

VR (3D Social Networks) and Wellbeing

<http://vhil.stanford.edu>

@StanfordVR

Roadmap

- VR Today
- Downsides
- Upsides (DICE)
- Policy Recommendations

25 Years of Research



Lessons Learned from Stanford's Metaverse

500+ students over 2 years, 500k shared minutes in VR



90 Percent Meta and ByteDance



An Affordance Approach



An Affordance Approach: Presence

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J. J. Cummings and J. N. Bailenson

TABLE 2 Meta-Analysis Results for Overall Immersion and Individual Immersive Features

Independent variable	<i>K</i>	<i>r</i> (weighted)	95% Confidence interval	<i>N</i>	χ^2	Variance attributable to sampling error (%)
Immersion (all studies)	115	.316	.295 to .338	6998	2069.179*	15
Update rate	4	.529	.311 to .747	41	4.391	100
Tracking level	22	.408	.360 to .456	1566	319.772*	8
Natural vs. abstract mapping	7	.360	.279 to .441	587	133.295*	6
Many vs. some	6	.645	.546 to .745	390	44.578*	1
Some vs. none	10	.281	.204 to .358	645	189.786*	32
Field of view	14	.304	.246 to .363	1081	487.886*	5
Image quality	10	.150	.086 to .214	855	259.432*	39
Stereoscopy	18	.320	.257 to .383	928	270.748*	16
Sound	13	.260	.203 to .317	757	202.378*	30
User perspective	2	.234	.003 to .464	72	38.775*	100
High vs. low	32	.339	.294 to .385	1698	476.491*	30

* $p < .001$.



An Affordance Approach



Downsides

Inhibitory Control and Influence on Kids



Inhibitory Control and Influence on Kids



Distraction (#VrFail)



Driving in Headset will Kill People



Simulator Sickness



False Memories in Virtual Reality



FIGURE 1 A) Three-dimensional model of child's head constructed from two photographs (front and profile). B) Screen shot of child's avatar swimming with whales in virtual world. C) A child wearing the head-mounted display.

“Misinformation in Virtual Reality”



Privacy Anonymization and Aggregation

500+ students over 2 years, 500k shared minutes in VR



Privacy

Personal Accounts



D.I.C.E

Dangerous

Impossible

Counterproductive

Expensive

Not for reading and writing



Dangerous

The Flight Simulator Model

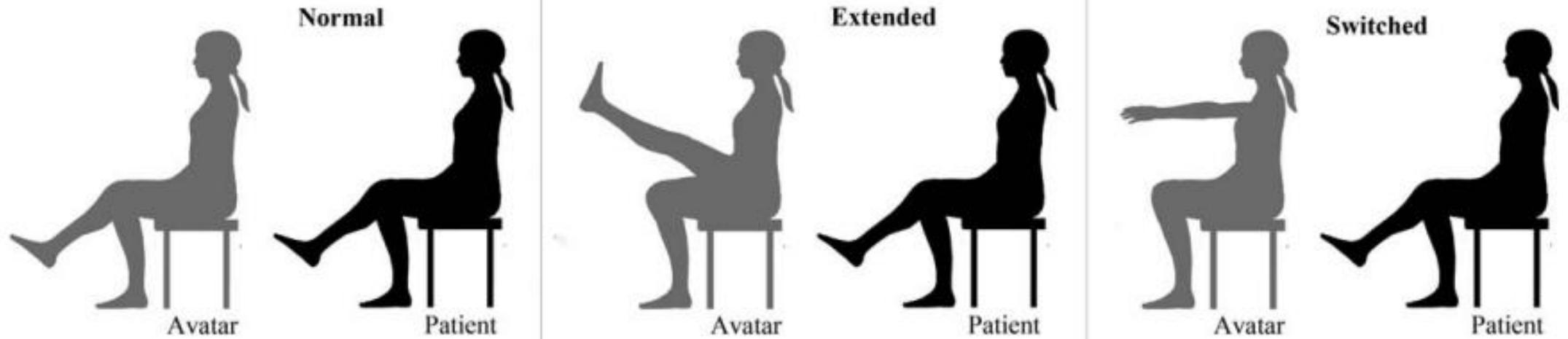




Impossible

Pain and Rehabilitation

Won et al.



Empathy, 2003



Empathy, 2003



2023



1000 CUT

— JOURNEY —

 COLUMBIA
SCHOOL OF SOCIAL WORK

Stanford
University

VIRTUAL HUMAN
INTERACTION
— L A B —

 M
CENTER FOR
ACADEMIC INNOVATION

 EXTENDED REALITY (XR)
UNIVERSITY OF MICHIGAN



Counterproductive

Conservation

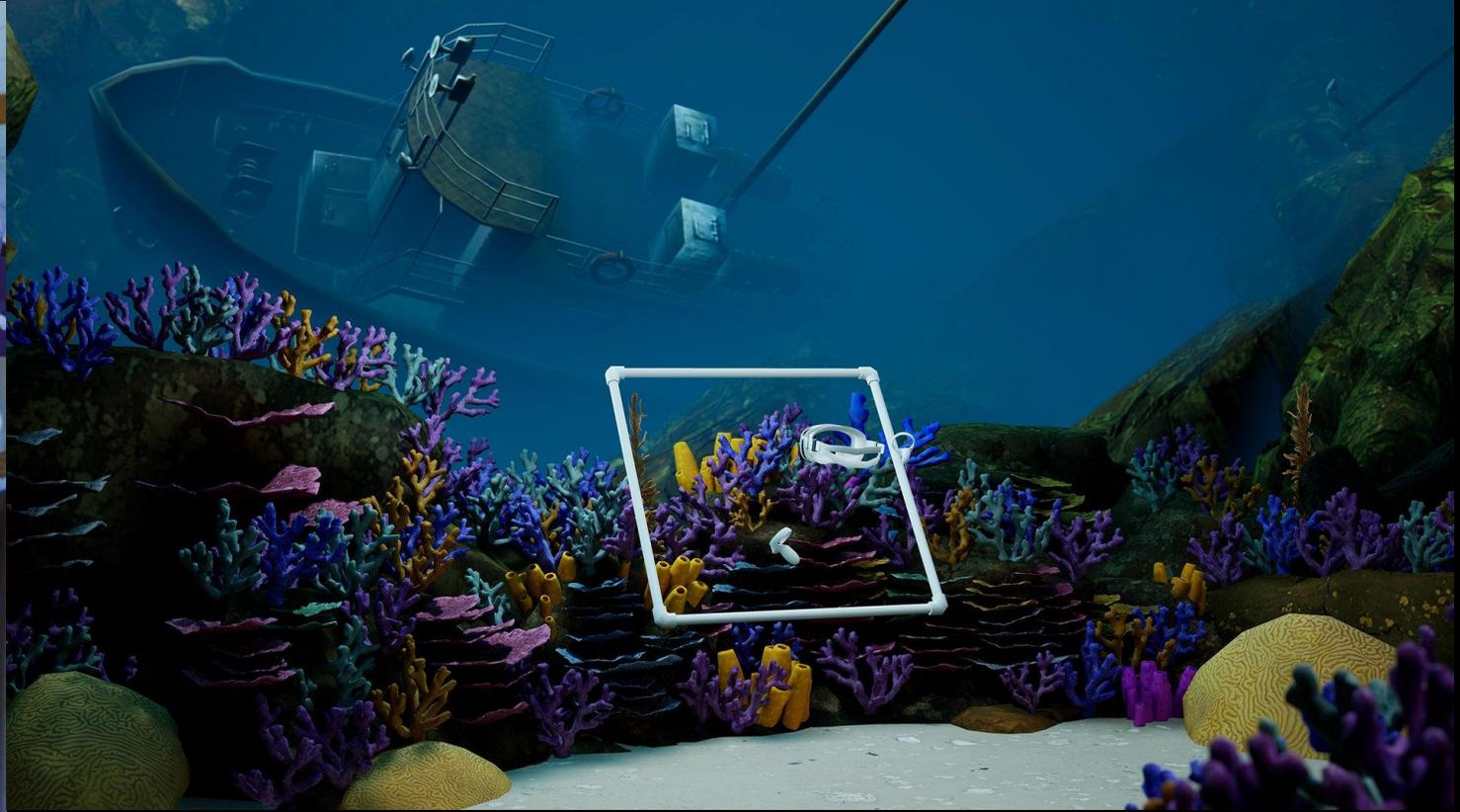


Social Skills Training



Expensive

Agency, Self Efficacy, and Science



D.I.C.E

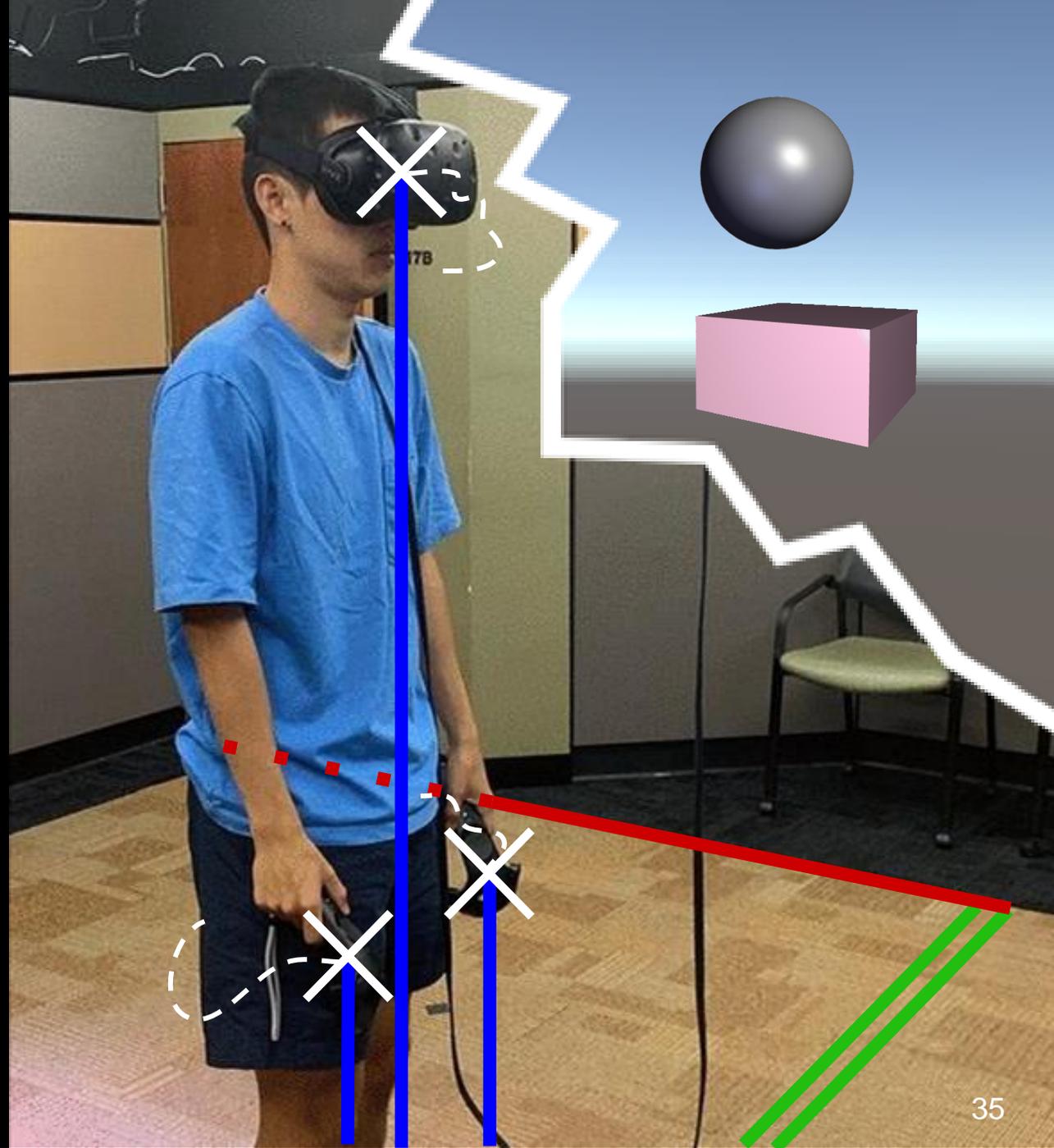
Dangerous

Impossible

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Expensive

Policy will involve Tradeoffs



As we consider VR Policy

- Minutes (30) not Hours
- Could versus Would
- DICE (Not Social Media Engagement Model)
- Ban VR in cars
- When in doubt, Training (Walmart, Supernatural)