

Virtual Reality: Moving Away From Chocolate-Covered Broccoli

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VR in the Press



Lesson 5: Decode the Secret Language of Dolphins and Whales



Related Opinion Essay

The NYT VR Video: "The Click Effect" (View on [Within](#), 7 min.)



First Things First: What's This "Pseudo" Reality?

Virtual reality: Environments that perceptually surround the users, increasing their sense that they're actually within the environment.

- Unobtrusively "track" aspects of a user's movements.
- Users have a role in the experience, and their actions have an immediate and observable effect on how the environment responds to the user.

What Makes VR Unique?

Immersion: Related to the technology's capabilities to render a compellingly real experience.

What Makes VR Unique: Presence

Presence: A psychological experience. Three “flavors” of presence.

- **Telepresence:** No longer feel like your experience is being mediated by the technology.

What Makes VR Unique: Presence

<https://www.youtube.com/watch?v=VVAO0DkoD-8&t=4s>

What Makes VR Unique: Presence

- **Self-presence:** Feeling like you are connected to the virtual representation of your own self (identity, feelings, thoughts).

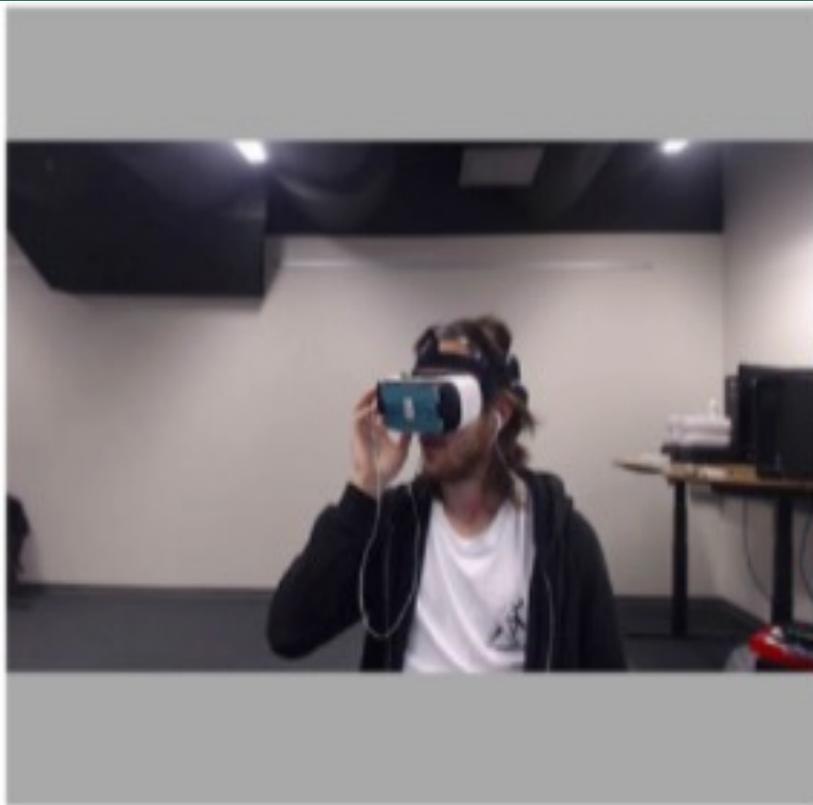
1000 Cut Journey

<https://www.youtube.com/watch?v=N5Ya9F28ks4>

What Makes VR Unique: Presence

- **Social presence:** The degree to which you feel like the virtual characters you're with in virtuality are real people.

What Does Presence Buy You?



Makransky et al., 2019

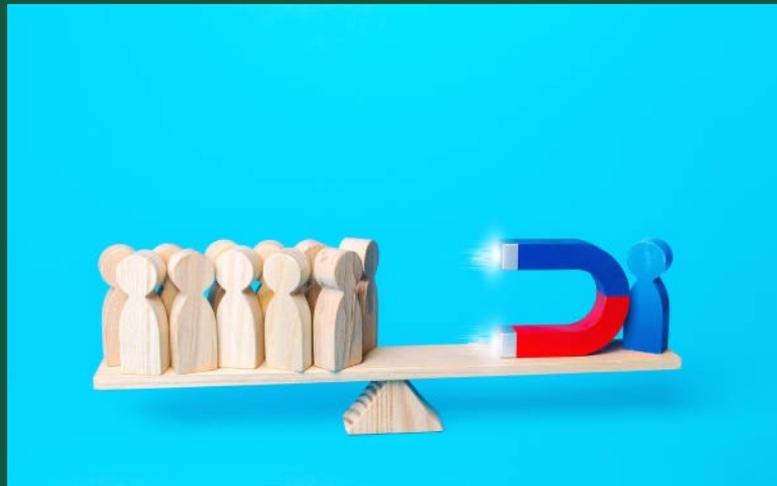
What Does Presence Buy You?

| Outcome | Condition | |
|----------|-----------|---------|
| | IVR | Desktop |
| Presence | 3.50 | 2.77 |

What Does Presence Buy You?

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| | IVR | Desktop |
| Presence | 3.50 | 2.77 |
| Knowledge gain | 1.81 | 2.92 |

Designing for Fun



Designing for Fun: The Chocolate-Covered Broccoli



Designing for Fun: The Chocolate-Covered Broccoli

Even when a VR environment is fun and interesting, it's hard to engage students in the *educative* part of the task.



Presence With a Purpose



Presence With a Purpose



VR to Understand Archaeology

How do you preserve the UNESCO World Heritage site of Çatalhöyük in Turkey, and bring students to inquire historically and scientifically about this civilization?



VR to Understand Archaeology

<https://youtu.be/71s0UpaFY68>

VR to Learn Advocacy Skills

Despite 40 years of programs to promote diversity, geosciences is the least racially diverse among all STEM fields (Bernard & Cooperdock, 2018).

The Problem We Faced: Typical Diversity Schemes



Mandatory diversity training

The Problem We Faced: Typical Diversity Strategies



Mandatory diversity training



Hiring tests

The Problem We Faced: Typical Diversity Strategies



Mandatory diversity training



Grievance systems



Hiring tests

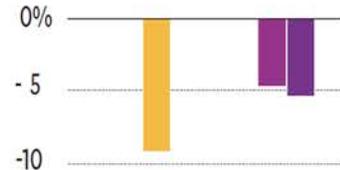
The Problem We Faced: Typical Diversity Strategies

How well do these typical diversity strategies work?

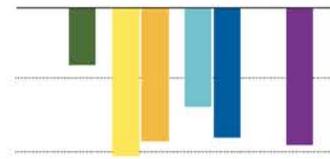
POOR RETURNS ON THE USUAL PROGRAMS

The three most popular interventions made firms less diverse, not more, because managers resisted strong-arming.

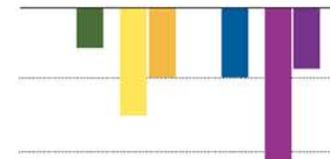
% CHANGE OVER FIVE YEARS



MANDATORY DIVERSITY TRAINING for managers led to significant decreases for Asian-Americans and black women.



TESTING job applicants hurt women and minorities—but not because they perform poorly. Hiring managers don't always test everyone (white men often get a pass) and don't interpret results consistently.



GRIEVANCE SYSTEMS likewise reduced diversity pretty much across the board. Though they're meant to reform biased managers, they often lead to retaliation.

- White Men
- White Women
- Black Men
- Black Women
- Hispanic Men
- Hispanic Women
- Asian Men
- Asian Women

Our Solution to the Standard Methods

No reception without **reaction**, no impression without correlative **expression**. ... An impression which flows in at the pupils' eyes or ears, and in no way modifies their **active life**, is an impression gone to waste. ... The most durable impressions are those on account of which we **speak or act**.

~ William James
“Father of American Psychology”

Using Novel Form of VR to Address Problem

Play sample video of GeoDES VR simulation

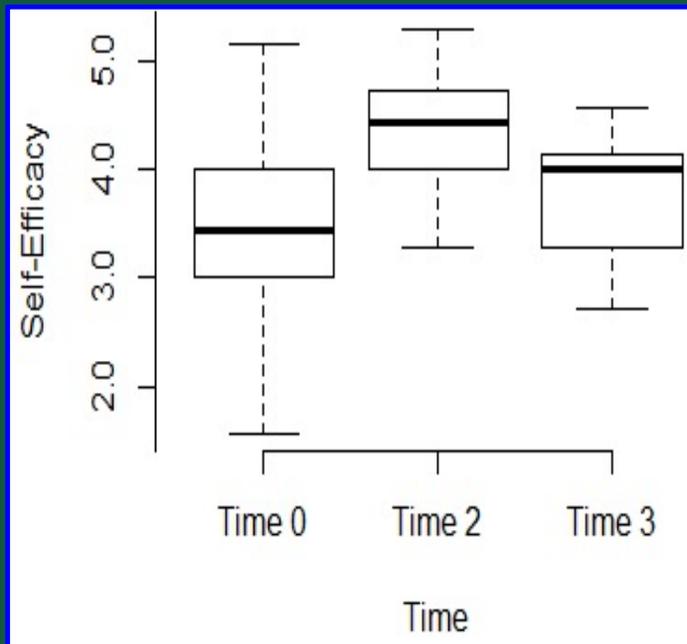
Roasting The Broccoli



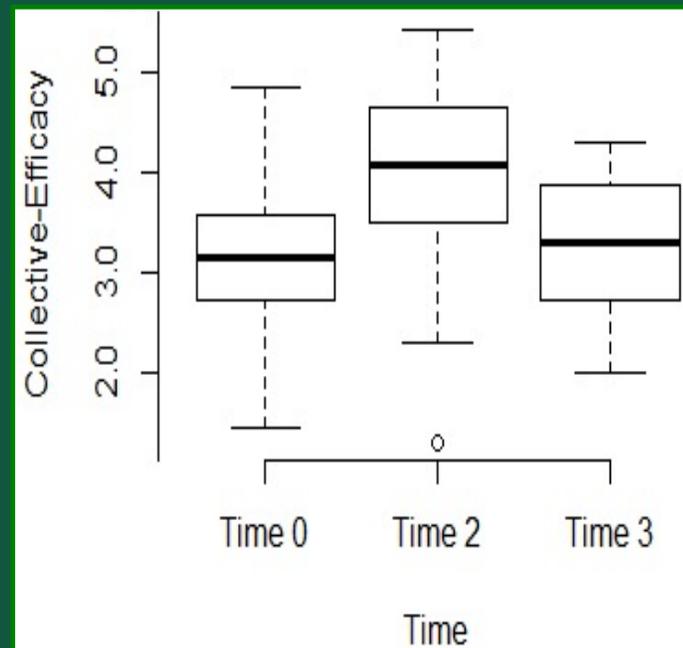
- Accentuate the disciplinary inquiry (how does an archaeologist think? How does a champion for diversity think?).
- Making the disciplinary inquiry process compelling translates into a robust motivation toward eating the broccoli rather than simply licking the chocolate and then tossing the broccoli!

What Did We Find?

Changes in Self-Efficacy

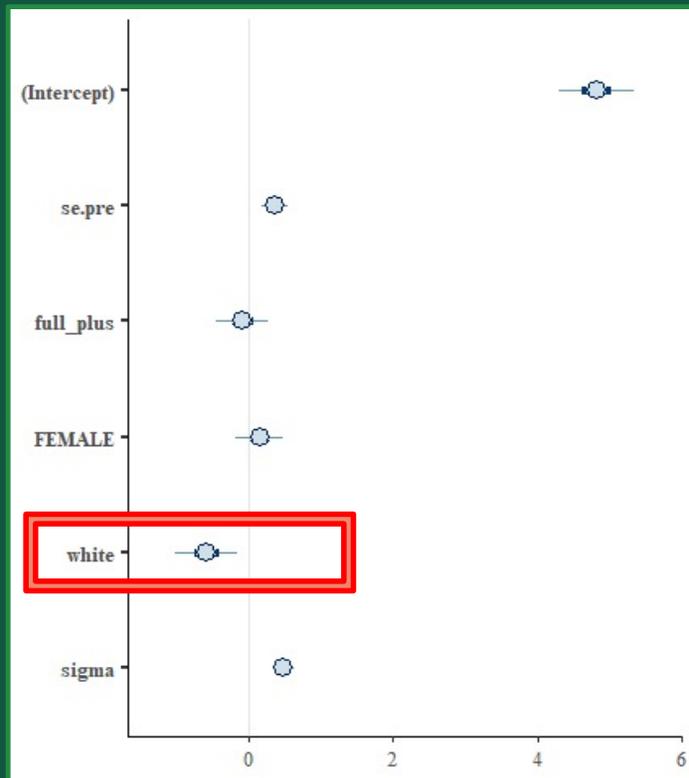


Changes in Collective Efficacy



What Did We Find?

Self-Efficacy



Collective Efficacy

