

SOCIAL & POLITICAL ASPECTS OF VIRTUAL REALITY

Offenders become the victim in virtual reality: impact of changing perspective in domestic violence

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ABSTRACT:

The role of empathy and perspective-taking in preventing aggressive behaviors has been highlighted in several theoretical models. In this study, we used immersive virtual reality to induce a full body ownership illusion that allows offenders to be in the body of a victim of domestic abuse. A group of male domestic violence offenders and a control group without a history of violence experienced a virtual scene of abuse in first-person perspective. During the virtual encounter, the participants' real bodies were replaced with a life-sized virtual female body that moved synchronously with their own real movements. Participants' emotion recognition skills were assessed before and after the virtual experience. Our results revealed that offenders have a significantly lower ability to recognize fear in female faces compared to controls, with a bias towards classifying fearful faces as happy. After being embodied in a female victim, offenders improved their ability to recognize fearful female faces and reduced their bias towards recognizing fearful faces as happy. For the first time, we demonstrate that changing the perspective of an aggressive population through immersive virtual reality can modify socio-perceptual processes such as emotion recognition, thought to underlie this specific form of aggressive behaviors.

Are We Already Living in Virtual Reality?

A new technology—virtual embodiment—challenges our understanding of who and what we are.

The New Yorker, April 2, 2018

<https://www.newyorker.com/magazine/2018/04/02/are-we-already-living-in-virtual-reality>

(audio & text available at the above link)

“...From 2010 through 2015, the virtual-reality researchers Mel Slater and Mavi Sanchez-Vives worked with Metzinger and Blanke, in a fourteen-partner E.U.-funded project called Virtual Embodiment and Robotic Re-Embodiment. Their labs, in Barcelona, used immersive virtual reality to manipulate the body models of research subjects, convincing them that the bodies they possessed in V.R. were their own. (Slater and Sanchez-Vives are married; they met at a V.R. workshop, in 2001.) “We have the illusion that our body model is very stable, but that’s only because we’ve never encountered anything else,” Sanchez-Vives said. People who are extremely aware of their bodies—dancers, athletes, yogis—can find the adoption of a virtual body difficult, because they have trouble “letting go.” “But the more you do it the easier it becomes. After you’ve experienced it once, twice, you click into it.” In the past few years, Slater, Sanchez-Vives, and other virtual-embodiment researchers have discovered therapeutic and educational uses for the technology. Meanwhile, Metzinger, along with the philosopher Michael Madary, has drafted a virtual-reality “code of ethics” focused on embodiment, which he believes makes V.R. fundamentally different from all other media. Embodied virtual experience, the philosophers write, can change us profoundly. It can affect us in ways we barely understand, redefining “the very relationship we have to our own minds.”

... As soon as virtual reality became workable, in the early nineteen-eighties, researchers imagined creating vivid, detailed, hallucinogenic worlds. In the memoir “[Dawn of the New Everything](#),” the V.R. pioneer Jaron Lanier recalls evangelizing the technology by describing a virtual two-hundred-foot-tall amethyst octopus with an opening in its head; inside would be a furry cave with a bed that hugs you while you sleep. (“Virtual reality tugs at the soul because it answers the cries of childhood,” Lanier writes.) Later, the “[Matrix](#)” movies imagined a virtual world so accurate as to be indistinguishable from real life. Today’s most advanced V.R. video games conjure visually rich space stations (Lone Echo), deserts (Arizona Sunshine), and rock faces (The Climb). The goal is to convince you that you are somewhere else...

Virtual embodiment has a different goal: convincing you that you are someone else. This doesn't require fancy graphics. Instead, it calls for tracking hardware—which allows your virtual body to accurately mirror the movements of your real head, feet, and hands—and a few minutes of guided, Tai Chi-like movement before a virtual mirror...

Since 2011, the regional government of Catalonia has collaborated with the lab to use this simulation in rehabilitation programs for abusive men. In a controlled study performed in Sanchez-Vives's lab by the psychologist Sofia Seinfeld, and recently published in *Nature's Scientific Reports*, the men who experienced the simulation got significantly better at recognizing fear in the faces of women. (Domestic abusers tend to be deficient in this regard.) In the past three years, hundreds more abusive men have experienced the simulation outside the lab, as part of a larger rehabilitation program. Preliminary data, which Sanchez-Vives and Slater are hesitant to publish because of the small sample size, suggest that the men's recidivism rates are lower. ("I felt identified with my ex-wife," one man recalled. "I thought he was going to hit me, so I covered my face with one of my hands," another said.) Men who have merely watched a video, or experienced a V.R. simulation without undergoing the embodiment process, report fewer such epiphanies...

With a team of various collaborators, Slater and Sanchez-Vives have created many other-body simulations; they show how inhabiting a new virtual body can produce meaningful psychological shifts. In one study, participants are re-embodied as a little girl. Surrounded by a stuffed bear, a rocking horse, and other toys, they watch as their mother sternly demands a cleaner room. Afterward, on psychological tests, they associate themselves with more childlike characteristics. (When I tried it, under the supervision of the V.R. researcher Domna Banakou, I was astonished by my small size, and by the intimidating, Olympian height from which the mother addressed me.) In another, white participants spend around ten minutes in the body of a virtual black person, learning Tai Chi. Afterward, their scores on a test designed to reveal unconscious racial bias shift significantly. "These effects happen fast, and seem to last," Slater said. A week later, the white participants still had less racist attitudes. (The racial-bias results have been replicated several times in Barcelona, and also by a second team, in London.) Embodied simulations seem to slip beneath the cognitive threshold, affecting the associative, unconscious parts of the mind. "It's directly experiential," Slater said. "It's not 'I know.' It's 'I am.'"

Excerpt from *Dawn of the New Everything*, by Jaron Lanier

"...But that's not even the best reason to think that our simulations will not surpass our bodies. When confronted with high-quality VR, we become more discriminating. VR trains us to perceive better, until that latest fancy VR setup doesn't seem so high-quality anymore. The whole point of advancing VR is to make VR always obsolete.

Through VR, we learn to sense what makes physical reality real. We learn to perform new probing experiments with our bodies and our thoughts, moment to moment, mostly unconsciously. Encountering top-quality VR refines our ability to discern and enjoy physicality. This is a theme I will return to many times.

Our brains are not stuck in place; they're remarkably plastic and adaptive. We are not fixed targets, but creative processes. If time machines are ever invented, then it would become possible to snatch someone from the present and put that person in a future, highly sophisticated VR setup. And that person would be fooled. Similarly, if we could grab people from the past and put them in our present-day VR systems, they would be fooled.

To paraphrase Abraham Lincoln: You can fool some of the people with the VR of their own time, and all of the people with VR from future times, but you can't fool all of the people with the VR of their own time...

The reason is that human cognition is in motion and will generally outrace progress in VR.

Because of future progress in VR technology, we humans will become ever better natural detectives, learning new tricks to distinguish illusion from reality.

Both today's natural retinas and tomorrow's artificial ones will harbor flaws and illusions, for that will always be true for all transducers. The brain will constantly twiddle and test, and learn to see around those illusions. The unceasing flow of tiny learning forces—pressed finger against pliant material, sensor cell in the skin exciting a neuron that signals the brain as the pressure reflects—this flow is the blood of perception.

Virtual reality researchers prefer verbs to nouns when it comes to describing how people interact with reality. The boundary between a person and the rest of the universe is more like a game of strategy than like a movie.

The body and the brain are constantly probing and testing reality. Reality is what pushes back. From the brain's point of view, reality is the expectation of what the next moment will be like, but that expectation must constantly be adjusted.

A sense of cognitive momentum, of moment-to-moment anticipation, becomes palpable in VR.²

So how can we simulate an alternate reality for a person? VR is not about simulating reality, really, but about stimulating neural expectations.

Actionable definitions of VR are always about the process of approaching an ideal rather than achieving it. Approach, rather than arrival, is what makes science realistic, after all. (If that way of understanding science isn't clear to you, please read this footnote.)

There's a grandeur in the gradual way science progresses. It takes a while to get used to it, but once you see it, the incremental ascent of science becomes a thing of beauty and a foundation for trust.

I appreciate the infinite elusiveness of a perfected, completed form of VR in the light of this sensibility. Reality can never be fully known, and neither can virtual reality.

Lanier, Jaron. *Dawn of the New Everything: Encounters with Reality and Virtual Reality*. 2017. Henry Holt.

Excerpt from *Radical Technologies*, by Adam Greenfield

"... And so it seems to be with so many of the technologies that are offered to us on the premise that they will spontaneously produce the conditions of equity, justice or freedom. The tetrapods on the Niigata strand suggest to us that there are all kinds of circumstances that capture and overtake technical interventions, any number of factors that stand to subvert designerly intention. This is what the great British cyberneticist Stafford Beer meant when he argued that "the purpose of a system is what it does." On this theory, it doesn't matter whether some technology was intended by its designer to enslave or to liberate, to preserve or to destroy. All that matters is what it is observed to do, and we ought to evaluate it on that basis alone. If the project of coastal engineering based on concrete tetrapods demonstrably channels subsidy to a few favored firms and constituencies, does so without preventing beach erosion, and is allowed to persist in doing so over long stretches of time, then we are bound to conclude that this is its sole actual purpose.

This is the razor we need to apply to augmented reality, or 3D printing, or distributed autonomous organizations: what is salient is not anything their visionary designers may have had in mind when imagining them, but what states of being they are actually seen to enact. And if given technologies cannot be evaluated at the level of their designers' intention, we need to be still more wary of the promises made to us by developers, promoters and others with a material interest in seeing them spread. The most misleading aspect of this body of rhetoric perennially resides in the gulf between technoutopian claims about what some emergent innovation "might" or "could" give rise to, on the one hand, and anything it has actually been seen to do on the other. Very often the claimed benefits never do come to pass, while the easily foreseeable (and, in fact, explicitly foreseen) negative If you want to end the depredations of scarcity, then, better by far that you work for the just distribution of the goods we already have than wait for some cornucopian machine to solve the problem for you. If you want to contest the power of the state, take concrete steps to claim decision-making power locally, rather than hoping that someone will release the code of an autonomous framework that instantly renders states obsolete. If you're interested in eliminating class and racial bias in the criminal justice system, work with one of the many civil society organizations established and chartered to do just that before handing the powers that be yet another tool and rationalization for their use of force. In every case the hard, unglamorous, thankless work of building institutions and organizing communities will demand enormous investments of time and effort, and is by no means guaranteed to end in success. But it is far less likely to be subverted by unforeseen dynamics at the point where an emergent and poorly understood technology meets the implacable friction of the everyday.

consequences invariably do crop up, and are left for others to deal with. This is why I repress a shudder whenever someone speaks of the emancipatory or liberatory “potential” of some technology under discussion. To have hope and to nurture it in others doesn’t need to mean that we let go of rigor.

Equipped in this way, we see the claims so often made for new technologies in a different, harsher light. Adrian Bowyer explicitly devised his self-replicating digital fabricator to undermine the logic of material scarcity on which capitalist enterprise depends, and this argument has been picked up and extended in recent years by authors like Rifkin, Mason, Srnicek and Williams, in their reflections on the shape of an emergent post-capitalist order. From the shadowy Satoshi Nakamoto to Nick Szabo to Vitalik Buterin, the inventors of the blockchain overtly intended to erode statism and central administration. Virtually everywhere, decision algorithms are touted to us on the promise that they will permanently displace human subjectivity and bias. And yet in every instance we find that these ambitions are flouted, as the technologies that were supposed to enact them are captured and recuperated by existing concentrations of power. They will not spontaneously bring scarcity to an end, or capitalism, or oppression. Laminated into standing ways of doing, making and selling, the only thing they seem to be capable of spontaneously reproducing is more of the same.

In fact, the lesson of the tetrapods is that where technology is concerned, nothing happens automatically, nothing happens for free, and if you’re not very, very careful, you might just wind up achieving an outcome at the widest variance with any you intended. If you’re committed to a technology—as the Japanese government and concrete industry are to the tetrapod—then you are more or less compelled to find things for that technology to do, whether it works defensibly well in those roles or not. If, on the other hand, you’re committed to achieving a particular social outcome, a particular distribution of power in the world, you’ll only occasionally find that one or another technology serves your end. You’re compelled to undertake the much harder work of organizing for that outcome directly.

Greenfield, Adam. *Radical Technologies*. 2018. Verso.