≡   I The Information

OPINION   AR/VR

VR Is Failing the Very People It Could Benefit Most

Virtual experiences can help users transcend their physical limitations—but only if those users can access them.

By Brittan Heller
Heller is an attorney who specializes in law, technology and human rights.

May 19, 2022 9:00 AM PDT

Art by Mike Sullivan

Consider this: In **The Climb,** a popular virtual reality game, any user can virtually scale skyscrapers and majestic cliffs simply by turning their head and gripping a trigger.

skyscrapers and majestic cliffs simply by **turning their head and gripping a trigger**—

any user, that is, except one with a muscular, skeletal or neurological disorder that makes even those movements impossible.

Or consider this: In January 2020, MIT Media Lab researcher **Arwa Michelle Mboya** traveled to Kenya to research her thesis on VR adoption, bringing four Oculus Go headsets with her. Nearly half the times she tried to put one on a subject, however, the strap broke because "the texture, size and styling of Black hair was not suitable for the device, and the strap attachment piece kept pulling out at the joints from extensive stretching."

Just last month, Judge Frank P. Geraci Jr. of the Western District of New York held that the **Americans With Disabilities Act should apply to digital spaces** as well as physical ones—a step in the right direction, but one of many that will be necessary to create a thriving metaverse accessible to all. This is not just an inclusivity problem. It's also a business problem—or rather, the two are one and the same.

THE TAKEAWAY

With billions of dollars in metaverse investment on the line, tech companies would be wise to make VR hardware and software inclusive for everyone.

For example, augmented and virtual reality, together known by the industry as XR, have had far less success among women than among men, and **one reason** is that many early headsets literally made women sick. Initially some **theorized** that women weren't as used to first-person–gaming perspectives, or that women experienced motion sickness more readily than men did. But the real answer was much simpler than that.

A critical measurement for properly fitting glasses is their interpupillary distance, or the distance between the center of your pupils in each eye; when IPD is off, it can lead to uncomfortable symptoms such as blurred vision, nausea and disorientation. **VR headsets** like Oculus Rift S and the HP Reverb G1 had a wide, fixed IPD, suitable for the average man

like Oculus Rift S and the HP Reverb G1 had a wide, fixed IPD, suitable for the average man but far less so for the average woman. Until the rollout of adjustable IPD headsets, it was like half the population was seeing VR through glasses with the wrong prescription—and even now, many headsets still aren't fully adjustable.

It is well known that **data have blind spots** tending to skew decision-making toward outcomes that benefit men, often in ways largely invisible to most observers. But those blind spots also show up in the bottom line. According to a **2018 survey** of U.K. and U.S. consumers, 30% of men had used a VR headset at least once in the previous month compared to just 16% of women. From another survey done in 2019, among people who said they **intended to purchase** VR devices, 69% were men and 31% were women.

XR design choices aren't just excluding women, Black people and those with certain disabilities—although that alone certainly constitutes a problem. The tight straps of XR headsets are also difficult to fit around headgear such as hijabs, yarmulkes and turbans, especially as users attempt to move while wearing the headsets.

Taran Singh, an XR developer in the U.K. and a practicing Sikh, told me about a Muslim colleague whose hijab kept coming off every time she removed her headset. Another Sikh colleague of Singh's paid for a VR experience at the British Museum, he said, but was ultimately unable to participate because the device's closed-loop strap wouldn't fit over his turban. Any add-ons designed for frequent users and professional developers are typically a no-go. "Sometimes I can bend the back headrest upwards to get my eyes in, but then I can't hear the audio properly because the audio is embedded into the strap and supposed to be close to the ear," Singh said of the Elite Strap for the Oculus Quest 2, the most popular VR headset on the market.

In July 2021, **Oculus** released its version 30 update, which introduced both a new filter to correct for color blindness and an alternative vantage point designed to help seated users feel like they're standing. Both represent steps forward, albeit limited ones, but leaving them until version 30 suggests these communities certainly don't rank among the company's top priorities.

Of all the oversights in the current generation of XR, merely **recommending developers offer an accessibility mode** for users in wheelchairs—people who could particularly benefit from the virtual freedom of movement XR offers—rather than mandating one is perhaps the most egregious. New research shows that **disabled populations are often early adopters of XR,** which indicates that companies are missing out big by treating the inclusivity of their hardware as an afterthought.

Offering customizable hardware and software defaults should be feasible, as Microsoft demonstrated with its **adaptive Xbox controllers** for console gaming. Not only that, making XR more accessible can help erase some of the biases that have created these limitations in the first place. Occupying a virtual body with different demographic characteristics from the user's own physical body has shown to reduce implicit bias against those characteristics **well past the end of the game,** for instance. Failing to correct for discriminatory biases in hardware design only reinforces them.

Workarounds do exist. Scientific American reported, for instance, that The Climb was actually one of the few VR experiences a gamer with **muscular dystrophy** could participate in because it was compatible with an Xbox controller that didn't require the user to raise their arms. But hacks and modifications applied after games and devices already go to market are hardly ideal.

Some of the world's largest companies are staking their future on XR becoming central to modern life—to commerce, education, recreation, the arts and of course work. That could go in one of at least two directions: toward a more inclusive future that allows people to transcend their physical differences and limitations, or toward a shiny simulacrum of our unequal present. Winding up in the latter place would be more than a pity. As Microsoft so memorably put it: **When everybody plays, we all win.**

Brittan Heller is an attorney who specializes in law, technology and human rights. She advises

Brittan Heller is an attorney who specializes in law, technology and human rights. She advises companies on key strategic and ethical issues related to the metaverse, VR/AR and social media. Previously, Heller was the founder of the Center for Technology and Society and worked for the International Criminal Court and the U.S. Department of Justice, prosecuting human rights violations. Heller's partner is an employee of Meta Platforms.

Subscriber Comments

Cody Woputz
Co-Founder - Receipts

Great work exposing VR's core paradox: supposed limitless experience, but limited to bodies that most resemble its engineers. My wife has a neurological disability that mostly confines her to a wheelchair, and she has little interest in "seated" VR experiences that are more difficult than alternative console games. For a while, I advocated for better accessibility features on subreddits, only to face toxic pushback from VR enthusiasts that users with disabilities "should just go play something else." It's exciting to see that the ADA will extend to digital spaces too, and that the responsibility might shift away from developers and towards the (Meta?) platforms themselves.

Like · Reply · Report · 33 minutes ago

Brittan Heller

Not you? Log Out

Want to edit your profile? Edit Profile

POST NEW COMMENT

ORG CHARTS   ABOUT   VIDEO   EVENTS