



SKEMA BUSINESS SCHOOL

CARMA Webinar
***Virtual Reality Tools
for Organizational Research***

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PhD – KU Leuven – Talent Management

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(Traditional) Vignette Research

[SCREEN 1]

We kindly ask you to carefully read the fragment on this page and imagine that you find yourself in the described situation, from the viewpoint of one of the organization's employees named Robin.

Today you have been invited to attend a meeting of the company DruCo, at which you are employed. Chantal Verleyen, the HR director, has invited you and your colleagues to attend a meeting about talent management.

During this meeting it is first made clear that the company has enjoyed many great successes. For instance, where DruCo once started 40 years ago as a small local supermarket, it presently has over 7000 employees in 15 different countries. Today, DruCo is a market leader in Belgium, with new franchises planned in even more countries in the near future.

Management has decided to invest in talent management considering DruCo's enormous growth, to ensure that employees can perform to the best of their ability. This means that the company will identify a set percentage of employees every year as 'talents'. These employees will benefit from additional education and training sessions, as well as more career coaching within the company that could eventually lead to a promotion.

These 'talents', according to DruCo, are employees with good performance, a high potential to develop, and people who possess unique skills and a high motivation to continue learning. They are employees with an above-average commitment and a strong 'fit' with the mission and values of DruCo.

Finally, it was emphasized during the meeting that the procedures to identify employees as a 'talent' are honest, accurate, and ethical. Decisions will be made by consulting people from the union, team leaders, upper management, and with a large delegation of employees themselves so that everyone is heard. It is important for DruCo that everyone will be treated in the same way, and that the relationship between employees and their supervisors does not influence the decisions made. Objective, reliable and valid criteria are therefore used to identify employees as a 'talent'.

The feedback that employees will provide, in the first year of this program, will be used to design the talent management program and its procedures in future years. DruCo therefore sends out this survey to all its employees this year, including you.

[SCREEN 2]

[1. INCLUSIVITY OF PROGRAM]

This year Chantal decided that, within the entire organization, **1 percent of employees** will be identified as talents. Within your department there will be two people identified as a 'talent'.

[2a. PRIVILEGED STATUS – PRIVILEGED]

You learn that you are one of the two people identified as a talent this year, together with your co-worker Elke.

[2b. PRIVILEGED STATUS – UNDER-PRIVILEGED]

You learn that you are not one of the two people identified as a talent this year. Instead, they chose your co-workers Bas and Elke.

[3a. CO-WORKER EXPRESSIONS TO WORKFORCE DIFFERENTIATION – POSITIVE]

Your co-workers present at the meeting express **enthusiasm** for the talent program. Jos mentions that he finds it **interesting**, and that he is **proud** of the employees identified as a talent. Kim **admires** the talents, and Laura mentions that she sees you both as role models and an **inspiration** for this company. Bart is very **optimistic** and feels like there is **hope** for the employees not

"One major innovation that is likely to change how EVM studies are conducted in the future is the introduction of technologies that **enhance experimental realism**. Although we discussed the benefits of increasing the level of **immersion** by using audio or video vignettes, these methods do not necessarily engage participants fully. Because of this, some have advocated the use of full immersion **virtual reality** (Pierce & Aguinis, 1997)" (Aguinis & Bradley, 2014).

VR: State of the Art Literature (2021!)

“**Interpersonal processes** that naturally occur in an **organizational environment** could be manipulated in a controlled VR environment” (Pierce & Aguinis, 1997; JOB)

“The purpose of this article is to introduce virtual reality technology as a potential tool for **personnel selection** in organizations” (Aguinis, Henle, & Beaty, 2001; IJSA)

“We present how IVR technology can be used for **interpersonal skills training** in organizations” (Schmid Mast, Kleinlogel, Tur, & Bachmann, 2018; HRDQ)

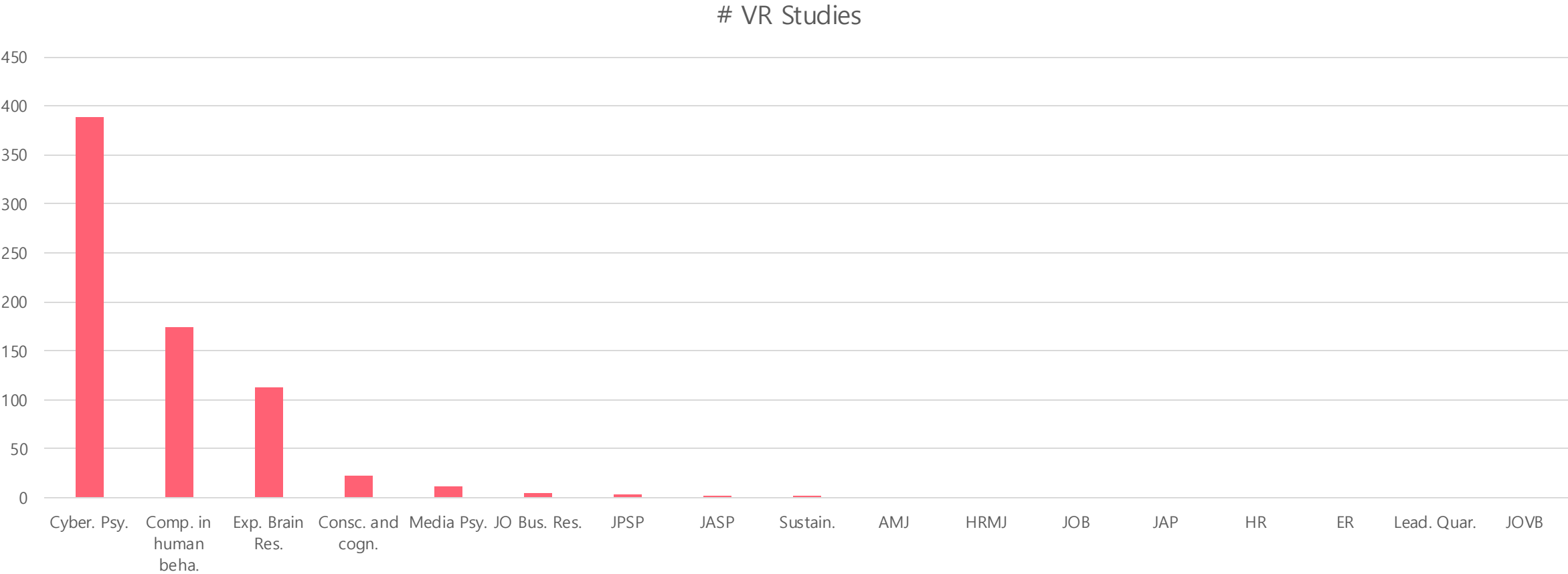
“We propose VR as a very promising tool to observe various **leadership** related behavioral patterns during dynamic, complex and realistic situations” (Alcañiz, Parra, & Chicchi Giglioli, 2018; Frontiers in Psy)

“We propose VR as an experimental approach to study **sustainable behavior in business**” (Jolink & Niesten, 2021; CRC)

However...

Time consuming, expensive, & lack of expertise

VR: State of the Art Literature (2024)



Definitions

Virtual Reality (VR):

Defined as a **technology-driven**, multi-sensory environment in which a perceiver, who is the user of the VR computer technology, experiences **presence**. In the context of VR, presence occurs when the VR user **loses awareness** of being present at the site of the human-computer interface and, instead, feels **present** or **fully immersed** in the VR environment.

Virtual Reality Video Vignette (VRVV):

"An immersive and virtual scenario depicting people, objects, environments, and/or events, that users observe through a head-mounted display, and that researchers systematically manipulate on a predetermined combination of characteristics". (van Zelderen et al., 2024; ORM).

*"In essence, participants could **interact with** [or **react to**] the world around them in a **realistic manner** while still being in the **controlled environment** of a laboratory". (Aguinis & Bradley, 2014; ORM).*

Simulating Virtual Organizations for Research

Empirical comparison:

- **Text vignettes**

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Simulating Virtual Organizations for Research

Empirical comparison:

- Text vignettes
- **Video vignettes**



Figure 1. Still from one of the experimental 360°-video vignettes (seen from the participant's—i.e., Robin's—point of view).

Simulating Virtual Organizations for Research

Empirical comparison:

- Text vignettes
- Video vignettes
- **VR video vignettes (VRVV)**



Figure 2. The 360° camera (Garmin VIRB®360) was mounted on a tripod and draped with a shirt to enhance realism for the viewer in first-person perspective.



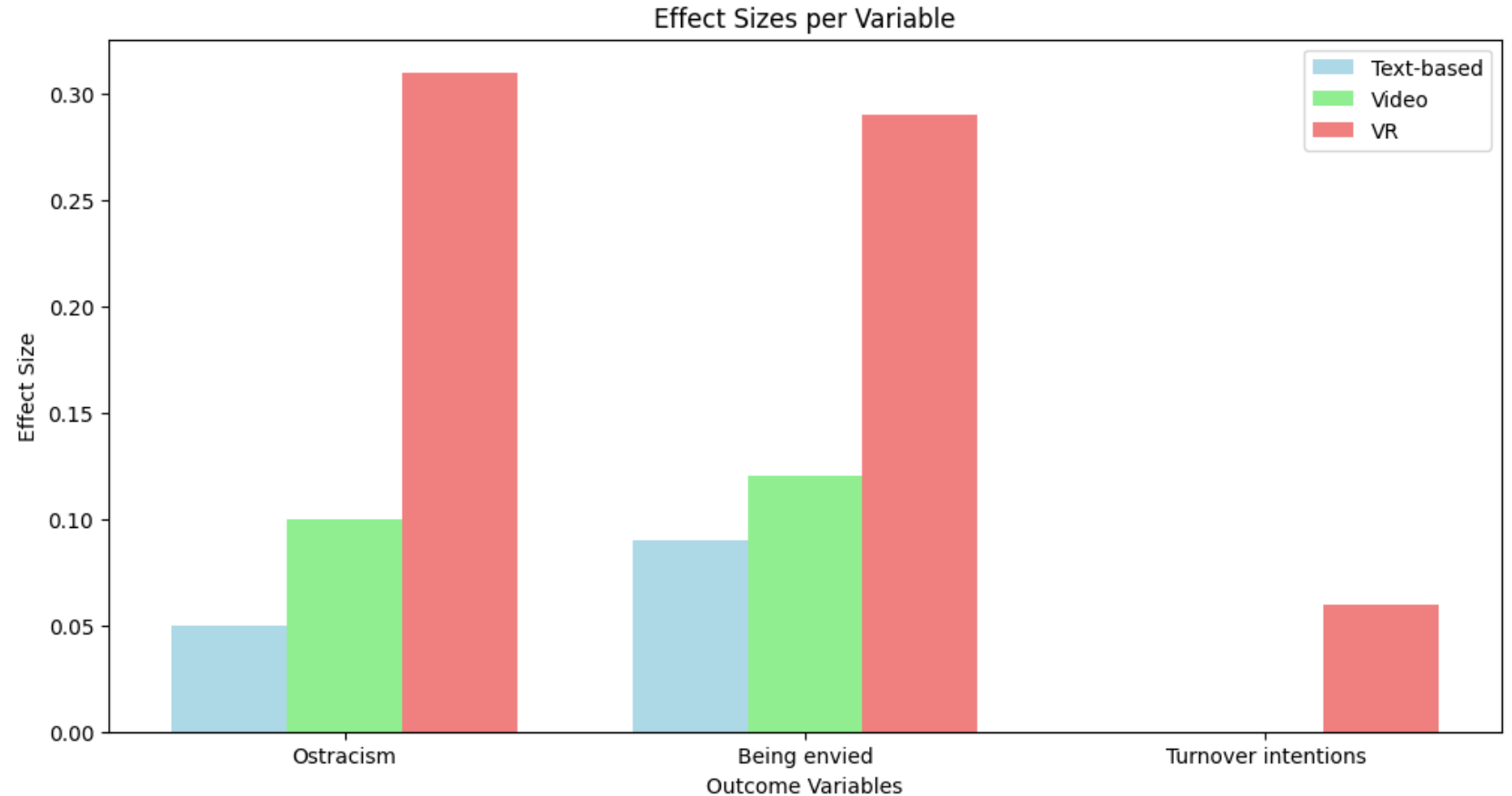
Simulating Virtual Organizations for Research

Empirical comparison:

- Text vignettes
- Video vignettes
- VR video vignettes (VRVV)

Outcomes

- Greater study **effect sizes**
 - Especially for affect



Simulating Virtual Organizations for Research

Empirical comparison:

- Text vignettes
- Video vignettes
- VR video vignettes (VRVV)

Outcomes

- Greater study effect sizes
 - Especially for affect
- More **attention**
- More **immersion**

Table 4. One-Way ANOVA Means Comparisons on Participants' Level of Immersion and Their Study Experience While Imagining Working at a Fictional Organization, as Introduced Through Text (Dataset 1), Video (Dataset 2), and VR (Dataset 3) Vignettes.

	Dataset 1 (Text)		Dataset 2 (Video)		Dataset 3 (VR)		Interstudy ANOVAs			
Variable	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>	<i>Df</i> ^a	<i>F</i>	<i>p</i>	Tukey's HSD ^b
Immersion										
Presence	3.85	1.34	4.63	1.35	5.58	0.87	815	88.72	<.001	1 < 2 < 3
Realism	3.35	1.36	4.04	1.46	4.73	1.22	815	51.58	<.001	1 < 2 < 3
Involvement	3.97	1.16	4.10	1.06	4.91	1.29	818	30.49	<.001	1, 2 < 3
Attention ^c										
Manipulation 1	0.01	0.12	0.05	0.22	0.02	0.13	830	4.17	.016	1, 2, 3
Manipulation 2	0.30	0.59	0.32	0.52	0.17	0.37	830	3.74	.024	1, 2 > 3
Vignette noise	0.95	0.71	1.04	0.70	1.11	0.58	830	2.98	.051	3, 2 > 1, 2

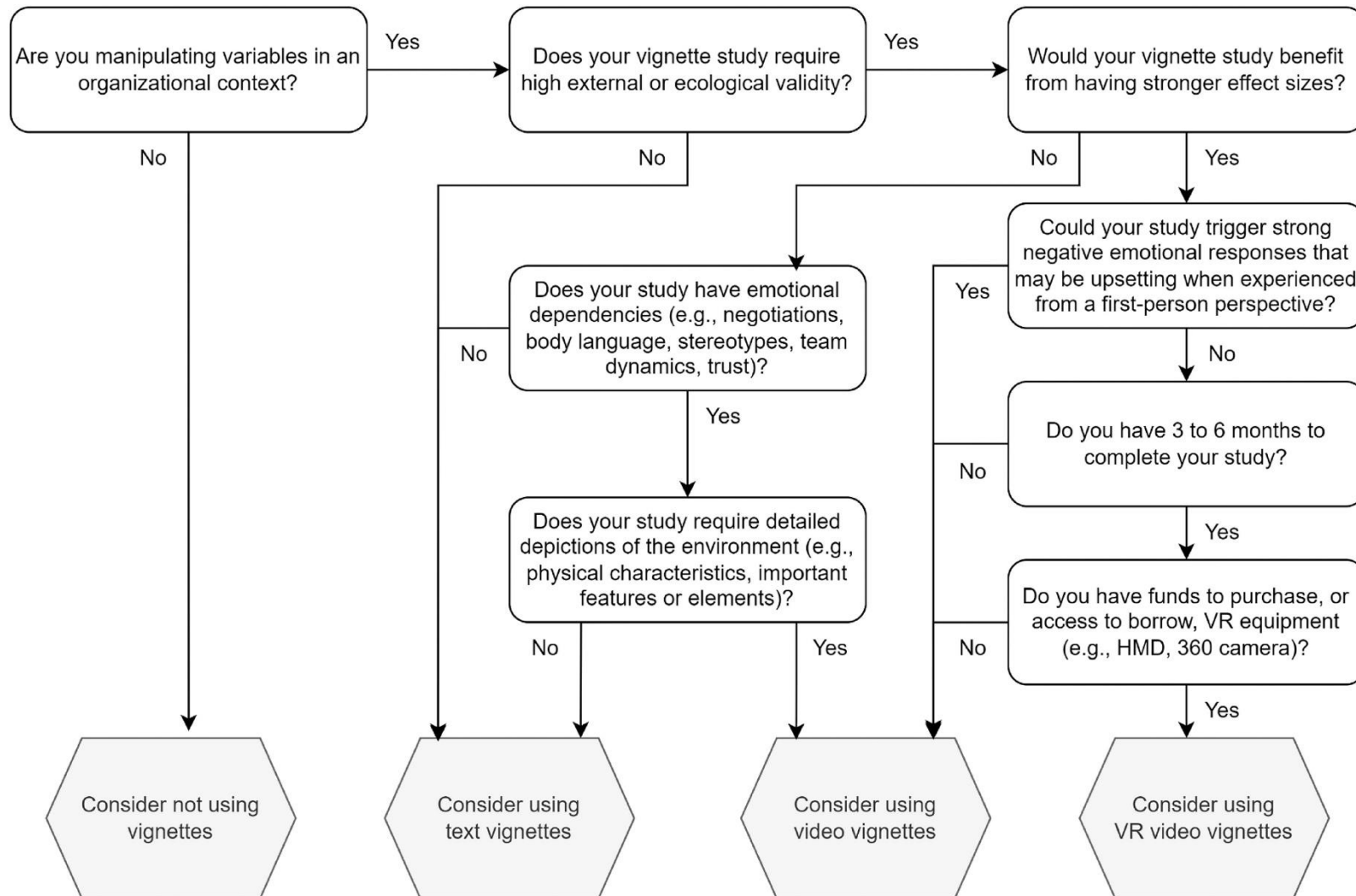
Abbreviation: ANOVA=analysis of variance; HSD = honest significant difference; VR=virtual reality.

^a Degrees of freedom (error).

^b Significant differences at $p = .05$ obtained by Tukey post hoc.

^c Quantity of mistakes on information recall tasks; 1: Did you benefit from the workforce differentiation?; 2: How did your co-workers respond?; noise: name of the HR director and years since the fictional organization was established?

Simulating Virtual Organizations for Research



Example VR studies

Research (with VR as a tool)

Expose participants to a [x] experience

- Tentative (*How would it be to work with robots?*)

Do/can people build meaningful **social connections** with virtual entities?

Can VR shape our **beliefs** about the future of work?

Results show that we feel greater social closeness to virtual beings that mimic us



Example VR studies

Research (with VR as a tool)

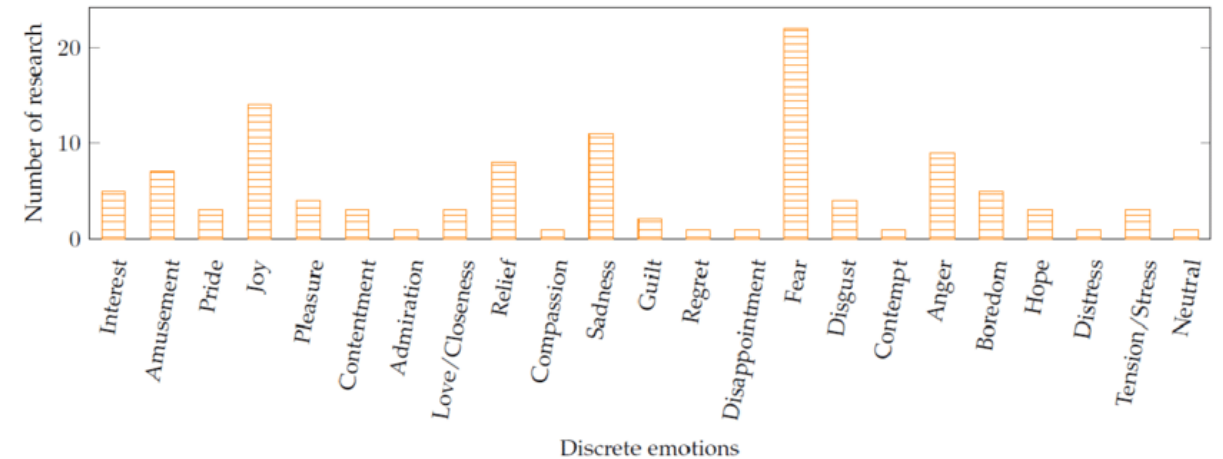
Expose participants to a [x] experience

- Emotion-inducing (e.g., *Richie's Plank Experience*; fear)

Can VR be used to **overcome anxiety**?

How is employees' **decision making** impacted by their current emotions?

Results show that VR is an effective mindfulness tool to alleviate stress at work



Example VR studies

Research (with VR as a tool)

Expose participants to a [x] experience

- Perspective-taking (*How does it feel to be like them?*)

Can VR be used to reduce people's **bias**?

Do we act in line with **stereotypes** when we embody someone that looks differently from us?

Results show that we become more empathetic towards marginalized groups through VR experiences



Example VR studies

Research (with VR as a tool)

Expose participants to a [x] experience

- Unethical (*e.g., Induce trauma on 'others'*)

Do/can people feel **empathy** for virtual entities?

How **traumatizing** can a VR experience be?

Results show that participants secretly try to aid the virtual human to avoid feeling distressed



VRVV (Reactive)

- Static (on rails)

Benefits:

- Realistic (recording)
- Affordable [approx. €500 - €4,000]
- Accessible
- No programming required

Disadvantages:

- No real-time responses
- No sense of agency (limiting immersion)

Immersive VR (Interactive)

- Dynamic (behavior may influence IVE)

Benefits:

- Real-time responses
- Agency over virtual self/avatar
- Unrealistic scenario's
- Growing database of virtual assets/environments

Disadvantages:

- Expensive custom designs [approx. €50,000+]
- May require programmers/designers
- Application may be limited to brand/version of HMD

Guide for developing a VRVV

Requirements for recording:

- 360 camera

Guide for developing a VRVV: 360 Camera

Entry-level

Samsung Gear 360 (€274,82)

4k @ 24fps – HD @ 30fps

Automatic stitching

Cardboard ready



Med-level

Garmin VIRB 360 (€699,99)

5,7k @ 30fps – HD @ 120fps

Automatic stitching

HMD ready



'Top-of-the-line'

INSTA360 Pro (€4.819,00)

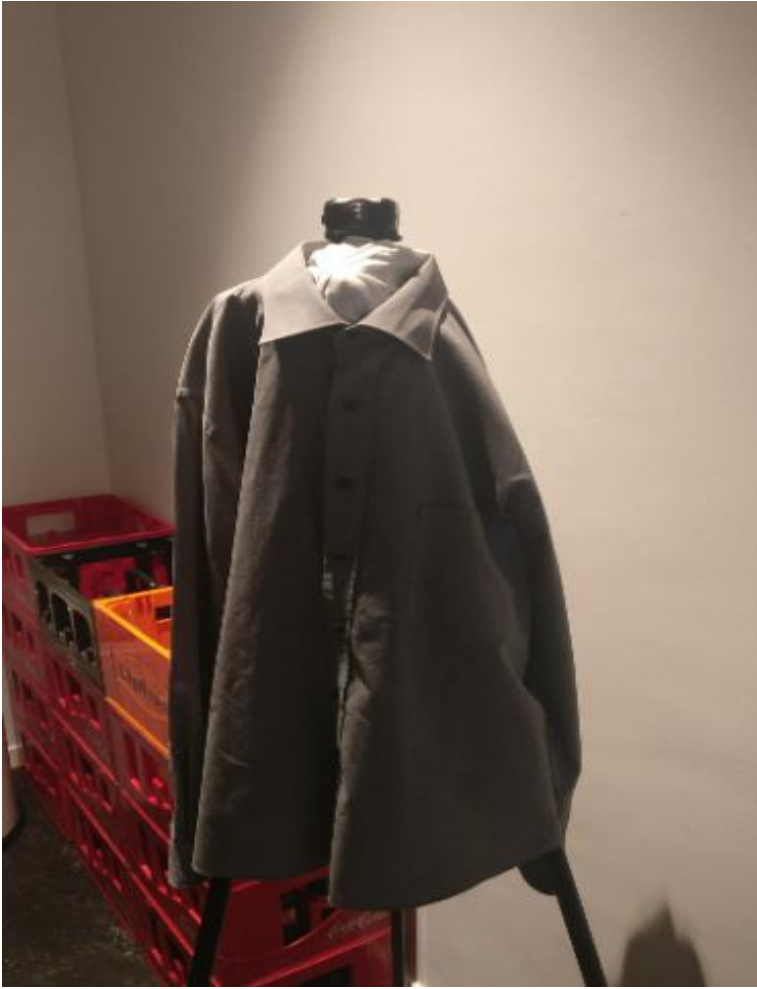
8k @ 30fps – 4k @ 120fps

Real-time stitching

HMD+ ready



Guide for developing a VRVV: 360 Camera



Guide for developing a VRVV: PoV



Guide for developing a VRVV

Requirements for recording:

- 360 camera
- Location
- Actors
- Script

Things to consider:

- Transitions between segments (e.g., fade to black)
- Emphasize important details/manipulations (e.g., grab attention; sound)
- Communicate towards the camera
- No loud shoes
- Consider the stitch

Guide for developing a VRVV: Stitch



Guide for developing a VRVV: VR Headset

Entry-level

Samsung Gear (€69,90)

Phone dependent

Mobile

VR-videos only



Med-level

Oculus Quest 3 (€329,99)

4k resolution

Mobile

Video & most VR apps



'Top-of-the-line'

Varjo XR 4 (€6.990,00)

5k resolution

Tethered

Seamless interactions in IVE



Synthetic Field Studies

Simulating Organizations AND its Actors Virtually

- **Generative AI** technology to simulate organizational actors
 - E.g., Energizing leader, toxic co-worker, demanding client
- **Extended Reality** (XR) to simulate (parts of) organizational environments



Similar to 'real' field studies

- Dynamic social interactions
- Mirror contextual complexity
- Psychological realism
- Ecological valid responses

Benefits over 'real' field studies

- Full experimental control
- Greater accessibility
- Higher replicability
- Ethical flexibility

Drawbacks?

- Novelty; reviewer skepticism?
- Inappropriate for longitudinal research
- Over-attribution of meaning
- Technical dependency

Openverse

Open Science Initiative:

Open Research Data Sharing Protocols

Objective: Democratize access to cutting-edge immersive research tools, promote replicability in process.

Resources: Fully customizable office-space with AI-powered avatars. (valued at ~ €335.000).

Price? Free. Return the favor (if you can!).

60+ Community members

30+ Institutions

15+ Countries

<https://www.leadthefuture.org/openverse>

van Zelderen, A. P. A., Masters-Waage, T. C., Affinito, S., Bekbergenova, A., Cowan, K., Hartmann, T., Hausfeld, M. M., Jolink, A., Korbel, J. J., Lynn, T., Reinier, L., Singh, D. P., Wu, S., Bosse, T., Deros, E., Kristen, F., Fritz, T., Gomez-Zara, D., Hauser, C., He, V., Howe, L. C., Jain, D., Kinias, Z., Lukic, Y. X., Menges, J. I., Mortezapour, A., Nagaraj, A., Park, C. H., Sanchez, D. R., Schellaert, M., Streuber, S., Viganò, E., Villano, M., Vleugels, W., Zank, M., & Hubbard, T. D. Creating common virtual ground: Protocols to democratize replicability in XR research. Science, (R&R-round 3).



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