimuli also elicit LPPs of greater amplitude than evaluatively consistent stimuli. Participants were asked to accurately report or misreport their attitudes. LPP amplitudes were higher when participants accurately reported their attitudes, suggesting that examining this waveform may provide a measure of attitudes that participants are unable or unwilling to report (Crites, Cacioppo, Gardner, & Berntson, 1995). The LPP waveforms that occur when participants respond to evaluatively incongruent stimuli are lateralized, and evidence suggests that this waveform is greater over the right, rather than the left, hemisphere (Cacioppo et al., 1996). The LPP can also be lateralized differently depending on the evaluation itself: Concepts rated as bad tended to elicit right-lateralized waveforms, whereas those rated as good elicited left lateralization (Cunningham, Espinet, DeYoung, & Zelazo, 2005). Positive and negative attitudes also elicit different patterns of EEG activation (Pizzagalli, Koenig, Regard, & Lehmann, 1999).

Although ERPs have taught scientists much about attitudes, particularly because they offer good temporal resolution, imaging via fMRI complements ERP research by providing spatial resolution. The ability to view where in the brain activity is concentrated during specific tasks, possible because of fMRI, has produced a revolution in cognitive and social neuroscience. Because brain regions that are more active require more oxygen than areas that are relatively inactive, a greater volume of blood flows to the more active regions. fMRI technology measures and records the difference in blood oxygenation levels in various brain regions. These measurements can be taken when individuals are asked to consciously and deliberately reflect on particular aspects of an attitude object, as well as when participants are responding to stimulus items too quickly to reflect consciously on them (Cunningham & Zelazo, 2007). Stanley, Phelps, and Banaji (2008) have offered a three-tier model involving the amygdala, the anterior cingulated cortex (ACC), and the dorsolateral prefrontal cortex (dlPFC) to describe the neural basis of implicit attitudes (see Lieberman, this volume, for diagrams of brain regions involved in social cognition). According to this model, the amygdala is involved in the automatic evaluation of social stimuli, whereas the ACC is involved in detection of implicit preferences and the dlPFC takes part in regulating them.

The amygdala is uniquely situated to modulate cognitive input and automatic behaviors. It receives information from multiple neural structures, including low-level sensory areas, as well as those regions responsible for memory and higher cognitive processes. Because of the direct route between the amygdala and the thalamus, the amygdala can

process information sooner than the cortical sensory areas (LeDoux, 1996). Output from the amygdala travels far and wide (i.e., several inches!), to destinations as varied as the brainstem and hypothalamus to early sensory cortices and cortical association areas. Its projections into the orbitofrontal cortex (OFC) allow individuals to compare expected rewards and punishments with the circumstances in which they presently find themselves. If a conflict is detected, the ACC kicks into gear to monitor the situation. The lateral PFC may also become involved, bringing its expertise in reprocessing and exerting conscious control (Cunningham, Zelazo, Packer, & van Bavel, 2007).

Indeed, attitude researchers have focused on the amygdala in large part because of its important role in evaluation. This research indicates that greater amygdala activity is associated with the presentation of emotionally valenced (e.g., fearful) faces conditioned with an aversive stimulus, even when participants are not consciously aware of these stimuli (Morris, Ohman, & Dolan, 1998; Whalen et al., 1998; Williams et al., 2006). This important work suggests that brain activity, particularly in the amygdala, can provide information about evaluations of which the participant is unaware. Analyses of brain activity more generally, and of the amygdala in particular, have provided evidence about the malleability of attitudes (Harris & Fiske, 2006, 2007). The importance of the amygdala is so great that damage to this area severely compromises the ability to acquire classically conditioned preferences (Davis, 1997).

Other brain regions may respond to different aspects of evaluation. For example, although the amygdala is involved in automatic evaluation of social stimuli, it is the ACC that is implicated in the detection of implicit attitudes and the dlPFC that may regulate them (Stanley et al., 2008). The OFC is receiving specific attention in the study of attitudes; whereas the left posterior regions of the OFC are associated with determining the value of a particular object, medial anterior areas of this region are involved in making decisions based on that value (Cunningham, Kesek, & Mowrer, in press). The ventral striatum, located just above the amygdala, may help people learn fear (Davis & Whalen, 2001). Like LPPs, patterns of brain activation may be lateralized; areas of the right inferior frontal cortex and anterior insula seem to be activated to a greater extent when processing negative rather than positive information (Cunningham et al., 2008).

Patterns of activation in other brain areas show that evaluation can be unconscious. In one study, participants were scanned while making evaluative (good or bad) or nonevaluative (abstract or concrete) judgments about rapidly presented stimuli. After scanning, participants were asked to reflectively rate each stimulus on several evaluative dimensions (e.g., positive or negative) and to report how much their attitude had changed now that they were permitted more time to come to a decision. Activity in the bilateral amygdala, OFC, and right insula was related to attitude ratings for both evaluative and nonevaluative judgments. Emotionality ratings were correlated with activation in brainstem regions, areas that are associated with automatic processes. Their activation provides further support for the premise that aspects of evaluation function at unconscious levels (Cunningham, Raye, & Johnson, 2004). Given the coordination among different brain regions, it is impossible to locate attitudes in only one area. Forming, expressing, and controlling attitudes requires cooperation among different brain regions, none of which is capable of doing the job alone.

As described earlier, researchers use a variety of techniques to study automatic attitudes. These methods share several commonalities, foremost among which is that they do not seek a reflective response to a traditionally posed question. Furthermore, many measures of automatic attitudes make assumptions about the associative nature of learning and memory, and rely on responses given quickly to tap automatic cognition. De Houwer (2008) argues that implicit measures have in common their ability to predict particular outcomes under certain conditions (e.g., circumstances under which participants cannot control the expression of a particular attitude). That is, measures of automatic attitudes may be related through their functional properties, and measures may be automatic along particular dimensions but not others (de Houwer, 2006). The IAT, for example, can be considered automatic in that participants cannot easily control their responses, but it cannot be considered implicit in that participants are often aware of what each IAT is intended to measure, whereas linguistic measures of attitudes meet the implicit criterion on this dimension.

However, it is clear that the methods are not interchangeable. Though implicit measures may have similar functions, they differ structurally and in the specific aspects of attitudes they tap (de Houwer, 2008). Although response latency measures offer information concerning implicit associations, physiological and neuroscientific methods provide extensive information on physical correlates of particular attitudes. Thus, the decision of which measure to use depends on the type of study and the variables of interest, as well as increasingly on expertise and availability of resources.

ORIGINS OF ATTITUDES

By the time one is old enough to read chapters such as this one, the mind is stuffed with a near-infinite number of attitudes toward everything imaginable, with tastes and

distastes ranging from Shropshire cheese to Schopenhauer. But where do these attitudes come from and what do psychologists know about their earliest forms?

Although acknowledging that people can acquire attitudes through potentially nonsocial sources such as classical conditioning (discussed later), social psychologists typically assume that many preferences derive from different parts of the social world, from the words and behaviors of other beings, and from the events that unfold in the world. Individuals "get" attitudes from others directing information toward them explicitly ("Hey, wanna read some Schopenhauer together?") or because the experiences that produce them are simply there for the taking ("I tasted some Shropshire cheese at Fromaggio's and now I'm addicted."). The sources of attitudes may be agents in close proximity, such as associates, caregivers, friends, schools, and neighborhoods, or they may sit far away and reach distant individuals through new technologies, such as television and the Internet. From such sources people acquire attitudes toward the shape of bodies, the design of clothes, and the beat of music. People build preferences from blogs, chat rooms, and Twitter. The study of attitudes as it exists today provides prima facie evidence of the vast and deep ways in which the social world presents, creates, imposes, cajoles, and sneaks in attitudes of all forms all the time.

One can learn social attitudes in many ways: from parents (Sinclair, Dunn, & Lowery, 2005; Tenenbaum & Leaper, 2002), peers (Poteat, 2007; van de Gaer, Pustjens, van Damme, & de Munter, 2007), and the media (Levina, Waldo, & Fitzgerald, 2000; Hargreaves & Tiggemann, 2003), to name just a few sources. Of course, one's cultural tradition (Dunham, Baron, & Banaji, 2006; Hayes & Lee, 2005; Sahar & Karasawa, 2005), the process of attitude contagion (Alexander, Piazza, Mekos, & Valente, 2001; Cohen & Prinstein, 2006), and social learning (Bandura, 1977) all contribute to attitude formation as well.

To study attitudes, then, has been to study the processes of preference acquisition and change. Because this is the case, this chapter focuses on some of the lesser studied topics and approaches, as well as those that are in early stages of growth, in the hope that their presence here will facilitate greater attention. Importantly, developmental measures, especially those used with infants, are quite restricted because of infants' limited capacities to express themselves. Such measures are thus open to multiple interpretations, some of which are presented later.

The predominant understanding of attitudes concerns the structure of existing preferences and the processes of attitude change in adult humans. Working with existing and well-developed attitudes meant forfeiting analyses of their formation and change; thus, investigators often created new attitudes in the laboratory to have "clean" ones to dissect. But

some fundamental questions about the origins of attitudes have remained unattended for three reasons, and understanding what these reasons are may be instructive.

First, practical considerations can interfere with the collection of the necessary data. Scientists know little about the manner in which infants and young children acquire preferences. Yet to understand anything of consequence one must reach back to the earliest stages of development of the organism for clues to its ontology. Whether it is the universe or the human body, the original or first state is crucial. The least persuasive reason is the most likely for the absence of such data. Adults prove to be more convenient samples to study than infants and young children. A related reason is that carving up the field as psychologists have, the study of attitudes and social cognition has not been at the center of the developmentalists' interest, just as developmental questions concerning social behavior have been largely absent in the laboratories of social cognitionists, a situation that may now be changing (see Olson & Dweck, 2008).

A second reason that the question of origins appears to have been neglected is political. Examining the origins of attitudes necessarily involves studying the connection between evolutionary and biological, as well as social, forces. Though some psychologists have tackled the question of evolutionary influences on social behavior (e.g., Pinker, 2002), many have been wary of considering such explanations for topics such as group differences in mathematical ability or intelligence. Who can blame them, given the close association between the early analyses of heritability and racial imperialism included among other politically dubious uses of science?

William McGuire, writing in a precursor chapter on this topic, notes that "[a] man of this writer's generation considers the possibility that there may be a genetic component in attitude determination only with trepidation" (McGuire, 1968, p. 161). Scientists should now be able to overcome political resistance to pursuing intellectual matters of importance so that such trepidation is legitimately nonexistent. As psychology and other life sciences interact and even meld, integrative analyses of attitudes may also prosper. Such analyses will permit a more seamless view of what is in the body and outside it, and they will surely reveal how people's preferences have been shaped by the biological and cultural history of the human species, as well as the highly influential immediate situations in which individuals find themselves.

Such analyses should now proceed without their misuse by eugenicists, a misuse in which psychology has played no small role. In addition, psychologists can no longer turn a blind eye to the fact that attitudes, like any other aspect of human nature and culture, have an evolutionary history. Much can be learned from the open-mindedness of

the early commentaries in social psychology. Allport's first chapter on attitudes in the 1935 handbook remarks on the favored status of the attitude concept by stating, "It is a concept which escapes the ancient controversy concerning the relative influence of heredity and environment" (p. 798). This chapter treats it as such conceptually, in the hope that the next handbook will contain more solid evidence about the origins of attitudes that can be obtained only by paying heed to analyses not only of adult humans but to other species and younger humans as well.

A third reason for ignoring the question of origins is the more understandable one of the lack of availability of methods. Recent research has shown just how much progress new techniques permit. Methods to understand the minds of adults and children using both behavioral and brain measures will surely play a major role in new understandings of the attitude concept. In the time between Gregor Mendel's discoveries of the laws of heredity in 1866 and their rediscovery at the beginning of the 20th century, as well as the sequencing of the human genome in 2003, a new era of understanding the role of heredity in the nature of preference has opened.

Social psychology focuses on the social environment, and this will naturally lead scientists working in this field to be appropriately skeptical of any simple genetic reductionism in understanding attitudes and all things important. They should continue to be unconvinced when it comes to understanding attitudes for obvious reasons, including the more general indictment that Lewontin provides in his book *The Triple Helix* (2002, p. 17): "Any computer that did as poor a job of computation as an organism does from its genetic 'program' would immediately be thrown into the trash and its manufacturer would be sued by the purchaser." The same can be said for theories of environmental input as well, but because there is always the fascination that the genetic code will explain everything, it is particularly important to be aware of the bias to overattribute causal importance to genetic factors.

Nevertheless, it remains important to examine the biological and social roots of preferences. Naïve theories about the heritability of attitudes go in two opposing directions. The visible preferences of children and parents are clearly shaped by their different age cohorts, making it easy to see differences in attitudes. "I am so not like my mother" is a routine expression, especially when speaking about tastes in music, attire, and views of parenting. Just as much, generational similarity also comes through: "He and his daughter both scrunch up their faces when they are served carrots; it must be genetic."

It would be nice if the research evidence pointed a way out, ruling clearly in favor or not in favor of the partial heritability of attitudes, but that is not the current situation. A few scattered studies measuring the heritability factor of attitudes suggest two conclusions. First, heritable attitudes seem to be psychologically more robust and accessible (Bourgeois, 2002; Crelia & Tesser, 1996; Tesser, 1993). Genetic influences on attitudes may emerge earlier and seem to be more consequential (e.g., people tend to prefer those who share their attitudes over those who do not, and this effect appears to be slightly stronger for attitudes that are more heritable). More heritable preferences may also be less prone to change; participants in a group discussion showed less attitude change when discussing evaluations estimated to be more heritable. The influences of heritable attitudes appear earlier than previously thought, showing up during early adolescence in some studies (Abrahamson, Baker, & Caspi, 2002).

Second, attitudes vary greatly in what is considered to be their heritability factor (e.g., Olson, Vernon, Harris, & Jang, 2001; Crelia & Tesser, 1996; Tesser, 1993). For example, relatively high heritability coefficients have been calculated for attitudes toward a variety of objects, including the death penalty, jazz, apartheid, and censorship (Tesser, 1993). Attitudes toward abortion are highly heritable, whereas attitudes toward easy access to birth control are only weakly heritable (Olson et al., 2001). Political attitudes appear to be more heritable than political party identification (Alford, Funk, & Hibbing, 2005), and conservatism seems to be more highly heritable than religious attitudes (Abrahamson et al., 2002). In general, 40% to 50% of the variability in ideological attitudes may be because of genetic factors (Alford et al., 2005; Bouchard et al., 2003; Carmen, 2007). This may be explained by the heritability of other cognitive and motivational factors that underlie political orientation (e.g., orientations toward uncertainty and threat; Jost, 2006, but see also Alford & Hibbing, 2007).

Heritability research faces many difficulties. For one, no explanation exists for why some attitudes are or should be more heritable than others, nor do psychologists know what mechanism(s) might be responsible for transmitting some attitudes from parent to child. In addition, studies of heritability have mostly used twin samples (e.g., Eaves, Eysenck, & Martin, 1989), which present well-known interpretational difficulties. For example, monozygotic twins are treated more similarly by significant others (Eaves et al., 1989) and may, therefore, show a stronger resemblance because of environmental and not genetic factors. This may be true even for identical twins reared apart because of shared features that may elicit similar treatment (e.g., because physical attractiveness is known to play a role in how one is treated, e.g., Dion, Berscheid, & Walster, 1972). Furthermore, attitudes may incorrectly reveal a high heritability coefficient when all members of a group have been exposed to the same environmental input. For instance, if all members of a particular geographic region

have consumed the same propaganda, they will likely show similar attitudes toward the object in question, leading to a high heritability estimate despite the fact that the attitude was socially transmitted (Olson et al., 2001). Because genes can influence individuals' responses to their environment, genetic and environmental influences are difficult to separate (Eaves et al., 1989).

Primates

To understand the attitudes people have and why, psychologists may look toward nonhuman primates, those closer to humans in the ancestral chain, as well as those much further away. Understanding nonhuman primates alongside people provides yet another path toward deeper knowledge of the origins of attitudes and preferences. Because attitudes, linked as they are to enabling survival, are so fundamental to the existence of every species, comparative studies may also help those theorists whose primary task is to broadly understand evolutionary processes that are psychological in nature. Exploring the social attitudes of primates is currently beyond the scope of this chapter because the research lies in disparate areas and needs concerted study and analysis before review here. It also needs the expertise of those who are primatologists and other behavioral scientists, and such collaborations have recently begun to occur. For example, a study with common marmoset monkeys showed that they will provide food to genetically unrelated others, even if the others cannot reciprocate (Burkart, Fehr, Efferson, & van Schaik, 2007). In other research, Santos and colleagues have shown that the complex mental operations that are involved in producing the effects of cognitive dissonance in humans can also be detected in capuchin monkeys (Egan, Santos, & Bloom, 2007). Where humans obviously differ is in the ability to be aware of preferences that are beneficial versus those that are harmful and make decisions that are opposed to the dictates of simpler strategies of reproductive fitness. In fact, scholars writing about evolutionary theory have tended to even-handedly analyze behaviors mindful of their long-standing existence in the history of the species, as well as the demands of culture and social environments in shaping them (e.g., Griskevicius, Goldstein, Mortensen, Cialdini, & Kenrick, 2006; Schmitt, Realo, Voracek, & Allik, 2008; Schwartz & Rubel, 2005). This work is highlighted here because it is likely to become a shared space for collaboration between social psychology and primatology (e.g., Mahajan, Martinez, Diesendruck, Banaji, & Santos, 2009).

Infants and Young Children

Psychologists know little about the social attitudes of infants and a bit more about such attitudes in children; what they do know is restricted to a small number of attitude domains. This situation appears to be changing, with a more focused interest in understanding the minds of infants and young children as they develop the ability for social cognition.

Researchers typically use one of several measures when studying infants. Looking time is among the most common, especially with infants who are not old enough to reach for objects. Psychologists have used looking time as an indication of the ability to differentiate different classes of objects. For instance, if infants see nine female faces in a row and then gaze longer at the tenth face if it is male, that is evidence that the infant recognizes the tenth face as different from the first nine. Psychologists have also used looking time to index familiarity and preference. These two constructs are difficult to differentiate among young infants, who cannot give other indications of whether they are looking longer at a particular object because it is familiar or because they like it. Children who are old enough to grasp may provide evidence in favor of one or the other interpretation because they are likely to reach for the object they prefer.

Even in early infancy, the roots of mature social preferences are visible. A standard measure of preference is to examine the people or objects toward which a baby orients. Such studies show that minutes after birth, infants show a preference for facelike configurations over equally complex but nonsocial patterns (Johnson, Dziurawiec, Ellis, & Morton, 1991; Mondloch et al., 1999; Valenza, Simion, Cassia, & Umilta, 1996). Infants also prefer attractive over unattractive human (Ramsey, Langlois, Hoss, Rubenstein, & Griffin, 2004) and animal (Quinn, Kelly, Lee, Pascalis, & Slater, 2008) faces. These findings suggest that the origins of the "what is beautiful is good" stereotype (Dion et al., 1972) are formed in early infancy.

Surprisingly, infants also respond differently to sounds heard while in utero compared with more novel sounds. In one study, a group of pregnant women read Dr. Seuss's delightful story *The Cat in the Hat* out loud, whereas another group of pregnant women read a version where the words "cat" and "hat" were replaced with "dog" and "fog," respectively. Newborns were able to listen to one or the other version depending on how they sucked on a pacifier; for instance, if they sucked more vigorously, a recording apparatus played a tape of a woman reading the "cat in the hat" version, whereas if they sucked less vigorously, the apparatus played a recording of the "dog in the fog" version. Infants in both conditions altered their sucking behavior to produce the more familiar story (DeCasper & Spence, 1986).

As any parent knows, infants also show strong preferences for the face and voice of their primary caregivers

(Pascalis, de Schonen, Morton, Deruelle, & Fabre-Grenet, 1995). Though it is often assumed that newborns orient toward women, research shows that 3- to 4-month-old infants whose primary caregiver is a male individual prefer men's faces (Quinn et al., 2002), suggesting the openness of the mind to literally turn toward that which is familiar. So far, only these two dimensions of preference—that toward faces, particularly attractive ones, and that toward sounds heard in utero—have been identified as requiring no learning; they are present at birth (see Pascalis & Slater, 2003; Slater, 2002).

Though newborns do not distinguish among racial ingroup and outgroup faces, infants as young as 3 months exhibit a marked preference for faces of same-race targets (Kelly et al., 2005, 2007a). This preference grows stronger as infants age; by 9 months, babies in one study were no longer able to distinguish faces of racial outgroup members (Kelly et al., 2007b). Importantly, many experiments examining looking preference have focused on babies who had not been exposed to racially diverse faces before seeing other-race faces in the study (Bar-Haim, Ziv, Lamy, & Hodes, 2006; Kelly et al., 2005). Thus, similar to a preference for faces of the same sex as the primary caregiver, an own-race preference may indicate a preference for familiar stimuli.

Providing evidence of very early learning and preference formation, these remarkable results suggest that later preferences for the familiar may have their roots in experiences that occur even before the first year of life. Yet, caution is needed when interpreting findings from studies that use preferential looking as an indication of preference; after all, looking times can reflect alternative processes of surprise, intrigue, and expectancy violation. Bypassing this limitation by using the Child IAT mentioned in the measurement section, some evidence suggests that 6-year-old White children show a preference for Whites of the same magnitude as the preference found among 10-year-olds and adults. Explicit race attitudes follow a quite different course, with the strongest ingroup preferences expressed at age 6, weaker at age 10, and nonexistent in the adult sample (Baron & Banaji, 2006).

That attitudes formed even at such a young age are socially constructed is poignantly seen in the following result. The previous finding, if it reflects a mere preference for one's own group, should be visible in children of all social groups equally. Such is not the case, however, with the evidence showing that children from disadvantaged social groups (Hispanic and Black Americans) do not show implicit ingroup preference, on average, when the comparison is their group versus the dominant group (Dunham, Baron, & Banaji, 2008). Indeed, such is also the case among adults; 40% to 50% of Blacks show a pro-White bias on the IAT (Jost, Banaji, & Nosek, 2004).

Results such as these have challenged existing views that attitudes emerge from protracted social learning in which children converge on adult forms of attitudes over a long period of development (Dunham & Banaji, 2008). Instead, even the first studies show that complex attitudes, such as those toward social collectives, exist in adult-like form in the earliest years in which such tests can be administered. Other work shows that children, like adults, often prefer members of their own group even when the group is not socially meaningful (e.g., groups that are differentiated based on the color of the shirt participants are asked to wear; Baron & Carey, 2009; Bigler, Spears Brown, & Markell, 2001). This suggests a strong continuity for attitudes—at least those related to intergroup evaluations—across development.

Preference for the familiar is not limited to race. In fact, accent may trump race in certain circumstances. In a series of studies, infants were permitted to grasp objects that were presented to them simultaneously by speakers of different languages or accents. The results indicate an early preference for familiar sounds: 10-month-old Americans prefer English speakers to French speakers (80% reach for the toy offered by the English speaker), whereas French babies show the opposite and symmetric preference for their familiar sounds (Kinzler, Dupoux, & Spelke, 2007). White children at age 5, showed a preference for a white other over a black other; however, when race and accent are explicitly confounded, such that the standard American English speaker is Black and the English speaker with French accent is White, accent proves more influential than race and children prefer the Black speaker (speaking standard English) over the White speaker (speaking English with a French accent; Kinzler, Shutts, DeJesus, & Spelke, under review).

Children's preference for the familiar may be explained by one of psychology's best-known findings: the mere exposure effect (Zajonc, 1968). Simple exposure to a neutral object can cause people to rate it more favorably, even when the exposure happens too quickly for conscious processing. This effect may rely on the fact that it is easier to process a familiar rather than an unfamiliar stimulus (Seamon, Brody, & Kauff, 1983). Supporting this perspective, recent work has found that people show more liking for objects that are preceded by primes that facilitate processing and less liking for objects that are preceded by primes that inhibit easy processing (Reber, Winkielman, & Schwarz, 1998; Schwarz & Clore, 2007; Winkielman, Schwarz, Fazendeiro, & Reber, 2003).

Social Learning

Social learning theory (Bandura, 1977) continues to be the dominant account of how children acquire attitudes: by

observing others. Indeed, new evidence suggests that children may use this strategy to learn attitudes toward novel objects. In one set of studies, children preferred unfamiliar stimulus items (e.g., blicket, spoodle) chosen by another person of their same sexgender and age. For example, 3-year-old girls who heard that an unfamiliar girl liked to play with blicket whereas an unfamiliar boy liked to play with spoodle said that they would rather play with blicket (Shutts, Banaji, & Spelke, in press). Young children also learn attitudes from older people, particularly their caregivers. As discussed earlier, part of this link may be because of genetics, especially for attitudes that are particularly heritable. However, a social learning explanation also seems likely.

Researchers have found an association between children's and parents' attitudes across multiple domains. For example, mothers' hostile attitudes predict the development of similar attitudes in their children (Raikkonen, Katainen, Keskivaara, & Kelikangas-Jarvinen, 2000). Furthermore, parents' attitudes toward racial minorities and nontraditional women predict their children's attitudes toward these targets (Sinclair, Dunn, & Lowery, 2005; Tenenbaum & Leaper, 2002), and parental prejudice also influences the frequency and quality of young children's interracial interactions (Towles-Schwen & Fazio, 2001). In the only such study to date, children's implicit racial bias was found to be correlated with that of their parents, particularly for those who are highly identified with their caregivers (Sinclair, Dunn, & Lowery, 2005). Thus, levels of prejudice may be transmitted from older family members to future generations.

Classical Conditioning

First introduced by Pavlov (1927), classical conditioning is among the most basic forms of learning. It refers to the process whereby a person develops positive or negative associations with a previously neutral object through association of inherently positive or negative attributes. For example, a particular dress may gain positive associations through its pairing with an attractive model in advertisements, whereas African Americans may be subjected to negative evaluations stemming, in part, from their negative portrayal in the media (e.g., the repeated pairing of Black male individuals with violence). Attitude acquisition through classical conditioning remains a contentious issue, however, in part because some researchers have found significant effects only in situations where participants were aware that a conditioning paradigm was being used (see Olson & Fazio, 2001). Such results call into question the validity of some other findings by suggesting that the effects may be because of demand characteristics rather than classical conditioning per se. However, evidence of classical conditioning can be present even when participants did not report

knowledge of the paradigms used in the study, suggesting that not all conditioning effects are due to demand characteristics (Baeyens, Eelen, & van den Bergh, 1990; Olson & Fazio, 2001).

Of course, classical conditioning accounts for acquisition of both positive and negative attitudes, and can be used for virtuous and nefarious purposes. Classical conditioning as a form of learning is understood quite well, based as it is on data from several species, including humans, and using fear as the attitude that is induced. In classical conditioning models, people learn fear in much the same way as they may learn positive associations. For instance, what if every time participants heard a bell they received an electric shock? They would learn to fear the bell, even on trials where it was not immediately followed by physical pain. Such results are of great importance because fear is one of the most devastating emotions an organism can experience. At extreme levels, fearful attitudes can significantly impair daily functioning (Rapaport, Clary, Fayyad, & Endicott, 2005).

Unfortunately, it may be easier for humans to associate fear with outgroup members, particularly those of another race. In one experiment, participants showed longer-lasting fear to racial outgroup faces that had previously been paired with an electric shock. That is, when Whites saw a Black face and were then shocked, they showed a larger SCR (see the section entitled, "Measures of the Autonomic System") than when they received an electric shock paired with a White face. Blacks showed a similar pattern; they, too, had a more persistent fear response to racial outgroup (in this case, White) faces. These findings suggest that images of racial outgroup members may function as prepared stimuli, or stimuli that are more readily associated with fear (Olsson, Ebert, Banaji, & Phelps, 2005).

Recent research has supplemented this Pavlovian model of fear learning with evidence suggesting that people can acquire an attitude of fear toward objects that have been associated with pain in others. That is, fear may be acquired through a social learning (Bandura, 1977) process. Participants who view a video of another person receiving shocks linked with particular images, for example, show signs of fearing those images but not similar ones of a different color (Olsson, Nearing, & Phelps, 2007). This process may be evolutionarily adaptive; the ability to learn from others' misfortunes may come in handy if one has seen a family member attacked by a bear and later encounters another furry creature wandering in the woods. However, this process also has drawbacks, particularly if it is overactivated. For instance, learning to fear all middle-aged men after being robbed by one is not adaptive.

Neural evidence suggests that classical and observational fear learning may not be as different as they first appear. The amygdala, a brain region that is known for

emotional processing and is particularly involved in fear, is recruited both when subjects watch someone else receiving shocks and when they receive shocks themselves (Olsson et al., 2007). This finding may explain why observational learning is as effective as classically conditioned fear when the stimulus is consciously available (Olsson & Phelps, 2004). Notably, though amygdala activation was of comparable magnitude when participants were anticipating pain and when they actually received a shock, other brain regions were not similarly activated. The ACC and the anterior insula both exhibited greater activation during the test than in the observation phase of the experiment (Olsson et al., 2007); thus, it appears that the amygdala responds to anticipation of pain differently than do other brain regions.

In summary, despite controversy surrounding the influence of demand characteristics in classical conditioning experiments, this paradigm remains a powerful tool to examine the formation of various attitudes, particularly fear. From studies of classical conditioning, psychologists know that people can be taught to fear almost anything through association with a potent negative stimulus. Indeed, some objects (e.g., images of racial outgroup members) are quite easily associated with fear, an association that can be difficult to unlearn.

Other stimulus items, in contrast, are quite easily associated with positive characteristics. One such target is the self.

THE ATTITUDE TOWARD ONESELF

Human beings have a capacity that is the envy of every chimpanzee—the ability to look into and evaluate the contents of their own minds. Remarkably, this capacity can be turned on not only when evaluating all possible entities that exist in the world "out there" but also to evaluate one's own worth along a subjectively meaningful good-bad continuum.

Self-esteem can be considered a primary attitude—an evaluation of oneself. How good am I? Do I approve of what I have done? These questions can be posed and answered by engaging a conscious and third-person–like feeling for oneself, an experience about which the self-esteem literature has taught scientists a great deal (Baumeister, 1993; Crocker & Major, 1989; Gray-Little & Hafdahl, 2000; Leary, 1999, 2004; Major, Kaiser, & McCoy, 2003; Rosenberg, 1965; Swann, Chang-Schneider, & Larsen McClarty, 2007; Twenge & Campbell, 2001). Swann and Bosson (this volume) thoroughly review the self-esteem literature. This chapter offers a brief glimpse into a perspective that views self-esteem as an attitude.

The research findings detailed in the articles referenced earlier overwhelmingly demonstrate that if there is a single

object toward which attitude is resoundingly positive, that object is the self. Self-evaluations achieve consistency during early adulthood and remain high before declining after age 60 (Trzesniewski, Donnellan, & Robins, 2003). Additional variations across people and within the same person from circumstance to circumstance, perhaps even moment to moment, have been investigated thoroughly, making self-esteem a topic from which it is possible to learn much about the nature of attitudes.

As with the measurement of attitudes in general, attempts to create new measures of implicit self-esteem have also grown in recent years. One such family of measures involves looking at the degree to which one imbues the things and people who have come to be associated with oneself with positive regard (see Greenwald & Banaji, 1995). Known as the name-letter effect, one technique measures the unconscious liking people show for the letters, and especially the initials, of their own name (developed by Nuttin, 1985; Krizan & Suls, 2008). Such preference can lead people to prefer products whose brand name starts with the same letter as their own name (Brendl, Chattopadhyay, Pelham, & Carvallo, 2005) and even to marry people whose first or last name resembles their own (Jones, Pelham, Carvallo, & Mirenberg, 2004). People are not only attracted to those who share their names but also to individuals with the same birth dates. One study showed that participants judged historical characters such as Rasputin less harshly when led to believe that they shared a birthday with the unsavory character (Finch & Cialdini, 1989).

Measures of implicit self-esteem look so different from traditional (explicit) measures that the question of what implicit measures might predict has acquired priority. In research with a clinical focus, measures of implicit self-esteem have been shown to relate to narcissism (Zeigler-Hill, 2006), symptoms of depression (Franck, de Raedt, & de Houwer, 2007), and poor body image (Buhlmann, Teachman, Gerbershagen, Kikul, & Rief, 2008). Such measures show more reliability than self-report questionnaires (Farnham, Greenwald, & Banaji, 1999) and may decrease self-presentation concerns.

Although some researchers have found high correlations between implicit and explicit self-esteem, most others report that two constructs are unrelated (see Dijksterhuis, Albers, & Bongers, 2008; Greenwald & Farnham, 2000), and there are cases in which the two forms of self-attitude are sharply dissociated. For example, stressful life events may influence implicit and explicit self-esteem differently, at least under some circumstances. Recent Asian American immigrants, for instance, show a quick recovery in explicit self-esteem but persistently lowered implicit self-esteem after arriving in the United States (Hetts, Sakuma, & Pelham, 1999). Thus, it seems safest to say that, on average, implicit and explicit

self-esteem are weakly correlated. As with other attitudes in the intergroup context, where this weak correlation has also been found, the conclusion is that implicit and explicit forms of self-esteem are related but sufficiently unique to be regarded as distinct.

Unambiguously high self-esteem is associated with a number of positive outcomes. Related to research concerning the social origins of self-esteem (e.g., Murray, Griffin, Rose, & Bellavia, 2006), positive self-regard is associated with healthy social relationships and relationship satisfaction (e.g., Murray, Holmes, & Griffin, 2000; Neyer & Asendorpf, 2001), as well as positive evaluations by others (e.g., Robins, Hendin, & Trzesniewski, 2001). High self-esteem also predicts occupational success (e.g., Judge & Bono, 2001), subjective well-being (e.g., Diener & Diener, 1995), and positive responses to failure (Di Paula & Campbell, 2002).

Consistently low self-regard is associated with a number of negative outcomes, including depression and other health problems (e.g., Franck et al., 2007; Roberts, Gotlib, & Kassel, 1996; Whisman & Kwon, 1993). People with low self-esteem react more strongly to failures (Brown & Dutton, 1995), experience a greater reduction in motivation after a lack of success (Greenwald & Farnham, 2000), and exhibit more anxiety during a confrontational interview (Spalding & Hardin, 1999). In fact, low self-esteem can prospectively predict depressive symptoms (Orth, Robins, & Roberts, 2008), as well as criminal behavior and reduced economic prospects (Trzesniewski et al., 2006).

Some outcomes may be preferentially linked with implicit self-esteem. For example, though depressed individuals tend to exhibit low explicit self-esteem, their implicit self-esteem remains at levels comparable with a nondepressed population (de Raedt, Schacht, Franck, & de Houwer, 2006). Though this finding is surprising in light of cognitive theories of depression, de Raedt and colleagues suggest that it is in line with findings suggesting that depressed people do not lack positive self-schemas. Perhaps implicit measures tap these underlying representations, which depressed individuals may not activate normally. The dissociation is also evident in narcissism, which is associated with high explicit paired with low implicit self-esteem (Zeigler-Hill, 2006; but see also Campbell, Bosson, Goheen, Lakey, & Kernis, 2007).

Given the numerous benefits of high self-esteem, one may wonder where this elixir comes from. Though people show robust and high self-esteem cross-culturally, this construct is clearly not invariable across individuals and situations. Self-esteem is shaped by others' favorable (or unfavorable) opinions (e.g., Murray et al., 2006) and people's own upbringing, with overprotective parenting linked to low implicit self-esteem and nurturing parenting linked to high self-esteem (de Hart, Pelham, & Tennen, 2006). Self-esteem can also arise from the ways in which people respond to contingencies of self-worth (e.g., appearance, relative performance in competitions), and early childhood experiences can determine responses to events in these domains (Crocker & Park, 2003). Self-esteem is also malleable across situations; for example, evaluative conditioning has been shown to increase self-esteem across a number of studies (Baccus, Baldwin, & Packer, 2004; Dijksterhuis, 2004). The debate on whether attitudes are stable or constructed lives on in debates about self-attitudes, with evidence on both sides. On the one hand, attitudes toward the self do show stability, as well as individual differences that are reliable. On the other hand, however, self-esteem is critically influenced by people and events in the social world, in predictable and lawful ways.

From reading most of the work on self-attitudes, it is easy to draw the conclusion that increasing positive self-regard is something to which all should strive. In contrast, high rather than low self-esteem can be the cause of violence and aggression (Baumeister, Smart, & Boden, 1996). Furthermore, high self-esteem is related to preferring a novel ingroup to an equivalent outgroup member, suggesting a link to discrimination (Gramzow & Gaertner, 2005; but see Brewer, 1999). These lines of research have begun to question the value of the strong American belief in pumping up positive self-regard by showing that high self-esteem may not be the panacea it is made out to be in the Western world.

In conclusion, although psychologists have not traditionally considered self-esteem an attitude, it does, indeed, fall into this category. Scientists have learned that self-attitudes are likely to be robustly positive; that self-esteem, like other attitudes, has both implicit and explicit components; and that these factors may differentially influence behavioral outcomes. Self-esteem can vary within as well as between individuals, and those people with high explicit self-esteem do not necessarily show correspondingly high levels of implicit self-esteem. The next section further addresses this topic of attitude dissociations.

ATTITUDE DISSOCIATIONS

This chapter, more than others on the topic of attitudes, has focused on the implicit preferences that people cannot or will not report. Here, the topic of dissociations between conscious and less conscious forms of attitudes is addressed in greater detail, using the domain of intergroup attitudes as a case study simply because the bulk of the available research is focused there (see Yzerbyt & Demoulin, volume 2, and Dovidio & Gaertner, volume 2,

for a more comprehensive review of work conducted on intergroup relations).

As with human memory, implicit and explicit attitudes are assumed to be formed in different ways and expected to be susceptible to different influences; that is among the causes of their divergence (Craemer, 2007; Payne et al., 2008). As beliefs and values about intergroup relations have changed, in particular, the social unacceptability of expressing negativity toward groups other than one's own, such attitudes have offered up a perfect place to observe disparities between expressed and elicited attitudes.

There is no better starting place than an article that appeared in 1989 and set off a flood of research on the question of dissociations in automatic and controlled intergroup attitudes. In her dissertation research, Patricia Devine showed that on a measure that elicited attitudes through subliminal exposure of race primes, Whites who consciously endorsed prejudicial views of Black Americans responded in essentially the same way as those who did not. On other measures, where greater control over the attitude expression was possible, the results looked quite different (Devine, 1989). Devine's work was consistent with existing proposals of aversive racism (Gaertner & Dovidio, 1986), which also spoke of a split between older forms of prejudice that were explicit and blatant, and newer versions that formed in response to shifts in American culture that precluded such expressions. As sociologists have shown, values of fairness and equality have undermined endorsement of prejudice and discrimination, leading to a visible shift in intergroup attitudes (Schuman, Steeh, Bobo, & Krysan, 1997). From such observations and the ability of a generation of methods to understand consciously inaccessible intergroup attitudes, a wealth of data now exist on the dissociation between two fundamentally different forms of attitudes that can be elicited from the same individual toward the same group, depending on the probe that is used (Dovidio, Kawakami, Smoak, & Gaertner, 2008; Fazio et al., 1986; Hofmann, Gschwendner, Nosek, & Schmitt, 2005).

When examining attitudes toward stigmatized groups, the data reveal stronger negative attitudes on implicit measures than those expressed on explicit ones. In many cases, the effect size showing implicit group preference (usually one's own) can be two to three times the size obtained on self-report measures. Situational factors can influence the discrepancy between conscious and unconscious attitudes and their different influences on behavior. For example, different kinds of tests can predict different behaviors. Implicit measures tend to predict nonverbal behaviors such as leaning toward or away from one's conversation partner, whereas explicit questionnaires predict verbal behaviors (Dovidio, Kawakami, & Gaertner, 2002). The difference between explicit and implicit attitudes has been taken as a signature result of modern research on two attitudinal systems and has been reported in dozens of articles, making it impossible to refer to more than a handful of them (for reviews, see Fazio & Olson, 2003; Greenwald & Nosek, 2008; Hofmann, Gawronski, Gschwendner, Le, & Schmitt, 2005; Wilson et al., 2000). Among the underlying changes that such a result has silently produced is a shift in thinking about the "prejudiced personality" as an aberrant and pathological mental state to one that is ordinary and best understood as a continuum of individual difference (Dovidio & Gaertner, 2004).

Findings that are relevant to the question of dissociation do not come only from the intergroup literature, and the dissociation (or lack thereof) in other domains has sometimes proved to be surprising. For example, as might be expected, implicit and explicit attitudes toward abortion are highly correlated. In other cases, however, attitudes that might be expected to correlate are instead dissociated. There is little relationship, for instance, between whether people say they prefer pants or skirts and the implicit preference they show for one type of clothing over the other (Nosek, 2007).

From the basic finding that implicit and explicit preferences can diverge, several questions about the very nature of attitudes have emerged. Does the result really indicate two (or more) systems of thought composed of separate representations, or do the methods of retrieving the attitude merely tap different sides of the same underlying evaluation? How is such a dissociation to be computed? Is one of these attitudes the "truer" one? How do the attitudes predict behavior? For those who have argued that implicit measures are not measures of attitude at all, this is an important question. Explicitly stated attitudes have been studied for long enough that psychologists know something about their nature—what goes into forming them, their malleability, their function. But what about implicit attitudes? If they are so automatic, are they rigid and unbendable?

In most cases, a clear, simple, and often large difference exists between the mean values of the implicit attitude and the explicit one. When these data are the focus, there is no question that a dissociation is evident. Its specific nature takes on some interesting forms. For instance, White Americans report much less ingroup preference on explicit than on implicit measures; in contrast, Black Americans report greater ingroup preference and lesser outgroup preference on explicit measures. This is not uncommon among other stigmatized groups; the elderly show the same implicit preference for "young" over "old" as their younger counterparts, and gay and lesbian individuals do not show a strong preference for their own group; indeed, approximately 40% show a preference for straight over gay (Jost et al., 2004; Nosek, Fitzsimons, & Kay,

2007). From such findings it is possible to see the different sources of influence that bear down on these two expressions of preference.

The question of dissociation takes on a different meaning when attitudes toward targets other than stigmatized group members are examined. Attitudes toward more neutral targets vary greatly depending on the domain of the attitude, but importantly, the correlation is hardly ever at zero or negative. In many cases, the correlation between implicit and explicit attitudes is substantial (see Nosek, 2005). In other words, the stronger the stated preference for X over Y, the stronger the implicit preference for X over Y.

Although strong positive correlations are obtained on attitude topics such as Black-White, Coke-Pepsi, and cats-dogs, weak correlations are evident for topics that typically do not represent intergroup contexts such as hot-cold and future-past (Nosek, 2007). Although self-presentation concerns do play a role with those attitudes that are strongly susceptible to social desirability, measures tapping these attitudes tend to show lower implicit-explicit correlations. This is hardly the only factor accounting for the interrelationship, however (notice the low correlation for hot-cold and the strong correlation for Black-White).

Other factors, such as the distinctiveness of the attitude (i.e., perceived difference of one's own attitude compared with that of others), the degree of personal experience with the attitude object, and the clarity of two poles (where the two ends of the spectrum are true opposites), influence the degree of correlation as well. Furthermore, attitudes that are well elaborated and high in importance produce stronger implicit-explicit correlations. From such data it is difficult to maintain a "separate system" view of these two forms of attitude. How to think about their association and dissociation will surely be sorted out in the future as new ways of dividing them become available.

AUTOMATIC ATTITUDE MALLEABILITY

The dissociation between conscious and unconscious attitudes is evident when one examines the literature on attitude change. Researchers working with explicit attitudes typically ask questions such as: What makes a message persuasive? What makes people resistant to persuasion? (see Albarracin & Vargas, this volume). Those studying implicit attitudes ask different questions: Can something that is inherently outside the purview of conscious awareness and control even be a candidate for thinking about change? If so, do the interventions differ from those that facilitate change? How do subtle changes in the environment influence automatic attitudes? The differences between these questions reflect a basic contrast between the assumptions concerning conscious and unconscious attitudes. Certainly, research revealing neuroplasticity—that is, the ability of the brain to rewire and reconstruct itself to meet new demands or in response to new learning—suggests that change need not be consciously willed. It is in the nature of the demands made on the brain, on the new behaviors that are performed that lead to change, regardless of whether such change is consciously willed.

In the early years of research on implicit attitudes, there was, indeed, the sense that their lack of openness to conscious awareness and control must mean that they would be rigid in response to change (Banaji, 2003). That assumption turned out to be false. Evidence since the late 1990s has accumulated at a rapid rate to show that implicit attitudes shift readily in response to contextual variables, motivational states, and cognitive factors (see Blair, 2002; Dasgupta, 2009; Gawronski & Bodenhausen, 2006). Such evidence has found a home in theoretical models that have moved beyond the simple dual-process idea and probed deeper into the nature of implicit social cognition, especially the rapid responses that intergroup contexts elicit (Conrey et al., 2005; Gawronski & Bodenhausen, 2006).

For example, attitudes toward Black Americans varied significantly when the background of the photo represented poor rather than middle-class neighborhoods (Wittenbrink, Judd, & Park, 2001). Furthermore, Black female individuals elicited more positive attitudes when thought of as female rather than as Black (Mitchell, Nosek, & Banaji, 2003). Exposure to positive Black exemplars (Denzel Washington, Martin Luther King, Jr.) and negative White exemplars (Timothy McVeigh, Jeffrey Dahmer) led to lower anti-Black bias (Dasgupta & Greenwald, 2001; see also Lowery et al., 2001). White participants also exhibited less prejudice toward Black targets when subliminally primed with pairings of Black-good and White-bad (Olson & Fazio, 2006), when participating in a session run by a Black experimenter (Lowery et al., 2001), and when taking the IAT in the presence of a likable experimenter who was perceived as holding egalitarian views (Sinclair, Lowery, Hardin, & Colangelo, 2005). Malleability is not limited to racial attitudes; context also influences evaluations of everything from cigarettes to Bill Clinton, Mike Tyson, chocolate, and the beach (see Ferguson & Bargh, 2004; Ferguson, Bargh, & Nayak, 2005). Such work is difficult to conduct using explicit measures because participants' self-reported attitudes are quite sensitive to situational concerns.

The malleability of implicit attitudes extends to the neural level. Perceptual processing of fearful or threatening stimuli is associated with greater amygdala activation that is attenuated by cognitive processing of these same stimuli (Hariri, Mattay, Tessitore, Fera, & Weinberger, 2003).

A series of shocking studies showed that outgroup members perceived as cold and incompetent (e.g., the homeless) are processed differently in the medial prefrontal cortex, a brain region heavily involved in social cognition, than are ingroup members (Harris & Fiske, 2006, 2007). Asking participants to make individuating judgments about the targets (e.g., "Does this person like broccoli?") dampened this effect, demonstrating that cognition can override automatic neural responses.

One explanation for implicit attitude malleability comes from those theorists who stress that measures of implicit attitudes are not necessarily tapping only unconscious evaluations (Conrey et al., 2005; Payne, Lambert, & Jacoby, 2002). In other words, the degree of possible cognitive control in a particular social context should account for the flexibility observed in such shifts. Another view sympathetic to connectionist ways of reasoning accounts for the flexibility of implicit attitudes by thinking of them as large networks of associative learning (based on direct experience, mass media, and significant others; Gawronski & Bodenhausen, 2006; Smith & DeCoster, 2000). Which aspects are activated depends on the match or goodness-of-fit between preexisting associations and the configuration of external inputs.

Simple exposure or practiced associations between group and attribute demonstrate the mechanism by which such learning effects may occur, both in creating and in changing attitudes. For example, simply seeing faces of one's own group may create negative outgroup attitudes. White participants who were exposed to White faces showed more negative implicit and explicit attitude toward Blacks as compared with participants who did not see pictures of faces. Though both implicit and explicit attitudes changed as a result of seeing White faces, the change in implicit attitudes was somewhat weaker than the corresponding change in the explicit ones (Smith, Dijksterhuis, & Chaiken, 2008). Though conscious and unconscious attitudes may change in the same direction, the magnitude of the change may not be equivalent. Such changes in intergroup attitudes can be influenced by ideology, the final topic of this chapter.

IDEOLOGY

If an attitude is a strand of feeling, then an ideology is a rope of intertwined attitudes and related fibers. Ideology has been defined as "patterns or gestalts of attitudes" (Billig, 1984, p. 446), "an organization of opinions, attitudes, and values—a way of thinking about man and society" (Adorno, Frenkel-Brunswik, Levinson, & Sanford, 1950, p. 2), and "an interrelated set of attitudes and values about the proper goals of society" (Tedin, 1987, p. 65). Expressions of attitudes indicate the presence of ideology in a variety of ways, from the intuitive expectation that those who hold attitude X ("abortion is wrong") are also likely to hold attitude Y ("my faith brings me great joy") to the constant clash of opinions that occur at the intersection of the left versus right of the political spectrum.

This being the case, it may surprise readers to know that, in the 1960s, a decade when America seemed to be particularly politicized, several prominent social scientists proclaimed that the "end of ideology" had come (Bell, 1960/2000; Converse, 1964; Lipset, 1960; Shils, 1968). The basis for the claim came in the form of some good arguments and some flimsy ones: the minds of ordinary citizens (read: unsophisticated types, unlike the elites) did not possess logically ordered attitudes; many Americans gave "I have no idea" answers to political questions, and when they did not, they seemed unable to give accurate reasons for holding the attitudes. Attitudes changed willy-nilly, including in response to the mere order of question presentation; little coherence existed between the affective and cognitive components of attitude, and respondents showed little consistency across attitudes that should be related (McGuire, 1985).

These arguments, and the evidence supporting them, formed the core of the position that ideology was overrated and did not wield significant influence in most people's mental lives. Some counterarguments were offered, however. Situations, critics argued, have the power to moderate attitude expressions. And what if the measures are not sensitive enough to reveal attitude consistencies? And (a radical question!) what if the elites and the common folk are not so different, after all (Judd & Milburn, 1980; Milburn & Judd, 1981)? Nevertheless, McGuire (1982) concluded his discussion about the situation by clearly siding with the end-of-ideology position: "One can hope that these dialectical confrontations of thesis with antithesis will arise to a new and improved synthesis, though a puritanical observer might wish that the workers would show more embarrassment while waiting for it to emerge" (p. 90).

Twenty-five years later, an answer emerged, less in the form of a synthesis and more in the form of an out-and-out challenge to the end-of-ideology position. Jost (2006), a former student of McGuire's, has argued that ideology is alive and well, and very much a part of the lives of both "ordinary" Americans and elites (see also Abramowitz & Saunders, 1998). Jost's evidence comes from statistics about the number of individuals who regularly listen to explicitly ideological talk radio and television shows, the large number of American survey respondents (two thirds to three fourths) who identify themselves somewhere on the liberal-conservative continuum, and the fact that ideological self-placement predicts many other attitudes, beliefs, opinions, and behaviors (see also Jost, Federico, & Napier, 2009; Jost, Nosek, & Gosling, 2008).

Starting with these observations, Jost and colleagues have accumulated evidence revealing the presence of ideology in everyday life (see, for example, Jost, 2006, 2007; Jost, Federico, & Napier, 2009; Jost, Fitzsimons, & Kay, 2004; Jost, Glaser, Kruglanski, & Sulloway, 2003a, 2003b, Jost, Nosek, & Gosling, 2008). Through this work, they have also expounded on the left-right distinction and the psychological differences that characterize the two attitudinal positions. Given its novelty, Jost's argument, as well the broader accumulation of information about the network of conscious and unconscious attitudes that constitute ideology, are worth examining.

The simplest prediction states those who identify with left-wing ideology tend to adopt more liberal positions on specific issues, respond more favorably toward liberal candidates, and vote for liberal politicians; the reverse should be true for those on the right (e.g., Conover & Feldman, 1981; Jost, 2006; Kerlinger, 1984). The left and right ideological stances are differentiated along two dimensions: those who identify as liberal tend to show less tolerance of inequality and more tolerance of change than those who identify as conservative (Jost, Fitzsimons, & Kay, 2004). The very definition of conservatism implies a desire to keep things as they are, and indeed, liberals and conservatives think differently about modern social structures. Individuals who see inequality as group based tend to identify with their country's more liberal party, whereas those who see inequality as meritocracy based tend to identify with more conservative ideologies (Jost, 2006; Napier & Jost, 2008; Sibley & Wilson, 2007).

The left-right divide also indicates a difference in orientation toward the status quo, which right-leaning people tend to support and left-leaning people tend to oppose (Jost et al., 2009). Conservatives are more likely to oppose policies such as affirmative action, for example, and prejudice seems to play a large part in this stance despite the "principled" (race-neutral) objections conservatives say they are making (Federico & Sidanius, 2002; Sidanius, Pratto, & Bobo, 1996). Rationalizations for inequality can partially account for the greater happiness of conservatives as compared with liberals; explaining inequality in ways that do not challenge current social structures mediates the relationship between political orientation and subjective well-being, and increasing economic inequality widens the gap between liberals' and conservatives' happiness, perhaps because liberals are more troubled by such disparity (Napier & Jost, 2008). Though conservatives sometimes argue that liberals are just oversensitive, liberals are, in fact, more accurate at identifying prejudicial attitudes. When asked to determine behaviors that are indicative of racism, liberals more accurately select those that correlate highly with multiple measures of racial bias (e.g., the IAT and explicit self-report scales; Livingston, 2009).

Though conservatives show a great deal of tolerance for social inequality, they do not show the same level of acceptance toward ambiguity and lack of structure. Liberals tend to be more open to new experiences (Jost, 2006) and novel stimulus items, including works of art (Wilson, 1973), foreign films, and foreign travel. They engage in more cognitive complexity and have a lower need for closure than do conservatives. And while liberals show higher preferences for poetry (which is often ambiguous) and tattoos (which may reflect social change and the greater acceptability of modifying one's body), conservatives show high opinions of fraternities, sororities, sports utility vehicles, watching television, and drinking alcohol (Jost et al., 2008).

Perhaps stemming from a distaste of ambiguous situations, conservatives tend to experience more fear of threat and loss, a higher need for order, and a greater anxiety concerning death than do many liberals (Jost et al., 2009). They are more likely to believe that the world is dangerous (Duckitt, 2001), a belief that pairs with social conformity to influence authoritarian attitudes. Authoritarianism, together with social dominance (Sidanius & Pratto, 2001), has been found to influence intergroup attitudes; thus, one's political orientation can have a strong impact on one's attitudes and behaviors toward members of other groups (Duckitt, Wagner, du Plessis, & Birum, 2002). In line with this finding, conservatives tend to form more negative attitudes toward people engaging in behavior they perceive to be immoral (Haidt & Hersh, 2001). And, as expected from the very definition of what it means to be liberal and conservative, liberals tend to prefer social change more than their conservative counterparts (Jost et al., 2008).

It is important to note that this research does not make claims about causality, which can be bidirectional. People frequently form their political attitudes on the basis of already-established beliefs about the social structure within which they find themselves. The influence of attitudes can go both ways, however; one's attitudes toward inequality and the status quo can influence political affiliation, and political ideology can influence attitudes toward novel stimulus items. For example, liberals may favor foreign travel because of their general openness to new experiences, and such travel likely provides the experiences that feed into the further adoption of liberal attitudes.

Several scholars have taken exception to these broad characterizations of liberals and conservatives. Greenberg and Jonas (2003) point out that extremism is not limited to conservatives. However, liberal extremism is much less common than extremism on the right side of the political scale. Furthermore, though the exceptions pointed out by Greenberg and Jonas—for example, political conservatives who appear

to be seeking change—do exist, they are exceptions that prove the general rule, and many examples of conservative "change" are actually attempts to undo liberal changes (Jost, Glaser, Kruglanski, & Sulloway, 2003a).

Others have pointed out that conservatives may hold to broader moral convictions than do liberals (e.g., Haidt & Graham, 2007). Liberals tend to explain their judgments of right and wrong by referencing autonomy, or the idea that everyone has the right to do whatever they please as long as they are not hurting anyone, and by the fairness/reciprocity principle, which states that it is right to treat others well. Although conservatives also rely on these two ethics, three others are also foundational to their thinking: ingroup/loyalty (e.g., it is wrong to perform actions that offend one's community), authority/respect, and purity/sanctity (e.g., it is wrong to do things that are not in line with God's plan for humans; Haidt & Hersh, 2001).

Even more so than individual attitudes, the umbrella status of ideology prompts the question of origins. Where do particular orientations come from? Cultural influences are an obvious input, as are early developmental influences. For example, people who were highly reactive as 4-month-old infants (e.g., those who exhibited strong emotional responses) tend to hold more positive attitudes toward religion and less positive attitudes toward risk than others when they reached the age of 15 years. Low-reactive infants, in contrast, grow into adolescents who hold favorable attitudes toward visiting new places and not worrying excessively about unrealistic events (Kagan & Snidman, 2004). The highly influential constellation of attitudes that compromise ideology may originate in infancy and even earlier, in the structures of one's culture that were established long before one's birth.

SUMMARY

Attitudes—the fundamental orientation to evaluate people, other living beings, things, events, and ideas along a good-bad dimension—have been studied with vigor through much of the 20th century. This chapter focuses in some depth on the question of measurement and the conceptual issues it has raised in recent decades. It also attempted to show the rich and varied ways in which psychologists have probed attitudes, changing in the process the very way in which we understand this concept today. The most prominent lessons from recent decades have been the benefit of a simpler definition, treating the concept alongside other mental constructs especially memory, tapping its less conscious aspects, and allowing new methods to reveal its nature rather than abiding to a preconceived notion of what attitudes should be.

This chapter introduces work on the origins of attitudes for the first time. Research on nonhuman primates and infants is just beginning, and the early returns indicate that it will teach us much about unique attitudes that characterize human minds and that can grow only in complex social environments while also supporting the idea of the continuity of life. Research on young children has been surprising in revealing the presence of implicit intergroup attitudes that are just as fully formed as in adults, even though explicit attitudes vary across development. If the number of seemingly spontaneous symposia and conferences are an indication, research at the intersection of social, cognitive, and developmental psychology will continue to generate interest and break down silly boundaries that currently separate areas of psychology.

The large remainder of the chapter focuses on the bread and butter work of social psychologists who study attitudes, starting with the self, and looking outward to attitudes toward social groups. Here the main lessons have been the dissociations between conscious and unconscious forms of attitudes, as well as their malleability. That attitudes are not always consciously accessible or controllable, but nevertheless guide behavior, has been a theme of much of the work that is reviewed. Questions of how control may be asserted over attitudes that are consciously desired but out of reach and the ethics of changing less visible attitudes will require attention in the future. In this century, most of which lies ahead, psychologists have much to understand about the preferences people have, routinely acquire, and rely on to muddle through their ordinary lives. They will, no doubt, also speak about the extraordinary effects that even the most ordinary preferences create in shaping the quality of lives. Indeed, what social psychologists have learned about preferences has always been of general interest because this simplest orientation to evaluate as good and bad underlies so much of individual and group happiness, safety, and progress.

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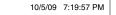
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