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CHAPTER 13

The cultural neuroscience of person perception

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Abstract: In the last few years, theorists have argued that culture can shape processes of basic visual perception. This work has primarily focused on cultural influences in nonsocial domains, such as cross-cultural differences in seeing and attending to focal stimuli versus backgrounds. Recently, researchers have begun to examine how culture can shape processes of social perception. We review such evidence and describe how culture tunes both the outcomes of social perception (as revealed in behavioral responses) as well as the activity of the neural mechanisms that mediate these outcomes. Such evidence comes from the domains of emotion recognition, social status perception, social group evaluation, and mental state inference. We explicate these findings through our viewpoint that ecologically important aspects of the sociocultural environment shape perceptual processing and its neural basis. More broadly, we discuss the promise of a cultural neuroscience approach to social perception and some of its epistemological challenges as a nascent interdisciplinary enterprise.

Keywords: culture; psychology; neuroscience; perception; behavior; social status; face; emotions

Humans are biological phenomena. We are made up of cells, hormones, and genes; we have a nervous system and neurons within it. All our perceptions, cognitions, and behaviors have a biological basis; they are instantiated in the brain and body. Yet, we are also sociocultural phenomena. We see, think, and act in the context of others, within a society and culture, in particular times and spaces, among environments where specific meanings, practices, and institutions arrange and determine our everyday lives. Over the past few decades, a growing number of psychologists, sociologists, and anthropologists have stressed that many of taken-for-granted ways of perceiving and interpreting ourselves and the world around us — as much as we like to ethnocentrically universalize them across time and space — are in fact culturally and historically specific (e.g., Berger and Luckmann, 1967; Shweder, 1990; Triandis, 2007). This work has pointed out that our quotidian realities and basic ways of perceiving, thinking, and acting are often constructed by the cultural and ecological context that constitutes them.

The notion that psychological processes are shaped by culture, though a central tenet in the field of cultural psychology, has received a lukewarm reception by the broader field of experimental psychology. As many have noted (Shweder, 1990; Spivey, 2007), research in experimental psychology and cognitive science generally understands the mind to be akin to a digital computer or central processing unit (CPU), employing operations that are insulated from context, independent of content, and certainly unfettered to culture. The job of such research is

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to characterize these various operations, which are assumed to be universal among humans, with as much possible depth and detail. Cultural variation is thrown into the lump of human variation, which is considered random noise that researchers attempt to minimize through tightly controlled laboratory experimentation. The overarching hope is that they may gain a view into the underlying human CPU and the universal and natural laws that govern it. In this way, the argument that culture can construct and constrain psychological processes is a perspective generally disregarded by mainstream psychology and the neurosciences. Although the plasticity of neural systems and their modulation by accumulated experience has long been documented, neuroscientists continue to focus on characterizing the fundamental neurobiological substrates of human cognition, which are implicitly assumed to be universal and therefore unperturbed by culture (Han and Northoff, 2008).

By contrast, new perspectives in cognitive science, such as externalism, embodied cognition, and a dynamical systems account of the mind have permitted researchers to understand mental processes as emergent properties of a self-organizing cognitive system straddled among the interactions of brain, body, and the surrounding environment (Spivey, 2007). Although the field of cultural psychology may not formalize such a dynamical systems approach, the premise that mind and culture are mutually constituted and engage in constant interaction over time is taken as a theoretical given and empirical starting point (Heine, 2008). One of the most pressing questions for the discipline of cultural psychology is parsing out which mental processes are universal and which display cultural diversity, ultimately toward a more complete understanding of the nature of human variation (Chiao and Ambady, 2007). By integrating these questions with a biological perspective, the burgeoning field of cultural neuroscience permits a fuller understanding of mental phenomena at multiple levels of analysis.

We, in particular, stress that cultural neuroscience can do much more than merely identify and distinguish the neural correlates of universal versus culturally sensitive psychological processes. We believe that cultural neuroscience can serve to constrain psychological theory and make novel insights about cultural influences on mental processes, which would otherwise be unrealizable without knowledge of how the brain works (i.e., neuroscientific models) and the tools to inspect it (e.g., neuroimaging). We suggest that by knowing about the nature of neural systems, cultural neuroscientists can advance novel and nuanced predictions about how culture might (or might not) influence these systems and the mental processing they subserve. Moreover, by investigating the influences of cultural factors in tandem with predeterminate conditions — such as genetic factors — via neuroimaging and genomic imaging methods, the emerging field of cultural neuroscience promises a more complete understanding of mental phenomena and their dynamic interactive nature (genes ↔ brain ↔ culture). That is, cultural variation may come into being from the multilevel interactions between genes, brain, and culture (Bonham et al., 2005; Chiao and Ambady, 2007). As both biological and sociocultural creatures, our mental system is highly interactive, evolving over time as a function of changes in genetic and biological material in addition to changes in our sociocultural context, and their many interactions. Cultural neuroscience offers an exciting multilevel approach to precisely characterize how processes of this dynamic mental system emerge through a complex interplay between genetic, neural, and cultural forces.

Perception as cultural affordance

Why might culture influence perception? Should not the human perceptual system have adapted to take up the sensory information out in the world as accurately and efficiently as possible, regardless of culture? Not so. In the ecological approach to visual perception, J.J. Gibson made an important argument: perception is for action (Gibson, 1979). That is, visual perception always operates in some ecological context that marks some set of potential behaviors for the perceiver. Perception is intrinsically tied to a stimulus's *affordances*: the interaction possibilities between a perceiver and the target stimulus. Gibson argues: ''Any substance, any surface, any layout has some affordance for benefit or injury to someone. Physics may be value-free, but ecology is not'' (Gibson, 1979, p. 140). The human perceptual system evolved for seeing the world in terms of what the world *affords* the perceiver, that is, for perceiving useful action possibilities to operate on it. An important consequence of this is that each of us perceives a different world. If perception exists for action possibilities with the environment, then each animal, given its unique animal–environment interactions, perceives the environment in a different way. The same surface in ambient light is perceived by the human as *something to walk on* as it is by the dog as *something to leap onto*. Or, the same handle bar is perceived by the human as *something to grab* as it is by the dog as *something to bite*. Thus, there is an ecological value — an affordance value — embedded into the objects and surroundings of our perceptible worlds.

If we perceive stimuli by way of what they afford us, then, to be sure, culture should influence perceptual processes. This is because the systems and practices of one's culture largely determine the function and value of stimuli in the environment and what these stimuli afford individuals (their affordance value).[1] For instance, in the United States, a jagged rock in the middle of a stone driveway is a useless impediment, something to kick away or remove. In a small village society, however, the same jagged rock may be something to pick up, grab firmly, and lunge into an enemy or prey to kill. According to an ecological perspective, members of these two cultures should therefore attend to and literally see this jagged rock stimulus in very different ways, as it affords divergent culturally tuned possibilities (Norman, 1988). Thus, culture can serve as an ecological context in which affordances in the sociocultural environment (e.g., social structures, ideas, rituals, practices, orientations) fundamentally shape perceptual processes and evoke culturally specific perceptual, cognitive, and motivational responses (also see Kitayama and Markus, 1999).

Cultural impact on nonsocial perception

Two cultures whose social structure and practices differ considerably in a way that is likely to influence perceptual processing are what are regarded as Western culture and East Asian culture. Western societies are characterized by independence and individualism, emphasizing individuals' goals and achievements. East Asian societies, on the other hand, tend to be more interdependent and collectivist, emphasizing relationships and roles. These two different sociocultural systems are known to give rise to dissimilar patterns of cognition (Nisbett et al., 2001). Recent work has shown that these systems are also likely to influence visual attention to aspects of the environment (e.g., Kitayama et al., 2003; Masuda and Nisbett, 2001). Specifically, practices and ideas in Western societies tend to require separating objects from their contexts and interpreting independent and absolute aspects of environmental stimuli (i.e., analytic thinking). Practices and ideas in East Asian societies, however, tend to require interpreting objects in conjunction with their context and understanding the relatedness among environmental stimuli (i.e., holistic thinking). Thus, we can say that in East Asian societies (emphasizing interdependence), there is more perceptual affordance for interrelatedness among visual stimuli and surrounding contexts. If true, East Asians should direct more attention to these. In contrast, Western societies (emphasizing independence) place more affordance value on salient objects and one's own relationship to those objects. This should lead to Westerners directing more attention to these, without as much concern for context.

[1]Admittedly, Gibson's (1979) original formalization of the concept of affordance does not extend perfectly to ''perceived'' or more abstract capabilities in a sociocultural environment. His concept of affordance is dependent only on the physical capabilities of an animal, not their goals, values, prior knowledge, or culture. Such ''perceived affordances'' or ''cultural affordances'' are formalized in later work by scholars such as Norman (1988) and Kitayama and Markus (1999).

Indeed, several studies have converged on this exact pattern of results.

Overall, Americans engage in more analytic perception and Japanese engage in more holistic perception. For instance, Americans are better at recognizing changes in focal objects, whereas Japanese individuals are better at recognizing changes in contexts (Masuda and Nisbett, 2001, 2006). The framed-line test (Kitayama et al., 2003) has been especially useful in demonstrating how these two cultures shape divergent patterns of visual perception and attentional deployment. In the framed-line test, participants are shown a square figure with a vertical line hanging from its top edge (but not spanning the entire height of the square), located in the horizontal center. After briefly inspecting this arrangement, participants are shown a new square figure of a different size. In the absolute condition, participants are asked to draw a line in this new square that is identical in absolute length to the vertical line previously seen. In the relative condition, however, they are asked to draw a line that has identical proportion to the context (i.e., the surrounding square frame) as that of the vertical line previously seen. Thus, performance in the absolute task depends on analytic processing of a salient stimulus and characteristics that are independent of context. Performance in the relative task however depends on holistic processing that includes the surrounding square frame, and the relationship between the salient stimulus and its context. Consistently, Americans perform better in the absolute task than in the relative task, whereas Japanese show the reverse pattern, performing better in the relative task than in the absolute task (Kitayama et al., 2003). Thus, Americans tend to allocate attention analytically (to salient stimuli and context-independent characteristics) whereas Japanese, in contrast, tend to allocate attention holistically (to the context and interrelationships among various objects in view).

To characterize the neural basis of this cross-cultural difference in attentional deployment, Hedden et al. (2008) had American and East Asian participants take a modified version of the framed-line test while blood oxygenation level–dependent (BOLD) responses were measured using functional magnetic resonance imaging (fMRI). For both Americans and East Asians, culturally nonpreferred judgments (i.e., relative judgments for Americans and absolute judgments for East Asians) engaged a constellation of frontal and parietal brain regions involved in attentional control, including the left inferior parietal lobule and the right precentral gyrus, relative to culturally preferred judgments (i.e., absolute judgments for Americans and relative judgments for East Asians). The culture-dependent activation of this attentional network was interpreted as reflecting an increased need for attentional control when individuals made judgments that required a processing style for which they were less culturally prepared. Moreover, within each culture, the degree to which culturally nonpreferred judgments selectively engaged this attentional network correlated with individual differences in how much participants identified with their culture and endorsed its values. For instance, when making absolute judgments, the more an American self-reported being more independent, the less this attentional network was engaged (and thus, the more he or she was culturally prepared to make these judgments). Similarly, when making absolute judgments, the more an East Asian self-reported being ingrained into American culture, the less this attentional network was engaged.

In sum, one's cultural background determines the engagement of a frontoparietal attentional network when making basic perceptual judgments. Moreover, this engagement is sensitive to individual differences in how much an individual subscribes to a particular culture or is acculturated in it. Thus, divergent aspects of the American and East Asian sociocultural environments shape American and East Asian perceivers with different attentional strategies and, correspondingly, different patterns of activity in a frontoparietal network involved in deploying these strategies. This demonstrates how culture equips its perceivers with culturally tuned perceptual processes to better navigate their cultural worlds. Moreover, this tuning is manifest both in perceptual outcomes (e.g., accuracy data) and in the functional activity of brain mechanisms that mediate such outcomes.

Cultural influences on perceiving other people

From an ecological perspective, other people who afford social interaction are some of the most, if not *the* most, important objects of the environment to be perceived. As J.J. Gibson noted, ‘‘the richest and most elaborate affordances of the environment are provided by other animals and, for us, other people’’ (Gibson, 1979, p. 135). It is difficult to imagine an instance of perception more crucial than the imperative to perceive others. This is because such perceptions are inextricably bound to social affordances, as the visual construal of person characteristics is very likely to bear ecologically important consequences, such as lasting judgments, evaluations, and interpersonal interaction (McArthur and Baron, 1983). These characteristics may include other individuals’ gender, race, ethnicity, age, cultural membership, emotional status, and social status, among others.

Recognizing emotions

Successfully reading others’ emotions is important because they avail the perceiver with information about another’s behavioral readiness and information about the environment. For instance, emotional expressions signal upcoming behaviors (e.g., anger: *I am going to fight you*) or environmental conditions (e.g., fear: *Danger is nearby*). As others’ facial expressions warn and ready perceivers for impending action, and because such actions are most likely to happen within one’s culture, the emotions that are most ecologically relevant are those that are expressed by members of one’s own culture (Weisbuch and Ambady, 2008). Indeed, it has been proposed for over two decades that one’s cultural background may influence the recognition of others’ emotions (Lutz and White, 1986). Thus, one question of interest to social and cultural psychologists is whether members of a given culture exhibit a selective ability to recognize the emotions of members of one’s own culture. It is possible that acculturation leads to the unique tuning of the perceptual system to emotional expressions of other members of that same culture. Elfenbein and Ambady (2002) conducted a meta-analysis of studies involving face emotion recognition tasks across multiple cultures. Indeed, analysis of the results from these studies led to the conclusion that individuals are better at recognizing own-culture expressions relative to other-culture expressions, pointing to a robust cultural specificity in emotion recognition.

To investigate the neural basis of this cultural specificity in recognizing facial emotion, Chiao et al. (2008) conducted an fMRI study with American and native Japanese participants. Participants were presented with American and Japanese faces expressing fear, anger, joy, or nothing (neutral affect). Behaviorally, Americans were more accurate at judging own-culture emotions relative to those of the other culture. Similarly, Japanese individuals, although not reliably more accurate, were quicker to judge own-culture emotions relative to those of the other culture. This thus conformed to Elfenbein and Ambady’s (2002) conclusion of a cultural specificity in emotion recognition. This cultural specificity was reflected by brain activity as well. Chiao et al.’s (2008) neuroimaging results revealed that own-culture fearful faces elicited greater activity in the bilateral amygdala relative to fearful faces of the other culture. Notably, this own-culture selectivity was found only for fear faces, not faces expressing neutral affect, anger, or joy. This is fitting given that others’ fear is a social signal that is extremely adaptive and probably carries the most ecological importance among all emotions. We argued earlier that cultural influences on perception are likely to center around what affordances the perception provides. Chiao et al.’s (2008) findings are consistent with our view, finding cultural specificity in amygdala activity only for the most ecologically relevant stimuli (fear faces of one’s own culture).

Although the role of the amygdala in responding to fear expressions is often interpreted as the direct detection of negative affect or threat, it has long been known that the amygdala does not necessarily process valence per se, but is instead driven flexibly by a stimulus’s motivational importance (Phelps and LeDoux, 2005). For instance, the amygdala responds to both negative and positive stimuli, so long as the stimuli are subjectively valued and predictive of a social evaluation (Schiller et al., 2009) or relevant for individuals' current processing goals (Cunningham et al., 2008). Thus, stronger responses to own-culture fearful faces need not necessarily be interpreted as these faces directly signaling more threat with the amygdala detecting this stronger signal (e.g., Davis and Whalen, 2001; Glascher and Adolphs, 2003). Instead, it is possible that the amygdala's selective responses to own-culture fearful faces reflect the fact that these faces carry more motivational significance (see Weisbuch and Ambady, 2008, for the motivational significance of own-culture fear). Specifically, selective responses to own-culture fearful faces (relative to other-culture fearful faces) likely reflect the amygdala's enhancement of the perception of motivationally significant stimuli (i.e., Anderson and Phelps, 2001) or heightening of a physiological preparedness to motivate rapid action (i.e., Phelps and LeDoux, 2005) in response to the fear of own-culture allies. These interpretations would be consistent with our argument that cultural influences on social perception, and the neural mechanisms subserving them, are likely to be driven by what affordances or action possibilities are availed to perceivers.

Values in perception: dominance and subordination

Beyond recognizing others' emotions, we often see their social status as well, as it is readily revealed by the face and body (Hall et al., 2005). Because many cultures are organized by social hierarchy, others' social status affords perceivers valuable information and determines behavioral consequences. It is cued by signals of dominance (marking higher status) and signals of subordination (marking lower status), which are conveyed effortlessly by bodily expressions (Hall et al., 2005). Although these cues are recognized with considerable consistency across cultures (e.g., Bridge et al., 2007), cultures can greatly differ in how they assign value to these cues. For instance, in the United States, there is more affordance to be dominant, as dominant thinking and behavior is positively reinforced. Americans are encouraged to be independent, self-elevating, assertive (e.g., Moskowitz et al., 1994), and to climb the hierarchy (Triandis and Gelfand, 1998). Dissimilarly, in Japan, there is more affordance to be subordinate, as subordinate thinking and behavior is positively reinforced. Japanese individuals are encouraged to be sociable and cooperative (Moskowitz et al., 1994), to be affiliative rather than competitive (Yamaguchi et al., 1995), and to show obligation to others (Oyserman et al., 1998). In short, American culture generally encourages dominance, whereas Japanese culture generally encourages subordination.

When an American or Japanese individual perceives another dominant or subordinate person, several things need to occur. Among these is that the brain must represent this stimulus's culturally learned value or significance. That is, on seeing other people who are dominant or subordinate, perceivers must implicitly recognize the culturally learned value associated with dominance or subordination. One particular circuit of brain regions, the mesolimbic reward system, has long been known to be involved in these value representations. By detecting and representing the value of motivationally important stimuli, both positively rewarding or negatively aversive, the mesolimbic reward system can ultimately motivate behavior — even complex social behavior (Knutson and Wimmer, 2007; Schultz, 2000). Thus, it seems plausible that cultural influences on dominant and subordinate behavior may be realized by way of the mesolimbic reward system.

We investigated this in an fMRI study involving American and native Japanese participants (Freeman et al., 2009). In the scanner, participants were presented with images of dominant bodies and subordinate bodies depicting only figural outlines, which removed cultural membership cues and preserved only nonverbal information about social status. After the scan, we assessed behavioral tendencies toward dominance or subordination using a questionnaire (e.g., ''I impose my will on others'' or ''I let others make the decisions''). As expected, behavioral results indicated that Americans exhibited a greater tendency for dominant behavior, whereas Japanese exhibited a greater tendency for subordinate behavior. Neuroimaging results revealed, in Americans, that the head of the caudate nucleus and the medial prefrontal cortex (mPFC), two important components of the mesolimbic reward system, showed stronger responses to dominant stimuli (relative to subordinate stimuli), whereas in Japanese, these regions showed the reverse pattern: stronger responses to subordinate stimuli (relative to dominant stimuli). Moreover, activity in the right caudate and mPFC correlated with individual behavioral tendencies toward dominance versus subordination: stronger responses in the caudate and mPFC to dominant stimuli were associated with more dominant behavior and stronger responses in the caudate and mPFC to subordinate stimuli were associated with more subordinate behavior.

Thus, perceiving dominance and subordination in others elicited responses in the caudate and mPFC congruent with these behaviors' culturally learned reward value, and the magnitude of these responses predicted individuals' tendencies to take on related social behavior. This finding demonstrates how the cultural tuning of tendencies in social behavior can be accomplished by way of the mesolimbic reward system. Clearly, culture places value on certain behaviors or practices. We found that this culturally learned value is represented in the caudate and mPFC. Importantly, mesolimbic representation of this culturally learned value can be automatically triggered in contexts involving the perception of other people, highlighting the role of neural representations of culturally learned values during social interaction.

Evaluating social groups

Another way in which culture can shape social perception is through molding individuals' implicit associations about social groups. For instance, American culture has a long history of harboring negative associations about Black people. Given how culturally prevalent these negative associations about Black people are, they are likely to be automatically triggered when individuals confront any novel Black individual. Indeed, a long line of work in social psychology confirms that such automatic evaluation is likely to occur (Fazio et al., 1986, 1995), and several fMRI studies have supported this idea as well.

In one study, White Americans were subliminally presented with White and Black faces while brain activity was measured using fMRI (Cunningham et al., 2004). Relative to White faces, subliminally presented Black faces evoked a stronger amygdala response, which was interpreted to reflect the automatic processing of a negative culturally learned association with Black people. In a later study, this amygdala response to Black faces was extended to supraliminal presentation as well (Lieberman et al., 2005). In addition, although not replicating an overall stronger amygdala response to Black faces, Phelps et al. (2000) found that the degree to which White Americans' amygdala responds to Black faces correlates with variation in how much an individual harbors an implicit negative association with Black people. This finding thus directly ties White Americans' amygdala responsiveness to Black faces to implicit bias against Black people.

An alternative interpretation, however, is that rather than reflecting culturally learned associations about Black people, amygdala responses to Black faces reflect a more generalized automatic evaluative response to out-group members. Inconsistent with this, however, Lieberman et al. (2005) found that Black American participants also showed greater amygdala responses to Black faces relative to White faces (converging with the White Americans' pattern of results), suggesting that amygdala responses reflect culturally ingrained attitudes, not a simple out-group effect. Moreover, Phelps et al.'s (2000) correlation between amygdala responses to Black faces and individual differences in culturally learned associations about Black people support this view as well. It is worth noting, however, that Lieberman et al.'s (2005) findings need not be interpreted as Black Americans' internalization of culturally learned associations about their own social group; it could simply reflect that other Black faces have more motivational importance for Black Americans (see above, and Phelps and LeDoux, 2005), a hypothesis that future research will need to test directly. In short, culturally learned attitudes about social groups endow perceivers with an automatic evaluative response, mediated by the amygdala, to members of those social groups.

Inferring mental states from the eyes

Last, we turn our attention to cultural influences on inferring others' mental states. The ability to infer others' mental states is one of the most prominent characteristics that distinguishes humans from other animals (e.g., Saxe and Baron-Cohen, 2006) and is often referred to as ''theory of mind.'' Cross-cultural studies of theory of mind have reported universality for interpreting others' mental states. Avis and Harris (1991) showed that children in both literate and preliterate cultures develop mental state inference within the same developmental window. Similarly, adult members of literate and preliterate cultures appear to express the same level of ability for inferring others' thoughts (Sugiyama et al., 2002). Kobayashi et al. (2006) provided neuroimaging evidence for cross-cultural universality in theory of mind, implicating areas such as the temporoparietal junction and mPFC, which appear to be invariant to culture. However, these studies used false-belief tasks, which rely on making inferences about others' mental states based on verbal descriptions of a target's behavior.

Another important way in which we infer others' mental states, however, is by the subtle cues that they exhibit in their facial expressions. An often-used assessment of this kind of mental inference is the ''Reading the Mind in the Eyes'' test (RME; Baron-Cohen et al., 2001). The RME presents individuals with photos of individuals' eyes and several adjectives that may or may not describe the individual's mental state. The test involves choosing which adjective is most appropriate to describe the mental state of the person in the photograph. Individuals with an intact capacity for mental inference show high agreement for the adjectives they choose in describing the targets' mental states. Individuals who lack mental inference abilities, such as patients with neurological damage, show severe impairment in choosing which adjectives best describe the targets' mental states (Adolphs et al., 2002).

Recent work has shown that culture influences individuals' performance on the RME. This would make sense given that the mental states of one's own culture are likely to be more ecologically significant than the mental states of a different culture (see above, and Weisbuch and Ambady, 2008). Using both the original Caucasian-face RME developed by Baron-Cohen et al. (2001) and an analogous, Asian-face RME developed for their study, Adams et al. (2009) found that American participants performed better with the Caucasian RME and that Japanese participants performed better with the Asian RME. Such results were mirrored in neural activity as well. Adams et al. (2009) found that own-culture RME judgments (relative to those of the other culture) selectively engaged the superior temporal sulcus (STS), a brain region important for theory of mind. Specifically, American participants showed stronger bilateral STS activity when inferring the mental states of American targets, as opposed to Japanese targets, and Japanese participants showed stronger bilateral STS activity when inferring the mental states of Japanese targets, as opposed to American targets. Thus, culture equips its perceivers with a culturally tuned ability to infer others' mental states. This is manifest both in behavioral outcomes in the accuracy of making these mental inferences and in the activity of the STS, which helps mediate these inferences.

Conclusions

As we attempted to articulate throughout this chapter, the emerging field of cultural neuroscience promises a fuller understanding of social perception. We reviewed evidence showing that culture shapes basic perceptual processes across nonsocial and social domains. We highlighted how these cultural specificities are manifest both in ultimate perceptual outcomes (as indexed by accuracy or response latencies) and in the activity of the neural mechanisms that mediate those outcomes. We stressed our argument that affordances in the sociocultural environment (i.e., ecologically and motivationally significant ideas, practices, social structures, among many others) are likely to shape perceptual processing and give rise to culturally specific behavioral and neural responses. Much of this research involved identifying the neural correlates of established cross-cultural differences in perception, cognition, and behavior. We believe this work is extremely important, but as suggested earlier, we look forward to cultural neuroscience work that uses neuroscientific models to constrain psychological theory and advance new understandings of cultural influences on mental processes that are otherwise unrealizable without knowledge of how the brain works and the tools to inspect it.

It seems unassailable at this point that the adult human brain is a place where plasticity is the norm, not the exception. This is a point that has startled some neuroscientists and psychologists, who have generally privileged anatomical and functional fixity (Spivey, 2007). As one neuroscientist said, writing in *Science*: "If the neural systems used for a given task can change with 15 min of practice … how can we any longer separate organic structures from their experience in the organism's history?" (Posner, 1993, p. 674). The field of cultural neuroscience should answer with a resounding: *we cannot!* The epistemological stripping of the brain from its environment, social context, culture, and ecology — a notion that pervades the fields of psychology and neuroscience — has provided major challenges for the emergence of a research field dedicated to the study of the interactions between brain and culture, between the neural and the ecological. We hope that by studying how the brain and culture interact, the burgeoning field of cultural neuroscience can move beyond these dichotomies and provide novel insights into psychological processes. This is especially true for the cultural neuroscience of social perception, given the dynamic and interactive nature of perceiving and interacting with others (e.g., Freeman et al., 2008; Johnson and Freeman, 2009).

Abbreviations

BOLD	blood oxygenation level–dependent
CPU	central processing unit
fMRI	functional magnetic resonance imaging
mPFC	medial prefrontal cortex
RME	Reading the Mind in the Eyes
STS	superior temporal sulcus

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