

<http://chronicle.com/weekly/v54/i30/30a01402.htm>

From the issue dated April 4, 2008

What Happens in a Virtual World Has a Real-World Impact, a Scholar Finds

By ANDREA L. FOSTER

Forget the pills, hypnosis, and meditation. Losing weight or boosting self-confidence can be achieved by adopting an avatar and living in virtual reality, says Jeremy N. Bailenson, an assistant professor of communications at Stanford University.

As the director of Stanford's Virtual Human Interaction Lab, Mr. Bailenson has explored ways that online behavior spills over to the real world. People assume that, if anything, online activities emanate from offline lives. But Mr. Bailenson and his colleagues have shown the reverse. Their experiments demonstrate, for instance, that people who watch their avatars — cartoonlike versions of themselves — gain weight from overeating are more likely to adopt a weight-loss plan in real life.

This research, which Mr. Bailenson described in February at a conference at Stanford, has impressed psychologists and holds promise for improving people's health and well-being. But he acknowledges that it can be used in a sinister way, too. Marketers could use virtual reality to try to manipulate what people buy or which political candidates they back.

"Our virtual identity is not separate from our physical identity," says Mr. Bailenson.

He got hooked on virtual reality from reading science-fiction books in high school, and still combs them for inspiration for experiments. William Gibson's 1984 book, *Neuromancer*, about the interplay between a hacker's cyberspace adventures and his real life, had a lasting influence on him.

In a laboratory at Stanford, Mr. Bailenson embarks on his own cyberspace explorations. He and his colleagues strap computerized helmets on peoples' heads that immerse them in three-dimensional worlds. The people watch or manipulate avatars that often mimic their own appearance. The researchers record what the avatars do, then note the behavior of the people after their immersive experiences.

In some experiments, people watch their avatars exercise or overeat. When they observe their avatars slimming down as a result of running on a treadmill, they are motivated to exercise more. And when they watch their avatars getting fat from eating junk food, they are scared into rejecting such food, says Mr. Bailenson.

In other experiments, ordinary-looking people are assigned beautiful avatars and spend time in virtual reality. Then they visit dating services and choose potential mates from some head shots. Their picks are more attractive than those of people who assumed less-attractive avatars, says Mr. Bailenson.

A Rising Scholar

He likens the enthusiasm surrounding his field of study — called transformed social interaction — to the excitement

about engineering during the Industrial Revolution. Just in the last two months, *Newsweek* and *The New York Times* wrote about his research, and his lab was on the cover of the January/February issue of Stanford's alumni magazine.

"He's clearly a star," said James J. Blascovich, a psychology professor at the University of California at Santa Barbara, adding that Mr. Bailenson has produced an unusually high number of scholarly papers for an assistant professor who is only 35. Mr. Blascovich helps oversee the work of a virtual-reality lab at Santa Barbara and was a mentor to Mr. Bailenson when he was a postdoctoral fellow there. The two still collaborate on research projects.

Mr. Bailenson initially was a cognitive psychologist and spent as much as 80 hours a week studying mathematical models of how people develop language and reasoning skills. He earned a doctorate in the field in 1999 from Northwestern University. But the work did not captivate him.

Opportunity struck when the National Science Foundation awarded a multimillion-dollar grant to the Santa Barbara campus to explore the intersection of virtual reality and psychology. Mr. Blascovich hired Mr. Bailenson to help with the research, and the young scholar discovered his calling.

As Mr. Bailenson enters his fifth year running Stanford's lab, he is turning his attention to experiments that shed light on group behavior. He wants to know, for example, how a virtual community functions when it is inhabited by tens of thousands of beautiful avatars. His research suggests that the more beautiful an avatar is, the more confident the digital character will act. Does that then mean that every avatar is confident in such a community? Or might some seem intimidated?

Swaying Voters

While pursuing answers to such questions, Mr. Bailenson has become aware that virtual reality can also be used for disturbing ends.

Take some experiments on politics that Mr. Bailenson ran a few years ago. In 2004, one week before the presidential election, Mr. Bailenson and his colleagues questioned a random sample of people about their views on President Bush and his Democratic opponent, Sen. John Kerry of Massachusetts, as those people viewed photographs of the candidates. One-third of the people saw a photograph of President Bush, whose face was inconspicuously altered to mirror their own. Another third viewed Senator Kerry's face, also morphed to resemble theirs. A control group saw unaltered photographs of the two men.

His research showed that voters who do not feel a strong connection to either political party are more likely to be drawn to the candidate whose face resembles their own.

He says political consultants expressed a cursory interest in having him adapt his study to help them create advertisements for their candidates. Mr. Bailenson told them he was not interested. "I would feel bad manipulating voters," he says.

That kind of manipulation can also be used by marketers and advertisers. And Mr. Bailenson foresees widespread use of virtual reality by commercial interests to push products or services.

He offered a hypothetical scenario of a woman who spends time in the virtual world Second Life. Her profile in the world says she likes people with long dreadlocks. A company spokesperson creates an avatar with long dreadlocks, approaches the woman's avatar, and pitches her a product.

He and a colleague have recently run experiments showing that people's preference for and memory of a product increase when they view digital likenesses of themselves endorsing the product.

Whether this causes people to go out and buy the product is an open question, says Mr. Bailenson. It could have just the opposite effect, he added, if people become familiar with virtual-reality research.

"If you're conscious of the manipulation," he says, "it tends to backfire."

He tries to avoid the possibility of someone manipulating his own image by controlling copies of it. Search online for a high-resolution photograph of Mr. Bailenson. There isn't one.

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Section: Information Technology

Volume 54, Issue 30, Page A14

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