

STUDENT- CENTERED RESEARCH



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**Universiteit
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Introducing the TELS Lab

TECHNOLOGY-ENHANCED LEARNING SCIENCES
LAB

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Introducing the TELS Lab

TECHNOLOGY-ENHANCED LEARNING SCIENCES
LAB

Student-centered research
community

Collaboration between students,
professors and research experts

Research projects



CURRENT PROJECT: Perceptions of IVR in higher education



“

RQ1: How do students and teachers perceive the key **facilitators** for using IVR effectively in learning about social issues in higher education?



RQ2: How do students and teachers perceive the main **obstacles** to using IVR effectively in learning social issues in higher education?

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PRIOR RESEARCH

Available research covers mostly medical settings, using IVR as a training tool. Limited application is reported in other higher education settings regarding social issues.



IVR SIMULATION: **1,000 Cut Journey**

Developed by the Cogburn Research Group at Columbia University in collaboration with the Virtual Human Interaction Lab at Stanford University in 2018.

Center for eResearch. (2022, July 12). 1,000 Cut Journey [Video recording]. (subtitles added).

METHODS



The screenshot shows a web-based survey interface. At the top, it says 'Quantitative Survey - IVR Experience'. Below this, there is a link to log in with Google and a link for more information. A red asterisk indicates a mandatory question. The survey is divided into parts, with 'Survey - Part 1' highlighted. The instructions ask participants to fill in two questions before the VR experience. The first question asks how they feel at the present moment, with a 10-point scale from 'Very Bad' to 'Very Good'. The second question asks which emotions they connect to how they are feeling at the present moment.

Quantitative Survey - IVR Experience

[Log in bij Google](#) om je voortgang op te slaan. [Meer informatie](#)

* Verplichte vraag

Survey - Part 1

Please fill in the two questions below **before** the VR experience.

1. How do you **feel** at the present moment? *

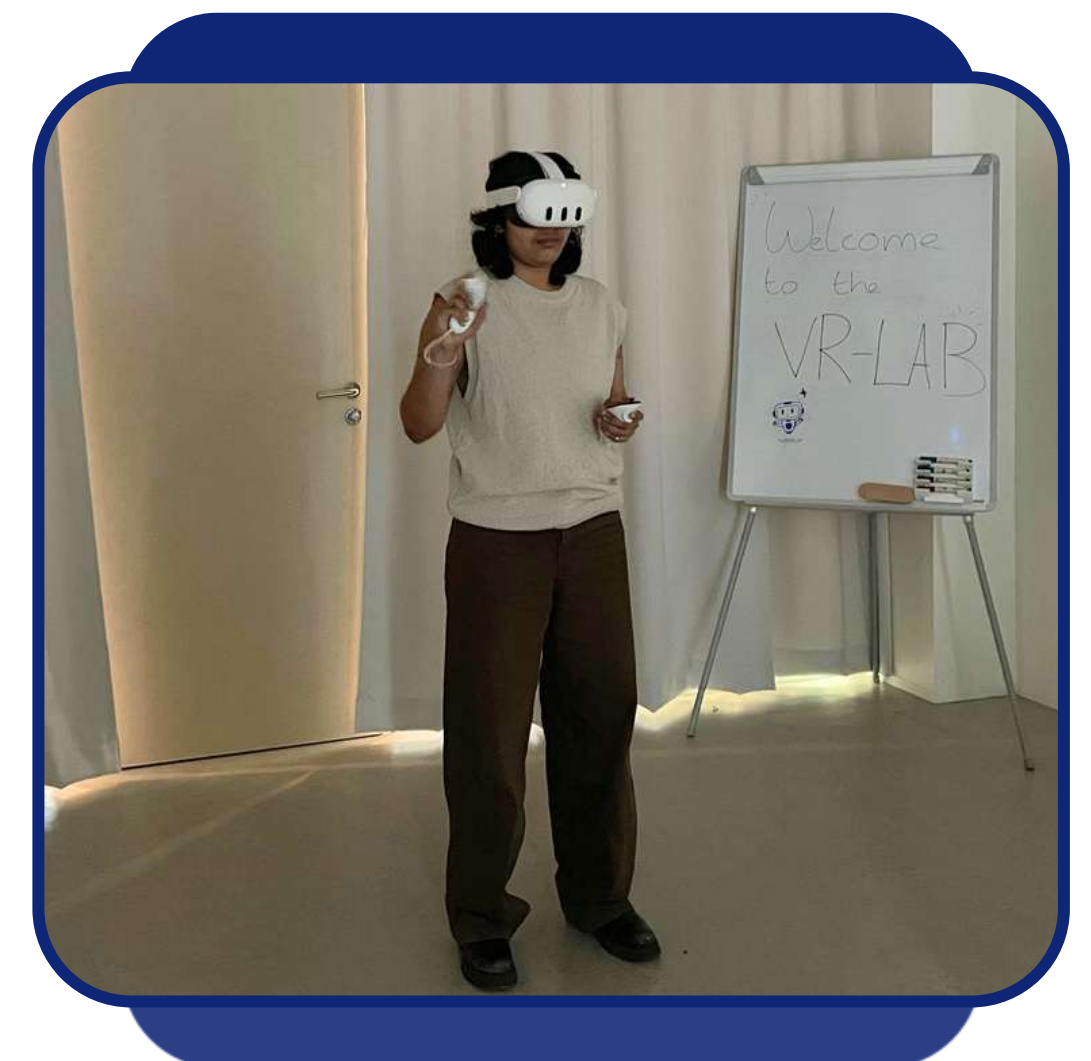
1 2 3 4 5 6 7 8 9 10

Very Bad ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ Very Good

2. Which **emotions** would you connect to how you are feeling at the present *

Survey Completion

Data gathered before and after IVR experience



IVR Experience

10 - 15 minutes of IVR in Lab



Semi-structured Interview

Asking participants' opinions on the tool and its utility in class

FACILITATORS

OBSTACLES

RECOMMENDATIONS



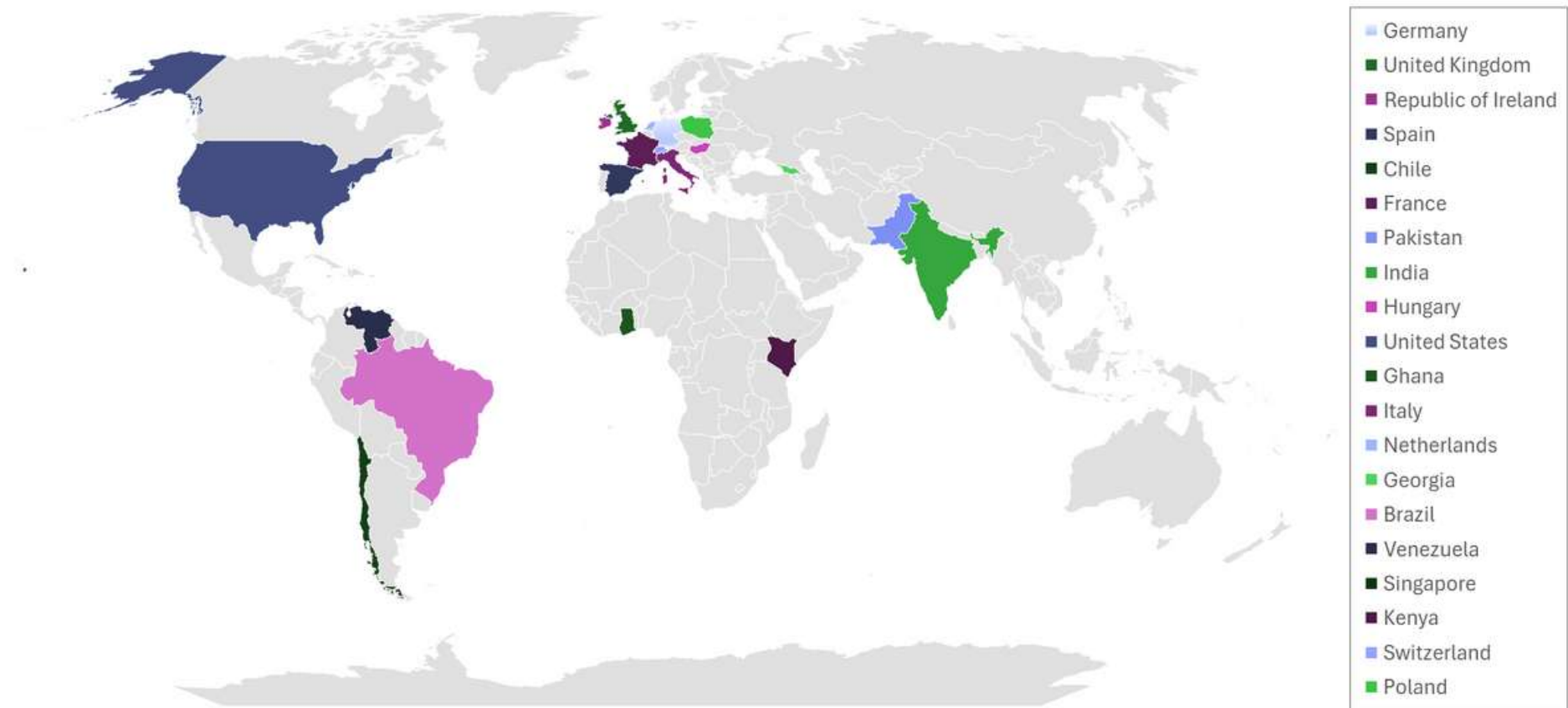
Thematic analysis

Transcripts coded based on 50+ codes, within three themes

DEMOGRAPHICS

- Most participants were **white** (17), ethnically **European** (12), and **women** (15)
- The nationality of the participants was very diverse, with some participants having two, or even three nationalities

World Map of Participant Nationalities



Powered by Bing
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FACILITATORS

ATTENTION THROUGH ACTION

EMPATHY, EMOTIONALITY & PERSPECTIVE TAKING

COMPLEMENTARY TOOL

COMPREHENSIVE EXPERIENCE



OBSTACLES

IN-CLASS LOGISTICS

LIMITED SCOPE OF CONTENT

TEMPORARY ENGAGEMENT VS. SUSTAINED LEARNING

BASELINE PROFICIENCY AND INTEREST

RECOMMENDATIONS

ADDING DISCUSSION

INCLUSIVE AND NUANCED CONTENT

INCREASE IMMERSION

FACILITATORS

ATTENTION THROUGH ACTION

By making the users move around in the virtual world and interact with different characters and objects, IVR **compels the brain to stay engaged and immersed**.

EMPATHY, EMOTIONALITY & PERSPECTIVE TAKING

IVR facilitates perspective taking and offers a **peek into other's lived experiences**, which would not be possible to the same extent with other conventional teaching methods. Perspective taking through IVR is supported by the **elicited emotionality** of the scenes and scenarios, creating a feeling of **empathy**.

COMPLEMENTARY TOOL

IVR is an effective tool in teaching social issues that has **many added benefits** over other conventional educational tools, while also performing best when **used in combination** with other teaching tools



COMPREHENSIVE EXPERIENCE

IVR offers a **comprehensive experience**, with content, visuals, and audio all playing an important role in facilitating engagement. Sufficient **content, visuals, and audio collectively** determine and result in IVR effectiveness.

OBSTACLES

IN-CLASS LOGISTICS

Obstacles of in-class application mentioned by participants were **logistical details** like small classroom sizes, the cost of implementation, and a lack of free class-time that could be dedicated to IVR.

LIMITED SCOPE OF CONTENT

IVR showed one very **narrow perspective** of the story, the experience was very **one-dimensional**, failing to capture the complexity of marginalized existences

TEMPORARY ENGAGEMENT VS. SUSTAINED LEARNING

Doubts whether short-term engagement and short-term effects translate to sustained learning and long-term effects. Professors specifically viewed IVR as a **gimmick**.

BASELINE PROFICIENCY AND INTEREST

Effectiveness and in-class application of IVR are highly **dependent** on the baseline technological proficiency of professors, and the baseline interest of students.

RECOMMENDATIONS

ADDING DISCUSSION

Firstly, **to learn the theory** behind social issues, to relate the IVR experience to theory. Secondly, **to process** what happened during the experience, since many students had intense emotional reactions to the scenes shown.

INCLUSIVE AND NUANCED CONTENT

Make the content more **inclusive and intersectional**, putting a stronger focus on **micro-aggressions**, to be a more accurate depiction of reality

INCREASE IMMERSION

Increase immersion in the IVR experience, though the inclusion of more **interactive components**, increased user **agency**, and by increasing **familiarity and relatability**.

These are preliminary findings.

We are currently working on identifying the differences across the perceptions between professors and students.

THANK YOU