Attitudes and Social Cognition as Social Psychological Siblings

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Abstract

Attitudes and social cognition have many common conceptual roots. This chapter reviews the interwoven history of the attitudes and social cognition areas. It discusses the separation of the approaches in the early days of the social cognition movement when social cognition borrowed heavily from models of cold cognition in cognitive psychology. The chapter compares the development of research on attitudes, attitude change, and persuasion with that in social cognition during the past 30 to 40 years. In that time, attitudes and social cognition researchers have created prominent dual and multiple process theories, and common themes have resonated with attitudes and social cognition researchers. Finally, the chapter discusses the broadening of the social cognition area into a general approach to social psychological research. There are a number of ways in which the maturation of the social cognition perspective has brought it closer to the attitudinal roots that were at least partially rejected in the early days of social cognition.

Key Words: attitudes, attitude change, persuasion, social cognition

Since the late 1970s, Attitudes and Social Cognition have shared a section of the Journal of Personality and Social Psychology. There are good reasons to house these research areas under the same roof. At the same time, like siblings in the same house, there have also been certain tensions between the areas, perhaps especially as the burgeoning area of social cognition grew and sought conceptual and methodological independence in the late 1970s and early 1980s.

Both of the current authors took courses (one of us in "person perception" and the other in "social cognition") from one of the founders of contemporary social cognition, Thomas Marshall Ostrom. Tom helped to found the social psychology program at Ohio State in the mid-1960s with Timothy Brock and Anthony Greenwald (and, soon thereafter, Bibb Latane). Greenwald was not as exclusively identified with the “social cognition” moniker as Ostrom. However, Greenwald was instrumental in bringing cognitive approaches to social psychology in his early work on the self (Greenwald, 1980) and subliminal persuasion (Greenwald, Spangenberg, Pratkanis, & Eskenazi, 1991), and as we note shortly, especially in his more recent work on implicit measures of attitudes (Greenwald, McGhee, & Schwartz, 1998).

Ostrom conducted attitudes research into the 1970s, edited attitudes books in the Ohio State series in the late 1960s and early 1980s (i.e., Greenwald, Brock, & Ostrom, 1968; Petty, Ostrom, & Brock, 1981), and taught attitude measurement into the mid-1990s. Thus, Tom’s direct involvement in attitudes research came before the development of contemporary dual and multiple process models, such as the elaboration likelihood model (ELM; Petty & Cacioppo, 1986a, 1986b) and the heuristic/systematic model (HSM; Chaiken, Liberman, & Eagly, 1989). Yet, he had conducted a healthy amount of issues of a & Brock, Ostrom & 1970; Ste the Social and was Person N the origi tion rese held each Social Psy ent an C Like the us, he we what do We wish construc (with ap details n back to cuss the when cc tion bo chology of attit the pas on pro of attit The ne themes social c hem ent na broade ral ap theor which spectiv al early c

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amount of attitudes research, especially dealing with issues of attitude structure (Ostrom, 1969; Ostrom & Brock, 1969), measurement (Ostrom, 1973; Ostrom & Upshaw, 1968), and change (Ostrom, 1970; Steele & Ostrom, 1974). Tom also founded the Social Cognition Research Group at Ohio State and was active in developing the international Person Memory Interest Group (PMIG)—one of the original venues for discussions of social cognition research, and now a popular preconference held each year before the Society of Experimental Social Psychology meeting. In this chapter, we present an Ostromian view of early social cognition. Like the field more generally, if Tom were still with us, he would likely hold different views today about what does or does not qualify as social cognition. We wish he were still with us, but we will try to construct as accurate a set of recollections as we can (with apologies to those who knew some of these details more intimately than we do).

We begin our chapter by providing a historical backdrop for the development of social cognition, including traditional research on attitudes/persuasion and impression formation as well as responses to crises in these fields in the 1970s. We then discuss the early days of the social cognition movement when cold cognition initially ruled and social cognition borrowed heavily from models in cognitive psychology. We continue to compare the development of attitudes and social cognition research during the past 30 to 40 years. We focus our comparison on prominent dual and multiple process theories of attitude change and of impression formation. The next part of the chapter identifies a number of themes that have resonated with both attitudes and social cognition researchers, though these common themes have sometimes been studied under different names. Finally, we discuss the maturation and broadening of the social cognition area into a general approach to social psychological research and theorizing. In so doing, we point out some ways in which this maturation of the social cognition perspective has brought it closer to some of the attitudinal roots that were at least partially rejected in the early days of social cognition.

Backdrop of Traditional Research on Attitudes and Attitude Change

The study of attitudes and attitude change can be thought of as a series of (partially overlapping) eras in which particular questions or developments took center stage (see Brifolia & Petty, 2012, for a history of attitudes research). In the early days, tracing back to Thrusstone’s declaration that “Attitudes Can Be Measured” (Thurstone, 1928), the focus of much attitudes research was on assessing attitudes (e.g., Guttmann, 1944; Likert, 1932; Thrusstone & Chave, 1929). Following World War II, Carl Hovland assembled a group of researchers at Yale University focused on attitude change. Hovland and colleagues relied on the cognitive/learning theories of the time to understand persuasion using a broad set of assumptions referred to as the Message Learning Approach (Hovland, Janis, & Kelley, 1953). Throughout the 1950s, 1960s, and early 1970s, attitudes work could be characterized as driven by a variety of individual theories postulating a central process that would produce attitude effects. These theories, some of which were cognitive, but others of which were motivational, included classical conditioning (Staats & Staats, 1958), cognitive dissonance (Festinger, 1957, 1964), balance (Heider, 1958), congruity (Osgood & Tannenbaum, 1955), social judgment (Sherif, Sherif, & Nebergall 1965), cognitive response (Greenwald, 1968), information integration (Anderson, 1971), and expectancy-value (Fishbein & Ajzen, 1975) approaches. Late in the 1960s and into the 1970s, dissonance (Festinger, 1964) and self-perception (Bem, 1967) theories vied with one another as competing explanations for effects of behavior on attitudes. Some researchers lamented the ability of each theory to account for results predicted by the other and suggested that empirical attempts to differentiate the theories would fail (Greenwald, 1975).

In the same era (i.e., the late 1960s and early 1970s), the accumulated attitudes literature was coming under attack. In particular, research dealing with attitude–behavior relations was criticized by Wicker (1969, 1971) and others as indicating woefully low predictive ability for attitudes. Soon thereafter, Sherif (1977) and others bemoaned the lack of generalizable principles in the literature on attitude change. Many findings from the Hovland era, such as source credibility effects on persuasion, for example, occurred in some studies but not in others. In fact, other researchers at the time questioned whether influences on attitudes were real or epiphenomenal (a product of asking people questions in the lab), observing that many attitude changes in the lab were no longer present when research participants took up their daily lives (Cook & Flay, 1978). Of course, some research on attitudes had identified lasting persuasion (e.g., Freedman, 1965; Mann & Janis, 1968), though many effects were, in fact, short-lived. Yet, as of the mid-1970s, no theoretical
framework had been developed to account for (or predict) such variation, either in persuasive effects or persistence of the observed changes. In many respects, this time of crisis ushered in the modern dual/multiple process era, not only in attitude theorizing (e.g., Petty & Cacioppo, 1986b) but also, for some similar reasons, in the development of social cognition.

An Impression Formation Context for the Development of Social Cognition

Ostrom's background was thoroughly rooted in attitudes research. He was the intellectual grandson of Louis Thurstone—through Harry Upshaw, Ostrom's graduate school advisor. Ostrom also had direct connections to research on impression formation. Indeed, work on context effects in impression formation had direct connections to psychophysical judgment (and Thurstone's work on psychophysical judgment laid the foundation for his research on attitude measurement; Thurstone, 1928). Many early social cognition researchers initially identified with research on impression formation, and many still do (see Chapter 2). Similar to the attitudes domain, by the mid-1970s, there was growing frustration with existing theories of impression formation. Like the dissonance/self-perception competition in the attitudes domain, the general approaches of meaning change (Asch, 1946) and information integration (Anderson, 1966, 1970) had been viewed as competing theories that provided different explanations for context effects in impression formation. In the meaning change approach, the connotations of specific traits differed depending on the constellation of other traits or information available about the target person. In contrast, the information integration approach suggested that perceptions of component traits could be constant, but that different overall impressions would result from differential weighting of the component traits in forming the overall impression. Ostrom (1977) suggested that neither the change of meaning approach nor the information integration approach was sufficiently specified to make clear predictions that could be differentiated from one another. That is, Ostrom (1977) suggested that each approach was sufficiently ambiguous that the approaches could be adjusted to account for virtually any result after the fact, but that each position made precious few a priori predictions (for similar criticisms of the information integration approach to attitude change, see Petty & Cacioppo, 1981).

Impression formation studies of the 1960s and 1970s presented traits as the input to impression processes. This research approach paralleled stimulus–response approaches from the learning tradition (that also formed the foundation for early attitudes research; Hovland et al., 1953) and was viewed by early social cognition researchers as providing relatively little leverage on the cognitive processes at work. Furthermore, because traits or other information were typically presented to research participants who were then directly asked for a judgment, concerns arose that responses to such questions might not reflect what people do when they learn about similar information in the real world (e.g., by observing behaviors and spontaneously inferring traits; Winter & Uleman, 1984; cf., Cook & Flay, 1978). Ostrom (1977) argued that it would be beneficial if impression formation theories began to rely on advances in cognitive psychology to make more specific predictions about the mechanisms underlying change of meaning effects (including more direct study of the content, structure, and processing of cognitions about the target person).

To this end, Ostrom suggested supplementing the traditional trait-rating paradigms to include techniques such as reaction times (Anderson & Hastie, 1974), recall (Lingle & Ostrom, 1981), and free association (Deese, 1965). Furthermore, presaging later theoretical developments, Ostrom (1977) suggested that a more fruitful theoretical stance to the dueling-theories approach of the previous decade would be to suggest that each basic type of process (i.e., integration of components and meaning shifts) contributes to impression formation, but with specific circumstances determining the relative importance of each type of process.

Responses to Crisis

The attitudes and social cognition areas developed in remarkable ways following the crises of the 1970s. On the attitude side, the puzzle of attitude–behavior relations was addressed on the measurement front (e.g., Fishbein & Ajzen, 1974) and by theoretical approaches that emphasized mediation of attitude effects (by behavioral intentions; Fishbein & Ajzen, 1975) or moderation of attitude effects (by features of the attitude, such as direct experience, Fazio & Zanna, 1981, knowledge, Davidson et al., 1985, and other attitude strength properties; see Petty & Krosnick, 1995). The theories of dissonance and self-perception were successfully distinguished by focusing on the hypothesized discomfort associated with dissonance but absent from self-perception (Fazio, Zanna, & Cooper, 1977; Zanna & Cooper, 1974; see Wegener & Carlston, 2005).
for discussion). Moreover, theoretical models were developed that specified when relatively thoughtful versus nonthoughtful processes would influence attitudes. These models used the moderators of motivation and ability to think carefully about attitude-relevant information (e.g., Chaiken, 1980; Chaiken, Liberman, & Eagly, 1989; Petty, 1977; Petty & Cacioppo, 1979, 1986a, 1986b), and various processes initially studied in the 1950s, 1960s, and early 1970s—including dissonance and self-perception—could be placed at different points along the elaboration continuum (Petty & Cacioppo, 1981; Petty & Wegener, 1998). The multiple process approach quickly became dominant in the attitudes field. In addition to organizing past attitude processes and persuasion effects, the multiple process approach postulated that the amount of thought about the attitude object moderated the extent to which the attitude persisted over time and had lasting impact (e.g., Petty & Cacioppo, 1986a).

Alongside the criticisms of attitude-behavior and attitude change research, researchers (including Ostrom) who had been examining person impressions using Anderson's information integration approach were also becoming disenchanted with that approach. Indeed, at one point (if our memories for Tom's stories serve us well), a number of researchers, including Ostrom, made a pact to never again conduct an information integration study. Against this backdrop, the modern era of social cognition research commenced. In the new-style social cognition research, participants often encountered descriptions of behaviors rather than traits (also present in the attribution research that might be viewed as a bridge between early impression formation studies and social cognition; see Chapter 6). In addition, judgmental outcomes were often accompanied by measurements of reaction times or recall/recognition of traits or behaviors. These measures were intended to tap into the cognitive processes that linked perception of behaviors to trait inferences, judgments, or behaviors toward the target. Emphasis was placed on the use of models and methods from cognitive psychology as tools to help researchers understand how social information (especially information about people) came to be processed, remembered, and integrated into judgments.

From an attitude researcher's point of view, it is easy to understand why early social cognition researchers had become disenchanted with the information integration approach. This approach had not taken a central position within the attitude change literature, in part, because information integration was more of a description than a theory. That is, whereas the information integration equations could potentially identify the differential weights associated with the impact of particular information on impressions or attitudes, information integration per se did not predict what those weights should be, leaving many researchers unsatisfied (including Ostrom, 1977). With this search in cognitive psychology for tools to study impression formation, the sibling discipline of social cognition was born. (At least that is one version of the story.)

The Early Days of Social Cognition

Like a younger sibling attempting to escape the shadow of the older sibling, many topics that had been common constructs in the attitudes domain, such as the role of emotions or motivation in evaluation, became almost taboo in social cognition. Whether this was intentional or simply a consequence of the focus on cognitive mechanisms per se is unclear. Our guess is that the vision of mental processes of the day within cognitive psychology was simply a vision of "cold" cognition that eschewed the more messy "hot" cognition constructs (Abelson, 1963). If motivation and emotion were discussed at all in the early days of social cognition, they were described in cold cognitive terms.

Lots of interesting and influential work captured the imagination of the first generation of social cognition researchers. Much of that work addressed the canonical cognitive categories of activation (accessibility), automaticity, and mental representation (for reviews, see Bargh, 1994; Carlston & Smith, 1996; Higgins, 1996). Indeed, we recall a student of Ostrom's quipping that, "If you are not dealing with encoding, storage, and retrieval, you are not dealing with social cognition." Methodologically, some researchers we knew complained that editors like Ostrom (then editing the Journal of Experimental Social Psychology) didn't view work as being social cognition unless the dependent measure was reaction time or ARC scores (a measure of clustering in free recall). Indeed, these were two of Ostrom's favorite outcome measures, whether or not they formed an operational definition of which research qualified as social cognition. At any rate, the early days of social cognition were heady days full of much enthusiasm—enthusiasm that snowballed into a thriving new approach to social psychology (see Chapter 2).

Without a doubt, this enthusiasm was also fueled by small research meetings of social
cognition researchers, perhaps the most prominent being the PMIG meetings prior to the Society of Experimental Social Psychology meetings in the fall and the summer meetings in Nags Head, North Carolina (and later, the Duck Conference on Social Cognition). Like the area of social cognition more generally, the PMIG and Duck meetings have continued to become broader over time. In their early days, however, these separate meetings (perhaps especially the PMIG meeting) contributed to views of social cognition researchers as somewhat exclusive and, perhaps, arrogant. Ostrom surely contributed to perceptions of social cognition research as arrogant and rather imperialistic with his lead chapter in the 1984 *Handbook of Social Cognition* volume titled, “The Sovereignty of Social Cognition” (Ostrom, 1984). This was one of the great paradoxes of Tom Ostrom. He was extremely inclusive and friendly, especially in gathering and connecting those he viewed as kindred spirits. Yet, he could also lead the charge to claim the superiority of his preferred view of the world (and, in the process, at least to some readers, the inferiority of all other approaches). At times, some have questioned whether Ostrom was simply trying to be provocative with his chapter title or whether he even believed what he was saying at the time (or just being extreme to try to make a point). But 10 years later, in his preface to the 1994 *Handbook of Social Cognition* (and, unfortunately, the year of Tom’s passing), he headed a section of the preface with “Is Social Cognition Sovereign?” and began the paragraph with “Of course it is.”

It is difficult to say whether any of this “sectarian” sentiment in the early days of social cognition paralleled the common motivations of younger siblings to demonstrate to their parents, older siblings, and the world at large that they are autonomous and fully functioning individuals. Many areas of social psychology might be characterized as having less cognitive roots than the attitudes domain, so this attempt to differentiate social cognition from other areas of inquiry was likely viewed as much broader than simply differentiating from research on attitudes. However, the early choices to focus social cognition on cold cognition (ushered in by the computer analog of the brain that came with the development of cognitive psychology more generally) marked a clear departure from attitudes research. The tradition and ongoing character of attitudes research included the study of cognitive processes but certainly also considered emotional and motivational processes.

**Similarities and Dissimilarities in How Attitudes and Social Cognition Developed since the Mid-1970s**

As noted previously, social cognition research responded to dissatisfaction with stimulus–response types of theorizing by orienting themselves toward methods and models in cognitive psychology. The intent, of course, was to more directly address the cognitive mechanisms underlying the resulting impressions or behaviors. Therefore, in some respects, one might think of the social cognition response to the concerns of the day as focusing on cognitive mediation. Some social cognition research also focused directly on the issue of what social perceivers do naturally (such as spontaneously form trait inferences, Winter & Uleman, 1984; see also Carlston & Skowronski, 1994). In comparison, although some research in the attitudes domain focused on straight mediation (e.g., theory of reasoned action, Fishbein & Ajzen, 1975; cognitive responses, Greenwald, 1968), most of the attitudes response to the crises of the 1970s focused on identification of moderators. Over time, these moderators coalesced into overall models of attitude change (e.g., Chaiken, 1980; Chaiken et al., 1989; Petty, 1977; Petty & Cacioppo, 1986a) and attitude–behavior relations (Fazio, 1986, 1990). These models proposed factors that determined when various influences on attitudes would have their greatest impact, how long resulting attitudes would persist over time (if unchallenged), how easily they could be changed (when challenged), and which attitudes would be most likely to influence behaviors. As described in more detail shortly, a core idea in these models was that sometimes people engage in little thought prior to making judgments, in which case simple and quick inferences and cues determine evaluations, whereas at other times people engage in much thought, in which case deliberative processes and careful analysis of information determine judgments. These dual and multiple process frameworks presaged later development of dual systems models of judgment within social cognition (e.g., Deutsch & Strack, 2006; Smith & DeCosters, 2000; see Petty & Brinol, 2006b).

To be sure, characterizing 1970s and 1980s social cognition as emphasizing mediation and attitudes work as emphasizing moderation is a simplification. Emphases on cognitive mediators naturally implied certain moderators of the proposed cognitive mechanisms. Likewise, moderators of influences on attitudes were hypothesized to result from moderation of the cognitive processes (mediators) at
in research as response variables toward social psychology. The early address the results, in some cases of cognition focusing on social processes (Katz, 1960; Smith, Bruner, & White, 1956). Rather, attitude researchers sought to integrate the core defining feature of what constituted attitudes research, no particular emphasis on any one type of process became emblematic of an "attitudinal" approach. In a sense, all mechanisms were fair game. In contrast, although social cognition has significantly broadened since its inception (see Wegener & Carlston, 2005), its early emphasis on cold cognitive processes did make the type of process emblematic of a "social cognition" approach (regardless of whether one was studying evaluative or nonevaluative outcome judgments or behaviors).

Thus, one way in which the attitudes and social cognition paths diverged in the late 1970s and early 1980s was in terms of the breadth of potential mediators and independent variables addressed. As we have already noted, early social cognition researchers focused intently on cognitive mediators, often to the exclusion of motivational or emotional constructs. In traditional attitudes work, many different mechanisms and independent variables were considered. A partial list of processes includes learning (e.g., conditioning, Staats & Staats, 1958; effectance motivation, Byrne & Clore, 1967) and cognitive consistency processes (e.g., dissonance, Festinger, 1957; congruity, Osgood & Tannenbaum, 1955; tripartite attitude structure, Rosenberg & Hovland, 1960) as well as other motivational (e.g., attitude functions, Katz, 1960; Smith, Bruner, & White, 1956; ego-involvement, Sherif & Hovland, 1961; reactance, Brehm, 1966) and perceptual (e.g., adaptation level, Helson, 1964; assimilation-contrast, Sherif et al., 1965; variable perspective, Ostrom & Upshaw, 1968; for reviews, see Briñol & Petty, 2012, Ostrom, 1968) processes. Attitude researchers did not discard the variables or mechanisms involved in these domains or recast them in purely cognitive terms. Rather, attitude researchers sought to integrate these processes into overarching theories that provided a context for when each of the proposed mechanisms might have the strongest effects (see Petty & Cacioppo, 1986a, 1986b). Therefore, in a sense, the attitudes literature progressed by embracing the variety of past findings and attempting to account for them. In contrast, early social cognition research rejected previous means of studying the questions of interest (clearing the decks, so to speak) and started from scratch with a new emphasis on cognitive process (often defined as specifically dealing with encoding, representation in memory, or retrieval—in the process also rejecting alternative “cognitive” measures).

Whether intended or not, these different points of departure have had important consequences for the two literatures ever since. For example, in the 35 years since the development of the ELM (Petty, 1977) and HSM (Chaiken, 1978), the various overarching theories in the attitude change domain have provided central shared structures that have guided much of the research. When the research has not tested particular tenets of those core theories, the accumulated literature surrounding those theories has provided a rich context for identifying the conditions in which particular variables are likely to have certain effects. Because so much research has either directly concerned these core theories or used them as a salient backdrop for the research, we believe that this could lead to the false impression that research is not developing as quickly or changing as much in the attitudes domain as in other areas (like social cognition) that have not developed the same kinds of core, overarching theories.

Although many specific cognitive principles have been identified over the years, a large proportion of the social cognition research has seemed to fall outside of broad overarching theories. This is not to suggest that broad social cognition theories have been absent. Perhaps most salient in this regard are overarching theories of impression formation (e.g., Brewer, 1988; Fiske & Neuberg, 1990) and some broad but straightforward notions, such as schemas (Hastie, 1981) and associative networks (Anderson, 1980; Rumelhart, Lindsay, & Norman, 1972), developed early on and were used to explain a wide variety of phenomena. Yet, in many areas of social cognition, significant work proceeded to address questions lying somewhat outside the confines of the overarching theories (such as spontaneous trait transference in the impression formation domain; Skowronski, Carlston, Mae, & Crawford, 1998). Perhaps, in part, because of the weaker role that overarching theories played in (especially early) social cognition research, interested readers may have perceived each new piece of evidence as another separate log that brightened the blaze of
social cognition. In contrast, research building on existing overarching theories can be viewed as less groundbreaking. It is an interesting philosophy of science question to ask how the presence of broad organizing theories influences perceptions of progress in developing areas of science.

**Dual and Multiple Process Theories of Attitude Formation and Change**

Broad theories of attitude formation and change were based on the notion that people are not always willing and able to think carefully about attitude-relevant information (Chaiken, 1980; Chaiken et al., 1989; Petty & Cacioppo, 1979, 1986a). Therefore, these theories were oriented around the level of motivation and ability people possessed in a given evaluative setting as determinants of the level of elaboration or systematic processing in which people engage. These theories addressed the varied effects of source, message, recipient, and context/channel factors (Lasswell, 1948) by suggesting that low levels of information processing allowed peripheral cues (Petty & Cacioppo, 1986b; or aspects of a persuasive appeal associated with available cognitive heuristics, Chaiken, 1987) to have the dominant effect on resulting attitudes. In contrast, higher levels of processing led to greater effects of the effortfully assessed merits of the persuasive appeal.

Under the rubric of “multiple roles,” the ELM also proposed that a given variable can influence attitudes for different reasons at different levels of elaboration. That is, a variable can act as a cue and have a relatively direct effect on attitudes when motivation or ability to think is low (i.e., when elaboration likelihood is low). However, when people are motivated and able to elaborate, the same variable can influence attitudes through more elaborative processes, such as serving as an argument, biasing processing of available information, or validating thoughts about the attitude object. Finally, the same variable may often influence the extent of elaboration if neither motivation nor ability is constrained to be high or low (for reviews see Petty & Cacioppo, 1986a; Petty & Briñol, 2012; Petty & Wegener, 1999). The ELM addressed not only 1970s criticisms concerning unexplained variation in persuasion effects (Sherif, 1977) but also concerns that attitude effects were fleeting (e.g., Cook & Flay, 1978) by noting that the amount of elaboration moderated the extent to which attitudes endured over time, resisted change, and predicted behavior (Petty et al., 1995; Wegener, Petty, Smoak, & Fabrigar, 2004).

To test effects of elaboration (or other attitude, strength-related variables) on persistence, resistance, or behavior prediction, researchers have to equate the extremity of attitudes across the crucial high versus low thinking conditions. By doing this, attitude extremity is not confounded with the level of elaboration (or other dimension of attitude strength that is being tested). Therefore, much work comparing relatively nonthoughtful and thoughtful processes in attitude change has identified settings in which more and less elaborative processes result in the same judgmental impact (i.e., in the same attitudinal judgments). For example, Petty et al. (1993) tested the effects of happy versus neutral mood on attitudes when processing of information was relatively high or low. Happy mood led to more favorable attitudes than neutral mood and did so to the same degree across high and low levels of processing (equating the level of extremity across conditions). More importantly, when processing was high, the valence of generated thoughts about the persuasive appeal was significantly affected by mood, and the difference in the favorability of thoughts across conditions mediated the impact of mood on attitudes (i.e., mood-biased processing; see also DeSteno, Petty, Rucker, Wegener, & Braverman, 2004; Wegener, Petty, & Klein, 1994). However, at low levels of processing, mood had no effect on the thoughts produced (i.e., mood did not bias thoughts, but rather was used as a cue or heuristic).

Conceptually similar effects — showing equal effects on attitudes across levels of processing — have been demonstrated for variables such as the expertise of a message source (Chaiken & Maheswaran, 1994) and also on nonevaluative dependent measures, such as stereotypes influencing trait ratings (Wegener, Clark, & Petty, 2006) or numerical anchors influencing numerical estimates (Blankenship, Wegener, Petty, Detweiler-Bedell, & Macy, 2008). Because the attitudes or nonevaluative judgments in these studies have been equally extreme across levels of elaboration, the studies have appropriately set the stage for examination of elaboration effects on the consequences of those judgments (such as persistence over time, resistance to change, and the like). Consistent with the ELM notion that elaboration will lead to enhanced impact of the judgments over time, more thoughtful stereotyping and more thoughtful versions of numerical anchoring have been shown to resist attempts at social influence better than thoughtless versions of each effect (Blankenship et al., 2008; Wegener et al., 2006). Similarly, thoughtful anchoring persists longer over time than thoughtless anchoring.
anchoring (despite the initial anchored judgments looking the same—being equally extreme across elaboration conditions—Blankenship et al., 2008). Also, other ELM-inspired studies have created equal initial attitudes through more versus less elaborative means (e.g., through thoughtful influences of message arguments in one condition and nonthoughtful influences of message sources or the sheer number of arguments in another condition) and produced differences in consequences of the resulting attitudes across levels of elaboration (see Petty et al., 1995; Wegener et al., 2004).

In the current context, it is interesting to note that the term elaboration was chosen for reasons that seem quite compatible with the social cognition rumblings that were beginning when the ELM was developed (Petty, 1977). In contrast with the Message Learning approach of the 1950s, elaboration reflects the idea that scrutiny of an attitude object goes beyond passive receipt or memorization of presented information. Rather, elaboration includes attention to any presented information, attempts to access relevant information from both external (message) and internal (knowledge) sources (including one’s previous evaluations), attempts to scrutinize and make inferences about attitude-relevant information in light of other available knowledge and standards, drawing conclusions about merits of the attitude object or recommendation, and derivation of an overall evaluation that combines the outputs of these efforts (see Petty & Cacioppo, 1986a). Thus, as discussed by Petty and Cacioppo (1986a), the concept of elaboration was an extension of the concepts of depth of processing and elaboration from cognitive psychology (Craik & Lockhart, 1972; Craik & Tulving, 1975; where depth of processing and elaboration each involved connecting to-be-remembered material to other knowledge structures). In common parlance, though terms such as scrutiny, effortful processing, and careful thinking can be used as synonyms, ELM researchers considered elaboration as best capturing the range of cognitive activities involved.

The amount of elaboration is correlated with, but not synonymous with, distinctions such as automatic versus controlled processing used in both cognitive (Schneider & Shiffrin, 1977) and social psychology (Devine, 1989), or spontaneous versus intentional impression formation (Uleman, 1999). For example, processes that lie toward the low end of an amount-of-thinking continuum could involve many settings in which people have no intention to form an impression. However, in many low-thought settings, there may be some level of intention to form an impression, but there is a lack of motivation to put effort into forming that impression. Similarly, although an automatically activated attitude might be perfectly capable of influencing judgments or behaviors in low-thought settings, the automatically activated attitude could also be used in elaborate processes of assessing the merits of the object.

If persuasion researchers had endeavored to index the amount of elaboration through the accessibility of resulting attitudes (one of a number of cognitive outcomes of high levels of elaboration; Petty et al., 1995), perhaps ELM and HSM research would have been more likely to be considered as social cognition research. We suspect that Ostrom would have been more likely to view it as such. Indeed, research on attitude accessibility (e.g., Fazio, Powell, & Herr, 1983), which used the language of associative network models, was regarded as falling more clearly into the social cognition category. However, ELM researchers identified other ways to assess the extent of elaboration in processing of persuasive communications. The most popular procedure has been to manipulate the quality of the arguments contained in a message and to gauge the extent of elaboration by the relative size of the argument quality effect on postmessage attitudes (e.g., Petty et al., 1976; Petty, Cacioppo, & Goldman, 1981). Research has supported the idea of high elaboration being associated with greater attitude accessibility (Bizer, Tormala, Rucker, & Petty, 2006; Kokkinaki & Lunt, 1999; Rennier, 1988; Priester & Petty, 2003). However, little research to date has examined accessibility as a mediator of elaboration effects on consequences, such as persistence over time, resistance to change, or impact on behavior (though some research has related attitude accessibility to an attitude’s persistence over time, Zanna, Fazio, & Ross, 1994; or resistance to change, Bassili & Fletcher, 1991, without directly addressing the level of elaboration involved).

**Dual Process Approaches to Impression Formation**

Similar to the concept of elaboration, the core distinction between automatic and controlled processes was evident from early social cognitive studies of stereotyping (e.g., Devine, 1989) and also in prominent models of impression formation (e.g., Brewer 1988; Fiske & Neuberg, 1990). For example, the continuum model (Fiske & Neuberg, 1990) differentiated between less effortful category-based assessments of people and more effortful assessments based on piecemeal processing (i.e., attribute-
by-attribute analysis) of individuating information. When a target is first encountered, one starts by categorizing the person based on salient features (e.g., skin color, body shape). If the target is of little interest or importance, then the social perceiver has little motivation to engage in more effortful (piecemeal) processing and relies on the initial categorization. However, given sufficient motivation or lack of categorical fit, one is likely to assess the target on a more effortful attribute-by-attribute (piecemeal) basis. In general, these models predict that stereotyping will be less likely when piecemeal processing occurs, either because the category is set aside for attribute-by-attribute processing or because the category ends up being treated simply as one attribute among many that contribute to the overall impression (Fiske, Lin, & Neuberg, 1999). Consistent with such theoretical frameworks, the majority of research on the judgmental effects of stereotypes has emphasized the possible use of stereotypes as heuristics or shortcuts to judgment (e.g., Bodenhausen, 1990; Bodenhausen, Sheppard, & Kramer, 1994; Macrae, Milne, & Bodenhausen, 1994).

**Comparing the Models**

It is difficult to say whether the earlier dual or multiple process models of attitude change had any direct impact on the subsequent dual process models of impression formation (though there was clearly a developing zeitgeist of the time; compare Brewer, 1988; Chaiken et al., 1989; Fiske & Neuberg, 1990; Petty & Cacioppo, 1986a, 1986b; see Chaiken & Trope, 1999; Smith & DeCoster, 2000, for reviews). There are many similarities across these models. Perhaps the most notable is the idea that target evaluation can sometimes be relatively thoughtful, but, at other times, can be significantly less cognitively demanding. Despite these similarities, the focus on consequences of attitudes (i.e., lasting over time, resisting change, and predicting behavior) has led to more ELM-based research on the multiple ways that the same judgments can occur and on the differences in persistence, resistance, or impact on other thinking or behavior that is associated with different levels of elaboration contributing to those judgments (see Petty et al., 1995; Wegener et al., 2006). This is not to say that theories of impression formation cannot allow for thoughtful effects of categories. However, the emphasis on different sizes of the category effects across levels of thinking might have made such studies less likely. It remains to be seen whether recent work applying a more ELM-inspired approach to stereotyping and person perception (Wegener et al., 2006) will or will not motivate more impression formation research aimed at examining lasting impact of the resulting impressions.

When the ELM addresses biases in processing, such biases can be either motivational or ability based. That is, biases can be based in biased perceptions or interpretations of information that follow from motives to end up with particular views of oneself or the issue (e.g., the motivational “reactance” bias can lead people to counterargue a message; Petty & Cacioppo, 1979). Alternatively, the bias can follow from existing knowledge. For example, the person could have more knowledge consistent rather than inconsistent with his or her current attitude, and that knowledge could produce attitude-consistent biases in related judgments—an ability-based bias (e.g., Lord, Ross, & Lepper, 1979; Wood, 1982; cf., Kunda, 1990, on motivational biases).

Research on outcome dependency (i.e., situations in which one's outcomes depend on the actions of another person) forms much of the research that underlies the continuum model of impression formation. However, research on outcome dependency has been variously characterized as suggesting that outcome dependency creates motivational biases (i.e., motivations for one's own outcomes to be positive, e.g., Klein & Kunda, 1992; Kunda, 1990) or simply creates differences in amount of processing (with outcome dependency increasing extent of processing, Devine, Sedikides, & Fuhrmann, 1989; Neuberg & Fiske, 1987; much like increases in personal relevance increase processing of persuasive messages, Petty & Cacioppo, 1979).

Clark and Wegener (2008) used impression formation materials fashioned after persuasive message argument quality manipulations to argue that outcome dependency can both increase processing and positively bias processing, depending on the setting. That is, when people expected to meet a person and have a conversation with him or her (in a study presumably examining the factors that lead to a pleasant interaction), they processed information about the target person more than when they did not expect to meet the person. This increase in mere amount of processing led to more favorable thoughts about the person and to more favorable judgments of the person's qualities if the provided information was positive, but led to less favorable thoughts about the person and to less favorable judgments of the person's qualities if the provided information was less positive. However, expecting to interact with a person in a
setting where substantial awards could be received for a smooth interaction led to positive biases in processing. That is, thoughts and judgments of the person's qualities showed the same differences across the target quality manipulation (consistent with equally high levels of processing when expecting to meet the person and when expecting to meet the person with the opportunity for substantial rewards for smooth interaction). In addition, thoughts and judgments were more positive when substantial awards for a later smooth interaction were available than when the research participant simply expected to interact with the person or do so with minimal reward for a smooth interaction.

More Recent Theoretical Developments

Both the attitudes and social cognition areas have seen development of new theories in recent years. In the attitudes domain, some have suggested taking an approach that harkens back to the syllogistic and probabilistic theories of the 1960s and 1970s (e.g., McGuire, 1960; Wyer, 1974), treating all attitude-relevant information as evidence and all persuasion as due to inferential reasoning about that evidence (e.g., Kruglanski & Thompson, 1999; for application of this idea to impression formation, see Erb et al., 2003). Even in this suggestion, however, motivation and ability to think carefully about the evidence at hand are said to result in assessment of the relevance of the evidence to the evaluation (with greater weighting given to relevant over irrelevant information when motivation and ability to think are high; Pierro, Mannetti, Kruglanski, & Sleeth-Keppler, 2004). This proviso makes the theory highly compatible with the ELM notion that high levels of motivation and ability result in scrutiny of the merits of all available attitude-relevant information (Petty & Cacioppo, 1986a; see Wegener & Carlston, 2005). Other theories have more directly spoken to issues of attitude representation (e.g., Lord & Lepper, 1999; Petty, Brinol, & DeMarree, 2007) and discrepancies between implicit and explicit indices of attitudes (e.g., Gawronski & Bodenhausen, 2006; Petty, Brinol, & DeMarree, 2007; Rydell & McConnell, 2006).

In the social cognition area, new theories have addressed mechanisms that drive responses to reaction time tasks (Conrey, Sherman, Gawronski, Hugenberg, & Groom, 2005), the role of the active self concept in priming effects on judgments and behaviors (Wheeler, DeMarree, & Petty, 2007), the various forms in which impressions might be represented in memory (Carlston, 1994), different memory/reasoning systems involved in social judgment and decision making (Rydell & McConnell, 2006; Strack & Deutsch, 2004), and many others discussed throughout this volume.

As interest in implicit measures and implicit/explicit discrepancies have grown in both the attitudes and social cognition areas (e.g., see Petty, Brinol, & Johnson, 2012), theories to address those phenomena can scarcely be categorized as attitude theories or social cognition theories, and that is perhaps as it should be. From the very beginnings of the social cognition movement, the attitudes and social cognition domains have shared various interests and research questions. Yet, those interests and questions have often been addressed in rather distinct ways.

Common Themes

Despite the different approaches that attitudes and social cognition researchers took in the late 1970s and 1980s, there continued to be a number of questions and themes that appeared and reappeared across both of these areas. In the following sections, we will note some of these shared research questions, and in many cases, related answers to those research questions.

Distinctions between Content and Rating of Perceptions

When asking research participants to provide judgments (of evaluations, traits, or other perceptions), both attitude researchers and social cognition researchers have acknowledged that the judgments might not always directly reflect the person's perceptions. In their variable perspective theory, Ostrom and Upshaw (1968) suggested that ratings of the perceptions of social perceivers reflect not only the content of their views but also their translation of that content onto the rating scale. Key to this translation was the perspective used to define the meaning of the scale anchors. In other words, when rating a subjective scale, such as "good" to "bad" (Osgood, Suci, & Tannenbaum, 1957) or "light" to "heavy" (Sherif, Taub, & Hovland, 1958), respondents call to mind examples of objects that could represent the scale anchors, and this perspective on the anchors then forms the context for their translation of the content of their views to be reported on the scale. Thus, if something in the research setting expands a person's perspective by calling to mind more extreme exemplars for the anchor (such as a heavier weight to anchor the "heavy" scale anchor, Sherif et al., 1958, or a more favorable behavior or
instance of the object category to anchor the “good” scale anchor), this could lead to a change in rating without any necessary change in content of the perception. Ostrom (1970; Steele & Ostrom, 1974) used variable perspective theory to examine belief and attitude change (see Petty & Cacioppo, 1981). However, as the weight example suggests, this point of view is directly applicable to a variety of non-evaluative judgments.

For example, a person could view a 5’10” man and a 5’10” woman as equally tall in a perceptual sense and rate them the same on a “content” inches scale, but rate the man as average in height and the woman as quite tall on the same “short” to “tall” subjective “rating” scale. From the point of view of variable perspective theory, this could be because different content perspectives come to mind to anchor the rating scales for men and women. This difference in perspective bears close resemblance to the use of shifting standards across stereotyped groups (e.g., Biernat, Manis, & Nelson, 1991; Biernat, Vescio, & Manis, 1998) but with some differences in emphasis. For instance, Biernat and colleagues have suggested that objective measures might often result in an assimilation of judgments toward the stereotypes of the groups. Assimilation to the stereotypes of men and women would result in judgments of taller men than women, even when the exemplars in the study are equated for height (Biernat et al., 1991). However, subjective judgments (such as a “tallness” scale, rather than judgments of feet and inches) make use of different standards (different perspectives) for the different groups. These different standards or perspectives can eliminate or sometimes reverse the differences in judgments (e.g., judging the women to be “taller” than the men, similar to the perspective theory example).

The variable perspective distinction between content and rating has also influenced discussions of survey responding and attitude measurement (e.g., Tourangeau & Rasinski, 1988), and the scale anchoring component of variable perspective theory has played a role in theories of assimilation and contrast (especially in the inclusion/exclusion model of Schwarz & Bless, 1992, 2007).

**Indirect (Implicit) Measures**

Not too long after it was clear that attitudes could be measured, attitude researchers developed concerns that respondents to direct (explicit) measures might screen their judgments or be unwilling to accurately report their evaluations (Doob, 1948; Hovland et al., 1953). Because of concerns about social desirability and other motives for people to hide their true attitudes, indirect measures were developed in an attempt to index people’s attitudes. Indirect measures typically took advantage of attitudinal processes, such as activation and use of knowledge that is directionally consistent with the attitude (e.g., Hammond, 1948), the tendency to like others more when they held similar rather than dissimilar attitudes (e.g., Hendrick & Seyfried, 1974), or the tendency to behave more positively toward people, objects, or causes one likes rather than dislikes (e.g., Byrne, Ervin, & Lambert, 1970; Milgram, Mann, & Harter, 1965). More recently, with the influence of social cognition, indirect measures have more often been referred to as implicit measures (loosely following the concept in cognitive psychology of implicit memory—whereby the person cannot explicitly remember a piece of information, but performance on other tasks shows that the information is still in memory; see Roediger, 2003). This new generation of indirect (implicit) measures also makes use of attitudinal processes—especially of spreading activation of the evaluation, such that, after activation of the attitude, respondents are better prepared to identify like-valenced stimuli rather than stimuli that mismatch the valence of the attitude (e.g., Fazio, Jackson, Dunton, & Williams, 1995; Witzenbrink, Judd, & Park, 1997).

Generally, the critical difference between “explicit” (direct) and “implicit” (indirect) measures is the latter assess the activation of an attitude without asking the respondents to report their attitude. Because of this, on implicit measures, respondents are relatively unaware that their attitude is being assessed (or, in some cases, respondents might become aware of the measurement attempt, but have some difficulty controlling the impact of the attitude on responses, as in the Implicit Association Test, or IAT; Greenwald et al., 1998). Whether a given implicit measure primarily taps one’s attitude per se is another matter; however, and, when controversial attitude objects are addressed, one cannot simply use the direct measure as a comparison for construct validity purposes. However, in many instances, various indirect (implicit) measures fail to relate closely to one another or to direct (explicit) measures, even when addressing less controversial issues. Thus, it is not surprising that criticisms that the indirect measures might measure something other than the attitude (e.g., Kidder & Campbell, 1970) seem to resurface with each new generation of indirect measures (see Fazio & Olson, 2003).
In the case of contemporary indirect (implicit) measures, there have been debates about the relative contributions of “personal” and “extrapersonal” (normative) associations to popular measures, such as the IAT (Greenwald & Nosek, 2009; Bargh & Hilton, 2003; Olson & Fazio, 2004). Even beyond these debates, it seems worth highlighting one additional issue related to the constructs being addressed. Because contemporary indirect measures often rely on spreading activation, they primarily tap the influences of relatively strong (accessible) attitudes (Fazio, 1995). Thus, at least part of the lack of relation between direct and indirect measures (even with noncontroversial topics) is likely that indirect measures tap into both the evaluation and its accessibility, whereas direct measures tap into the evaluation (relatively) separately from its accessibility. Furthermore, direct measures might also tap into the perceived validity of any evaluation that automatically comes to mind (Petty, Briñol, & DeMarree, 2007). Consistent with these observations, tapping stronger (especially more accessible) attitudes (e.g., LeBel, 2010; Nosek, 2005) and encouraging people to view their automatic or gut reactions as valid (e.g., Jordan, Whitfield, & Zeigler-Hill, 2007; Loersch, McCaslin, & Petty, 2011) increase the relation between implicit and explicit measures.

**Implicit/Automatic versus Explicit/Controlled Processes**

Closely related to the work on implicit measures is the more general attention given to unconscious or automatic processes versus explicit (conscious) or controlled processes. On some level, attention to automatic/implicit processes has become a hallmark of social cognition research (even though many processes may possess only some features of automaticity; Bargh, 1994). That is, if one has any question about whether a given research question is social cognitive in nature, one can confidently answer in the affirmative if the question addresses unconscious or automatic processes (especially if indexed by reaction time measures). Although certain tools for examining such questions have developed along with the blossoming of social cognition, similar research questions had been present in the attitudes arena for some time. Indeed, HoIvland et al. (1953) conceptually distinguished among attitudes (that were implicit tendencies to approach or avoid a given attitude object), opinions (that were verbalizable anticipations, expectations, and evaluations), and overt responses (that were often consistent with opinions, but could result from dissimulation, distortion, or lying). Thus, the attitude construct was connected very early on with implicit processes and potential for lack of awareness of its effects on other thinking and behavior.

Consistent with this observation, it is interesting to note that many of the examples provided in the landmark Greenwald and Banaji (1995) paper on implicit social cognition addressed evaluative processes. The research on mere exposure is a good example. That is, when novel objects are encountered repeatedly, people often evaluate the objects more favorably (Zajonc, 1968), even if the people cannot say whether or not they have previously seen the object (Kunst-Wilson & Zajonc, 1980). Bornstein (1989; Bornstein & D’Agostino, 1994) explained such exposure effects as due to increases in perceptual fluency, which perceivers might attribute to liking for the object, but which they might also attribute to other stimulus dimensions (Mandler, Nakamura, & Shebo Van Zandt, 1987), perhaps including disliking if the stimulus is negatively valenced (Klinger & Greenwald, 1994). Similar to other demonstrations of misattribution, when familiarity can be attributed to previous presentations rather than liking, mere exposure effects are diminished. Thus, mere exposure effects are reduced when exposure lasts for longer periods of time (Bornstein & D’Agostino, 1992) or when people are told that the stimuli have been presented previously (Bornstein & D’Agostino, 1994).

The interplay of implicit (automatic) and explicit (deliberative) processes in the formation of attitudes is a very active current area of research in models such as the associative–propositional evaluation (APE) model (Gawronski & Bodenhausen, 2006) and the metacognitive model (MCM) of attitude structure (Petty, Briñol, & DeMarree, 2007). One could certainly draw parallels between associative processes and the heuristic or cue-based processes of the HSM or ELM and between propositional processes and the systematic processing or elaboration in the HSM or ELM. However, associative processes could be involved in both relatively thoughtful (biased processing) and nonthoughtful (cue-based) mechanisms. Similarly, propositional processes could be applied in relatively thoughtful or nonthoughtful ways. The APE couches the associative and propositional processes in thoroughly social cognitive terms and has inspired a variety of studies that address differences in evaluative outcomes when indexed through implicit (associative) versus explicit (propositional) means. In our reading, the
available evidence indicates that change on both implicit and explicit attitude measures can be mediated by both implicit and explicit processes (Petty, & Briñol, 2010; Whitfield & Jordan, 2009).

Perhaps one of the earliest and best single examples of attitudes research making use of tools and concepts from contemporary cognitive and social cognitive psychology is the research on attitude accessibility (i.e., the speed and ease with which attitudes come to mind upon encountering the attitude object). Following up on early research on direct experience and attitude confidence as factors that increase attitude–behavior consistency (e.g., Fazio & Zanna, 1978; Regan & Fazio, 1977), Russ Fazio and his colleagues turned their attention to attitude accessibility for a more process-oriented explanation of why particular attitudes have greater influence on behaviors. Early research in this program identified attitudes formed through direct experience as coming to mind more quickly upon encountering the attitude object and also showed that more accessible attitudes lead to higher attitude–behavior consistency (Fazio, Chen, McDonel, & Sherman, 1982).

Soon thereafter, Fazio adapted the work on concept priming (e.g., Higgins, Rholes, & Jones, 1977) to examine evaluative priming. That is, spontaneous activation of one’s attitude upon encountering the attitude object (even if one was not asked to evaluate the object) influenced judgments of the motives underlying a target person’s behaviors, and this evaluative priming was more likely when the person already possessed an accessible attitude toward the object (Fazio et al., 1983).

Although this research suggested that strong object-evaluation associations facilitate spontaneous activation of attitudes, it did not directly address whether the spontaneous activation of attitudes qualifies as being automatic rather than controlled (Shiffrin & Schneider, 1977). To address this question more directly, Fazio and his colleagues adapted sequential priming techniques from cognitive psychology in which presentation of a category label facilitates identifying a target word as a word when that target is semantically related to the category (e.g., Neely, 1977). The automaticity of the attitude activation was addressed by setting the stimulus onset asynchrony (SOA; i.e., the delay between presentation of the attitude object and the target adjective) to be too short (i.e., 300 milliseconds) for controlled processing of the attitude object. Automatic activation of the attitude was evidenced by speeded identification of the valence of like-valenced adjectives compared with opposite-valenced adjectives in these short-SOA conditions. Automatic activation of attitudes was present when attitude objects were identified as associated with relatively strong object-evaluation associations (by measuring reaction times to dichotomous evaluative reports) or were manipulated to have strong object-evaluation associations (through repeated expression of the attitude; Fazio, Sanbonmatsu, Powell, & Kardes, 1986).

This research might also constitute the best example of a program of research that served to advance both the attitudes and social cognition areas. It served as one of the earliest adaptations of sequential priming techniques to social stimuli. More generally, the evaluative priming outcomes, moderated by attitude accessibility, also illustrated that abstract socially relevant concepts can be spontaneously activated when related objects are encountered (which is a key factor in various types of situated cognition; Robbins & Aydede, 2009). In addition, research from this program suggested that objects toward which people hold accessible attitudes receive more immediate visual attention (Roskos-Ewoldsen & Fazio, 1992) and that multiply categorizable targets are more readily identified as members of categories toward which people have accessible attitudes (Smith, Fazio, & Cejka, 1996). The research on attitude accessibility also led to development of a prominent model of attitude–behavior relations (i.e., the Motivation and Opportunity as Determinants of attitude–behavior processes, or MODE; Fazio, 1990). In addition to attitude–behavior relations, the MODE model also forms a prominent approach to conceptualizing sources of discrepancy between implicit and explicit attitude measures (see Olson & Fazio, 2009), and a version of the sequential priming technique has served as a prominent implicit measure of racial attitudes (Fazio et al., 1995).

Role of Memory in Evaluations and Impressions

An early question presaging later social cognitive emphases on memory addressed the possible links between memory and evaluations. This question formed a key component of the message learning approach to attitude change (Hovland et al., 1953) and was addressed in a number of ways. Although some studies identified parallel effects on retention of information from a persuasive message and resulting attitudes (e.g., Eagly, 1974; McGuire, 1957), other studies failed to find relations between memory for message arguments and resulting attitudes (e.g., Hovland & Weiss, 1951; Insko, 1964; Miller...
activation indices were used to measure the extent of change in attitudes over time. However, this approach to attitude change has many parallels with the postulated independence of impressions and memory for impression-relevant information (Lingle & Ostrom, 1979, 1981). A number of social cognition theorists suggested that this independence is especially likely when social perceivers form impressions online (as social information is received) but is less likely when perceivers cannot or do not form impressions until later (and use what they remember to create memory-based impressions; e.g., Hastie & Park, 1986; Tormala & Petty, 2001). In the attitudes domain, the key variables from the ELM and HSM (i.e., motivation and ability to process attitude-relevant information) were found to moderate the extent to which evaluations correlated with memory for message arguments (with larger memory-attitude correlations following low motivation or low ability when receiving the persuasive message; e.g., Haugtvedt & Petty, 1992; Mackie & Asuncion, 1990). Interestingly, these differences also help to account for ELM-based predictions regarding the likelihood of primacy effects versus recency effects in persuasion (e.g., Petty, Tormala, Hawkins, & Wegener, 2001), a previously unsolved puzzle from early attitudes research (e.g., Hovland, 1957; Miller & Campbell, 1959; see Haugtvedt & Wegener, 1994, for discussion).

Subtyping

When people receive information that does not fit with existing beliefs or attitudes, what do they do? Early cognitive consistency theories suggested that there can be a number of different types of reactions. For example, if a person learns that a friend disagrees with him or her about some attitude object, Heider (1958) suggested that the person could either change the attitude (belief) to fit the friend's opinion, deny the disagreement (by viewing the friend as actually holding an agreeable point of view), or cognitively differentiate between the part of the person responsible for the disagreement (and dislike that part of the person) and the part of the person that one likes overall. Abelson (1959) more directly addressed the microprocesses potentially involved and suggested that mechanisms such as denial of the disagreement, bolstering of one's own opinion, and differentiation of the other varied in the extent to which the perceiver had to exert effort in that mode of inconsistency resolution. Relatively little research in attitudes directly addressed the various modes of inconsistency resolution and often fixed the conditions to make attitude change the most likely mode (but see Rosenberg & Abelson, 1960; Simon, Greenberg, & Brehm, 1995). However, the cognitive differentiation mode of inconsistency resolution bears a good deal of resemblance to subtyping research in stereotyping, where people split out a subtype (e.g., working women) from a larger category (e.g., women) as a means to diminish the inconsistency within the category and avoid pressures to change beliefs about the category as a whole (Johnston & Hewstone, 1992; Weber & Crocker, 1983). Similar subtyping effects have been observed on both implicit and explicit measures of attitudes (Barden, Maddux, Petty, & Brewer, 2004).

Assimilation and Contrast

Early research on attitude change incorporated the idea that people's views of attitude-related stimuli can be distorted by comparisons of the stimuli with their own attitudes (e.g., in social judgment theory; Sherif & Hovland, 1961). These judgmental distortions could be assimilation (i.e., viewing the evaluative stimuli as more similar to one's own attitude) or contrast (i.e., viewing the evaluative stimuli as less similar to one's own attitude; Hovland, Harvey, & Sherif, 1957). In social judgment research, evaluative stimuli that fell relatively close to the person's own attitude (i.e., within one's latitude of acceptance) were assimilated toward one's attitude, whereas evaluative stimuli that fell relatively far away from the person's own attitude (i.e., in one's latitude of rejection) were contrasted even farther away from one's attitude. In the early 1980s, similar principles were applied to nonevaluative judgments (e.g., size), such that more extreme contexts (i.e., farther from the target) created contrast, but less extreme contexts (i.e., closer to the target) created assimilation (Herr, Sherman, & Fazio, 1983).
Over the years, in addition to the variable perspective approach mentioned earlier, a number of social cognitive accounts of assimilation and contrast developed. The majority of early social cognitive research on assimilation and contrast dealt with assimilation toward or contrast away from concept primes (e.g., Lombardi, Higgins, & Bargh, 1987). Prominent theories in this area initially treated assimilation of judgments toward the primes (i.e., typical priming effects) as the default, and contrast away from the primes as efforts to exclude or partial out reactions to the target that were attributed to the primes (e.g., the set/reset approach, Martin, 1986; Martin, Seta, & Crelia, 1990; and the inclusion/exclusion approach, Schwarz & Bless, 1992). Later research on theory-based correction suggested that either assimilation or contrast could be the default bias (consistent with Herr et al., 1983), but that corrections could then proceed in either direction and in amounts guided by the extent to which judgments were perceived as influenced by the context (e.g., Petty & Wegener, 1993; Wegener & Petty, 1995; see Wegener & Petty, 1997, for a review). This theoretical approach was also broadly applicable to many potentially biasing stimuli, including source characteristics in persuasive messages (Kang & Herr, 2006; Petty, Wegener, & White, 1998).

Primbing-based work on assimilation and contrast also began to address different types of priming effects (such as exemplar primes leading to contrast, Herr, 1986, but trait primes leading to assimilation, Srull & Wyer, 1979). Eventually, research also addressed mindsetsthat could determine the extent to which the same stimuli led to assimilation or contrast effects (e.g., local vs. global processing, Förster, Liberman, & Kuscel, 2008; similarity vs. dissimilarity testing, Mussweiler, 2003; reflection vs. evaluation, Markman & McMullen, 2003). Coming somewhat full circle is recent work on determinants of when people might be likely to test similarities or differences. One approach is to focus on the potential dimensional overlap between the contextual and target stimuli, such that assimilation occurs when the ranges of potential values for the context and target overlap, but contrast occurs when the ranges of potential values for the context and target do not overlap (Chien, Wegener, Hsiao, & Petty, 2010). That is, whereas social judgment theory addressed contexts (existing attitudes) as representing ranges of potential values (i.e., latitudes of acceptance; Sherif & Sherif, 1967) and feature-matching views incorporated ambiguity of the target (i.e., different sizes of potential ranges of target qualities, Herr et al., 1983), recent research suggests that overlap or lack thereof in both context and target ranges should influence the direction of context effects.

**Metacognition**

One growing topic in both the attitudes and social cognition areas is metacognition (i.e., thinking about thinking). Work on metacognition emerged in cognitive psychology with a focus on perceptions of people's own memories (e.g., feeling of knowing; Costermans, Lories, & Ansay, 1992) and was brought into prominence within social cognition in the late 1990s (see Jost, Kruglanski, & Nelson, 1998; Yzerbyt, Lories, & Dardenne, 1998). Petty, Briñol, Tormala, and Wegener (2007) listed a number of types of thoughts one can have about one's own thoughts, including the target of the thought (what the thought is about), the origin of the thought, the valence of the thought (regarding whether the thought conveys positive or negative qualities of the target), perceived amount of thinking, evaluation of the thought (whether the thought is desirable or not, appropriate or not, etc.), and confidence in the thought.

In the attitudes domain, metacognition, though not initially labeled as such, was of widespread interest as a factor related to the strength of attitudes. That is, a number of traditional strength-related properties of attitudes can be considered metacognitions (i.e., perceptions of one's attitudes). These properties include the confidence (Allport, 1924) or subjective ambivalence (Tourangeau, Rasinski, Bradburn, & D'Andrade, 1989), with which the attitude is held and the amount of perceived knowledge underlying the attitude (Davidson et al., 1985; see Wegener, Downing, Krosnick, & Petty, 1995, for a review). These strength-related properties of attitudes have been associated with many outcomes, including increased persistence of the attitudes over time, resistance to change, and guiding of future thinking and behavior. Also, when people possessing these attitudes encounter additional persuasive information, the properties of the attitude also influence the amount of processing of that new information (e.g., see Clark & Wegener, 2013). Unfortunately, a full review of these effects could fill the current volume, so we are unable to provide a complete review of metacognition and attitudes (see Briñol & DeMarree, 2012; Petty & Krosnick, 1995; Petty et al., 2007, for reviews). Recently, people's perceptions of their own degree of elaboration (Barden & Petty, 2008) have been added to the traditional measures. Perceptions of amount of

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overlap ranges

Research on thought confidence (i.e., self-validation; Petty, Brinol, & Tormala, 2002) has demonstrated that many factors, including message recipient emotion, source credibility, and power of the message recipient can influence confidence in thoughts that people have previously generated when processing a persuasive message under high-elaboration conditions (see Brinol & Petty, 2009, for a review). In each of these cases, the validating factor increases confidence in thoughts regardless of whether the thought is relatively favorable or unfavorable (i.e., regardless of whether the message consists of relatively strong or weak arguments).

Interestingly, when people form impressions of others, it appears that another form of self-validation can occur. When people generate initial reactions to a target person under conditions conducive to relatively thoughtful processing of impression-relevant information, confidence in these initial reactions is higher after later learning that the person is a member of a group stereotyped as consistent with the initial impression. This increase in confidence leads to stronger influences of the initial (stereotype-consistent) impressions on related judgments and recommendations regarding the target (Clark, Wegener, Brinol, & Petty, 2009). This type of “matching-based” validation creates an instance in which high levels of processing produce another high-thought form of stereotyping that is influential and potentially difficult to overcome (because of the associated high level of elaboration; cf., Wegener et al., 2006).

Much of the earliest metacognitive research in social cognition addressed the ease with which information comes to mind (similar to the research on perceptual fluency – see earlier discussion of mere exposure research and Alter & Oppenheimer, 2009; Claypool, Mackie, & Garcia-Marques, in press, for reviews). In particular, ease of generation has been shown to influence the impact of information on judgments of self and others. For example, when people can easily generate a few instances of when they have been assertive in the past, they judge themselves as being more assertive than when they must generate many instances of being assertive (and have a difficult time doing so; Schwarz et al., 1991). Many effects of ease have influenced evaluations. For example, the easier it seems for people to generate positive thoughts about an object or issue, the more people like that object or issue (Haddock, Rothman, & Schwarz, 1996; Tormala, Petty, & Brinol, 2002; Wänke, Bless, & Biller, 1996), and ease of generation also makes people more confident in their attitudes (Haddock, Rothman, Reber, & Schwarz, 1999) and their thoughts (Tormala et al., 2007). Ease of retrieval can also influence other judgments, such as likelihood estimates (e.g., Hirt, Kardes, & Markman, 2004; Wänke, Schwarz, & Bless, 1995) and risk assessments (Grayson & Schwarz, 1999). Some of this research also suggests that ease effects can be mediated by confidence (perceptions of validity) associated with the easily generated thoughts (e.g., Tormala et al., 2002; see also Wänke & Bless, 2000).

The earlier discussion of bias correction also relates to metacognition because assessments of thought content (valence and source of the thought), evaluation, and validity likely all come into play (see Petty et al., 2007). Before closing this section, it is important to note that metacognition has also recently taken a role in the mental representation of attitudes. Specifically, in the MCM of attitudes, perceptions of the attitude's validity are a part of the structure of the attitude (Petty & Brinol, 2006a; Petty, Brinol, & DeMarree, 2007). The MCM represents attitudes as including associations between the attitude object and both positive and negative evaluations. Along with these associations, however, the MCM includes validity tags for these evaluative associations. When evaluative responses are relatively nondeliberative (even automatic), such responses may be guided by activated evaluative associations. However, when they are more deliberative (i.e., when people think about them more carefully), these responses may be influenced in important ways by the perceptions of validity of the positive versus negative evaluations.

**Embodied Cognition**

A final area in which the domains of attitudes and social cognition have had separate histories but have come together more recently is with respect to the use of one’s own body in influencing thoughts and judgments, an area known as embodied cognition (see Brinol & Petty, 2008; Semin & Smith, 2008). It is obvious that the mind and mental states influence the body in many ways (e.g., happiness leading to smiling), but a core notion of embodied (Lakoff & Johnson, 1999) or grounded (Barsalou, 2008) cognition is that the movement and placement of one’s body can influence the mind and mental states as well. Within cognitive psychology,
numerous embodiment effects have been shown, including people remembering more of a story when they physically act it out (Scott, Harris, & Rothe, 2001).

Within attitudes and social cognition, interest in embodied cognition stems from two distinct sources. The first is Darwin's theory of evolution. Indeed, the link between the attitude concept and bodily responses has a long history going back to the use of the term attitude to refer to the posture of one's body (Galton, 1884) and to expressive motor behaviors (e.g., a scowling face was said to indicate a hostile attitude; Darwin, 1865/1872).

Although much early attitudes research focused on how the body or bodily movements could reflect one's attitudes (e.g., Hess & Polt, 1960; Solarz, 1960), more contemporary studies have examined how the body can affect one's evaluations. For example, researchers have shown that (1) nodding one's head in a vertical rather than a horizontal manner during presentation of a strong persuasive message can increase the persuasiveness of that message (Wells & Petty, 1980), (2) holding a pen between one's teeth (which facilitates a facial expression similar to smiling) versus holding a pen between one's lips (which inhibits smiling) can enhance the perceived humor in cartoons (Strack, Martin, & Stepper, 1988), and (3) information presented while performing an approach behavior (e.g., using one's hands to pull up from underneath a table) is evaluated more positively than information presented during an avoidance behavior (e.g., pushing down on a table top surface; Cacioppo, Priester, & Berntson, 1993; cf. Seibt, Neumann, Nussinson, & Strack, 2008).

A second important influence on contemporary studies of embodiment comes from work in cognitive psychology and linguistics on metaphors (Lakoff & Johnson, 1980). Embodied metaphors would include examples such as people verbalizing after simply touching a hot coffee mug (Williams & Bargh, 2008).

Although much work on embodiment in social psychology has focused on linking behaviors directly to judgments, more recent work has attempted to understand the mechanisms by which evaluations stem from the body. Perhaps not surprisingly, work within the ELM framework has shown that a person's bodily movements or responses, like other variables, can influence attitudes by affecting one or more of the core influence processes noted earlier. For example, simple cue effects of the body (e.g., based on arm flexion) are more likely to have a direct impact on judgments when thinking is low (Priester, Cacioppo, & Petty, 1996). When thinking is high, bodily movements such as head nodding (Briñol & Petty, 2003) or sitting in an erect rather than slumped posture (Briñol, Petty, & Wagner, 1983), and they are more likely to think about a message extensively when it is presented on a heavy (signifying weighty or important) rather than a light clipboard (Jostmann, Lakens, & Schubert, 2009). In addition to examining the basic mechanisms by which embodiment works, research in both attitudes and social cognition is likely to focus in the future on whether embodiment effects are the same as or different from other forms of conceptual priming.

Maturation and Broadening of Social Cognition

As noted earlier, especially in the 1970s and early 1980s, the emphasis in social cognition was on cold cognition (i.e., cognition without extra-cognitive motives or emotion). This emphasis might have partially come from developments in the 1960s and early 1970s in areas such as causal attribution (e.g., Jones & Davis, 1965; Kelley, 1967; see Chapter 6) and aided by the computer analogy and mathematical/computational models of cognitive systems and processes (e.g., Fishbein, 1963; McGuire, 1960; Wyer, 1974). In comparison, it is certainly true that social cognition of the 1990s and 2000s became considerably more diverse. The traditional attitudinal topics of motivation and emotion have been rediscovered (though couched in terms of cognitive antecedents, processes, and, in many
cases, consequences). This does not mean, however, that social cognition researchers have embraced traditional attitudes research as part of the social cognition enterprise. In some ways, this seems unfortunate because the development of contemporary attitude theories and the development of the social cognition movement were, in certain respects, responses to similar concerns. It is also unfortunate because, at least in our "attitudinal" view, it stems in part from the original rather narrow (often unstated) view of what qualified as social cognition. This view has changed to some extent as social cognition has become more of an approach than an area of research (originally almost synonymous with impression formation or person memory, hence the development of the PMIG meeting). Still, there is a bit of an "I know it when I see it" quality to identifying when one uses a social cognition approach, and some of the telltale signs of the approach continue to involve use of a reaction time or memory measure to talk about concept activation, representation in memory, or automatic processes. To be sure, the number and type of measures that both attitudes and social cognition researchers use has expanded over time. However, addressing activation or automatic processes (still most typically identified through use of reaction time measures) remains a nearly sufficient criterion for judging research to be social cognition.

As noted by Wegener and Carlston (2005), the current operational definition of "cognitive process" in social psychology has become quite broad and applicable to research across many domains and using many methods. Indeed, in contemporary social psychology, one could often drop the "cognitive" from the term "cognitive process" with little change in meaning. The term cognitive is used very broadly, virtually as a synonym for "psychological" or "mental." If the human brain is involved, a process is cognitive. Because the brain is almost always involved, few activities fall outside the cognitive umbrella (including habits, directly primed behaviors, and other phenomena that once would have been viewed as not particularly cognitive). Moreover, traditional alternatives to cognition such as motivation and emotion are treated as having cognitive antecedents, as operating on knowledge structures stored in memory, and as having cognitive consequences (Wegener & Carlston, 2005; see also Markus & Zajonc, 1985).

During this transformation in social cognition, definitions of what people consider to be a "cognitive approach" have shifted. As discussed earlier, attitudes research has included many sorts of cognitive processes and constructs, such as comprehension, retention, balance, cognitive dissonance, and cognitive response. Yet, many of the original treatments of these processes were not identified as "social cognition" in the early days of that approach because the original attitude theories did not directly address the core cognitive processes of encoding, storage (representation in memory), or retrieval. We can't help but wonder if many such questions and methods might have been embraced by early social cognition researchers if the questions and methods had not predated the beginnings of the earnest social cognition movement. That is, if the attitudinal questions and measures had developed alongside or after, rather than prior to, the pact to abandon information integration research, perhaps contemporary attitudes and social cognition domains would have developed more like twins (with potentially different interests, but the same basic genetics), instead of older and younger siblings attempting to carve out their own independent identities.

Notes

1. Kunda (1990) described some research originally formulated as an ability-based bias (e.g., attitudinal schemas biasing assimilation of new information; Lord et al., 1979) in more motivational terms, consistent with her focus on making the case for motivational bias. Regarding that focus, it is interesting to note that Kunda (1990) characterized the most extensive literature on directional motives biasing processing as coming from work on cognitive dissonance (Festinger, 1957, 1964). Indeed, this research might also constitute some of the strongest evidence of such biases. At least in our reading, many of the other oft-cited studies (e.g., examining judgments of self vs. others) seemed more vulnerable than dissonance experiments to cognitive (ability-based) alternative explanations (because of knowledge content differences when dealing with oneself rather than another person).

2. It is interesting to note that Roediger (2003), among others, has come to prefer the terms "direct" and "indirect" measures over "explicit" and "implicit" measures because, clearly, implicit measures can be influenced by explicit processes, and explicit measures can be influenced by implicit processes. Thus, at least some cognitive psychologists have come back around to the terminology that was common in earlier research on attitude measurement.

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