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HUFFPOST HEALTHY LIVING

The Neuroscience Of Human Connections

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By Gareth Cook

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When we experience social pain — a snub, a cruel word — the feeling is as real as physical pain. That finding is among those in a new book, *Social*, and it is part of scientist Matthew Lieberman's case that our need to connect is as fundamental as our need for food and water. He answered questions from Mind Matters editor [Gareth Cook](#).

You argue that our need to connect socially is “powerful.” But just how powerful is it?

Different cultures have different beliefs about how important social connection and interdependence are to our lives. In the West, we like to think of ourselves as relatively immune to sway of those around us while we each pursue our personal destiny. But I think this is a story we like to tell ourselves rather than what really happens.

Across many studies of mammals, from the smallest rodents all the way to us humans, the data suggests that we are profoundly shaped by our social environment and that we suffer greatly when our social bonds are threatened or severed. When this happens in childhood it can lead to long-term health and educational problems. We may not like the fact that we are wired such that our well-being depends on our connections with others, but the facts are the facts.

What is the connection between physical pain and social pain? Why is this insight important?

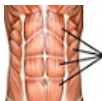
Languages around the world use pain language to express social pain (“she broke my heart”, “he hurt my feelings”), but this could have all just have been a metaphor. As it turns out it is more than a metaphor – social pain is real pain.

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With respect to understanding human nature, I think this finding is pretty significant. The things that cause us to feel pain are things that are evolutionary recognized as threats to our survival and the existence of social pain is a sign that evolution has treated social connection like a necessity, not a luxury. It also alters our motivational landscape. We tend to assume that people's behavior is narrowly self-interested, focused on getting more material benefits for themselves and avoiding physical threats and the exertion of effort. But because of how social pain and pleasure are wired into our operating system, these are motivational ends in and of themselves. We don't focus on being connected solely in order to extract money and other resources from people – being connected needs no ulterior motive.

This has major consequences for how we think about structuring our organizations and institutions. At businesses worldwide, pay for performance is just about the only incentive used to motivate employees. However, praise and an environment free from social threats are also powerful motivators. Because social pain and pleasure haven't been a part of our theory of “who we are” we tend not to use these social motivators as much as we could.

You devote a section of your book to what you call “mindreading.” What do you mean by this, and why do you see it as so essential?

First off, I'm not referring to the ESP kind of mindreading. I mean the everyday variety that each of us use in most social interactions. We have a profound proclivity towards trying to understand the thoughts and feelings bouncing around inside the skulls of people we interact with, characters on television, and even animated shapes moving around a computer screen. Although we are far from perfect at gleaning the actual mental states of others, the fact that we can do this at all gives us an unparalleled ability to cooperate and collaborate with others – using their goals to help drive our own behavior.

The funny thing is that thinking about others' thoughts doesn't feel particularly different from most kinds of analytical thinking we do. Yet, fMRI research shows that there are two distinct networks that support social and non-social thinking and that as one network increases its activity the other tends to quiet down – kind of like a neural seesaw. Here's the really fascinating thing. Whenever we finish doing some kind of non-social thinking, the network for social thinking comes back on like a reflex – almost instantly.

Why would the brain be set up to do this? We have recently found that this reflex prepares us to walk into the next moment of our lives focused on the minds behind the actions that we see from others. Evolution has placed a bet that the best thing for our brain to do in any spare moment is to get ready to see the world socially. I think that makes a major statement about the extent to which we are built to be social creatures.

One of the long-standing mysteries of psychology is the question of where the “self” comes from, and what the “self” even means. Does your research shed any light on this question?

Social psychologists have long speculated that the self is a much more social phenomenon than it intuitively feels like from the inside. There have certainly been studies over the years that are consistent with this idea, however neuroscience is bringing new data to bear that speaks directly to this idea.

There's a region of the brain called “medial prefrontal cortex” that essentially sits between your eyes. This region has been shown again and again to be activated the more a person is reflecting on themselves. It is the region that most clearly and unambiguously is associated with “self-processing.” If you think about your favorite flavor of ice-cream, precious personal memories, or consider aspects of your personality (e.g. Are you generous? Are you messy?) you are likely to recruit this brain region.


Given that we tend to think of the self as the thing that separates us from others – that allows us to know how we are different and how to walk our own path – it would be surprising if this same medial prefrontal region was involved in allowing the beliefs of others to influence our own. But this is exactly what we have seen in several studies. The more active the medial prefrontal region is when someone is trying to persuade you of something (e.g. to wear sunscreen everyday) the more likely you'll be to change your tune and start using sunscreen regularly. Rather than being a hermetically sealed vault that separates us from others, our research suggests that the self is more of a Trojan horse, letting in the beliefs of others, under the cover of darkness and without us realizing it. This socially-influenced self helps to ensure that we'll have the same kind of beliefs and values as those of the people around us and this is a great catalyst for social harmony.

What does this research tell us about how we should be raising our children, and what does it mean for education?

I think the most important thing is to educate our children about what we are learning about the true role of our social nature in our happiness and success in life. Intellectually, I know all about these things, but if we don't learn them as children, I'm not sure they ever really get into our guts and guide our intuitive decision-making. I think kids would love learning about how the social world works and how their brain makes that possible.

The research on the social brain also leads to direct policy implications for education. The data are clear that children learn better when they learn in order to teach someone else than when they learn in order to take a test. Learning to teach someone else is prosocial and relies on the social networks of the brain. We had no idea these networks could promote memory but now we do. We ought to be doing much more peer learning, particularly age-staggered learning. My ideal situation would be a 14 year who has trouble in the classroom being assigned to teach a 12 year old. The teacher then becomes a coach helping to teach the 12 year old and the 14 year old will reap the benefits of prosocial learning.

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