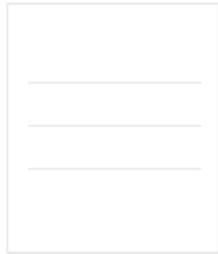


Standing in Someone Else's Shoes, Almost for Real

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From the outside, psychotherapy can look like an exercise in self-absorption. In fact, though, therapists often work to pull people out of themselves: to see their behavior from the perspective of a loved one, for example, or to observe their own thinking habits from a neutral distance.



Marriage counselors have couples role-play, each one taking the other spouse's part. Psychologists have rapists and other criminals describe their crime from the point of view of the victim. Like novelists or moviemakers, their purpose is to transport people, mentally, into the mind of another.



Gerard Dubois

Now, neuroscientists have shown that they can make this experience physical, creating a “body swapping” illusion that could have a profound effect on a range of therapeutic techniques. At the annual meeting of the Society for Neuroscience last month, Swedish researchers presented evidence that the brain, when tricked by optical and sensory illusions, can quickly adopt any other human form,

no matter how different, as its own.

“You can see the possibilities, putting a male in a female body, young in old, white in black and vice versa,” said Dr. Henrik Ehrsson of the Karolinska Institute in Stockholm, who with his colleague Valeria Petkova described the work to other scientists at the meeting. Their full study is to appear online this week in the journal PLoS One. .

The technique is simple. A subject stands or sits opposite the scientist, as if engaged in an interview.. Both are wearing headsets, with special goggles, the scientist's containing small film cameras. The goggles are rigged so the subject sees what the scientist sees: to the right and left are the scientist's arms, and below is the scientist's body.

To add a physical element, the researchers have each person squeeze the other's hand, as if in a handshake. Now the subject can see and “feel” the new body. In a matter of seconds, the illusion is complete. In a series of studies, using mannequins and stroking both bodies' bellies simultaneously, the Karolinska researchers have found that men and women say they not only feel they have taken on the new body, but also unconsciously cringe when it is poked or threatened.

In previous work, neuroscientists have induced various kinds of out-of-body experiences using similar techniques. The brain is so easily tricked, they say, precisely because it has spent a lifetime in its own body. It builds models of the world instantaneously, based on lived experience and using split-second assumptions — namely, that the eyes are attached to the skull.

Therapists say the body-swapping effect is so odd that it could be risky for anyone in real

mental distress. People suffering from the delusions of [schizophrenia](#) or the grandiose mania of [bipolar disorder](#) are not likely to benefit from more [disorientation](#), no matter the intent.

But those who seek help for relationship problems, in particular, often begin to moderate their behavior only after they have worked to see the encounters in their daily life from others' point of view.

"This is especially true for adolescents, who are so self-involved, and also for people who come in with anger problems and are more interested in changing everyone else in their life than themselves," said Kristene Doyle, director of clinical services at the Albert Ellis Institute in New York.

One important goal of therapy in such cases, Dr. Doyle said, is to get people to generate alternative explanations for others' behavior — before they themselves react.

The evidence that inhabiting another's perspective can change behavior comes in part from virtual-reality experiments. In these studies, researchers create avatars that mimic a person's every movement. After watching their "reflection" in a virtual mirror, people mentally inhabit this avatar at some level, regardless of its sex, race or appearance. In several studies, for instance, researchers have shown that white people who spend time interacting virtually as black avatars become less anxious about racial differences.

Jeremy Bailenson, director of the Virtual Human Interaction Lab at [Stanford University](#), and his colleague Nick Yee call this the Proteus effect, after the Greek god who can embody many different self-representations.

In one experiment, the Stanford team found that people inhabiting physically attractive avatars were far more socially intimate in virtual interactions than those who had less appealing ones. The effect was subconscious: the study participants were not aware that they were especially good-looking, or that in virtual conversations they moved three feet closer to virtual conversation partners and revealed more about themselves than others did. This confidence lingered even after the experiment was over, when the virtual lookers picked more attractive partners as matches for a date.

Similar studies have found that people agree to contribute more to retirement accounts when they are virtually "age-morphed" to look older; and that they will exercise more after inhabiting an avatar that works out and loses weight.

Adding a physical body-swapping element, as the Swedish team did, is likely to amplify such changes. "It has video quality, it looks and feels more realistic than what we can do in virtual environments, so is likely to be much more persuasive," Dr. Bailenson said in a telephone interview.

Perhaps too persuasive for some purposes. "It may be like the difference between a good book, where you can project yourself into a character by filling in with your imagination, and a movie, where the specific actor gets in the way of identifying strongly," he went on.

And above and beyond any therapeutic purposes, the sensation is downright strange. In the experiments, said Dr. Ehrsson, the Swedish researcher, "even the feeling from the squeezing hand is felt in the scientist's hand and not in your own; this is perhaps the strangest aspect of the experience."