

Introduction to Special Issue on Social Cognitive Neuroscience

A primary assumption in cognitive neuroscience is that the brain has evolved to solve adaptive problems, such as using visual information to navigate through the environment. Throughout evolutionary history, a foremost adaptive challenge for our species was living and interacting with other people. As social animals, in order to survive and reproduce, our human ancestors had to select mates, form alliances, compete over scarce resources, and sometimes go to battle with other groups. They also had to be sensitive to group norms and standards of conduct, as violations of these rules might have been punished by expulsion from the group and being left to fend for oneself in the hostile prehistoric environment. Accordingly, just as the brain has evolved mechanisms for seeing, walking, remembering, and breathing, it is likely that there also are specialized mechanisms that allow humans to coexist with others. Of course, living in groups is not unique to humans, but the complexity of the interactions between and within groups is especially complex in human societies.

Since the days of Phineas Gage, it has been recognized that damage to certain brain structures, particularly the prefrontal cortex, produces impairments in social behavior while largely sparing other intellectual capacities. Yet until recently our knowledge of the neuroanatomic basis of social behavior was quite limited. This has changed dramatically over the last decade as researchers have adopted the methods of cognitive neuroscience to study social cognition (see Adolphs, 2003; Ochsner & Lieberman, 2001). Using these methods, researchers have started to explore specialized social capacities, such as the unique human ability to understand other peoples' intentions, to recognize the faces of friends and foe as well as their emotional expressions, and to make judgments about whether we can trust, rely upon, or even mate with other group members. The gist of these studies is that that "people" are often given privileged status by the brain as it processes objects in the environment (see Mitchell, Heatherton, & Macrae, 2002). Thus, thinking about other people entails responses that thinking about other objects, such as vegetables or pieces of clothing, does not.

The neuroscientific study of social cognition reflects a new interdisciplinary and dynamic approach that is providing crucial insights into longstanding social psychological questions. This approach is in its early days, with scholars from widely diverse areas (e.g., social psychology, cognitive neuroscience, philosophy, anthropology) working together and across levels of analysis to understand essential questions about human social

nature. As a core aspect of human cognition, understanding the social mind is central to the cognitive neuroscience endeavor. Accordingly, the *Journal of Cognitive Neuroscience* now includes research on the neural basis of social cognition. To promote this new theme, we present this special issue of 14 articles that explore the social mind.

The articles in this special issue reflect a number of key aspects of social cognition. For instance, to live harmoniously with others we need to be able to understand what they are thinking. To an extent that is unique among primates, humans understand not only that other humans have mental states, but they use their inferences about those mental states to make predictions about how others will act, decide about their intentions, catch possible cheaters, and smooth social interactions. It is not surprising then, that many of the articles in the special issue examine the human capacity for theory of mind, such as how different brain regions contribute to this capacity. Another social question that arises in many of the articles is how we make impressions of others. We judge and categorize people quickly and efficiently, using social categories (i.e., sex, race, age) to streamline the process of person perception. Understanding this process provides insights into not only how we categorize people, but also to how we individuate specific persons within these social groups. Perhaps the most important way we identify individuals is through the face, which is the quintessential social stimulus. Thus, an important emphasis throughout many articles in this special issue is how people process information from faces, such as decoding facial expressions of emotion.

Affective processes play pivotal roles in many fundamental aspects of social cognition, such as in our general attitudes about objects and events in the world around us. There is a rich history of research on attitudes in social psychology, but the methods of cognitive neuroscience are providing discoveries that could not be made through behavioral research alone. Similarly, psychologists have long been interested in how people regulate and manage their emotional reactions to events, and imaging studies are beginning to provide information about the brain areas that support this capacity, as well as how individuals vary in how they process affective information.

The neuroscientific study of social cognition reflects the interdisciplinary nature of modern science. Cognitive neuroscientists who have made profound discoveries about how the brain enables mind have now turned

their attention to exploring the unique social nature of the human experience. At the same time, through the use of sophisticated behavioral paradigms, social psychologists have discovered a great deal about how people interact with one another, such as how they conform to social norms and how they process social information. By working together, researchers can capitalize on what is already established in social psychology and cognitive neuroscience to gain a much greater understanding of the social mind. Even as there has

been rapid progress in identifying the neural bases of many social behaviors, fundamental questions remain that will propel new research. The articles in this special issue provide superb examples of how this approach can provide essential knowledge about the social nature of the human mind.

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