

SOCIAL COGNITION

Understanding People and Events

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PROCESSING SOCIAL INFORMATION

A Conceptual Framework

Social Cognition is the study of how people think about the people and events in their social world. Whether focused on a single person, a group, or even themselves, people invest a tremendous amount of time and energy in thinking about human beings, their behaviors, and their interactions. We form impressions of individuals we are meeting for the first time. We attend to people's appearance and behavior, trying to assess the traits, characteristics, and motives of others. We notice the social groups to which people belong, and our understanding of their behavior can be affected (often without our awareness) by our beliefs about their gender, ethnicity, age, nationality, or sexual orientation. We listen to others' opinions and arguments, identifying where we agree and disagree and considering if we should change our minds in response. We replay social interactions from memory, wondering why an exchange went as it did or how it might have been altered had our words or actions been different.

Social thinking is so central to the life of the mind that we rarely, if ever, stop engaging in social cognitive processes. Some have speculated that humans possess a neural network specifically dedicated to social cognition that is continuously active, available to dominate thinking whenever the mind begins to wander. Lieberman (2013) argued that the *social cognition network* "comes on like a reflex and it directs us to think about other people's minds, their thoughts, feelings and goals." Social cognitive processes are both ubiquitous and of paramount importance in navigating the social environment. They are the basis of our perceptions, interpretations, and reactions to the events we experience, and the manner in which we process information is the foundation of subsequent judgments and behavior. They are involved in all aspects of human social behavior, ranging from the genuinely mundane to the most important events of our lives.

2 Social Cognition

This book presents current knowledge from the field of social cognition, an approach to studying how information from the social world is processed, stored, and used. It offers a particular focus on identifying processes that are involved in diverse aspects of social thought and behavior. We show how a set of core cognitive processes underlies and affects social thinking and action across a broad spectrum of situations and topics that previously have been studied in isolation. This approach will, we hope, promote greater integration of findings from research literatures that have traditionally adopted different assumptions, methods, and levels of analysis.

In attempting to cut across and integrate distinct content areas, it is important to highlight our view that social cognition is an *approach* rather than a separate *content area* in social psychology. Historically, it was quite common for social psychology textbooks to have a subsection on social cognition, typically focusing on findings in the literatures on impression formation, stereotyping, or, more recently, the self. As we will soon discuss, these were some of the research areas in which the social cognition approach in its earliest years provided numerous clear and novel insights. However, it is a mistake to limit social cognition to the analysis of these phenomena. Our view is that the social cognitive approach – the focus on identifying social information processes and an associated set of methods appropriate for probing those processes – can and should be used to study social phenomena that have not traditionally been examined through this lens. Indeed, social cognitive frameworks and methods are increasingly appearing in a variety of research literatures in psychology, including consumer behavior, relationships, health behavior, and procedural justice. Moreover, social cognition has influenced research in fields outside of psychology, such as medicine, law, and public policy. We provide a discussion of the field of social cognition that uses social information processes as the foundations of our framework, allowing recognition of similar findings across diverse bodies of knowledge and opportunities for the development of new knowledge.

THE CENTRALITY OF INFORMATION IN SOCIAL COGNITION

The central focus of social cognition is on the processing of social information. Therefore, it is crucial to make clear what constitutes “information” within the social cognitive approach. Information refers to all of the stimuli in the environment that impinge on an individual’s sensory systems. “Stimuli” is, of course, a general term that characterizes both non-social and social aspects of the environment. If you think even briefly about all the non-social information that surrounds us at any given moment, it quickly becomes apparent that people cannot adequately attend to all of it with equal thoroughness. Consider entering a lecture hall for the first class of the semester. Most of the physical features in the room would likely receive little of your attention. You probably would not think much about the physical structure of the room, the placement of furniture, the lighting, or the color of the walls. This information would be available in virtually any classroom. However, these features do not typically grab our attention unless essential objects are absent (no chairs in a lecture hall?) or they are particularly unusual (new, comfortable chairs have replaced the old, dilapidated ones!).

What if we limit our analysis to just the *social* information available in the environment – the people entering the room, their behavior, the interactions among them, the groups that cluster together, and the apparent responses of these people to you? All of this is happening simultaneously. If we

consider just these social aspects, situations are still so incredibly rich in information that our sensory, perceptual, and cognitive systems cannot keep up with all that is transpiring. As a consequence, we focus on a limited amount of information that is available, allocating attentional and cognitive resources to processing information that is particularly important, informative, surprising, or relevant to our goals. To return to our earlier example, upon entering the classroom, you might immediately see a friend with whom you took a class the previous semester. You also catch a glance at a couple of students talking quietly but intensely. You notice an older man who appears out of place and a woman who seems inexplicably anxious. You find your attention drawn to the nervous woman because you are puzzled by the cause of her anxiety. So you approach her with the intent of engaging in conversation, hoping you could perhaps assist in reducing her apparent anxiety. As you walk up to her, you see that her hairstyle, her clothing, and her shoes are all somewhat unusual compared with other students. You initiate a conversation with a simple “Hi,” which prompts a response in what sounds like a foreign accent. “Aha,” you might think to yourself, “I’ll bet she’s an exchange student.”

A few things become apparent even in this brief analysis. In entering an environment, people often grab our notice. Some individuals become the focus of our attention, but many others do not. The people you do notice are those who are highly relevant to the self (the friend), are in some way unusual in the context (the middle-aged student), or are behaving in a manner that draws attention (the couple talking intensely and the anxious woman). We also rely on social categories to parse this social information, classifying people as “my friend,” “colleagues,” “a middle-aged man,” and “a nervous person.” These categories provide us with information about where we should allocate further attentional resources (“I wonder why that woman is nervous?”) and how to act. You decide to approach the woman to gather more information, focusing on information that might be particularly useful or informative (her clothing and behavior). You seek to learn more by initiating a conversation that might help you understand, explain, and predict what the person is like. As you interact with her, additional information allows you to form a more detailed impression of what she is like and an explanation for her behavior.

This example barely hints at the actual richness of information available in the social environment. However, it does illustrate how an individual must selectively focus on a subset of that information to navigate even a simple social situation. It also highlights many of the processes that are of central interest in social cognition. These processes include attention (noticing the woman who is acting strangely), inference (inferring from her behavior that she is anxious), social categorization (deciding that she may be an exchange student), attribution (deciding that her behavior is likely caused by the unfamiliarity of the environment), and behavior regulation (deciding to approach her to gather additional information). All of these processes are central to social functioning, and each has received extensive research attention within social cognition.

A central goal of social cognition is to identify and characterize core cognitive processes that underlie social thought and behavior. It also tries to answer questions regarding the nature of these processes: How and when do they operate? What factors influence their operation? What are the benefits and costs of these processes? To what degree are these processes involuntary or operate under our control? Are we even aware of these processes? Research on these questions is explored throughout this text. Although not all issues have been fully resolved, our goal is to offer the current understanding of these issues from the perspective of social cognition.

Before launching this exploration, we begin with a brief history of the field of social cognition. Although by no means exhaustive, this history will provide an understanding of

the philosophical roots of the social cognitive approach, the discoveries that promoted its emergence, and the features that differentiate social cognition from alternative approaches to understanding social thought and behavior. For another discussion of this history and background, see Hamilton and Carlston (2013).

HISTORICAL ROOTS OF SOCIAL COGNITION

Social cognition emerged as a distinct approach to understanding social behavior in the mid-1970s. The questions that social cognition attempts to address, however, have a much lengthier heritage, often reaching back millennia. For example, social cognition tries to account for the influence of social context on social thought, but philosophers dating back to Plato speculated about the influence of crowds on individuals' thought processes (McClelland, 1989). Much later, Gabriel Tarde's (1898, 1903) theories of social interaction emphasized the influence of aggregates of persons on single individuals and interpersonal processes. Fellow Frenchman Gustave Le Bon (1897) argued that crowds weaken rational thought and self-awareness, leading to the phenomenon of "contagion" in which private beliefs and values are replaced with primitive and savage instinctual urges. Social cognition also attempts to account for the processes involved in attitude change, but Aristotle speculated about the roles of "ethos" (speaker characteristics), "logos" (argument strength), and "pathos" (emotional and other audience characteristics) in persuasion. Social cognition also tries to identify the roles of conscious and unconscious processes in human thought and behavior. These questions were, of course, of paramount interest to Sigmund Freud in the early decades of the 20th century. So the *questions* of interest to social cognition are often not new.

Given that these questions have a long history, what *is* new about the social cognitive approach to these questions? The social cognitive approach differs from these previous attempts in its use of *scientific methods* to answer questions about *psychological processes*. Two characteristics of social cognition – the use of experimental methods to study social behavior and the emergence of research tools that allowed the direct investigation of underlying processes – did not emerge simultaneously. In fact, they were developed nearly a century apart. The use of experimental methods for studying thought and behavior began in the late 19th century, and the application to social phenomena began around the beginning of the 20th century. The development of sound scientific methods for examining cognition did not emerge until the 1950s and 1960s, however. Both developments were necessary precursors to the advent of social cognition as a distinct area of research in the 1970s.

The Development of Experimental Social Psychology

For many centuries, questions involving human thought and behavior were viewed as phenomena best explained by philosophy and sociology. Some mid-19th century philosophers such as John Stuart Mill and Auguste Comte had advocated the scientific study of human behavior, but this did not begin until Wilhelm Wundt founded an experimental psychology laboratory in 1879 at the University of Leipzig, Germany. Wundt was the first person to refer to himself as a "psychologist," and he is often considered "the father of experimental psychology." Under Wundt's leadership, the lab conducted investigations of human sensory experience. Although the research often relied on introspection, a method we now know to be fraught with problems, the establishment of the lab was an important landmark because it brought scientific methods to bear on psychological questions.

Research soon began to explore the role of social factors in psychological functioning and behavior. Max Ringelmann, a French agricultural engineer, showed in a series of experiments that workers exerted less force in a rope-pulling task when they were together than when alone. (Although this work was conducted in the 1880s, it was not published until 1913; see Kravitz & Martin, 1986.) Two psychologists, Binet and Henri, published a paper in 1894 showing that children's recollection of lines they had previously viewed could be biased by the comments of an adult (see Nicolas, Collins, Gounden, & Roediger, 2011). Despite these early examples, Norman Triplett (1898) is often credited with conducting the first social psychological studies when he showed that the presence of other individuals could improve performance on motor tasks.

These pioneering studies generally focused on the influence of social factors on observable behavior. Other work began to investigate more directly what was going on "inside the head" of social perceivers. Thurstone (1928), for example, initiated a program of scientific research on attitudes, which he defined as "the sum total of a man's inclinations and feelings, prejudice or bias, preconceived notions, ideas, fears, threats, and convictions about any specified topic" (p. 531). He focused on developing a means for measuring the distribution of attitudes within a given social group at a given time while recognizing that attitudes were susceptible to change over time through the persuasion. Sherif (1935) asked whether basic sensory experiences also might be amenable to social influence. In his studies, individuals reported their judgments of the distance that a light moved in a darkened room. Even though the light was stationary, judgments of how much it moved tended to converge within a social group, and these influences were internalized so that individuals continued to make judgments similar to their group norm even when they later judged the stimulus alone. These studies demonstrated that internal cognitive structures and processes, and the influence that others could exert on these processes, could be systematically studied.

The possibility that internal processes could be scientifically investigated stood in stark contrast to one of the central tenets of behaviorism, a movement that dominated American experimental psychology during the mid-20th century. Behaviorists, inspired initially by John Watson (1913), argued that psychology should be concerned only with observable phenomena. Internal thought processes relating to knowledge, beliefs, or even consciousness were not viewed as amenable to scientific investigation because they could not be observed and verified. Therefore, behaviorists gave no causal role to cognitive processes in determining behavior. Watson (1928) went so far as to argue, "He then who would introduce consciousness, either as an epiphenomenon or as an active force interjecting itself into the chemical and physical happenings of the body, does so because of spiritualistic and vitalistic leanings." As it evolved, behaviorism encompassed a range of theoretical views. Skinner (1938) recognized the existence of thoughts and feelings as legitimate phenomena, but he gave them no causal force. For him, internal processes exist within a "black box" that could not be investigated scientifically. Hull (1943) recognized a role for internal states but wanted them to be defined in terms of external operations, for example, defining drive strength in terms of the hours of deprivation and habit strength in terms of the amount of previous conditioning experience. Although the proponents of behaviorism varied in the degree to which they dismissed the study of cognition, social psychology's focus on cognitive processes and the structures responsible for these processes meant that it remained out of touch with mainstream American psychology for a lengthy period.

One consequence of this gap was that social psychology existed for a long time as a small and isolated enterprise within psychology. Although the study of internal, unobservable cognitive structures and processes was out of vogue, social psychology continued to focus intensely on

the internal thoughts, beliefs, and feelings of individuals. It did so because it assumed that these processes were integral to human experience and played causal roles in accounting for human judgment and behavior (Zajonc, 1980a). Several theories emerged during this era that exemplify the importance of cognitive processes in human experience. Each of these theories played essential roles in the development of the field of social psychology and, later, social cognition. They each continue to be influential to this day.

Lewin's Field Theory

Kurt Lewin (1935) introduced *Field Theory*, reflecting the emphasis of Gestalt psychology on conscious experience as a construction of the mind rather than a direct reflection of “objective” reality. Field Theory argued that behavior (B) is the product of both the person (P) and the psychological environment (E), expressed symbolically as $B = f(P, E)$. This formulation viewed behavior as a product of both an individual's characteristics, including traits, motives, and desires, and the individual's perception of the existing social context. Person and situation variables are interdependent and dynamic, and, when combined as a unit, they constitute a *life space* that represents the complete psychological environment of the individual at any point in time.

Also central to Field Theory are notions about the dynamic interplay between person and situation elements over time. Motivation is derived from the relation between the perceived needs of the individual and the beliefs about the ability of those needs to be met within a given social context. As individuals navigate life spaces such as family, work, or school, behavior results from the perceived ability of the field (situational context) to facilitate or hinder meeting underlying psychological needs. In contrast to Freudian notions that behavior reflects manifestations of stable, unconscious drives, Field Theory conceived of motives as goal-directed forces that vary across psychological fields. Also, in contrast with behaviorism, Field Theory provided a causal role for thoughts, feelings, goals, and attitudes of the individual in dynamic interplay with subjective perceptions of social environments.

Heider's Balance Theory

Another theory that highlights the importance of cognitive elements and the dynamic relations among them is Fritz Heider's (1946) *Balance Theory*. Balance Theory assumed that the preferred psychological state of affairs is consistency among cognitive elements. Heider was interested in the implications of this assumption for social relationships. He focused on the relation between an individual (P), another individual (O), and a third element (X) that might be an object, attitude, or even another person. The links connecting these elements are either positive (+) or negative (−) in valence, and the relative satisfaction with the state of those relations can be determined by multiplying the valence of the three links. If the product of this multiplication process is positive, then the system is “balanced,” and the individual (P) is satisfied with the state of relations with the other (O). If the product is negative, however, this produces an imbalance, and the person is motivated to reduce it. Imbalance can be reduced by modifying the valence of one of the links between elements, restoring balance and satisfaction.

For example, on a first date, it is quite common to discuss a variety of interests and tastes to gauge the degree of similarity and shared interests between the two of you. Assuming that the date has begun well, it is likely that the link between yourself and your date is positive in valence (i.e., you like the person). To the degree that you discover mutually shared interests, all

links are positively valenced, and balance is maintained (+ * + * + = +). Even if you find that there is a shared *dislike* (neither of you like foreign films), balance is assured (+ * - * - = +). However, you might discover that your date has an attitude toward an object that you do not share, let's say, your date loves violent action movies, which you dislike. In that case, relations would be unbalanced (+ * - * + = -), and you will be motivated to modify the valence of the links to restore balance. You might change your belief about action movies, modifying your opinion to bring it in line with your date. Alternately, you might change the valence of the P-O link, liking your date less, so that your attitude toward the date is more consistent with your evaluation of movies. People who find their cognitive elements in a state of imbalance tend to modify whichever link is easiest to change (to change your movie preferences if your attitude was not strong or important to you, or to change your view of your date if the relationship began casually and other dating relationships are available). Balance Theory is important both because of its ability to account for a large variety of phenomena such as interpersonal and intergroup evaluation and because of its emphasis on the motivation to maintain consistency among cognitive elements.

Festinger's Theory of Cognitive Dissonance

A related but broader theory in which the maintenance of consistency is a fundamental motive is Leon Festinger's *Cognitive Dissonance Theory*. According to Festinger (1957), inconsistency between two cognitive elements or between a cognitive element and behavior produces an aversive psychological state termed *dissonance*. As in Balance Theory, individuals are motivated to eliminate the unpleasant state of dissonance and can do so in several ways. Consider, for example, a man who has a history of heart disease in his family and knows that he should exercise regularly but remains inactive. The discrepancy between what he knows he should be doing and his actual practices produces a state of discomfort (dissonance), which motivates him to reduce the discrepancy between these elements (and the associated discomfort). He may, for example, try changing his *behavior*. If he were to begin a program of regular exercise, the man would no longer feel anxiety because his behavior would no longer be discordant with his beliefs. Alternately, the man might attempt to reduce dissonance by changing his *beliefs* while maintaining his sedentary lifestyle. He might, for example, convince himself that heart disease is more likely to be triggered by stress than by inactivity. If he were successful in doing so, it might seem wiser to him to avoid strenuous physical activity and instead seek out activities that he enjoys to minimize the anxiety and tension. As a third alternative, he might pay particular attention to research suggesting a somewhat tenuous link between lack of exercise and heart disease, providing another means by which the perceived discrepancy between thought and action can be reduced.

Cognitive Dissonance Theory generated an enormous amount of research during the 1960s, which continues today. The historical importance of this theory for the development of social cognition is in the centrality it placed on cognition, on the interconnected relations between thought and behavior, and on the motivating nature of the affective state of dissonance in producing changes in thought and action.

Heider on Attribution

In addition to introducing Balance Theory, Heider (1944, 1958) was also responsible for inspiring several decades of research on *attribution* in social psychology. (In fact, Heider saw Balance

and Attribution theories as being closely related, although research on these topics proceeded independently; Crandall, Silvia, N’Gbala, Tsang, & Dawson, 2007.) Attribution is concerned with the explanations that people generate to explain occurrences in their environment. In the example discussed earlier about the perceiver noticing a young woman’s apparent anxiety, the decision to approach her represented an attempt to gather information that would explain her behavior. Heider proposed that people do this quite naturally but also follow intuitive rules, acting like “intuitive scientists” (Ross, 1977), to explain actions by seeking out and combining available information until arriving at a reasonable causal explanation.

Heider argued that people distinguish between internal and external causes of behavior. An internal cause locates the origin of the behavior in the actor, whereas an external cause is located in the context in which the behavior occurs. The woman’s anxiety might be attributed to an external cause if the situation in which she is observed would likely produce nervousness in anyone (being in a room full of strangers with whom she did not share a language). Alternatively, it might be attributed to an internal cause if the woman was about to be interviewed for a job she strongly desired. Heider recognized that people tend to favor internal over external explanations because they offer the possibility of establishing predictability of action. In other words, if behavior can be attributed to the underlying characteristics of the actor, then we can gain a sense of how that person would behave in the future. Why would we seek to have such a “sense” of the other person? Effective social interaction requires mutual coordination between people. If we can anticipate others’ responses, then we can guide our own behavior accordingly to achieve mutually positive outcomes in our interactions. The focus on the use of traits to explain people’s actions inspired a great deal of research on attribution. Heider’s theory, however, also recognized the role of individuals’ motives and intentions as characteristics that are internal to the actor that can be used to understand and explain behavior (Malle, 2004).

Asch’s Research on Impression Formation

Another important line of research that laid the groundwork for social cognition also focused on how people infer others’ dispositions. However, it focused on the processes that occur as a perceiver attempts to gain a sense of another person’s character *per se*, rather than to explain his or her behavior. This research on *impression formation* was begun by Solomon Asch (1946), and it directly foreshadowed the development of the field of social cognition with its focus on internal cognitive processes and mental representations. Asch argued that perceivers play an active role in forming impressions. People do not passively accumulate bits of information about an individual, but instead they actively construct impressions by integrating information into an ever-evolving impression as new information is received. As individuals learn about others, they organize the information as it is received and compare new information with the impression that has already been formed.

Reflecting his training in Gestalt psychology, Asch argued that the meaning of any single personality trait depended upon the totality of traits ascribed to a person. For example, he demonstrated that the intelligence of a person who is “intelligent” and “cold” was viewed as being quite different from the intelligence of a person who is both “intelligent” and “warm.” Through the active use of dynamic processes, individuals attempt to discover underlying consistencies or “themes” that provide an accurate and relatively rich characterization of the person as a unique individual. Asch’s work emphasized the central and vigorous role of perceivers’ cognitive processes in integrating the information provided by the social environment.

The Emergence of Cognitive Psychology

Although these examples illustrate a continuing focus on cognitive structures and processes in social psychology as it developed as a distinct subdiscipline, social cognition would not have emerged from social psychology without some critical developments in other areas of the field (Gardner, 1985). First, in the 1960s, behaviorism began to wane as a dominant force in psychology. During this time, several discoveries were emerging that were difficult to explain through reinforcement contingencies alone. Noam Chomsky (1959), for example, argued that Skinner's account of verbal learning was inadequate, noting that children show an enormous capacity to learn and modify language. Reinforcement alone would have difficulty explaining how language develops so quickly or why children regularly demonstrate plasticity in their speaking. Latent learning (Stevenson, 1954), in which learning occurs in the absence of any obvious reinforcement contingencies, was also difficult to explain without recourse to cognition. Observational learning, in which people learned behavior by merely watching others, also was shown to arise without conditioning (Bandura, Ross, & Ross, 1961). As such, there arose widespread recognition that behaviorism could not easily account for many emerging phenomena.

Second, during World War II, a new field of research arose, rooted in Engineering and Mathematics, that focused on the quantification and communication of information. *Information Theory* (Miller, 1951; Miller & Frick, 1949) attempted to measure the effectiveness of the communication of information without resorting to its content. In the language of Information Theory, communication occurs when a source translates information into a code (or "encoded") that then is transmitted through a medium or channel to a receiver where it is "decoded." Information reduces uncertainty, but the transmission of information is not without error. As information is transmitted, entropy or decay occurs through the introduction of noise in the channel. Moreover, the amount of information that can be communicated simultaneously is constrained by the bandwidth of the channel.

Information Theory profoundly influenced theorizing in psychology. It provided a metaphor suggesting that people and machines can be viewed as components of communication systems. It characterized humans as information processors that function in ways similar to computers. It brought the term "information" into regular use in psychology (amazingly, William James's (1890) opus *Principles of Psychology* does not contain the word; Collins, 2007) and also terms such as "channel," "encoding," "decoding," and "noise" that are still used today. Most fundamental, perhaps, was the theory's emphasis on the role of processes involved in communication, providing a portrait of the individual as an active processor of information, in contrast to behavioristic approaches that de-emphasized cognitive processes.

Third, inspired in large part by Information Theory, the field of *artificial intelligence* emerged to model and replicate human cognitive abilities using machines such as computers (see Newell & Simon, 1972). To create machines that mimicked human intelligence, programmers embraced highly mentalistic views of cognition. Computer programs were written that could solve word problems in algebra, prove logical theorems, and generate language, and they did so by mimicking people's conscious, incremental reasoning abilities. These abilities pointed to a central and causal role of thought processes in accounting for human behavior. Moreover, artificial intelligence firmly established the computer as the primary metaphor for human cognitive functioning, involving, for example, "storage" and "retrieval" of information into short- and long-term memory stores.

These innovations in psychology and related fields led to the emergence of a new subfield in psychology – *cognitive psychology* (Neisser, 1967) – that examined the roles of mental

structures and processes in human behavior. It portrayed humans as active information processors, utilizing stored knowledge to interpret, understand, elaborate on, and guide responses to new information and new experiences. It embraced an information processing approach, assuming that human cognitive processes and their products could be decomposed and traced as a sequence of mental operations with appropriate methods.

The early years of the field of cognitive psychology produced many critical discoveries, theories, and methodological innovations. For example, work by Broadbent (1958) and Treisman (1969) shed light on the nature of attention and functioning of attention. Theories and research by Bruner (Bruner, Goodnow, & Austin, 1956), Rosch (1973; Rosch & Lloyd, 1978), and Posner and Keele (1968, 1970) provided insight into the nature of categories and categorization processes. The limits and capacities of short-term memory were explored (Miller, 1956; Phillips & Baddeley, 1971), and research demonstrated the development and functioning of automatic processes (Shiffrin & Schneider, 1977). Schema theories (Bransford & Franks, 1971; Mandler, 1984; Rumelhart, 1984) helped elucidate the impact of stored knowledge on subsequent information processing.

Although this early research showed that mental systems and processes often allow the efficient processing of complex information, new work emerged demonstrating that information processing can fall short of ideal. A series of ground-breaking papers by Tversky and Kahneman (Kahneman & Tversky, 1971, 1973; Tversky & Kahneman, 1971, 1973, 1974), for example, showed that some efficiency derives from the use of nonoptimal mental procedures, called *heuristics*, that are shortcuts used for making quick and easy judgments and decisions. Heuristic use facilitates decision making, saving time and mental resources and producing reasonably accurate outcomes. However, the use of heuristics leaves us susceptible to error. Importantly, this work inspired a great deal of research exploring the limitations and biases inherent in the cognitive processing of social information (Gilovich, 1991; Nisbett & Ross, 1980). The early years of cognitive psychology provided impressive demonstrations of how humans generally function effectively within an overwhelmingly complicated world of information but also highlighted potential pitfalls in human reasoning and judgment.

THE RISE OF SOCIAL COGNITION

Soon, these discoveries inspired several psychologists to consider the ways that a cognitive approach could be used to further understand the processing of social information. The influential theories offered by mid-century social psychologists (Lewin, Heider, Asch, and Festinger) were already couched in terms of mental processes, so social psychology seemed particularly well-positioned to benefit from developments in cognitive psychology. Many of the discoveries emerging from cognitive psychology seemed highly relevant for understanding essential questions in the social domain. Doing so allowed novel insights into social phenomena but also promised potential integration across distinct research questions. If a set of common cognitive processes were involved in the variety of phenomena of interest to social psychologists, perhaps identification of those processes could allow the derivation of a set of principles for explaining social thought and behavior. Also, to the degree that the processes involved in social cognition could be identified, interventions for modifying those processes when they produce undesired consequences might become more readily apparent. These possibilities spurred an intellectual climate perhaps unprecedented in social psychology, as a generation of researchers began to explore the benefits

of an approach that recognized cognitive processes as being central to social functioning and behavior (Ostrom, 1984).

It was not long before research using the theories and methodological tools of cognitive psychology were beginning to fulfill this promise. By the mid-1970s, several landmark studies provided dramatic evidence that cognitive theories and methods could provide fruitful insights regarding social phenomena (see Hamilton & Carlston, 2013).

Tajfel's Minimal Group Paradigm

Tajfel and his colleagues (Tajfel, 1970; Tajfel, Billig, Bundy, & Flament, 1971), using what they referred to as the “minimal group paradigm,” demonstrated the power of categorization processes in creating bias in the perception and treatment of groups. In these studies, individuals were assigned to membership in one of two social groups on an arbitrary basis (e.g., based on their supposed preference for one painter over another).

Despite there being no actual differences between the groups (because group membership actually was randomly assigned), individuals revealed several manifestations of group bias in their judgments and behavior. They expressed more positive attitudes towards members of the ingroup, they saw outgroup members as more homogeneous than and different from the ingroup, and they were more likely to distribute rewards to ingroup than to outgroup members, even when allocating more resources to the ingroup could not provide any benefit for themselves. Thus, the mere cognitive differentiation of the social world into categories of “us” and “them” was sufficiently powerful to produce different responses to and behavior towards members of ingroups and outgroups.

Higgins, Rholes, and Jones' Research on Priming

A central tenet of cognitive psychology was that information that is *accessible* in memory could influence how subsequent information is processed. As information is encountered, the task of the perceiver is to link the information with knowledge that is already stored in memory. This allows the perceiver to use prior experience to guide responses to a particular piece of input that is encountered (“That red, shiny object in the bowl looks like an apple...I think I'll eat it!”). Information that happens to be accessible in memory, even if irrelevant or persisting from a prior task, can determine what knowledge is brought to bear to understand new input. This phenomenon is called *priming*.

Higgins, Rholes, and Jones (1977) provided an important demonstration of the consequences of this phenomenon in the domain of social judgment. In their experiment, participants initially completed a task in which they were asked to hold in memory trait words that were either positive (“adventurous,” “self-confident,” “independent,” “persistent”) or negative (“reckless,” “conceited,” “aloof,” “stubborn”) in nature. In what was described as a separate study, participants then read a story describing some actions performed by a man named “Donald” that were ambiguous, able to be interpreted either positively or negatively. The story said, in part:

He was thinking, perhaps, he would do some skydiving or maybe cross the Atlantic in a sailboat (adventurous/reckless). By the way he acted, one could readily guess that Donald was well aware of his ability to do many things well (self-confident/conceited). Other than business engagements, Donald's contacts with people were rather limited. He felt he did not really need to rely on anyone (independent/aloof). Once Donald made up his mind to do something, it was as good as done no matter how long it might take or how difficult the going might be. Only rarely did he change his mind even when it might well have been better if he had (persistent/stubborn).

Participants then were asked to characterize Donald's behavior verbally and to rate how desirable they considered him to be, both immediately and after a nearly 2-week delay. Donald's behavior was generally characterized consistently with the trait words to which participants had been exposed in the preliminary task. For example, Donald's desire to cross the Atlantic was described as being either "adventurous" or "reckless," depending on what had been primed in the first task. Participants also judged Donald's desirability consistent with the valence of these trait terms, particularly after a delay. Those participants who had been primed with negative traits saw Donald as being less desirable compared with those who had been primed with the favorable trait terms. These results showed that reasoning about people is influenced both by the information they provide and by whatever else happens to be accessible in memory when that information is processed.

Hamilton and Gifford's Research on Illusory Correlation

Historically, stereotypes had been viewed as reflecting the history of conflict between groups or the exaggeration of small but real group differences. In contrast with these earlier accounts, Hamilton and Gifford (1976) proposed that ordinary cognitive processes might play a central role in the formation of stereotypes. Research in cognitive psychology had shown that people tend to notice unusual information in their environment, and Hamilton and Gifford argued that similar processes could occur when individuals encounter information describing social groups of differing sizes. If people tend to notice the co-occurrence of unusual, infrequent events, then they might be especially likely to notice negative behavior performed by members of small groups.

To test this idea, Hamilton and Gifford presented individuals with a set of sentences describing desirable and undesirable behaviors performed by members of two hypothetical groups, referred to simply as Group A and Group B. Although the ratio of desirable to undesirable behavior was identical for both groups, participants' judgments reflected that an erroneous perception of an association – an *illusory correlation* – had formed between membership in the smaller group and performance of the infrequent, undesirable behaviors. The members of the numerically smaller group were disproportionately and erroneously associated with performing undesirable behavior to a greater degree than the members of the numerical majority group. This research showed that an information processing bias alone could contribute to the development of inaccurate stereotypes.

Associative Network Models in Person Memory

A model for understanding how information acquired about a person is represented in memory was first introduced by Hastie (1980; Hastie & Kumar, 1979) and later developed by Srull and Wyer (Srull, 1981; Srull & Wyer, 1989). In this model, a person is represented by a particular location in memory, metaphorically referred to as a "person node." All information learned about the person becomes attached to the person node and, as additional information is learned, associations can form between items to create an *associative network* containing one's knowledge and beliefs about the person. Associations between items of information are particularly likely to form if they are compared with one another. An item that violates a pre-existing impression or is inconsistent with what is already known about the person is especially likely to be compared with other items, creating numerous associations within the network. This model made clear predictions that could not be derived without a clear delineation of the relations among elements. For example, the model was able to predict the amount,

order, and speed with which different kinds of information could later be recalled. (We discuss these findings in greater detail in the next chapter.) This work demonstrated the potential utility of models that specified the nature of social information processing for generating novel and counterintuitive predictions.

These early studies testified to the usefulness of social cognition for studying issues of longstanding interest to social psychologists. This research, and subsequent work stimulated by it, has demonstrated that the application of a cognitive approach to social phenomena can produce a much deeper, more detailed, and more nuanced portrait of the social information processor than had previously been possible. In addition, many discoveries have been made that would not have been possible without a social cognitive approach because they are rooted in the characteristics of human information processing systems themselves. Numerous important findings have emerged as it has become apparent that the *manner by which* individuals process information can affect interpretations, inferences, judgments, and attributions, and, ultimately, behavior in significant ways. Social cognition has proved to be a novel and fruitful lens for examining social thought and action.

WHY SOCIAL COGNITION?

Although social cognition has developed rapidly, one might question the need for the separate fields of social cognition and cognitive psychology. If social cognition represents the mere application of cognitive theories and methods to social stimuli, do we need separate sub-disciplines with their own texts, journals, college classes, and faculty? In fact, there are several good reasons (aside from maintaining your professor's job!) for maintaining distinct yet interconnected fields of cognitive and social cognitive psychology. Although cognitive and social psychologists are both concerned with the processing of sensory input, they focus on different kinds of input. Whereas cognitive psychology is interested in how people process information about all kinds of stimuli (such as objects, symbols, and language), social cognition focuses on the perception of *people* (including the self, other individuals, and groups of people), their behaviors, and their interrelations.

People are, of course, different from the stimuli studied by cognitive psychologists in many respects, and a brief discussion of some of these differences highlights the utility of maintaining the distinction between social cognition from the broader field of cognitive psychology. First, unlike inanimate objects, people are alive and active. Because of that fact, they differ in many *quantitative* respects from objects. People do more, and they change more than do objects. As Heider (1958) states, persons "are usually perceived as action centers" (p. 21). Compare, for example, your best friend with a rock. A rock might appear to change over long periods of time due to erosion or acid rain. In general, though, we would probably all agree that rocks do not show much variability over time. People, in contrast, show a high degree of variability over time. Your friend might move through multiple environments within even a single day as she wakes up in her apartment, attends a lecture, reads in the library, and has dinner with friends in a restaurant before attending a movie in the evening. She might vary her appearance as well, changing from a casual dress and appearance in the morning to smarter attire if she had to go to work in the afternoon. Her manner of behavior also might change quite dramatically, from being quite relaxed and friendly as she hangs out with her friends to being passive but formal as she sits in a classroom to being energetic and spontaneous as she dances in a club. People can also change dramatically over

long periods as they age, develop new ideas and habits, and assume different social roles in the course of their lives (infant, child, student, spouse, parent).

People differ *qualitatively* from objects as well. External factors generally determine the “actions” of objects, but the actions of people often reflect their internal states. People, unlike objects, have thoughts, motives, intentions, goals, and emotions that can play essential roles in determining how they act. Steven King’s novel, *Christine*, tells the story of a car that is intent on murdering its owner’s friends and family because of jealousy – an unusual premise in that we do not normally endow an automobile with feelings, goals, and intentions. The intrigue of the story, though, perhaps lies in its ability to make us wonder how objects might behave and how we might think about them differently if they *did* have human thoughts and feelings.

However, because we know they do not, we seek out different information about people than about objects, and we engage in different processes to explain their actions. For people, we are interested in gaining information about people’s actions over time and across social contexts. Doing so allows us to learn about and to test hypotheses about their internal states and attributes, their abilities, their personalities, their motives, and their goals. Because we recognize that individuals’ internal states play a causal role in determining their actions, we spend much time and energy thinking about the behavior of others, attempting to understand people by interpreting and explaining their actions so we can gain a sense of what they are like.

Cognitive processes related to social perception can also be distinguished from more general cognition because of the nature of *perceivers as social beings*. Because of our social nature, people are particularly attuned to social information in the environment. Infants, for example, tend to pay particular attention to others’ faces within hours after birth, and they will visually track the location of a drawing resembling a human face (Goren, Sarty, & Wu, 1975). Adults also show a proclivity to encode and process social information, selectively allocating attention to focus on people (and, interestingly, to animals) rather than inanimate objects when viewing complex, realistic scenes (New, Cosmides, & Tooby, 2007). Finally, thinking about the relation between semantic concepts and people versus objects activates different areas of the brain, suggesting that different neural circuitry can underlie social versus non-social perception (Mitchell, Heatherton, & Macrae, 2002).

Another difference between our perceptions of people and objects lies in the fact that the persons with whom we interact (but not the physical objects we perceive) are themselves active agents. That is, when we *act* toward them, they are likely to *react* (positively or negatively) to us. Moreover, we know that about them! Therefore, effective social interaction requires an ability to anticipate the response of others to our own actions. In this sense, social interaction is like a “dance” – effective interaction requires coordination among the participants, and the ability to understand, anticipate, and respond accordingly is crucial for its success.

Not only are we more likely to notice and pay attention to people, but we also think differently about people than about objects because we are socially interconnected and interdependent with other individuals and groups. Because people are interconnected, thinking about other individuals typically also involves thinking about the self. As we think about our family members, our friends, or our enemies, we tend to do so in terms that implicate the self, including our histories, beliefs, attitudes, and emotions intertwined with those individuals. We also think about ourselves and others in terms of group memberships, being conscious of our own and other people’s groups and (generally) valuing groups to which we belong.

In sum, social cognition and cognitive psychology will never be wholly separated, nor should they be. Numerous essential insights have been and continue to be generated by applying the approaches of cognitive psychology to the study of social phenomena. Cognitive psychology has, in turn, also benefitted from developments in social cognition. Nonetheless, although the

processes and structures underlying social and non-social cognition may be similar, social interactions involve perceivers and targets who are active, intentional, emotional, and motivated. Unlike objects, people can act as causal agents and can attempt to control events and outcomes intentionally. In short, people are more complex than objects or concepts.

A SOCIAL COGNITIVE FRAMEWORK

Before beginning our detailed discussion of research in social cognition, it is useful to delineate our general approach to the field and the framework we use for organizing the variety of topics covered in the chapters of this book. In doing so, we highlight some of the ways our text differs from alternate approaches that have tended to dominate the field historically. It is our view that social cognition is an *approach* rather than a *content area* in social psychology (see Carlston, 2013, for an alternate perspective). This approach focuses on the mental structures and processes underlying social phenomena, and we believe that the most significant contribution of social cognition to the field of social psychology, more broadly, is its emphasis on cognitive processes. Accordingly, our discussion of social cognition will not be organized by content areas, as is often the case (e.g., with separate chapters on attitudes, impressions, prejudice), but by fundamental processes that underlie social information processing. This text will characterize social cognition in terms of a process model recognizing the operation of cognitive systems as information is processed over time, allowing us to examine structures and processes that are common across content areas.

We believe there are several advantages to adopting this framework. One advantage is that it encourages the integration of research findings across different content areas in social cognition. Research on impression formation and stereotyping, for example, largely developed separately, utilizing different assumptions, methods, and terms. An approach that focuses on the role of structures and processes when people encounter information describing a single individual versus multiple members of a group would allow us to discover the specific ways in which impression formation versus stereotyping differ and are the same (Hamilton & Sherman, 1996). Consistencies across research areas can be identified, and gaps in our knowledge can more easily be recognized. Second, this approach allows social cognition to be applied to virtually *any* content area in social psychology. After all, in virtually any topic in social psychology (relationships, persuasion and social influence, decision making, health psychology), people are actively engaged in processing information. Understanding the processes involved and the biases resulting from their use are important for our knowledge of those topics.

The fact that our approach allows the possibility that it can be used to understand any content area certainly broadens the topics that can be studied from a social cognitive perspective to include attitudes, intergroup conflict, helping behavior, and relationships, to name a few. There are already large bodies of research on each of these topics, but research using a social cognitive approach can add unique value to these literatures, as already has been demonstrated. Finally, this approach promises to allow greater integration between psychology and other disciplines. The theories and methods of social cognition can be used to investigate a tremendous variety of issues involved in social thought and behavior from diverse disciplines such as economics, law, and medicine. The fact that this has already been occurring suggests that other communities have recognized the value of the social cognitive approach. Providing a framework that explicitly reflects the view of social cognition as an approach should, we hope, encourage these developments even further.

A Model of Social Information Processing

The chapters in this book focus on the role of mental structures and processes in social thinking. We begin the book by discussing in Chapters 2 and 3 the nature of mental representations and the importance of distinguishing relatively effortless from effortful information processing. Chapters 4–10 explore different aspects of social information processing, discussing in detail how information enters into and is used by the cognitive system. We examine how perceivers *attend* to some but not all information, and how they play an active role in *interpreting* encoded information, using it to form *evaluations*, draw *inferences*, and make *attributional judgments*. We explore how information is organized, stored, and retrieved from *memory* and how people use information to form *judgments* and make decisions. Chapters 11 and 12 examine the role of social cognitive processes in thinking about *time* and the relation between social cognition and action, asking how (and when) thought affects *behavior*. Throughout these chapters, several fundamental factors that must be considered at each phase of information processing will regularly reappear. These motifs will reinforce connections between processes, illustrating how all aspects of social information processing must be viewed in light of a set of common and influential factors. We begin by providing a brief preview of the topics that will unfold in these chapters.

Cognitive Representations and the Effortfulness of Processing

It is difficult to overestimate the importance of cognitive representations in social cognition. Cognitive representations contain the totality of our stored knowledge, reflecting experience as well as the beliefs and expectancies that we have formed as a result of those experiences. These representations might be formed either from direct experience (from events we have experienced first-hand) or based on indirect experience (from social norms or observing other people). Once formed, cognitive representations are available to be used when they are relevant to a situation or become activated in memory by an event or stimulus cue encountered in the environment.

Although this language implies that cognitive representations are either activated or not activated in binary terms, their relative activation levels can vary along a continuum. The activation level of a cognitive representation is termed its *accessibility*, and the accessibility of any representation can vary across contexts and between persons. Structures that are activated recently or frequently (either because external factors invoke them or because they are chronically accessible for a particular person) are more likely to become accessible in the future. It is essential to consider what representation will become activated in any given context since accessible cognitive structures guide and direct all aspects of information processing. The representations that are accessible in any given moment influence what information we notice, how we interpret it, and the nature of inferences and attributions that we make in response.

A second foundational chapter focuses on the role of effort and resources involved in social information processing. Thought processes vary in the degree to which they require deliberation and effort. Although thinking about ourselves and others often involves conscious attention and effort, much social information is processed spontaneously or “automatically.” Information that does not receive our deliberate attention can be (and often is) processed quite thoroughly and is stored in memory for later use. We may not even be aware that our cognitive systems have processed information, but that information can nevertheless produce

“automatic” effects on our judgments, feelings, and behaviors. With the relatively recent discovery of automatic effects on behavior, it appears that automatic processes influence people to a far greater extent than was previously recognized. Social information processing involves the interplay between both controlled and automatic processes. The influence of each – as well as the relation between them – will be a continuing focus as we discuss various aspects of processing.

Aspects of Information Processing

The information available in our social world is not just taken in and recorded in our memories. As we discussed earlier, only a portion of available information enters our cognitive system. Once there, it is embellished, expanded, and transformed by an active mind. Across several chapters, we discuss several distinct aspects of social information processing that reflect the role of an active information processor.

Attention

Any environment tends to offer information that is nearly infinite in quantity and complexity, and our sensory and cognitive systems cannot absorb all the information available in even a relatively simple context. Accordingly, out of necessity, we must selectively attend to certain aspects of the stimulus environment while not noticing or even actively ignoring other aspects. The focus of attention is not randomly determined, however, and our cognitive systems are adept at directing attention to information that is particularly important, self-relevant, or unusual.

Interpretation

From the moment information is encoded through selective attention, our cognitive systems must interpret it. Information, even if it gets our attention, has no inherent meaning; meaning is achieved through interpretation. Importantly, social information is often ambiguous and can be construed in multiple ways. We impose meaning on that information through the process of interpretation.

Evaluation

Interpretation typically (and perhaps inevitably) produces evaluative responses to social stimuli. The human tendency to evaluate elements of the social environment seems primary, pervasive, and inevitable. It is difficult to imagine, for example, how meeting and forming an impression of a new person could ever result in a genuinely neutral response. We typically like or dislike individuals (at least to some degree), tend to like some groups more than others, and even evaluate individual behaviors as good or bad. Of course, information is itself inherently devoid of evaluative content, and it is the person processing that information who imposes some evaluation on it. The complexity of this simple statement becomes clear when we recognize that different individuals can have very different and occasionally opposed evaluative reactions to the same social information or that the same individual can respond inconsistently at different times or on different occasions.

Inference

Typically, we elaborate further on information by making inferences about the behavior observed, the actor who performed the behavior, or the actor’s social group. Traits and other attributes are

inferred to characterize both the actor and the actor's behavior accurately, or inferences are made about the actor's motives or goals. Inference processes aid in comprehending new information being processed, they broaden one's understanding of social entities, and they provide a sense of predictability and control. However, like all other processes, they are also subject to bias and are heavily influenced by *a priori* beliefs and expectancies contained in our cognitive structures. Moreover, many inferences are made spontaneously, without deliberative thought or intent, and even without awareness of their occurrence.

Attribution

One type of inference is of particular importance, attributional inference. Attributions are inferences about causality, most commonly regarding the causes for one's own or another person's behavior. Social behavior is often ambiguous or overdetermined, inviting many possible conclusions about its causes. Nonetheless, we engage in attributional processing when we are motivated to understand why a person behaved in a particular way. Ultimately, we determine the most appropriate and compelling explanation for behavior, even though relevant information that explains behavior might be missing or biases might produce an inaccurate causal conclusion. Regardless of their accuracy, attributions, once formed, can have significant consequences in their own right. They both explain why events occur and can provide a basis for future judgments and behavior.

Judgment

We are often confronted with situations in which we must make a decision or render a judgment. In making a judgment or decision, we must identify the information that is most relevant, disregard information that should not be considered, and combine information in a manner that produces a decision that is (at least somewhat) rational and provides a "good" outcome for the decision-maker. To what degree is this possible? Can we effectively differentiate useful from useless information, and can information be combined in a fashion that produces a rational judgment? In addition, can we determine whether a judgment is good or poor based on its rationality?

Storage and Retrieval from Memory

Once elaborated, information from the social world is stored in memory. It is important to recognize that the processes of interpretation, evaluation, inference, and attribution have transformed the initially-encountered information such that the ultimate representation in memory can differ in significant ways from the stimulus events on which the representation is based. Nevertheless, it is this representation that is the basis for all subsequent usage. Moreover, information is not merely "dumped" into some memory receptacle, but instead is represented and stored according to certain principles that lend organization and structure to the representation.

This representation is available for later retrieval to serve as the basis of judgments and behavior. Retrieving information from memory is not a random process but rather is a guided search that involves the reconstruction of memory. Nonetheless, the retrieval process itself is flexible and open to influence by many factors. For example, our immediate goals or purposes in retrieving memories will guide how memory is searched and, consequently, the information that is successfully retrieved. Recent experiences or mood states can also affect what is remembered. Retrieval can also be influenced by numerous factors that influence the actual content of

our “memories.” Because memory retrieval is itself a constructive process, it is quite common for memories to contain inaccuracies or, in some cases, to be entirely erroneous.

Dynamic Factors Influencing Aspects of Processing

So far, we have highlighted a set of fundamental processes that play a central role in social cognition, and each process is discussed separately in one chapter of the book. However, these processes do not occur in a vacuum. All aspects of information processing are also affected by dynamic factors that can change from situation to situation, moment to moment, and person to person. These factors include motives, goals, affective states, and cognitive capacities. Any detailed consideration of social information processing must consider these factors as well, even though their consideration is woven into our discussion of basic processes rather than considered separately.

Motives relate to the desire to reduce the discrepancy between an individual’s current state and a desired state, and motivational states can dramatically influence the way information is processed and used. Motives can affect all aspects of information processing, including attention, interpretation, elaboration, and inference. Large research literatures now testify to the power of motives based on affiliation and self-esteem needs to influence the processing of social information. Although some motives can be stable, different motives might become more apparent or accessible in different social contexts, and motives can increase and decrease in intensity based on recent experience.

Goals pertain to end-states that are desired by individuals, pursued in the interest of meeting some need or motive. An affiliation motive, for example, might lead an individual to have the goal of being admitted to a college fraternity or social club. Goals, like motives, can influence all aspects of social cognition. For example, individuals might selectively notice or seek out, with particular deliberation, information that will allow a goal to be met or information suggesting that progress toward a goal might be hindered. The specific goal might alter how one interprets and approaches a situation, such as when a student might either approach a learning situation with a goal to learn or a goal to exhibit excellent performance to others. Finally, goals might pertain to the desired result of information processing itself, such as when a person has the goal to either memorize information describing an individual or to form an impression of that person. These different goals alter the processing of available information, producing different representations of that target in memory.

Affect includes emotions and moods that can vary over time and across situations, able to influence both the content and processes involved in thinking. Mood and emotions can arise in response to information encountered in the environment, but pre-existing affective states can also influence how newly-encountered information is interpreted and processed. Affective factors can change the cognitive representations that become accessible during information processing, and they can also influence the degree and nature of the interpretation and elaboration of new information. Affect can also serve as a signal, for example, alerting individuals to attend to threatening stimuli or, by signaling safety and security, implying that deliberative processing is unnecessary.

Cognitive capacity pertains to the quantity and nature of cognitive resources available to engage in a specific process. Many cognitive processes require deliberative effort, attention, and executive resources for successful completion. However, cognitive capacity is dynamic and can vary as a function of moods, competing tasks, and even circadian rhythms. When an individual’s capacity is low (as when in an experiment a person is assigned to complete two

demanding tasks simultaneously), deliberative processing is undermined, reliance on shortcuts such as heuristics tends to increase, and attention is allocated in a way to maximize efficiency rather than thoroughness. Variations in available capacity have been shown to affect numerous critical cognitive processes involved in attention, inference, attribution, and memory.

Implications of Information Processing

We discuss the role of cognitive representations, cognitive processes, and dynamic considerations in social cognition. However, it is essential to note that cognition is not important in and of itself. Instead, social information processing helps people adapt to and manage their social environments. Social cognitive processes allow for successful navigation of experience over time and contribute to determining our actions. Our last two chapters focus on these uses of social knowledge.

We use stored knowledge in *understanding the past* and *anticipating the future*. Much of what we have discussed focuses on aspects of information processing in dealing with what is happening at a particular time. We form an impression of a person we are meeting for the first time; we need to understand the positions advocated by a political candidate; we try to gauge the goals and objectives of a group; we want to understand why an intergroup conflict has exploded into a near-riot. However, the persons, groups, and events we witness also have histories, and our knowledge of those histories is stored in our cognitive representations. Sometimes contemporary events can lead to a reconstruction of past events and experiences. How and when does that happen? Understanding how knowledge of the past can be reconstructed, and thereby take on new meaning, becomes essential for understanding how the past can shape and guide our current and future experiences.

Social cognition has historically focused on understanding the important endproducts of social information processing, including memory, judgments, inferences, and attributions. However, there has long been interest in the relation between social thought and *action*. Although individuals can act in ways consistent with their thought processes, there are also many situations in which thought and action are quite unrelated. Social cognition processes can also produce behavioral manifestations that are undesired, counterproductive, and opposed to the explicit desires and goals of the perceiver. Also, there is growing evidence that unconscious thought can affect behavior while invoking little more than minimal cognitive involvement. Understanding the consequences of thought on behavior and the conditions under which thought affects behavior and behavior affects thought are important research questions that are beginning to be answered.

One Important Caveat

Although we present a set of chapters examining a range of core cognitive processes ranging from those viewed as basic (e.g., attention) to those quite complicated (e.g., judgment and decision making), the sequence in which we consider each aspect should not be viewed as a statement about their temporal sequence. Historically, many process theories that rested on the assumption of processing “stages” have collapsed when evidence showed that the presumed invariant sequence of processes could occur in a different order, were iterative, or were recursive. We wish to avoid that mistake at the outset by emphasizing explicitly that the cognitive processes implicated in any social situation are fixed neither in number nor order. Not all information is affected by each process, and processes can be re-initiated and strategies revised as the person elaborates on available social information. With these caveats in mind, we do think

that the order in which we discuss different aspects of processing builds naturally and reflects increasing complexity and elaboration.

A Process Approach

Characterizing and analyzing the field of social cognition as a set of common processes affected by a set of common factors will, we hope, illustrate that social cognition is an approach that can be used to investigate any content area involving social thought and behavior. Although we intend to provide an “open architecture” that can be used by a broad audience of researchers and individuals interested in social information processing in diverse domains, we also recognize the benefit of showing illustrative findings across a set of core content areas that have benefitted from the social cognition approach. Accordingly, we begin each chapter by discussing the nature and importance of the cognitive process under consideration in that chapter, providing examples from research. We then conclude each chapter by discussing illustrative research findings regarding the nature and function of that particular process as applied to the study of three distinct content areas that have long been of central interest within social cognition: understanding the self, understanding persons, and understanding groups. By highlighting the importance of each process for understanding each content area, we aim to provide thematic consistency while also providing a useful and novel approach to the field.

Understanding and Evaluating Research

Throughout this book, we will be discussing research investigating issues and processes in social cognition. Psychology is a science, and knowledge in any science is based on research for which there are clear and important standards by which that research can be evaluated. The credibility of research findings does not rest on whether they fit with our pre-existing beliefs, with appealing philosophies (historic or contemporary), with current public opinion, with the views of prominent authorities, or with what our friends think. Instead, the credibility of those findings depends on the extent to which the research meets specific criteria by which we evaluate the adequacy of that research and therefore the believability of its findings.

We expect that most readers already have learned about essential aspects of experimentation in psychology and some new vocabulary that came with it – experimental and correlational methods, independent and dependent variables, experimental design, the threat of confounds, the importance of control groups, and the reliability and validity of measures. All of these concepts refer to very important features that are crucial in evaluating the quality of research. In all cases, the goal is to determine the effect that one variable (the independent variable) has on another variable (the dependent variable).

When researchers complete a study and successfully publish it in the scientific literature, that is not the end of the evaluation process. Once that article is published, other researchers can conduct the same experiment, testing the same hypotheses using the same methods, procedures, and measures. This “re-doing” of the experiment is called a *replication* which, if the same methodology is used, should produce the same results. Replications provide evidence of the reliability of the finding.

In the natural sciences, this is typically a straightforward exercise. If a procedure involves adding 300 ml of Chemical A to 500 ml of Chemical B to form a precipitate, then the same result should occur regardless of the time of day it was done, the researcher performing the technique, the lab room being used, or the number of people present. By following precisely

the same procedures on another occasion, one can determine whether the original finding has replicated.

In social psychology (and indeed, in the social sciences more generally), things often are more complicated. Suppose we wanted to test a hypothesis that achievement motivation increases one's persistence on a task. The procedures and measures to be used in testing this hypothesis are not obvious, and choices must be made as to how to operationalize both independent and dependent variables. Specifically, one must decide how to manipulate and measure the theoretical constructs of interest to examine the hypothesized relationships between them. One might decide to test this hypothesis with a correlational method, using an existing questionnaire to measure individual differences in achievement motivation. One then must also determine how to measure persistence. One will need to identify or develop a task that is not too easy or too challenging so that performance would be expected to vary based on differences in the independent variable. Even in this straightforward example, many specific choices must be made to test the hypothesis, guided by theory and previous research. Once these decisions are made and the study has produced some interesting results, one might want to know if the outcome of the experiment replicates.

This brings us to an important distinction. There are two kinds of replication, known as direct replications and conceptual replications. In a *direct replication*, the goal is to conduct the experiment in precisely the same manner as the original study, following the identical procedures, manipulations, measures, and participant population used previously. For example, if a questionnaire measure of achievement motivation correlated with the amount of time participants persisted in completing a series of challenging crossword puzzles, a direct replication of that study would follow exactly that procedure using those same measures. Alternatively, a *conceptual replication* attempts to test the same hypothesis between the same variables but using different operationalizations and measures of the independent and dependent variables. For example, one might want to test the same research question experimentally, manipulating achievement motivation by providing participants with false feedback that they had performed either very well or rather poorly on a test comprised of difficult SAT questions. These groups could then be compared on the time they spent generating creative uses for everyday objects. The theoretical question being tested is identical, but the method being used to test it is very different. If the conceptual variables are actually related as one theorizes, then variations in operationalizations should not substantially alter the findings that are obtained.

Direct replications and conceptual replications are both important, but they serve different purposes. Direct replication focuses on a specific result obtained under specific conditions and tests the *reproducibility* of that finding. In contrast, conceptual replication tests the same hypothesis – the same predicted relationship between the same conceptual variables – but does so using different methods of manipulating and measuring independent variables, different procedures, and different measures of the effect. Conceptual replication provides evidence of the *generalizability* of the findings, demonstrating that the original result is not limited to a specific means of testing a general conceptual hypothesis.

Although both kinds of replication contribute to scientific knowledge in these ways, scholars differ (and debate) which type of replication is more important. For example, direct replications are focused on a specific effect. Successful replication provides evidence that the effect can be reproduced under the same conditions. Failure to replicate the previously-obtained effect would raise questions about whether the effect is real. On the other hand, conceptual replications are more theory-oriented, focusing on testing hypotheses about relations between conceptual variables operationalized in multiple ways. They are less concerned with a specific effect

operationalized in a particular manner and instead are more concerned with advancing theory by establishing, using multiple procedures, the relationships among theoretical variables.

In recent years the question of replication has become an important issue in social psychology and other sciences (Molden, 2014; Shrout & Rodgers, 2018). The catalyst for this concern is that some articles have appeared in which the results of some well-known experiments have failed to replicate. These surprising outcomes raised broader questions about the replicability of social science findings in general, and much debate has ensued regarding how this problem should be addressed (e.g., Cesario, 2014; Doyen, Klein, Simons, & Cleeremans, 2014; Pashler & Harris, 2012; Pashler & Wagenmakers, 2012; Stroebe, 2016; Stroebe & Strack, 2014). How can this problem be addressed? Several different approaches have been suggested, each having potential benefits and costs.

One approach is simply to make replication a more regular aspect of the scientific process. Historically, replication studies have been infrequently conducted and published. Encouraging replications to be conducted more frequently would provide more information about the reproducibility of results, and several scholars have embraced this initiative (e.g., Greenwald, 1976; Mummeley, 2012; Nosek & Lakens, 2014). Indeed, journals have become more open to publishing replications (both successful and unsuccessful), and an increasing number of such studies have been published in recent years.

Several large-scale efforts have been undertaken to study further the extent to which published findings are replicable. These include the Reproducibility Project (Open Science Collaboration, 2012, 2015), the “Many Labs” Replication Project (Klein et al., 2014), and the Pipeline Project (Schweinsberg et al., 2016). Under these initiatives, researchers enlist and coordinate many experimenters in diverse locations to conduct direct replications of a number of published studies. Results can then be examined to determine the extent to which the studies’ findings replicated.

Another approach focuses on a single published experiment. In a Registered Replication Report, researchers from many labs all attempt to replicate the same study, using procedures that faithfully (as much as possible) reproduce the methods of the original study. Across these studies, one can then determine the frequency with which the original study’s results have been replicated.

Regardless of the approach, the same pattern of results has emerged. Some findings have been replicated with relatively high regularity, whereas others have shown discouragingly low rates of replication (e.g., Alogna et al., 2014; Doyen, Klein, Pichon, & Cleeremans, 2012; Gibson, Losee, & Vitiello, 2014; Johnson, Cheung, & Donnellan, 2014; Klein et al., 2014; McCarthy et al., 2018; O’Donnell et al., 2018; Open Science Collaboration, 2015; Schweinsberg et al., 2016; Shanks et al., 2013; Wagenmakers et al., 2016).

Some general comments about these matters are useful at this point. First, regarding the strategy of encouraging that more replication studies be undertaken, it seems that sustaining regular replication efforts might be difficult from a practical point of view. Researchers quite naturally are more intrigued by testing new ideas than by re-testing already published work, and reward structures typically encourage the former over the latter efforts. Thus, it may be challenging to incentivize and maintain regular replication initiatives over time.

Second, most replication efforts have focused on direct replication rather than on conceptual replication. Scholars differ sharply in their opinions as to which type of replication is more important and valuable. Some argue that direct replication is crucial for establishing the reproducibility of a specific effect (Doyen et al., 2012, 2014; Open Science Collaboration, 2012; Pashler & Wagenmakers, 2012; Simons, 2014) whereas others argue that conceptual replication

is more valuable for its ability to develop and expand theoretical knowledge on a topic (Cesario, 2014; Crandall & Sherman, 2016; Dijksterhuis, 2014; Fabrigar & Wegener, 2016; Stroebe, 2016; Stroebe & Strack, 2014).

Third, the original and replication studies are usually conducted by different experimenters. As in any domain, researchers vary in their knowledge, experience, and expertise in conducting experiments, which suggests that in replication studies the same hypothesis may be being tested by experimenters with varying skill and qualifications. This may be particularly true in large-scale studies where a replication is tested in multiple labs. Unfortunately, the qualifications of the researcher (a variable that should be irrelevant in assessing replicability) can influence whether an effect is replicated. A recent analysis showed that highly-qualified experimenters were more likely to produce successful replications of previous findings than were less well-qualified experimenters (Bench, Rivera, Schlegel, Hicks, & Lench, 2017).

Fourth, failures to replicate are not always informative (Fabrigar & Wegener, 2016; Maxwell, Lau, & Howard, 2015; Stroebe & Strack, 2014). Typically, a failure to replicate means that a statistically significant result from a previous study was not significant in the replication. Such a result is often interpreted as meaning that the previous result is not “real” or “true,” and that the null hypothesis should be accepted. However, it is important to recognize that “the failure to replicate an effect does not conclusively indicate that the original effect was false” (Open Science Collaboration, 2012, p. 658).

There are many reasons for any nonsignificant finding (Maxwell et al., 2015): (a) The replication study may not have enough participants to provide an adequate test of the hypothesis. When the sample size is insufficient to produce statistically significant results even when a hypothesis is true, the study is considered *underpowered* (Maxwell, 2004; Szucs & Ioannidis, 2017). (b) The means of implementing an independent variable (the manipulation) may not be sufficiently strong to have a causal effect on the dependent measure. Measures designed to measure the effectiveness of manipulations (i.e., *manipulation checks*) are often used in research (Ejelöv & Luke, 2020), although concerns have been raised about their universal use (Fayant, Sigall, Lemonnier, Retsin, & Alexopoulos, 2017). (c) In most experiments, the primary interest is in whether Conceptual Variable A has a causal effect on Conceptual Variable B. To test that relationship, those variables must be operationalized (manipulated or measured) in some way. An important concern is how well a particular operationalization accurately reflects the concept being tested. Differences between original and replication studies in the operationalization of variables may introduce differences that might be responsible for a replication failure. In such a case, the failure would arise from a shortcoming in operationalizing a variable rather than from the absence of the hypothesized relationship. With careful pilot testing and manipulation checks to ensure that similar concepts are being studied, failed conceptual replications can be useful for identifying variables that reveal the conditions under which a theory does and does not hold (Crandall & Sherman, 2016). (d) Often a period of time has passed between the original study and the replication study. Over time, some experimental materials can become outdated. For example, materials that were quite useful for studying attitudes toward same-sex marriage 15 years ago would likely be outdated and inappropriate for conducting a replication of that study today (whether for manipulations or dependent measures). If the original study used materials that are no longer valid, then a failure to replicate a reported effect would not be surprising. It would not, however, mean that the original effect was not true. Fabrigar and Wegener (2016) and Stroebe and Strack (2014) provide excellent examples of how

this problem can influence attempts to replicate past findings. (e) Differing results between original and replication studies can occur for several reasons, only one of which is that the original effect is invalid. Such outcomes may have more significance than simply questioning the reproducibility of an effect. They raise the question as to why this difference has occurred. That is, what moderates the effect? What are its boundary conditions? What other (as yet unknown) third variables influence whether or not the original effect replicates? Even in direct replications, a seemingly innocuous variation can change the results in ways that are psychologically interesting and worthy of further investigation. For example, one study (Noah, Schul, & Mayo, 2018) followed up on a failed replication of a well-known effect involving the tendency to infer emotional responses from facial expressions. In the replication attempts, cameras were focused on participants' faces to ensure that they were complying with experimenter instructions. However, this seemingly minor alteration also appeared to change the psychological processes underlying the original finding. In a condition where the camera was absent (as in the original study), the original finding again emerged. Therefore, just as we should not uncritically accept as true an effect based on a single demonstration, we should also resist concluding that an effect is false based on a single failed replication. (f) The variation in results across replication attempts could itself be informative. Such variation is inevitable and can be due to many factors. "Studies are conducted in different locations, with different experimenters, in different historical moments, and with different randomly selected participants. All of these...lead to heterogeneity. And this heterogeneity leads to concerns about the utility of any single study" (Kenny & Judd, 2019, p. 587). Such heterogeneity challenges the assumption of one "true" effect and suggests focusing instead on the complexities that underlie the heterogeneity of these effects.

In sum, questions of the extent to which research findings are reproducible (direct replication) and generalizable (conceptual replication) are of central concern in establishing the knowledge base of the discipline. As this brief introduction reveals, it is not a simple topic, and its complexities present a challenge. Scientists devote their time and their careers to the pursuit of knowledge. As one well-known scholar quipped, "I love my job. Every week I can choose which 60 hours I want to work." These scientists care deeply about their work and, therefore, about the quality of its findings. Standards guide both the conduct of research and the evaluation of its findings. When the results of a study do not replicate, it is a serious concern. In social psychology (as well as in other sciences), findings of nonreplication have made this an important issue. In this section, we have provided a brief summary of some of the issues that are at the heart of the matter. The debate surrounding these issues is ongoing, and, at the time of this writing, clear solutions have not been identified. However, this state of affairs is neither unusual nor alarming because this is how science proceeds. Recognizing, confronting, and debating the issues is how scientific progress is achieved.

SUMMARY

Social cognition is the study of how people process, store, and use the information they encounter as they observe, participate in, and adapt to social life. In all domains of life, people are continually acquiring new information, elaborating on it, representing it in memory, and using

it to guide their behavior. This book explores how this is achieved. This chapter summarizes the historical roots of social cognition, exploring its relations with other traditions and with important antecedents in social psychology. Social cognition emerged in the 1970s and 1980s with significant advances that established it as an important new development. Unlike other topic areas in social psychology (e.g., attitude change, group dynamics, aggression, relationships), social cognition is an approach to studying any topic area by investigating the cognitive underpinnings of those subjects and examining the intersections of those cognitive processes with other mechanisms (motives, goals) that also guide behavior. Within the last three decades, the contributions of social cognition have been extensive, enhancing our understanding of the mechanisms underlying social thought and action.

FURTHER READING

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