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## Editorial

# Special issue: Multiple perspectives on the psychological and neural bases of social cognition

This special issue challenged researchers to address a number of questions regarding social cognition. What is the definition of social cognition? What are the psychological and neural processes that constitute social cognition? Is there something distinct about social cognition in relation to others kinds of cognition? What are the problems and challenges that face researchers interested in social cognition? The contributions span a wide range of theoretical perspectives and levels of analysis. Many times the answers provided by different contributors converge. Other times new questions are raised by the consideration of social cognition at these multiple levels of analysis.

## 1. Social cognition: a definition and core psychological processes

Although the contributors drawn upon the various disciplines of social psychology, developmental psychology, clinical psychology, and/or cognitive neuroscience, most defined social cognition as the perception of others and some included perceptions of the self. To a lesser extent, some definitions included knowledge underlying the execution of social behavior (Beer and Ochsner; Mitchell). However, the contributions differed greatly in the psychological processes theorized to be central to the perception of self and others. Social cognition was characterized by some authors as predominantly involving cognitive heuristics and biases that promote rapid social judgment which may not always be accurate (Todorov et al.), whereas others theorized a more equal balance between a fast, reflective and a slow, reflexive system (Satpute and Lieberman). Similarly, many contributions view social cognition as an information processing system in which incoming information is filtered (e.g., Adolphs; Beer and Ochsner; Mitchell). Adolphs further develops this perspective by emphasizing the agency in social cognition; he suggests that an active information search is central to social cognition. Another interesting point of discussion was raised by the processes theorized to underlie perception of others. Some contributions emphasized

the role of shared representation between self and other as the predominant mode of understanding others (Decety and Grèzes; Gallese). In contrast, while others acknowledged the simulation of one's own reaction as one way of making an inference about another person's reaction, their discussions focused on a variety of processes that included the perception of verbal and nonverbal cues and the recruitment of semantic and episodic knowledge (Beer and Ochsner; Frith and Frith; Mitchell; Saxe; Wheelwright et al.).

The broad multidisciplinary interest in social cognition has the potential to provide robust answers to questions in this field. However, a common language is needed to unify this field. Many times researchers use the term social cognition without specifying a definition or the processes theorized to underlie the definition. This can lead to disappointment and frustration as researchers from different fields attempt to synthesize relevant work. As shown by this special issue, the definition of social cognition given by a cognitive neuroscientist studying motor neurons will be quite different from that given by a social psychologist interested in the behavioral level of analysis. While it is not possible (or necessary) for all researchers to agree on a definition, definitions and processes should be specified.

Finally, some definitions of social cognition emphasize evolutionary concerns as the motivation for understanding others (e.g., Adolphs, 1999; Brothers, 1996; Cosmides and Tooby, 2004; Jeannerod and Jacob, 2005; and see Sedikides and Skowronski, 1997, for an evolutionary explanation of why the self is part of social cognition). Although evolutionary theories of psychological processes are often criticized as post hoc and not empirically testable, there are a number of reasons evolutionary pressures might have selected cognitive systems that are useful for decoding conspecifics. For example, one way to ascertain whether a potential mate is receptive is by inferring the intentions and emotions (i.e., mental states) of that person. Similarly, in order to identify individuals who can be trusted with group resources, it is helpful to distinguish the personality characteristics of conspecifics (Buss, 1996). However, the evolutionary aspects of social cognition have often

been called into question. For example, one kind of brain damage seems to increase the ability to detect a particular kind of cheating (i.e., lying; [Etcoff et al., 2000](#)), which seems to fly in the face of evolutionary processes shaping a brain module to help us detect who should not be trusted with resources ([Cosmides and Tooby, 2004](#)). It seems likely that we will never know definitively whether evolutionary pressures have selected for uniquely social cognitive processing modules. Evidence of a social cognitive module in non-human species would be an important piece of evidence in support of evolutionary theories.

## 2. Neural bases of social cognition: a “social brain” module?

If there were a social cognitive brain module, what areas might be included? The contributors to this special issue most often nominated regions within the frontal and temporal lobes, including the orbital and medial subdivisions of the frontal lobes, the anterior cingulate, the superior temporal sulcus, the facial fusiform gyrus, and the amygdala, in addition to the insula and somatosensory cortex ([Adolphs; Beer and Ochsner; Frith and Frith; Mitchell; Satpute and Lieberman; Todorov et al.](#)). Additionally, researchers taking a mirror neuron perspective include the premotor cortex and posterior areas of the parietal cortex ([Decety and Grèzes; Gallese](#)). Saxe takes a more specialized view and emphasizes the primary importance of the temporal parietal junction for making inferences about the mental states of others. Finally, [Frith and Frith](#) call into question whether patterns of brain activation have been consistent enough across studies to distinguish areas involved in particular social cognitive tasks.

Although there has been a recent interest in discovering the “social brain,” none of the contributors to this special issue made a strong argument that the above areas (or some combination) constitute a social brain module. However, the distinctiveness of social cognition at the psychological level of analysis proved more controversial in the context of neural evidence. Although previous research has argued that an area of the medial prefrontal cortex is specialized for self-perception (e.g., [Craik et al., 1999; Kelley et al., 2002](#)), [Beer and Ochsner](#) argue that this area is recruited for both self- and other-perception when the self and other are equated for emotional intimacy. They also acknowledge that these tasks do differ neurally, presumably because people draw on episodic information more frequently to make judgments of other people (in comparison to judgments of the self). Many of the contributors did agree that mentalizing was probably a uniquely social cognitive process ([Adolphs; Beer and Ochsner; Mitchell; Saxe](#)) and [Mitchell](#) took this perspective a step further by arguing that different systems are recruited for making inferences about similar and dissimilar others. Finally, [Gallese](#) took a cross-species perspective on the uniqueness of social cognition. He theorizes that although social cognition may be studied in non-human primates because of analogous and/or homologous neural areas, human social cognition is likely to be somewhat distinctive.

## 3. Problems and challenges

Where is research on social cognition headed? Although a number of advances and discoveries have been made, there are still many problems and challenges facing researchers interested in social cognition. Judging from the contributions to this special issue, there is no shortage of future research needed in this area. At the psychological level of analyses, the contributors called for more communication between researchers interested in self-perception and other-perception, greater examination of the accurate nature of typical social cognition, a focus on the influences of emotion on social cognition, understanding the interaction between bottom-up and top-down social cognitive processes, and more fully understanding the role of simulation in social cognition ([Beer and Ochsner; Decety and Grèzes; Frith and Frith; Gallese; Todorov et al.](#)). Measurement issues are another challenge for research examining social cognition at the behavioral level. At the moment it is difficult to measure perceptions of self and others using anything but very explicit measures such as self-report. Explicit measures can often be a useful tool but may be subject to bias. Additionally, any scientific endeavor is strengthened by multiple methods and multiple levels of analysis. Although more and more studies have begun to use implicit measures of social cognition such as the Implicit Association Test (IAT) or the general use of reaction times, more implicit measures need to be developed.

From a social cognitive neuroscience perspective, more research is needed to understand the relation between neural systems and distinct psychological processes. For example, [Saxe](#) asks whether there are common neural areas underlying the perception of gaze shifts and intentional actions. Additionally, a number of contributors emphasized the importance of finding compelling ways to study the neural bases of social cognition in an ecologically valid manner ([Adolphs; Saxe; Todorov et al.](#)). Finally, from a clinical perspective, many of the contributors noted that advances in social cognition research including the identification of genetic markers will have important implications for understanding a host of disorders, including autism, depression, and schizophrenia ([Adolphs; Decety and Grèzes; Gallese](#)).

In conclusion, the contributions to this special issue show that social cognition is an exciting topic being investigated across diverse disciplines and levels of analysis. Sometimes these different levels of analyses have converged on similar answers and other times they have suggested new directions for research. An interesting picture of the complex process of social cognition is sure to emerge from examinations at so many different levels of analysis.

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