More than metaverse madness? The potential of immersive technologies for mental health

EFPA PG eHealth - 2023 Webinar series - Webinar 2

12 SEPTEMBER 2023

The webinar will commence at 10am CET.

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European Federation of Psychologists' Associations

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eHealth workstream - SC on Psychology in Health

The eHealth Workstream is involved in activities to survey, monitor, investigate and evaluate eHealth applications as well as in efforts to guarantee the quality of applications and guidelines on proper use of eHealth applications. This work is done in international collaboration between experts and together with other health professions.

ehealth.efpa.eu

efpa
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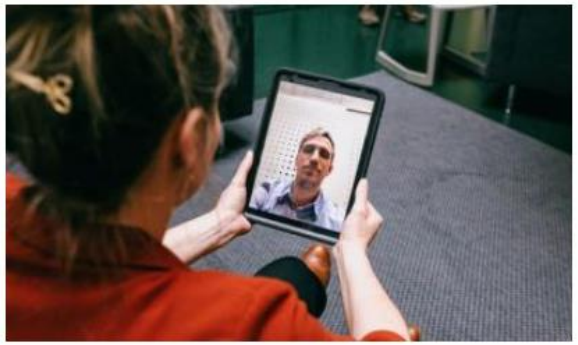
Resources from this working group

Webinar series on the potential of technology for psychology

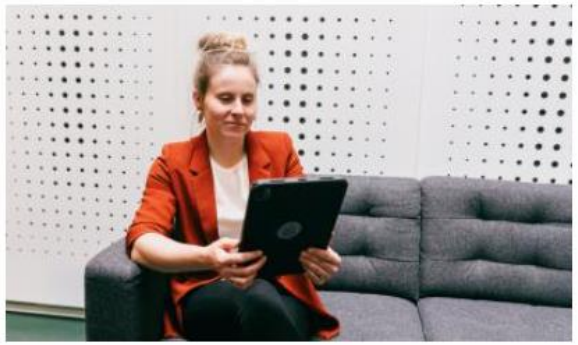
Psychological services via internet and other digital means: recommendations for ethical practice

Webinar: " From theory to practice: how can you make use of the potential of technology for psychology?"



Online consultations and psychologists' use and experience

Online consultations and psychologists' perspectives



Webinar on online consultations

2023 webinars - save the dates

26 September – 10am CET
EMA & just-in time interventions
Andreas Schwerdtfeger

17 October – 5pm CET
The Promises and Pitfalls of using **Machine Learning** in Mental Health
David Gosar

26 October – 4pm CET
Global Online Classrooms in How to Train Caregivers of Abandoned Children
Niels Peter Rygaard

Program for today

Tom Van Daele – Thomas More University of Applied Sciences

Head of Expertise Unit Psychology, Technology & Society
at Thomas More, Belgium.

Practice and policy oriented,
multidisciplinary research
on technology in mental healthcare

Representative of the Belgian Federation
of Psychologists in the EFPA eHealth workstream.

THOMAS MORE UNIVERSITY OF APPLIED SCIENCES

QUEEN'S UNIVERSITY BELFAST

More than Metaverse Madness

The Potential of Immersive Technologies For Mental Health

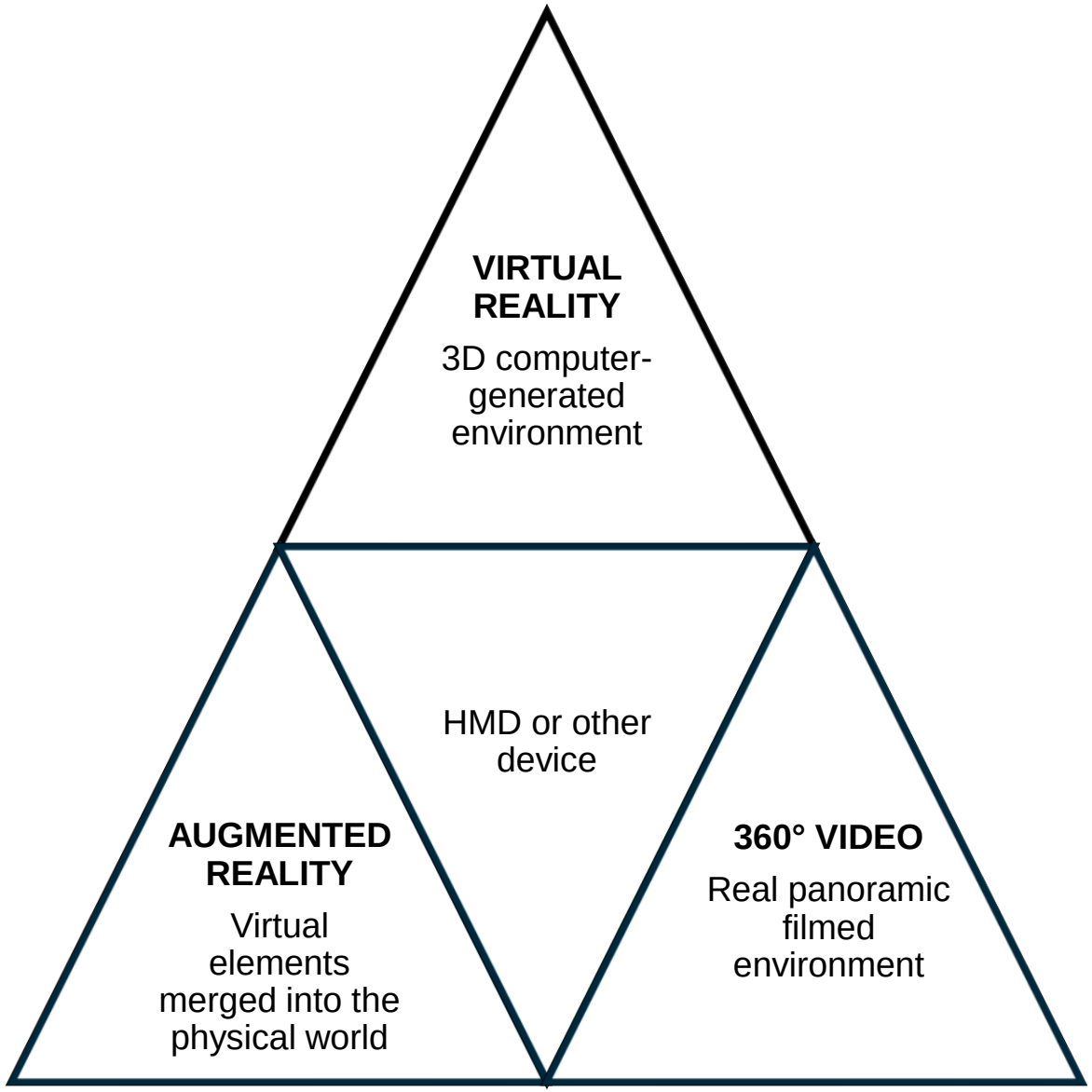
12 September 2023
EFPA eHealth webinar series
Tom Van Daele

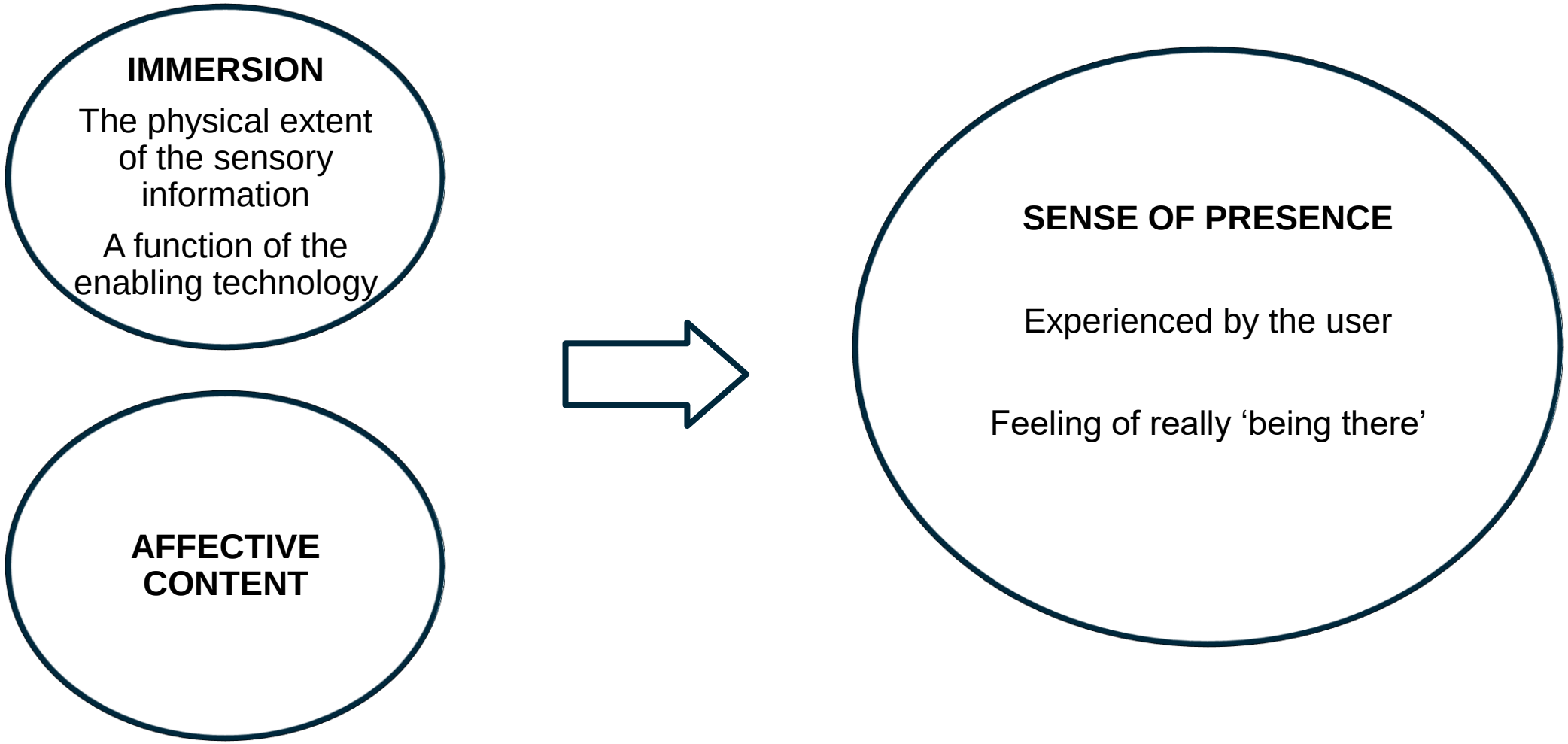
Overview

1. Background on immersive technology
2. Advantages and disadvantages/challenges
3. Intervention techniques
4. Existing solutions
5. Future perspectives

What it is
& how it all started

1. background


VIRTUAL REALITY
3D computer-generated environment
HMD or other device
AUGMENTED REALITY
Virtual elements merged into the physical world
360° VIDEO
Real panoramic filmed environment


IMMERSION
The physical extent of the sensory information
A function of the enabling technology
AFFECTIVE CONTENT
SENSE OF PRESENCE
Experienced by the user
Feeling of really ‘being there’

1962 - Sensorama

Immersive image

Stereo sound

Aromas

Wind

Vibrations


sensorama

2023 – Meta Quest 3

Why we should(n't) use XR

2. advantages & disadvantages

Advantages

Virtual Reality

- Safe & naturalistic, easy replication & high levels of control
- Multiple interaction opportunities
- Adjust environment for specific interventions

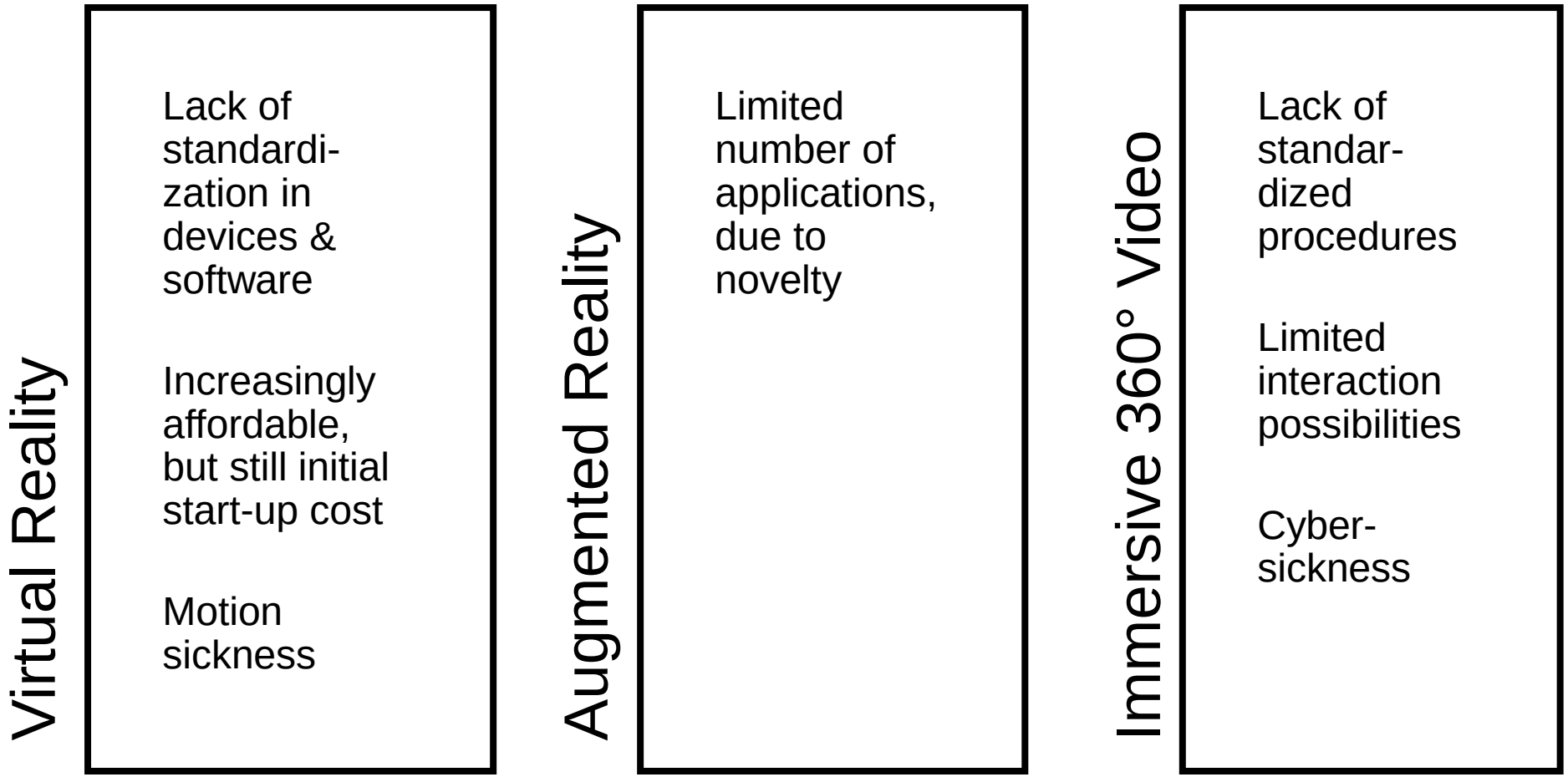
Augmented Reality

- Helps to translate gains in real life, with virtual elements grounded in reality

Immersive 360° Video

- Realistic images, which can produce a feeling of presence
- Easily accessible
- Easy and fast to create
- Affordable technology

Disadvantages / challenges



what & for whom?

3. current use & evidence-base

Long-standing research on 2 intervention techniques

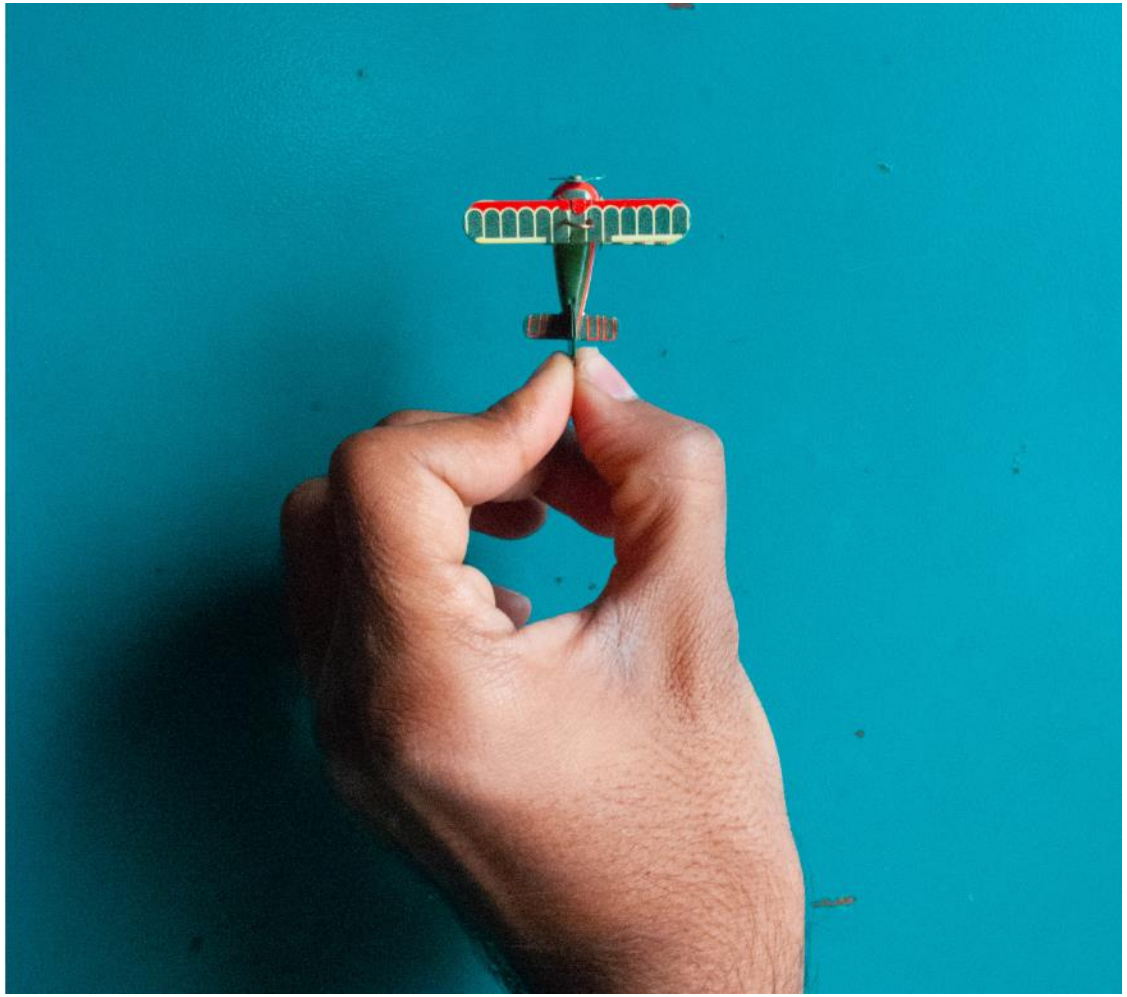
Exposure therapy

Prolonged exposure

Exposure therapy

Fear of flying, animal phobias
and other specific phobias

- Exposure in real-life settings is effective,
  but often difficult and time-intensive to organize.



Exposure therapy

VRET

- Using either flooding
  or systematic desensitization.
- Selecting relevant parts of a
  feared experience.
- Easy re-using of these
  environments,
  while manipulating their intensity.

Czerniak et al., 2016

Prolonged exposure

PTSD

- In the US, 13 % of infantry met overall criteria for PTSD, with incidence rising to 25 - 30 % after experiencing direct combat.

- Prolonged exposure therapy = well established in multiple studies with diverse trauma populations.

Rizzo et al. (2014)

Prolonged exposure

PTSD

- Unwilling or unable to visualize traumatic event → treatment failure.
- Virtual prolonged exposure = immersion in trauma simulations, with graded & repeated imaginal reliving and narrative recounting.
- Clinicians control scene's emotional intensity while customizing pace & relevance.

Rizzo et al. (2014)

Bravemind

Long-standing research on 2 intervention techniques

Exposure therapy

Prolonged exposure

But also

Distraction

Relaxation

Psychoeducation

Behavioral activation

Cognition challenging

Dealing with auditory hallucinations

Distraction

SnowWorld

- Dedicated to reducing pain.
- For patients undergoing painful medical interventions.
- Maintains its analgesic effect when used repeatedly, unlike opioid analgesics.

Hoffman et al. (2019)

Relaxation

VRelax

- Self-help relaxation tool.
- Assessed for ambulatory patients with anxiety, psychotic, depressive, or bipolar disorder.
- Immersive 360° videos with nature content,
  and interactive animated elements.
- Better than standard relaxation exercises
  in reducing momentary anxiety and sadness, & increasing cheerfulness.

Veling et al. (2019)

Psychoeducation

VRight

- Virtual reality-based intervention, using psychoeducation.
- “Peer-avatar” interaction, aiming to increase awareness about depressive symptoms.
- Used under clinician’s supervision.
- Assessed for patients with depressive symptoms.

Migoya-Borja et al. (2020)

Behavioural activation

- Pandemic context – case study.
- 360° YouTube videos.
- Modified behavioral activation protocol.
- Patient with major depressive disorder.

Paul et al. (2020)

Cognition challenging

Distorted body image in anorexia nervosa.

‘Illusion’ in VR helps perceive a slim, virtual body as their own.

Afterwards, body parts more realistically estimated.

Effect lasted up to 3 hours.

Serino et al. (2016)

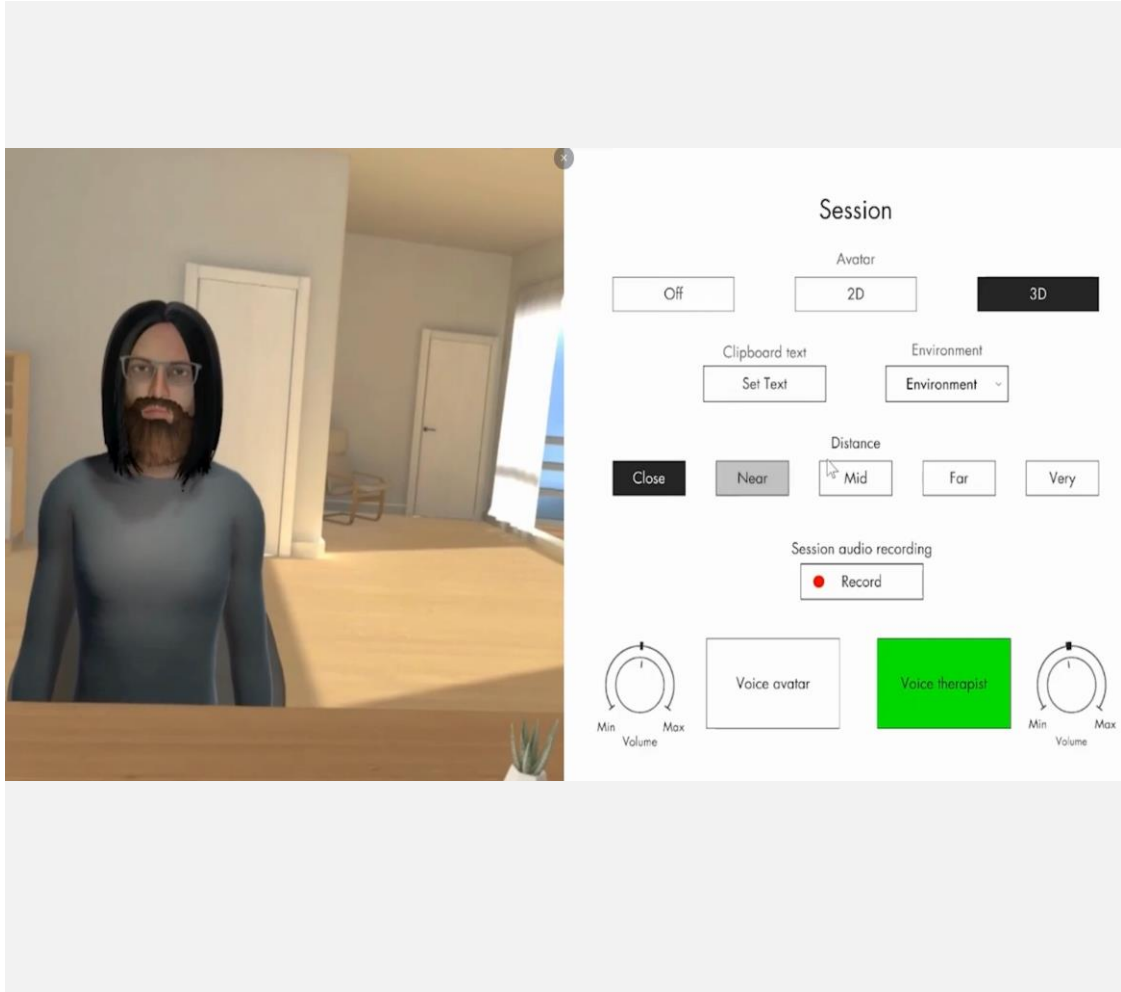
Dealing with auditory hallucinations

Hearing voices in patients suffering from schizophrenia.

HEKA VR = platform which allows to design avatars looking like inner voices, with therapists being able to recreate exact voice(s) heard by patients.

Considered beneficial based on preliminary clinical trial results.

Vernal et al. (2023)



what is currently out there?

4. existing solutions

Some basic points of attention

Matching positions in VR.

Limiting interruptions.

Added value of headphones or multisensory stimulation.

Legal: depending on context and use to be considered as a medical device!

XR platforms

Several tools or modules.

Complete solutions with proprietary hardware.

Costs may vary (substantially).

Support frequently included as well.

oxfordvr
Immersive technology for mental health

CleVR

Psylaris

VIRTUO
CUTTING EDGE VR & SIMULATION SOLUTIONS

vrendle

amelia
virtual care

HEKA VR

C2 CARE

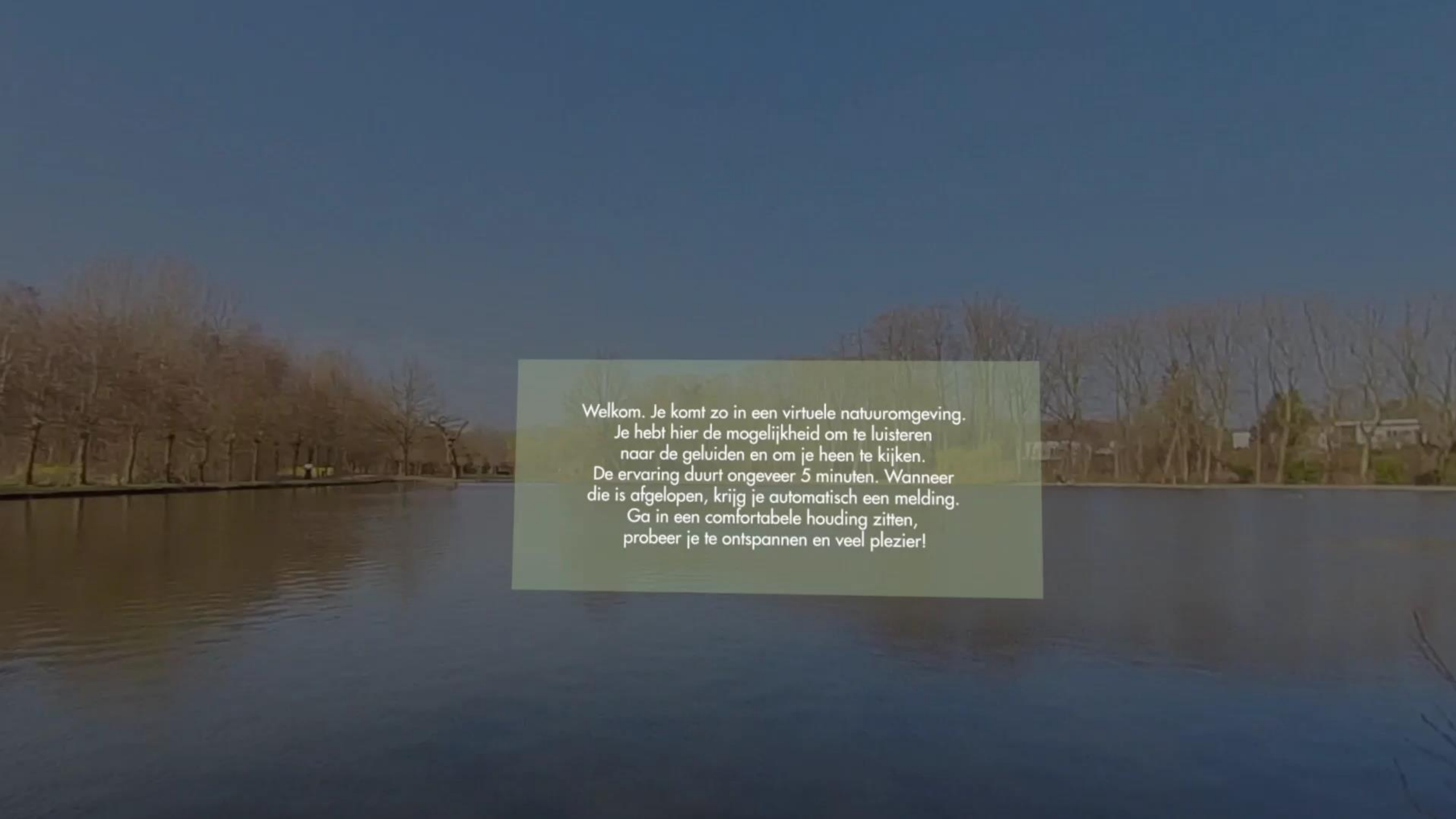
(YouTube) 360°

Broad range of freely available experiences.

Sometimes difficult to find suitable experiences,
e.g. fear of heights.

Easy to use on most HMDs,
or even with a smartphone,
using Google Cardboard.

youtube.com/@digitalmentalhealth


Welkom. Je komt zo in een virtuele natuuromgeving.
Je hebt hier de mogelijkheid om te luisteren
naar de geluiden en om je heen te kijken.
De ervaring duurt ongeveer 5 minuten. Wanneer
die is afgelopen, krijg je automatisch een melding.
Ga in een comfortabele houding zitten,
probeer je te ontspannen en veel plezier!

Zerophobia

Research

JAMA Psychiatry | Original Investigation

Effectiveness of Self-guided App-Based Virtual Reality Cognitive Behavior Therapy for Acrophobia
A Randomized Clinical Trial

Tara Donker, PhD; Ilja Cornelisz, PhD; Chris van Klaveren, PhD; Annemieke van Straten, PhD; Per Carlbring, PhD; Pim Cuijpers, PhD; Jean-Louis van Gelder, PhD

- Heights
- Fear of flying
- Spiders (AR)


1
Lamp
2
Speakers
3
Clouds
4
Spot
5
Felix
6
Storm
7
Letters
8
Action!
Exit VR environment
1
Lamp
2
Speakers
3
Clouds
Spot
5
Felix
6
Storm
7
Letters
8
Action!
Exit VR environment

SpeakAPP!-Kids!

- 360° video for public speaking
- Enhanced with an interface
- Reduced state anxiety during actual talk & state anxiety in general

Sülter et al. (2022)

Flowborne

Phobys

- AR for spider phobia
- Embedded within a broader self-help intervention
- Proven effective

Zimmer et al. (2021)

what's next?

5. future perspectives

Applications being explored in research

Fully immersive ARET in spider phobia
(De Witte et al., 2020;2022)

VR Photoscan for PTSD
(Best et al., in press)


HoloLens 2
Reset experience
Restart configuration

Apple Vision Pro

VR Photoscan

QUEEN'S UNIVERSITY BELFAST

Propeer

VR Photoscan

QUEEN'S UNIVERSITY BELFAST

Propeer

VR Photoscan

VR Photoscan

QUEEN'S UNIVERSITY BELFAST

Propeer

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www.digitalmentalhealth.be

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