Medical Xpress

Virtual reality to solve personal problems

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Researchers believe that this method could be a useful tool for clinicians. Credit: *Scientific Reports*

People are often much better at giving useful advice to a friend in trouble than they are in dealing with their own problems. Although people typically have a continuous internal dialogue, they find it difficult to take an external perspective regarding their own problems. However, with friends, especially someone we know well, it is much easier to understand the bigger picture and help them find a way through their problems.

A research team of the University of Barcelona (UB), IDIBAPS and Virtual BodyWorks has used immersive virtual reality to observe the effects of talking to themselves as if they were another person. Study results, published in *Scientific Reports*, show that conversation with oneself embodied as Dr. Sigmund Freud better improves mood compared to talking about problems in a virtual conversation with pre-scripted comments. Researchers claimed that the method could be used by clinicians to help people dealing with minor personal issues.

Mel Slater and Solène Neyret led the study. They are researchers at the Experimental Virtual Environments Lab for Neuroscience and Technology (Event Lab), a research group of the Faculty of Psychology of the UB. Clinical psychologist Guillem Feixas, of the UB Department of Clinical Psychology and Psychobiology and the Institute of Neurosciences of the University of Barcelona (UBNeuro) also guided the study.

Changing perception and attitude thanks to Virtual

Reality

Previous studies developed by this research team have shown that adopting a different body using virtual reality changes user behavior, attitude and self-perception. "We showed earlier that it is possible for people to talk to themselves as if they were another person, body swapping to two different avatars, and that participants' mood and happiness improved. However, we didn't know whether this was due to simply the participant talking about their problem or whether the virtual body swapping really made a difference," said Mel Slater, also a member of the UBNeuro.

In order to test the body swapping idea, researchers compared one group who talked to themselves first embodied as the participant and then body swapping to a virtual Sigmund Freud. Another control group spoke to the virtual Freud, but in that case, Freud responded with pre-scripted questions and comments (there was no body swapping).

Embodied as Sigmund Freud

The researchers scanned the subjects to obtain an avatar, which is a 3-D likeness of the person. In virtual reality, when they look at themselves, at their body parts, or in a mirror, they will see a representation of themselves. When they move their real body, their virtual body will move in the same way and at the same time. Seated across the table is another virtual human, in the case of this experiment, a representation of Dr. Sigmund Freud.

The participant can explain their personal problem to Dr. Freud, and then switch to being embodied as Freud. Now, embodied as Freud, they will perceive Freud's body rather than their own. "They will see and hear their own likeness explaining the problem, and they see their virtual self

as if they were another person. Now they themselves have become the friend who is listening and trying to help," said Mel Slater.

While embodied as Freud, and after perceiving a strong likeness of themselves describing a problem, they responded as Freud to help them to find a solution. After this, they were embodied once again in their own body and saw and heard Freud's answer. Although it was really themselves who had spoken through Freud, they heard their voice as disguised. Subjects could switch back and forth between the two bodies, having a conversation—in reality it was with themselves, but it appeared as if it were between two different people.

Better results in dealing with personal problems

One week after the completion of the experiment, more than 80 percent of participants in the body swapping group reported a change with respect to their problem, compared to less than 50 percent in the control group. "We found that those in the body swapping group got better knowledge, understanding, control, and new ideas about their problem compared to the control group (no body swapping)," said Slater.

Participants were guided by clinical psychologist Tania Johnston about how to formulate their problem, so researchers do not know whether this method could be used without this prior clinical advice, and the extent to which the clinician could be incorporated into the virtual reality as part of the procedure.

However, researchers believe that this method could be a useful tool for clinicians. "Now that virtual reality is available as a consumer product, with high quality at less than the cost of a good Smartphone, this method could be widely used by clinicians, for example, by giving 'homework' to their clients to carry out this type of method at home," said Mel Slater.

More information: Mel Slater et al. An experimental study of a virtual reality counselling paradigm using embodied self-dialogue, *Scientific Reports* (2019). DOI: 10.1038/s41598-019-46877-3