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# Me, My “Self” and *You*: Neuropsychological Relations between Social Emotion, Self-Awareness, and Morality

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## Abstract

Social emotions about others' mind states, for example, compassion for psychological pain or admiration for virtue, are an important foundation for morality because they help us decide how to treat other people. Although these emotions are ostensibly concerned with the mental qualities and situations of others, they can precipitate intimately subjective reflections on the quality of one's own social life and mind, and via these reflections incite a desire to engage in meaningful moral actions. Our interview and neural data suggest that the shift from social emotion to introspection may be facilitated by conscious mental evaluation of emotion-related visceral sensations.

## Keywords

affect, brain, posteromedial cortex, precuneus, social processing

Social emotions about others' mind states, such as compassion for psychological pain or admiration for virtue, are important foundations for morality because they teach us about the social world, help us decide how to treat other people, and motivate us to behave prosocially in our own lives. Despite their inspirational power, however, little is known about how these emotional reactions that have been described as “self-transcendent” (Haidt & Morris, 2009) transform into personal moral resolve. How does learning about another's misfortune, for example, lead us to be grateful for our own good circumstances? How does hearing of another's triumph despite difficult obstacles rouse us to lead a more worthwhile life?

Our data from emotion induction interviews show that people in strong states of social emotion about a stranger's compelling situation sometimes spontaneously report introspecting about the meaning of their own actions and decisions in social relationships, as well as emotion-related visceral and bodily sensations. Here I speculate that the process of consciously evaluating emotion-related bodily sensations may play a facilitative role in the translation of social emotions about other people's circumstances into introspection about the morality of one's own social behavior. Relating psychosocial and neural evidence, I hypothesize that evaluating emotion-related visceral sensations in relation to personal memories may effectively

shift a person's attention inward, away from the immediate social and physical surroundings and toward the feeling of the internal, psychological “self,” or the “real me.” I am not suggesting that these evaluations are necessary or universal for appropriate social emotions or moral decisions. Instead, I conjecture that social emotions about other's mind states may function as a vehicle for examining the morality of the psychological self—in essence, using memory and somatosensation to build a heightened, internally focused awareness that motivates moral sentiments and actions toward others.

## Social Emotions Inspire Moral Intent: The Example of Compassion

Consider the reaction of one experiment participant, “John,” to learning a true story meant to induce compassion:

I'm not very good at verbalizing emotions. But ... um ... I can almost feel the physical sensations. It's like there's a balloon or something just under my sternum, inflating and moving up and out. Which, I don't know, is my sign of something really touching ... And, so, the selflessness of the mother ... and then also of the little boy. You know, having these wonderful cakes that he never gets to have, and he still offers them to her [his mother] ... and then her turning them down, is ... uh ... [long pause]

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It makes me think about my parents, because they provide me with so much and I don't thank them enough, I don't think ... I *know* I don't. So, I should do that. (Original emphasis)

In answering the straightforward question of how this story makes him feel, John reveals a common pattern in which deliberations leading to complex social emotions are associated with visceral sensations (“a balloon [...] under my sternum”) and culminate in prosocial motivation—in John’s case, in a newfound intent to express gratitude to his own parents.

### From Social Emotion to Self-Awareness, and from There to Moral Intent

Critical to understanding the significance of social emotions for moral inspiration is the notion that complex social emotions like compassion or admiration for virtue are not automatically induced, but are built from active mental deliberations on relevant world and social knowledge (Immordino-Yang, 2010). These deliberations, many nonconscious, can result in a cascade of mental and bodily changes, or neural simulations of bodily changes, that constitute what has been called the “emotion” proper (Damasio, 1994/2005). But how do participants like John transition from a social emotion focused on other people to a moral intent to improve their own behavior? And what might be the relevance of the social-emotion construction process for facilitating this introspective shift?

To hazard a guess at these questions, it is instructive to consider the neural correlates of these emotions in relation to their psychology. Using a compassion- and admiration-inducing procedure, Immordino-Yang, McColl, Damasio, and Damasio (2009) found that social emotions strongly recruited a neural region encompassing the posterior/inferior precuneus and neighboring retrosplenial cingulate, involved in high-level association of interoceptive information from visceral sensation and regulation. Functionally, this area is involved in the default network, which has been suggested to correspond to the feeling of self, personal salience, and high-level consciousness (Damasio & Meyer, 2009); activation here is suppressed during tasks requiring externally focused attention (Buckner, Andrews-Hanna, & Schacter, 2008), but heightened in tasks involving moral judgment (Greene, Sommerville, Nystrom, Darley, & Cohen, 2001) and episodic memory (Wagner, Shannon, Kahn, & Buckner, 2005).

Although the psychosocial analyses are preliminary, our data from both the USA and China suggest that it is only *after* grappling with the relevant information about the protagonists of a true story and reporting a strong emotional reaction that participants sometimes spontaneously turn their evaluative stance inward to judge the quality of their own minds, sometimes explicitly in light of the standard set by the protagonists. Could it be that as an aftereffect of having engaged in the subjective deliberations that lead to a social emotion like admiration or compassion, participants may be left with a heightened perception of interoceptive awareness that facilitates introspection about the psychological self? One experiment participant, when

reacting to a social story meant to induce admiration for virtue, described her experience as one of becoming “more sensitive to the temperature inside you ... a visceral reaction that feels like an emotional alertness ... it makes me want to spend a year or two [dedicated to helping this person’s cause].” Perhaps the act of feeling and representing one’s emotion-related visceral sensations contributes in a special way to inspiring the moral intent to engage in personally meaningful social actions?

Examining participants’ spontaneous behaviors during pre-scan interviews in relation to the neural evidence reveals an additional intriguing clue: in the late phase of a social emotion participants often pause, turning their attention inward before transitioning to personal inspiration. For example, John appears to briefly withdraw from the interaction with the experimenter and blankly gaze into his lap, and then emerges with a report of having evaluated his own relationship with his parents and a promise to behave prosocially. This is just as would be expected were default network brain activity invoked, allowing the neural and psychological construction of self-awareness via the calling up of interoceptive information and personal memory.

### Of Conscious Minds in Feeling Bodies: Musings on the Moral Self

Social emotions guide critical aspects of social behavior, and are an important foundation for morality in day-to-day life. How is it that our emotional evaluations of other people’s psychological situations can incite us to examine the moral foundations of our own social behavior?

Here I argue for the possibility that visceral/interoceptive processes may form an important link between social emotions and personal inspiration toward moral actions, because they (a) are involved in the feeling (or simulated feeling) of bodily changes during emotion; and (b) are critical for the neural construction of psychological self-awareness. Using the representation of bodily feeling as a platform, vicariously conjuring our subjective and private imaginings of another person’s mind may serve to heighten our own sense of self in relation to social responsibilities. In this perspective, morality and social emotion are the yin–yang of high-level consciousness, pushing and pulling on the substrate of our own neural and visceral, mental and bodily selves.

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