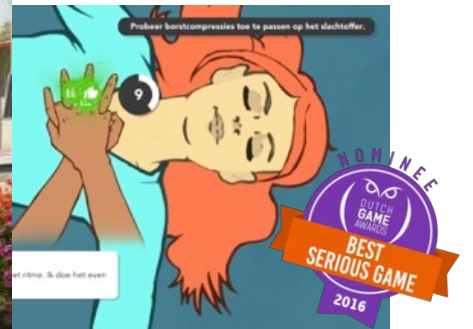Heide Lukosch

Applied Immersive Games for resilient people and societies

TU Delft gamelab, NL

Connotations of Gaming

Addictive, senseless activity

Less time for other
(more important!) aspects of life

No physical activity – unhealthy habit
Leading to loneliness and aggressive behavior

… often because we do not understand the
motivation, the act of play, and its power

Antanas Mockus, Mayor of Bogota

(pinterest.com)

From playfulness to applied immersive games

Applied games are
artworks
permitting a deep
immersion

based on realistic
models
that are **simplified**

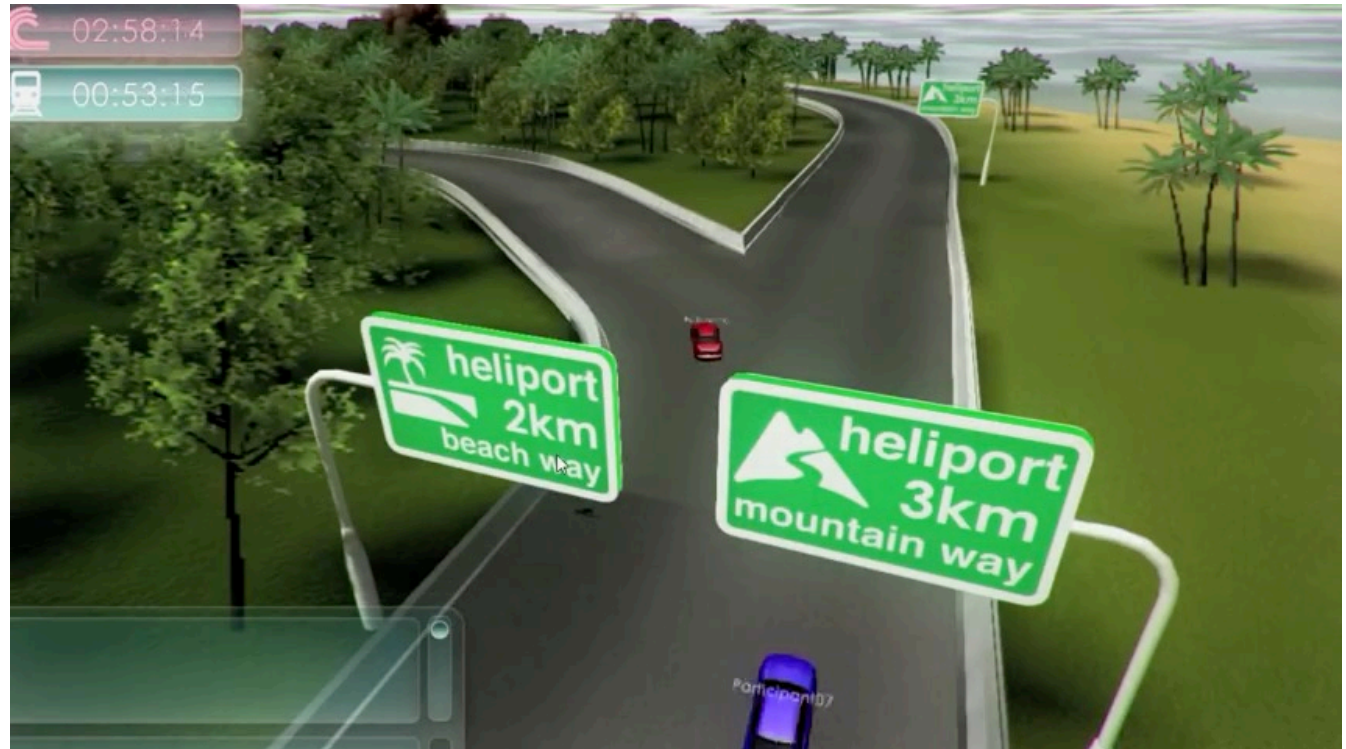represented by
resources,
bound by **rules**

The game mirrors logistics from real life.

Players engage with the games by **play**,
in a way that makes **sense** to them, offering a kind of **meaning**

Application Areas
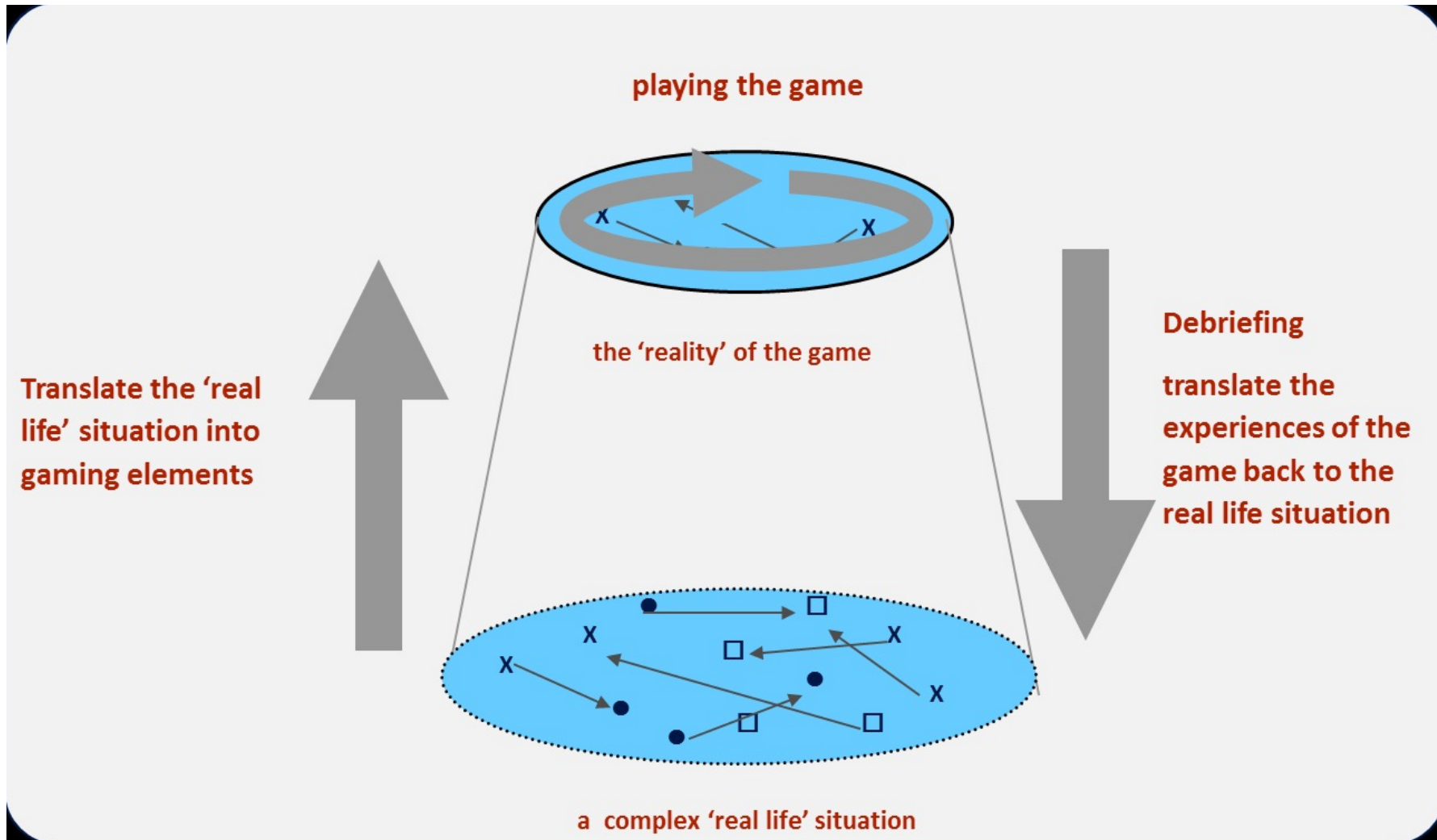
All systems and situations that are otherwise

difficult or **dangerous**

to engage with

in learning, training, awareness building, research, decision- and policy making

Realistic Representations

playing the game

the 'reality' of the game

Translate the 'real life' situation into gaming elements

Debriefing

translate the experiences of the game back to the real life situation

a complex 'real life' situation

Immersion

Superhuman Sports Competition, TU Delft, 2018; Hit Lab NZ, UC, 2020

Immersion

HITLabNZ
Human Interface Technology Lab New Zealand
Hangarau Tangata. Tangata Hangarau
w w w . h i t l a b n z . o r g

Bestemming Den Haag / Destination The Hague, Traffic Management Game, TU Delft/The Barn, NL

Immersive Games for Children with special Learning Needs

This is the first time a game can be prescribed as medicine against ADHD in the US.
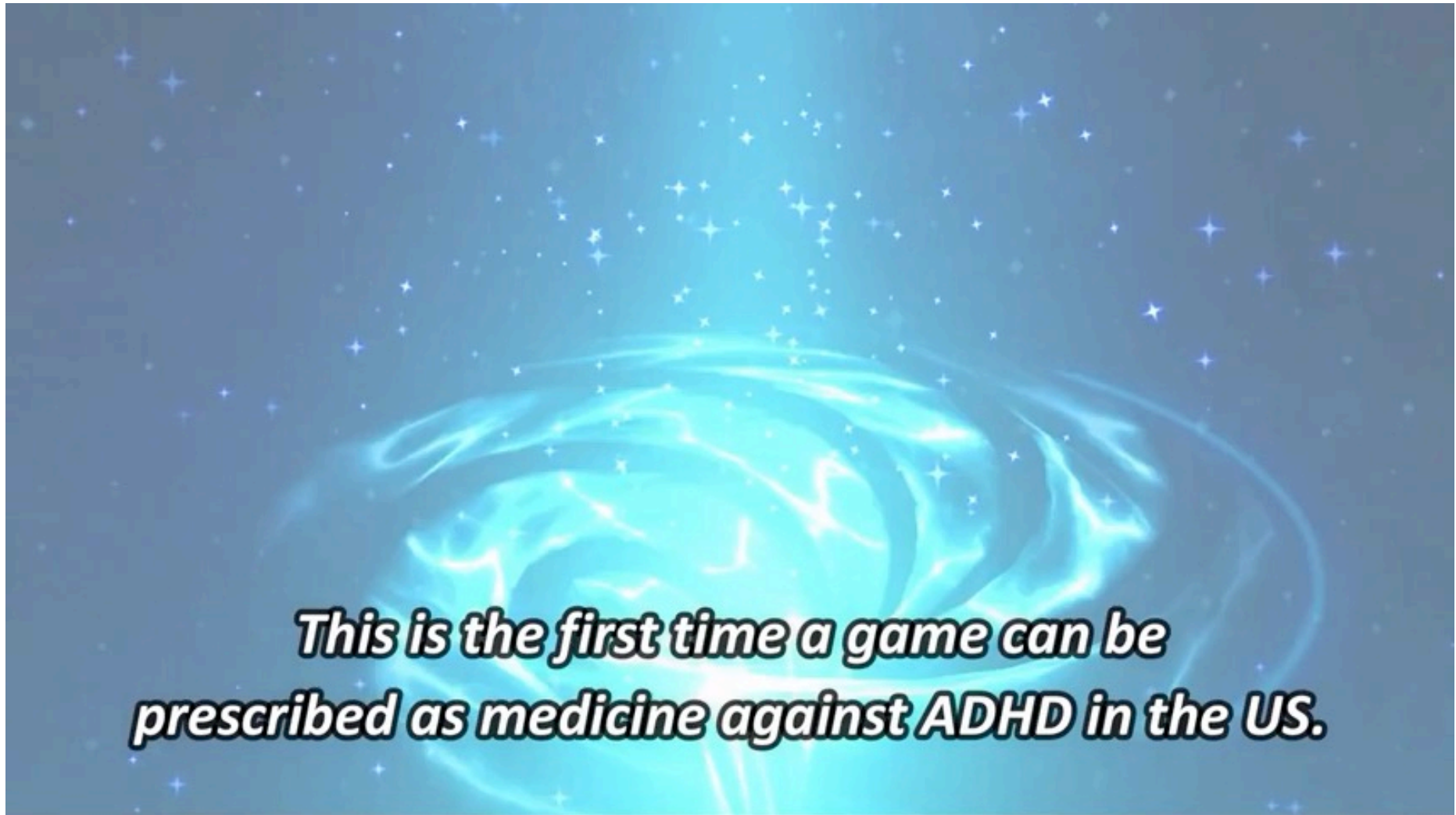
EndeavorRX

Immersive Games for Children with special Learning Needs
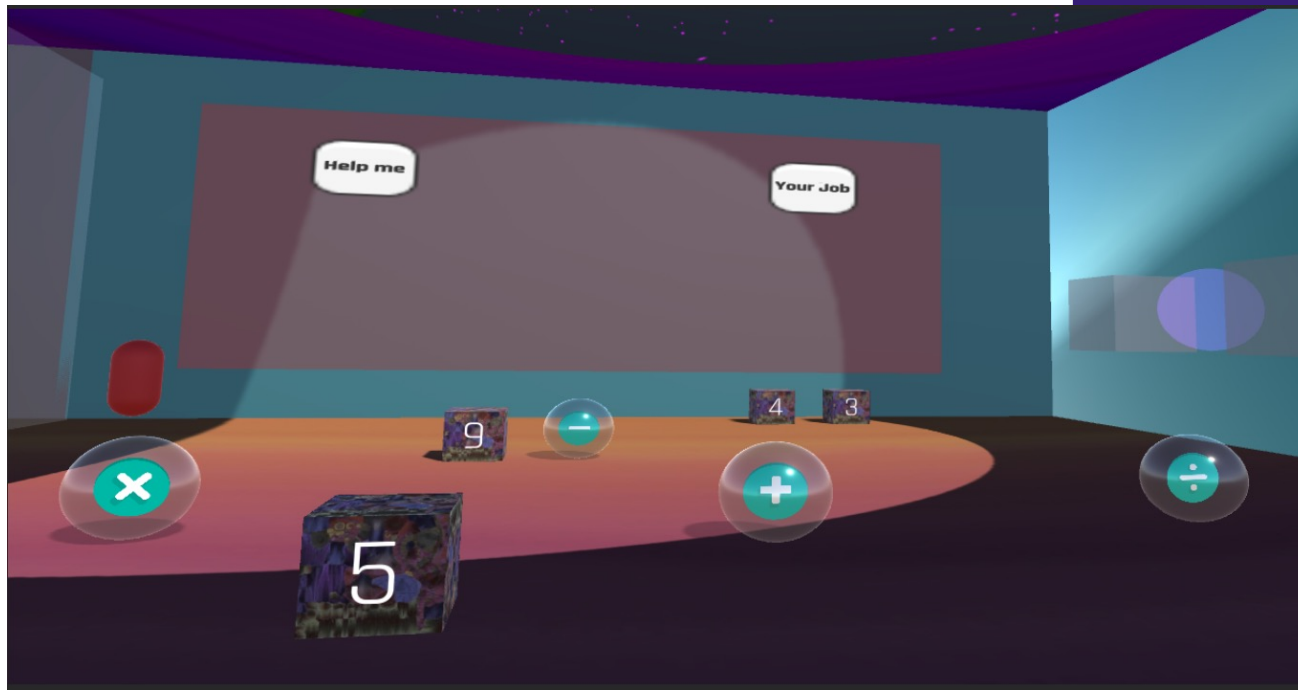
Belter, Meike: Immersive Games for Children with ADHD in Formal Education
Belter & Lukosch, 2021

ADHD Characteristic	Definition	VR Game Element
Attentional and effort related deficits	Difficulties to complete two tasks at once (divide	-Placing objects of interest near the ground (Jiang et al., 2020)

ADHD Characteristic	Definition	VR Game Element
Inhibition: Working Memory	Diagnosed children have difficulties with short-term memory and holding information temporarily (Barkely, 2001; Barkley, 1997; Barkley & Murphy, 2010)	-Display of few information at the time only to avoid information overload (Kalyuga & Plass, 2009). -Allow time for extended practice (Klingberg et al., 2005) -Balanced game challenges and defined goals that match player performance (Adams, 2014; Salen & Zimmerman, 2004).
Inhibition: Internalisation of speech	Children have deficits in internalising speech that in turn guides behavior and actions (Barkely, 2001; Barkley	-Incorporation of clear verbal cues for supporting task-switching situations and guiding actions (Kray, Kipp &

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Immersive Games for Young Adults with Social Anxiety
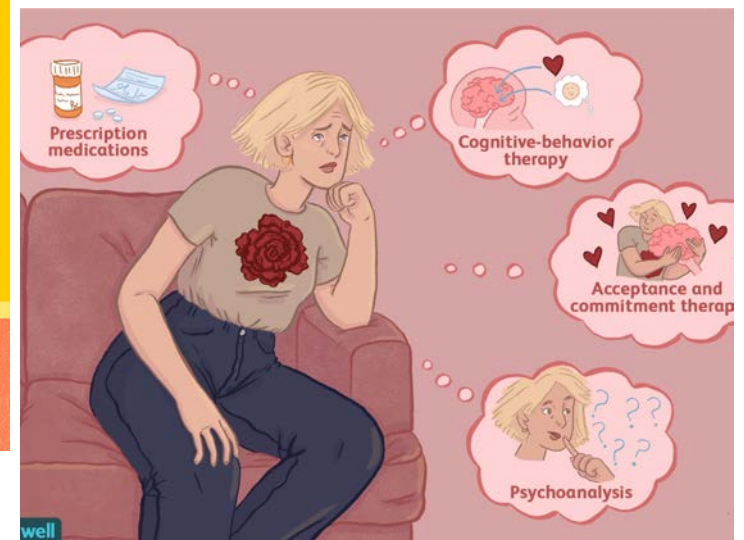
Platt-Young, Zoe: Co-Design and Evaluation of Game-Based Approaches for Social Anxiety in Young Adults

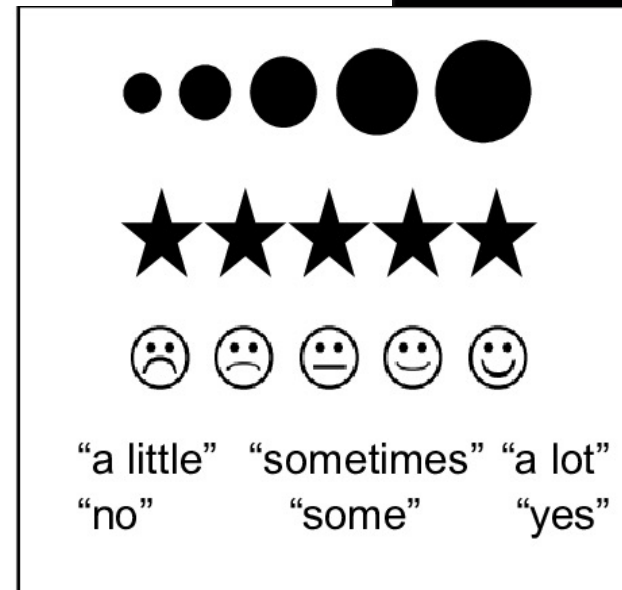# Immersive Games for Children and Young Adults with Special Needs

Technology aspects:
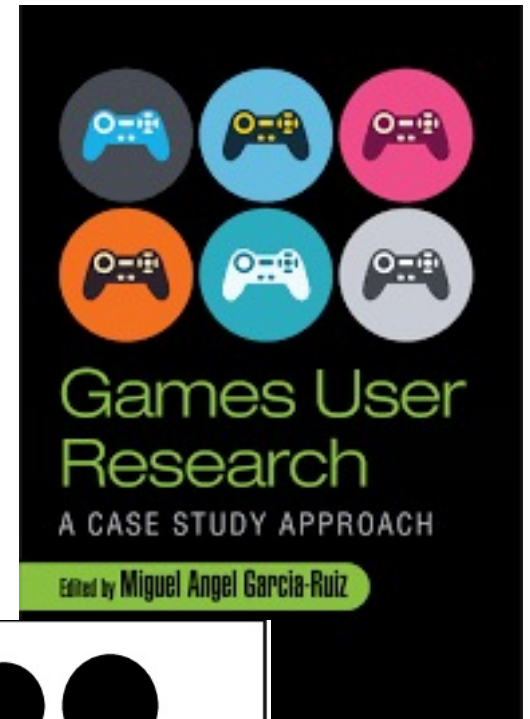
How to co-design effective immersive games that support the target group?

Social aspects:

How to co-create with vulnerable groups – in Covid-times?

What methods to use for feedback from children?

"a little"   "sometimes"   "a lot"
"no"   "some"   "yes"

Immersive Games for First Responders in Crisis Management – from Police to Humanitarian Aid Workers

Immersive Games for First Responders in Crisis Management – from Police to Humanitarian Aid Workers
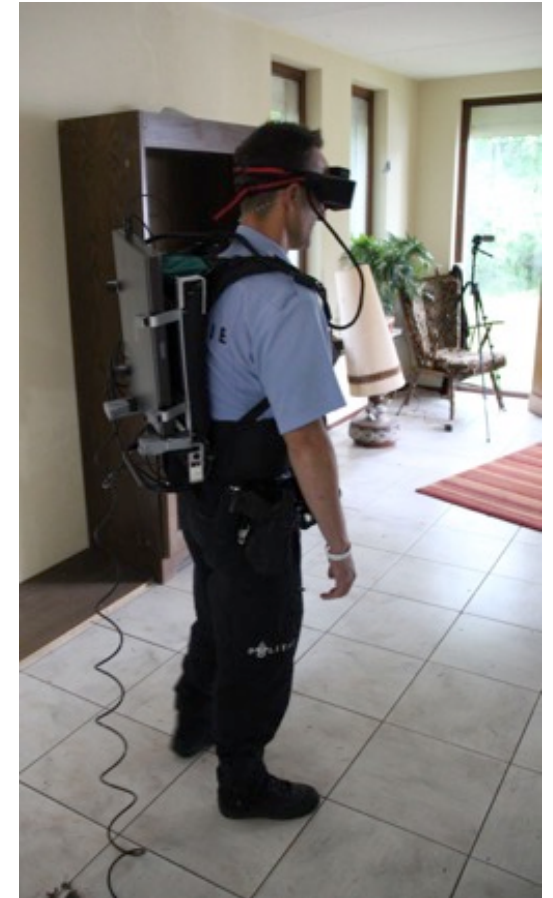
Technology aspects:

How to design effective remote collaboration in an AR system?

Social aspects:

How do participants experience the collaboration?

Who is responsible for the outcome?

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Immersive Games for First Responders in Crisis Management – from Police to Humanitarian Aid Workers

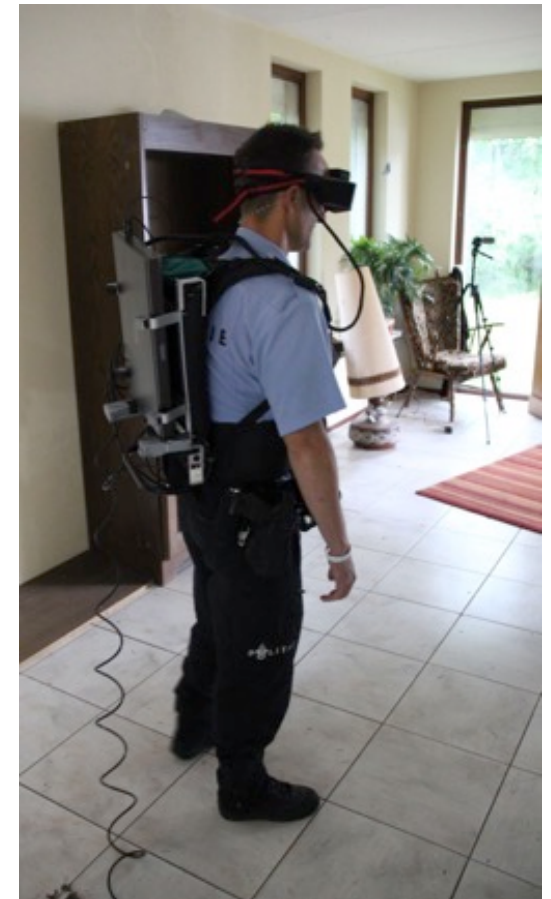**Technology aspects**:

How to design
- a realistic training game?
- effective remote collaboration in an AR system?

Social aspects:

How do participants experience the game/AR mediated collaboration?

Who is responsible for the outcome?

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iTRACK

Protection and safety of humanitarian missions

Immersive Games for
Disaster Communication and Preparedness

Treffer, Helen: Disaster Preparation Awareness Game – Earthquake Scenario
Pourgolmohammadgolshani, Amir: Interactive Volcanic Hazard Communication Tool

Immersive Games for
Disaster Communication and Preparedness

Technology aspects:

How to design realistic learning and awareness development tools?

How to combine formal models and game elements?

Social aspects:

How to design an engaging and meaningful interaction?

How to measure the (learning) effects?

Pourgolmohammadgolshani, Amir: Interactive Volcanic Hazard Communication Tool

Immersive Games for the Public in Crisis Management –

Technology aspects:

How to design engaging and authentic disaster games?

Social aspects:

How to communicate natural hazards and risks in a responsible way?

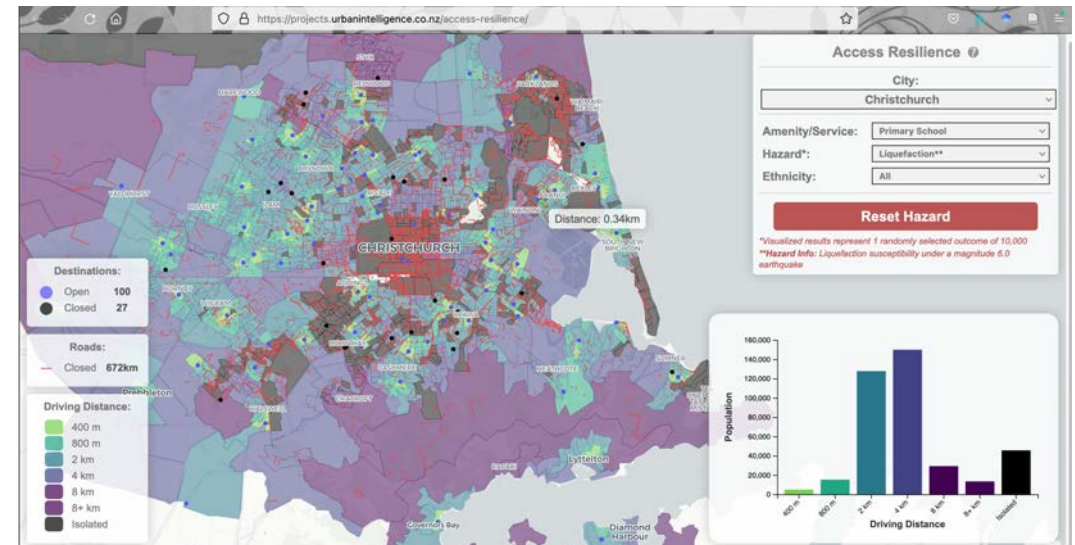How to include Mātauranga Māori, and reach vulnerable target groups?

Beneath the Waves – MBIE Endeavor Research program 2021-2026, lead: GNS Science
Mirza, Misha: How to use AR games for disaster risk communication

Immersive Games for Resilience Awareness of Policy Makers

Technology aspects:

How to design authentic games for experts in policy making?

How to combine formal models and playful elements?

Social aspects:

How to engage with policy makers?

How to measure success?

Avendano, Bryann: Community Resilience for City Councils in NZ
CURe Research Cluster under lead of Tom Logan

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www.hitlabnz.org

Summary: Technology and Social Aspects of Applied Immersive Games

Questions to answer

How to design authentic, meaningful AND engaging games for experts and broader audiences?

How to co-design applied immersive games, including with children and vulnerable individuals?

How to measure success?

Applied Immersive Games for resilient people and societies!

heide.lukosch@canterbury.ac.nz