

TECHNOLOGY - ENHANCED DIVERSITY & INCLUSION INITIATIVES: INDUSTRY INSIGHTS

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TASK

Research the intersections of technology and educational initiatives in diversity, inclusion and equity in industry and related innovative educational technology community.

ROADMAP

This is a complementary document to the <u>Field Investigation:</u> <u>Technology-enhanced Diversity & Inclusion Initiatives I : AAU & Peer</u> <u>Universities</u>

It takes for granted the themes and approaches explored in that investigation, namely that:

- 1. pedagogical and student-centered solutions/answers to addressing systemic inequity and creating and upholding cultures of inclusivity in higher education are often and importantly non-technical, and that
- 2. some of the technology-enhanced solutions employed in service of JEDI (justice, equity, diversity, and inclusion) (e.g., learning analytics, OERs, increased accessibility) in universities are vital but far from novel in either concept or implementation.

This supplemental investigation relies on and adds information to the first report by exploring technology-enhanced approaches to JEDI primarily in relevant areas outside of higher education with the goal of providing complementary insight and inspiration.

In the investigation process, the following nascent areas were identified:

- Augmented, virtual, and extended reality (AR/VR/XR)
- JEDI focused data analytics

Detailed findings along with examples, limitations, and possible relevance of each are explored below.

FINDINGS

Digital technologies play an important role in reducing opportunity gaps in all areas of industry to encourage innovative solutions addressing inequities. In searching for emerging novel approaches, AR/VR/XR used in empathy building stands out as the most cutting edge and promising effort, while also experiencing the most challenges.

Augmented, Virtual & Extended Reality (AR/VR/XR) devices and immersive applications can be uniquely positioned to enhance equity and inclusion efforts for a number reasons:

- 1. Adaptability: Because they use a diverse set of sensors and inputs and digital outputs, AR/VR/XR approaches can minimize physical barriers and can be customizable to individual users or specific use cases
- 2. Immersiveness: In seeking new opportunities for digital communication and learning, AR/VR/XR offer potentially more engaging and realistic interpersonal and sensory experiences than 2D counterparts.



OPPORTUNITIES: EMPATHY BUILDING AND PERSPECTIVE-TAKING

The practice of prompting individuals to imagine others' lives as a way to elicit empathy is not a novel concept, but immersive technology such as VR can, at its best, increase public awareness and aid in prompting social change to mitigate the harmful impacts of racism, ableism, sexism, and other forms of bias through a more direct experience than 2D media.



Because we tend to feel a sense of embodiment with our avatars in simulated settings, whether or not they reflect our physical appearance, VR/AR/XR experiences can be particularly powerful in eliciting an emotional response to the challenges faced by our "virtual selves" even if we do not share the lived experience. In some VR experiences, our field of vision, audio output, and surroundings can be manipulated to



demonstrate what it's like to navigate life with a disability. In others, we can assume the identity of a person of a different race, gender, or other characteristic or be placed in a 360-degree video recording to give a "ground truth" view of distant or otherwise hard-to-imagine places, like a refugee camp or the site of a natural disaster.

OPPORTUNITIES: EMPATHY BUILDING AND PERSPECTIVE-TAKING

VR/AR/XR can also be used in job trainings to prompt more empathetic responses in sensitive or high-risk situations, such as reducing use of force in high-stress encounters for law enforcement. As one example, a series of VR experiences developed by <u>Axon</u> places police officers in the body of a person having a mental health crisis before running a simulated intervention.



Experiences such as these strive to place individuals real-time situations, allowing them to not only empathize with the experiences of others, but also to assess their own biases and assumptions and prepare them to respond effectively to realworld instances of discrimination, bias, and harassment. In a program called "pivotal experiences" offered by Praxis Labs, participants take on the perspective of both an individual facing bias or discrimination and a bystander, allowing them to both



empathize with the targeted individual and practice responding to instances of bias in the workplace.

OPPORTUNITIES: EMPATHY BUILDING AND PERSPECTIVE-TAKING

Another company, <u>Vantage Point</u>, offers perspective-based immersive trainings for both DEI and sexual harassment. Still others offer immersive experiences focusing on specific manifestations of bias in the workplace, such as microaggressions, or develop custom trainings tailored to the unique contexts of specific organizations.



In the field of healthcare, Embodied Labs creates VR programs to train healthcare providers and caregivers, allowing them to step into the lives of patients with Parkinson's disease, Lewy body dementia, Alzheimer's, macular degeneration or high-frequency hearing loss. In these trainings, sometimes they see the world through the eyes of the patients themselves — a character with macular degeneration may see a fuzzy black dot in



the middle of their field of vision, for example. Other times, trainees play the role of healthcare provider, delivering hard-to-hear updates to family members.

POSSIBILITIES: ADAPTIVE AND PERSONALIZED CAPABILITIES

In many ways, immersive technologies are uniquely positioned to help us overcome the limitations of physical space to create more accessible, equitable experiences. As technology continues to advance, it can also help mitigate geographic barriers to inclusion by integrating inperson and virtual interactions.



While the sense of presence that AR/VR/XR technologies create can benefit all of us, it can also make both social and professional spaces more accessible specifically to those who would otherwise be limited by geographic distance, lack of accessible transportation, or a lack of accommodations for individual needs.

Because they rely on a variety of sensory inputs, AR/VR experiences present potential workarounds for audiovisual barriers that users with vision or auditory impairments might encounter without minimizing the experience itself. For example, color contrast and magnification can improve VR displays for users with certain types of vision loss; immersive 3D audio can mimic 360-degree sound in physical space and provide a sense of spatial awareness for users with visual impairments; and haptic feedback can allow users to navigate 3D space and receive signals through touch. At the time of this writing, immersive solutions at best provide an alternative, but not a replicable, solution to physical spaces or services with their own sets of barriers to access.

As a relatively nascent technology, quality, affordability, and ease of use continue to be challenges for AR/VR and similar tools.

Limitations to immersive approaches to sensitivity and empathy training also include the challenges of

- a) measuring the efficacy of the trainings, and
- b) the possibility that intended interventions entrench rather than liberate us from stereotypes.

Links between people's behavior in the simulation and in the "field" are hard to establish and rely largely on self-reported data which makes the implications hard to assess. Further, a number of studies <u>on VR embodiment</u> have found that stereotype activation and bias entrenchment could outweigh the empathetic gains from an immersive perspective-taking exercise. Relatedly, as with all technologies, the design of AR/VR tends to reflect the people who create it, and products are still largely built by a narrow slice of society. Empathizing with needs and challenges is a common first step in design thinking and humancentered product development that – in order to avoid pitfalls of internal biases – still needs to design with rather than for people and rely on lived experience and diverse perspectives for product decisions.

And, of course, even the most transtformative programs are not a substitute for systemic changes in hiring, professional development and workplace culture.





Focused data analytics is an additional area of inquiry and support for ongoing diversity initiatives and culture changes. While new technology solutions emerge frequently, two examples that stood out in our most recent search were from <u>Workday</u> and <u>Visier</u>.

Workday's VIBE (value, inclusion, belonging and equity) product has three components for viewing the intersectionality of multiple dimensions of employees. It also has over 60 identity fields with gender codes, ethnicity, veteran status and LGBT as examples. Using these highly specific identities, employers can break down at a micro-level to examine trends and patterns, create an overall score using breadth and depth combined with intersectionality and show trends in equity and parity across the workforce in hiring, promotion, leadership, belonging and attrition. Visier offers similar opportunities to analyze experiential data at the cohort level.

IMPLICATIONS FOR HIGHER EDUCATION



Use cases discussed in this report offer examples of the potential to transform the way people work, learn, and communicate.

When used appropriately, technology applications can help address systemic inequity and create new pathways to equity and inclusion, including in higher education: successful empathy interventions and trainings can enrich classrooms, campuses, and workplaces; assistive technologies and inclusive design can allow users to personalize how they engage with both physical surroundings; immersive simulations can help teachers identify and correct implicit biases in the classroom.

Akin to the industry examples listed above, for example, the <u>VR</u> <u>application "Teacher's Lens"</u> simulates interactions with a diverse set of students to identify whether they demonstrate unconscious preferences for students of a certain gender or race.

In <u>"Passage Home VR,</u>" an immersive experience developed at MIT's <u>Center for Advanced Virtuality</u>, users assume the identity of a Black student accused of plagiarism, while computational

IMPLICATIONS FOR HIGHER EDUCATION

models based on racial socialization determine how their actions will influence the outcome of the game. Such models could be used to enrich immersive experiences and provide valuable feedback to teachers on their own racial and ethnic socialization.

That said, the use of these technologies faces similar challenges higher education as in industry: lack of resources for the implementation and support of required hardware, software and training; offline biases that manifest in virtual spaces; and accessibility concerns.



CONSULTED RESOURCES



- Domna Banakou et al., <u>Virtual Embodiment of White People in a Black</u> <u>Virtual Body Leads to a Sustained Reduction in Their Implicit Racial Bias</u> (article)
- Philippe Bertrand et al., <u>Learning Empathy Through Virtual Reality:</u> <u>Multiple Strategies for Training Empathy-Related Abilities Using Body</u> <u>Ownership Illusions in Embodied Virtual Reality</u> (article)
- Lauren Collins, Why You Should Treat Your DEI Data With Rigor and Care
- Victoria Groom, <u>The influence of racial embodiment on racial bias in</u> <u>immersive virtual environments</u> (article)
- <u>Center for Advanced Virtuality, MIT</u> (website)
- <u>Chris Milk: TedTalk:</u> How Virtual Reality Can Create the Ultimate Empathy Machine (video)
- <u>DebiasVR</u> inclusion behavior training apps (website)
- <u>Embodied Labs</u> Immersive training experiences (website)
- Information Technology and Innovation Foundation (website)
- Brad McKenna, <u>Creating convivial affordances: A study of virtual world</u> <u>social movements</u> (article)
- <u>OpenMind platform</u> difficult conversation simulator and other training resources (website)
- <u>Praxis Labs</u> immersive training experiences (website)
- Stanford University Virtual Human Interaction Lab, <u>"How Experiencing</u> <u>Discrimination in VR Can Make You Less Biased"</u> (video)
- <u>Strivr</u> immersive training experiences (website)
- <u>Kaitlin Ugolik Phillips</u>, <u>Virtual Reality Has an Accessibility Problem</u> (article)
- <u>Vantage Point</u> immersive training experiences (website)
- <u>Visier</u> (website)
- <u>Workday</u> (website)