

A woman with long hair is wearing a VR headset and looking upwards with a smile. Her hands are raised, interacting with a digital environment of glowing blue and purple particles and lines. The background is dark with these glowing elements.

Everything, everywhere, all at once VR as a morality lab

Anda Zahu, Research Center in Applied Ethics
University of Bucharest

CHANGER Webinar
16.01.2025

Is there something uniquely interesting about VR?

The virtual experience machine

"The senses are immersed in the virtual world, the body is entrusted to a reality engine".

- (Biocca, Levy, 1995, 135)

The psychological experience of losing oneself in the digital environment and shutting out cues from the physical world is known as immersion. (Witmer, Singer, 1998).

- Immersion is a property of the VR- generating equipment
- A mental state

Hyper-immersion is not derived from the realism of virtual objects

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If the right conditions are met, VR acts as a brain hacker, overwriting reality.

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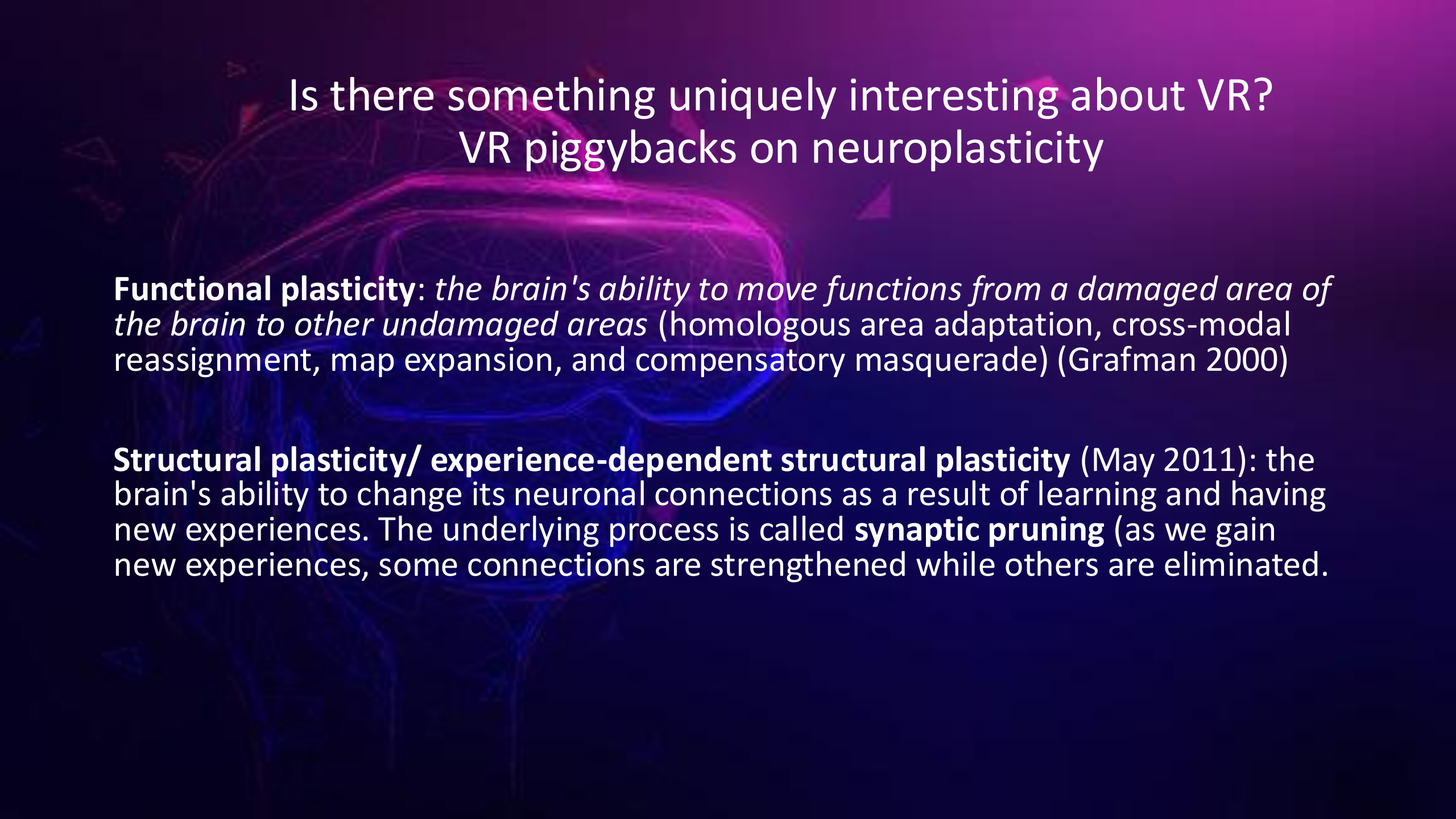
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Decrease in information clutter: positive correlation with immersion (Bowman & McMahan 2007)

Out of all senses, human vision contributes the most information to brain processing of the environment. Humans rely disproportionately on visual stimuli.

Is there something uniquely interesting about VR?

- Research tool – object of research
- Entertainment & social interaction
- Education (including training and simulations)
- Clinical tool



Is there something uniquely interesting about VR? VR piggybacks on neuroplasticity

Functional plasticity: *the brain's ability to move functions from a damaged area of the brain to other undamaged areas* (homologous area adaptation, cross-modal reassignment, map expansion, and compensatory masquerade) (Grafman 2000)

Structural plasticity/ experience-dependent structural plasticity (May 2011): the brain's ability to change its neuronal connections as a result of learning and having new experiences. The underlying process is called **synaptic pruning** (as we gain new experiences, some connections are strengthened while others are eliminated).



Functional plasticity
plasticity

Structural

Exposure therapy

Cognitive and behavioral therapy

Neurotherapy

Physical rehabilitation



Functional plasticity
plasticity

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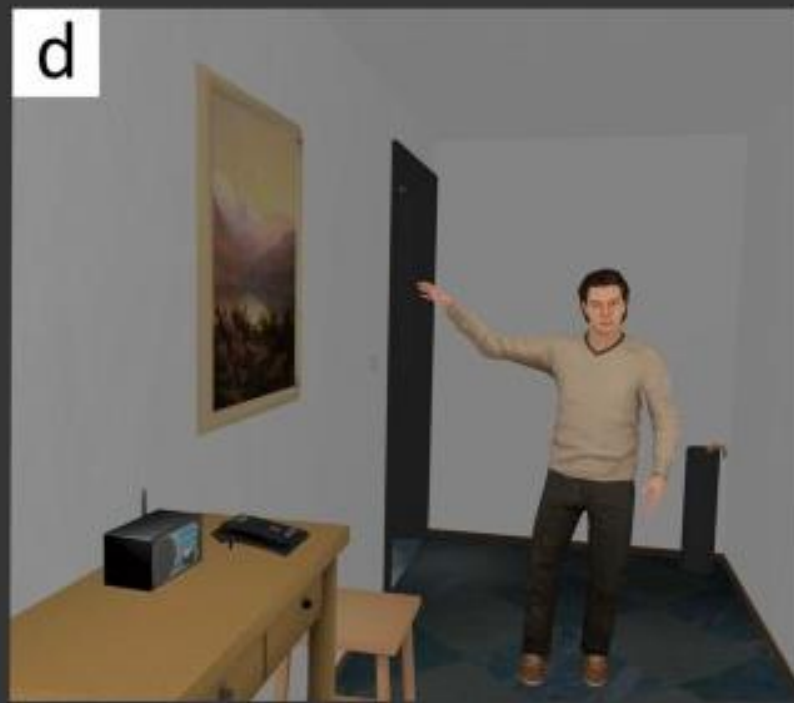
Physical rehabilitation

VR for moral enhancement

Seinfeld et al. 2018: male domestic violence offenders embody avatars of female victims in immersive VR with the aim of exploring how the change in perception impacts socio-perceptual processes related to empathy

New technologies, such as Virtual Reality, can be extremely useful in this regard:

- **Immersive**
- **Engaging**
- **Access to first-person perspective**
- **Embodiment**



For moral philosophers who ascribe an important role to empathic motivation, empathy is a response to imagined, rather than perceived, distress in others, and it therefore requires mature cognitive and perspective-taking capacities.

- James Blair, 1995

Empathy as a moral muscle vs. empathy as a habitual disposition

Literature is a device that compels readers to "naturally assume the viewpoint of an affectionate and responsive social creature who looks at the scene before him with fond and sympathetic attention." (Nussbaum, 1997, p. 346)

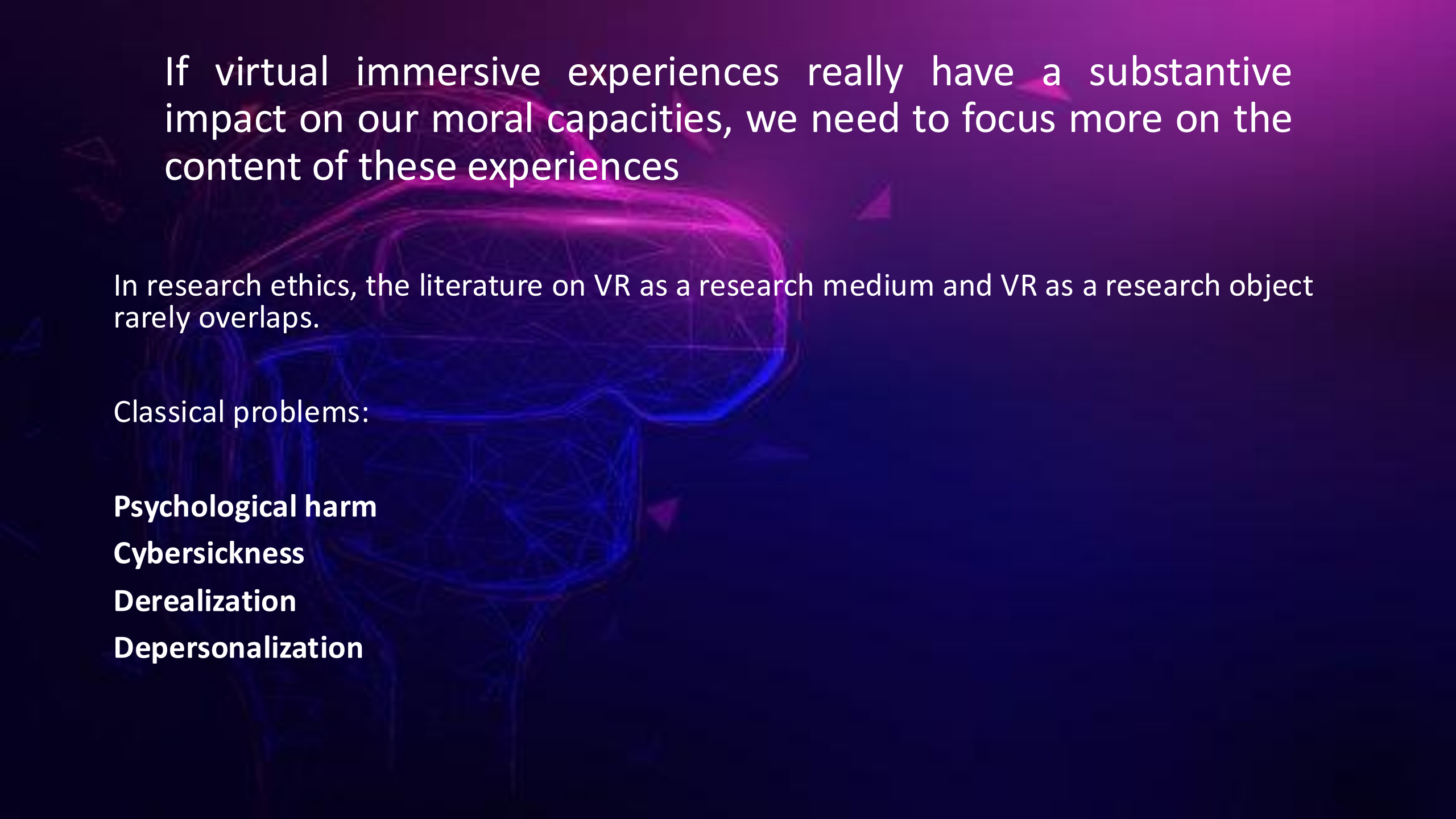


More on perspective shifting : Imagining your future self

- If people can feel more connected with a vividly imagined future self, they should be motivated to save more money for the future.
- Rendering the future self more vivid will motivate convicted offenders (who usually think short-term) to act in ways that will benefit, or at least not harm, themselves in the future.
- VR perspective taking can evoke more effectively vivid mental imagery of a positive future self and reflection about the present self to increase the future self-continuity domains.
- (Hershfield et al., 2011; van Gelder et al., 2022; Ganschow et al., 2021)

Other promising application

- Empathy modulation
- Augmentation of moral understanding
- Self-knowledge



If virtual immersive experiences really have a substantive impact on our moral capacities, we need to focus more on the content of these experiences

In research ethics, the literature on VR as a research medium and VR as a research object rarely overlaps.

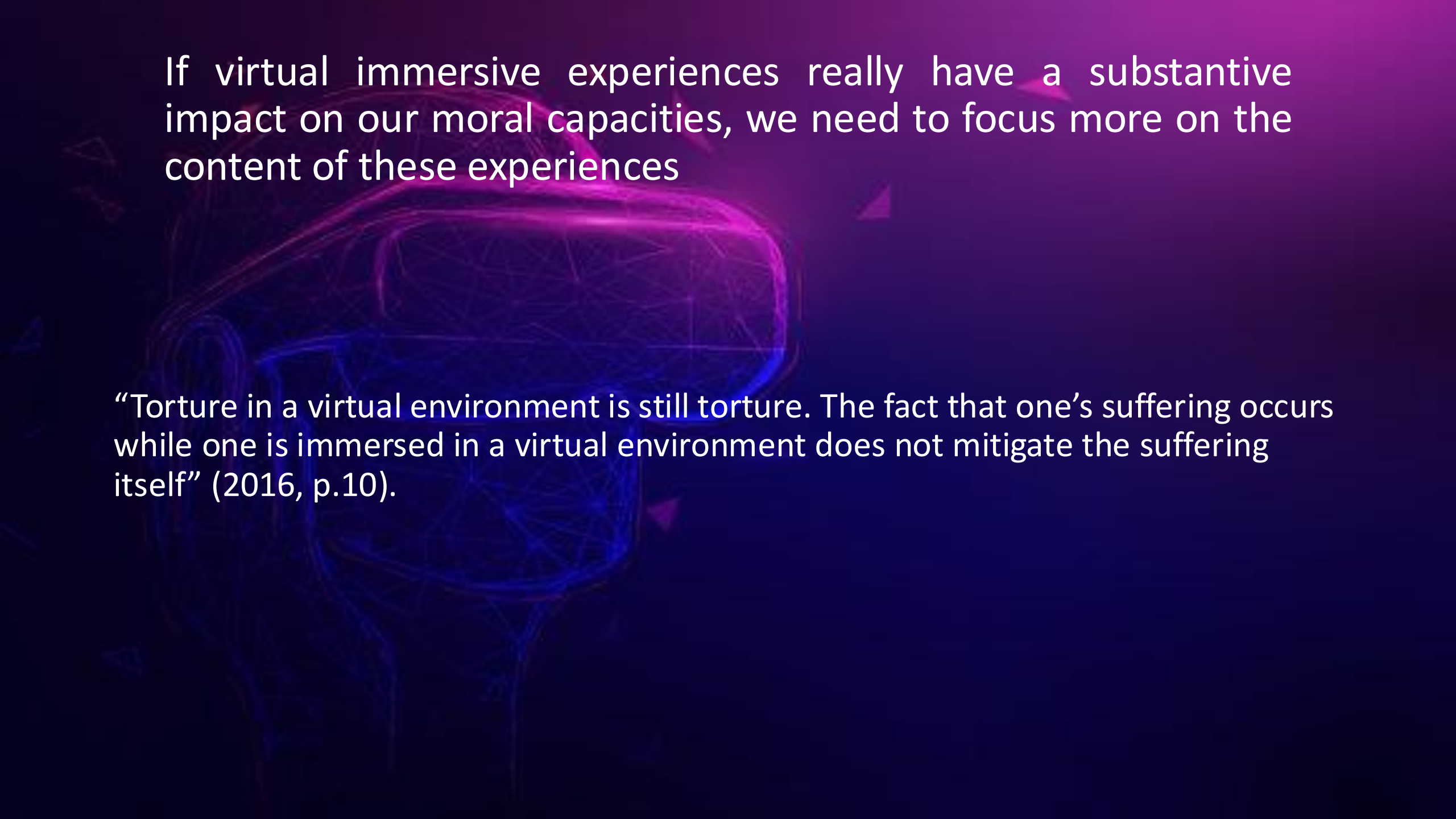
Classical problems:

Psychological harm

Cybersickness


Derealization

Depersonalization



If virtual immersive experiences really have a substantive impact on our moral capacities, we need to focus more on the content of these experiences

“Torture in a virtual environment is still torture. The fact that one’s suffering occurs while one is immersed in a virtual environment does not mitigate the suffering itself” (2016, p.10).

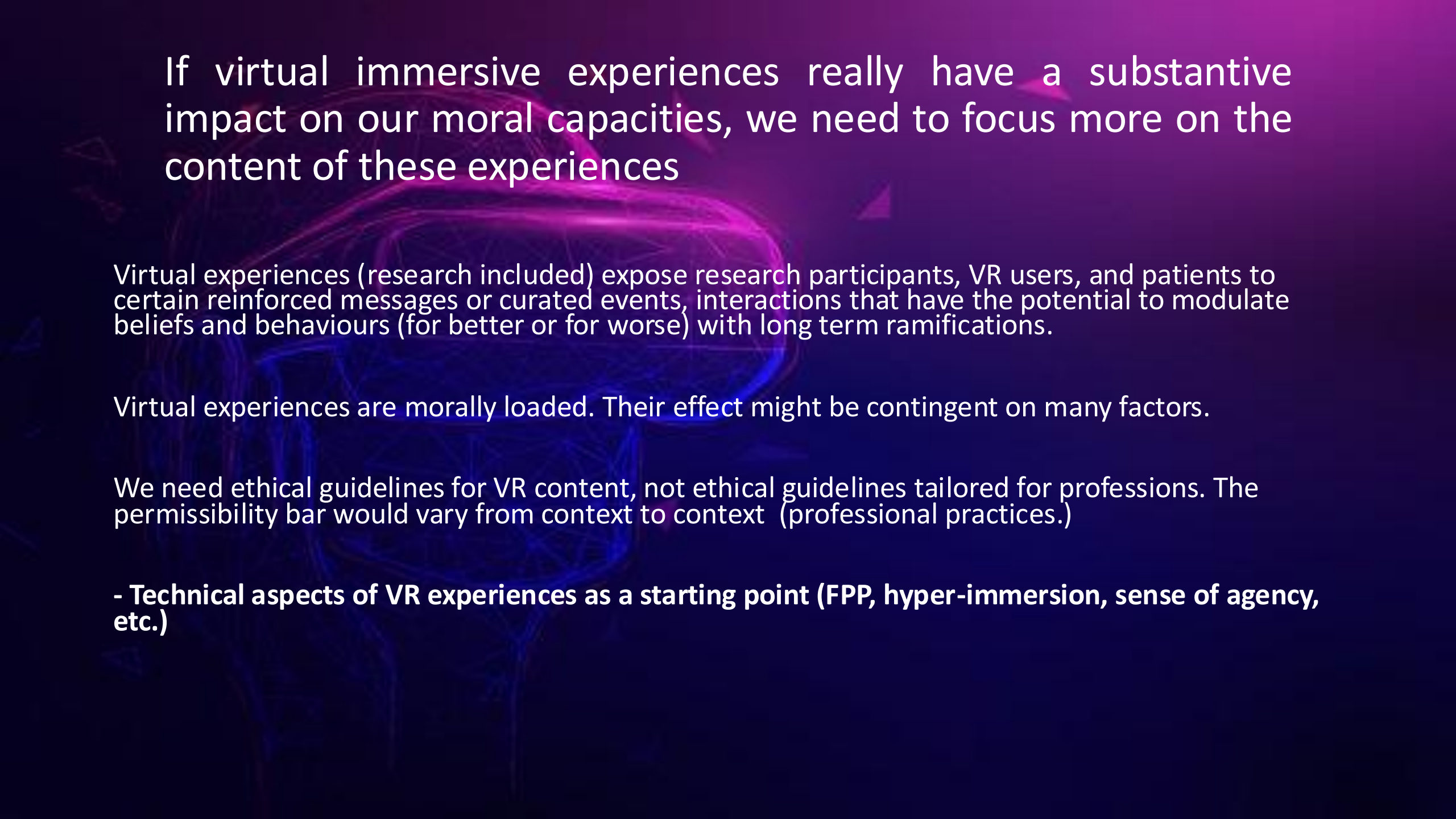


If virtual immersive experiences really have a substantive impact on our moral capacities, we need to focus more on the content of these experiences

4Es of empathy training- might have a normative significance

- (1) Experience (immersion, perspective-taking)
- (2) Engagement (sense of agency, sense of responsibility)
- (3) Environmental control (world design)
- (4) Embodiment

Zahiu, Anda ; Mihailov, Emilian ; Earp, Brian D. ; Francis, Kathryn B. & Savulescu, Julian (2023). Empathy training through virtual reality: moral enhancement with the freedom to fall? *Ethics and Information Technology* 25 (4):1-14.



If virtual immersive experiences really have a substantive impact on our moral capacities, we need to focus more on the content of these experiences

Virtual experiences (research included) expose research participants, VR users, and patients to certain reinforced messages or curated events, interactions that have the potential to modulate beliefs and behaviours (for better or for worse) with long term ramifications.

Virtual experiences are morally loaded. Their effect might be contingent on many factors.

We need ethical guidelines for VR content, not ethical guidelines tailored for professions. The permissibility bar would vary from context to context (professional practices.)

- Technical aspects of VR experiences as a starting point (FPP, hyper-immersion, sense of agency, etc.)

A stylized wireframe head, possibly representing a brain or a face, rendered in shades of blue and purple. The head is composed of a dense network of lines forming a mesh. The background is dark with a gradient from deep blue to purple, and several small, semi-transparent triangles are scattered throughout, some appearing to float or move. The overall aesthetic is futuristic and digital.

anda.zahiu@unibuc.ro