



**HAL**  
open science

## Experiencing schizophrenia symptoms through augmented reality: from assessing students needs to prototyping a simulation

Emma Tison, Solène Delsuc, Claudia Krogmeier, Arnaud Prouzeau, Martin Hachet, Antoinette Prouteau

### ► To cite this version:

Emma Tison, Solène Delsuc, Claudia Krogmeier, Arnaud Prouzeau, Martin Hachet, et al.. Experiencing schizophrenia symptoms through augmented reality: from assessing students needs to prototyping a simulation. SIRS 2024 - Congress of the Schizophrenia International Research Society, Apr 2024, Florence, Italy. . hal-04574421

**HAL Id: hal-04574421**

**<https://hal.science/hal-04574421v1>**

Submitted on 14 May 2024

**HAL** is a multi-disciplinary open access archive for the deposit and dissemination of scientific research documents, whether they are published or not. The documents may come from teaching and research institutions in France or abroad, or from public or private research centers.

L'archive ouverte pluridisciplinaire **HAL**, est destinée au dépôt et à la diffusion de documents scientifiques de niveau recherche, publiés ou non, émanant des établissements d'enseignement et de recherche français ou étrangers, des laboratoires publics ou privés.

# EXPERIENCING SCHIZOPHRENIA SYMPTOMS THROUGH AUGMENTED REALITY: FROM ASSESSING STUDENTS NEEDS TO PROTOTYPING A SIMULATION

Tison, E.<sup>1,2</sup>, Delsuc, S.<sup>1</sup>, Krogmeier, C.<sup>2</sup>, Prouzeau, A.<sup>3</sup>, Hachet, M.<sup>2</sup>, Prouteau, A.<sup>1</sup>

<sup>1</sup>Univ. Bordeaux, LabPsy, UR 4139, Bordeaux, France <sup>2</sup>Centre Inria de l'Univ. Bordeaux, Bivwac Team, Bordeaux, France <sup>3</sup>Centre Inria Paris-Saclay, ILDA Team, Paris, France



## BACKGROUND

- ❖ The stigma of schizophrenia is both present **among mental health professionals** (for a review see Valery and Prouteau, 2020), and **students** (Sideli et al., 2021)
  - Negatively associated with the level of clinical experience (internship, etc) (Fernandes, 2022).
- ❖ The effects of **technological interventions** on the **stigmatisation** of professionals are **contradictory**. (for a review see Rodriguez-Rivas et al., 2022 ; Tay et al., 2023).
- ❖ These negative outcomes may be explained by the **focus of the interventions on symptoms** rather than **the recovery process**. Moreover, it has been suggested that they should be used with caution and **ideally in combination with educational or contact interventions** (Ando et al., 2011).
- ❖ There is **no data on French mental health students' training needs** and their **interest in an augmented reality (AR) simulation** of schizophrenia.



## RESULTS

288 responses / Students in psychology (n=69), medicine (n=82), nursing (n=90), etc...

- ❖ **Training needs of mental health students:**
  - Regarding usefulness of training, two type of courses were rated as most useful to increase professional legitimacy:
    - **Clinical internships** (67.36%) ➔ Most active training type!
    - **Role plays or practical cases** (24.65%).
  - **54.2%** report that there is **not enough clinical practice** in mental health in their training.
  - **Globally unsatisfied with schizophrenia training** (69.4%).
  - Two type of courses identified as helping schizophrenia training:
    - **Clinical internships** (35-37%) ➔ Contact with people!
    - **Testimonials from patients or peer caregivers** (32-31%)
- ❖ **Expected content for AR instrument:**
  - **Experiencing and visualising** (73.3%) symptoms
  - For both **positives** and **negatives symptoms** (88.5%).
  - In ecological context: **different life events** (49.7%)
  - **Small group training session** (80.2%)

### IDEAL TIMELINE FOR AR INTERVENTION

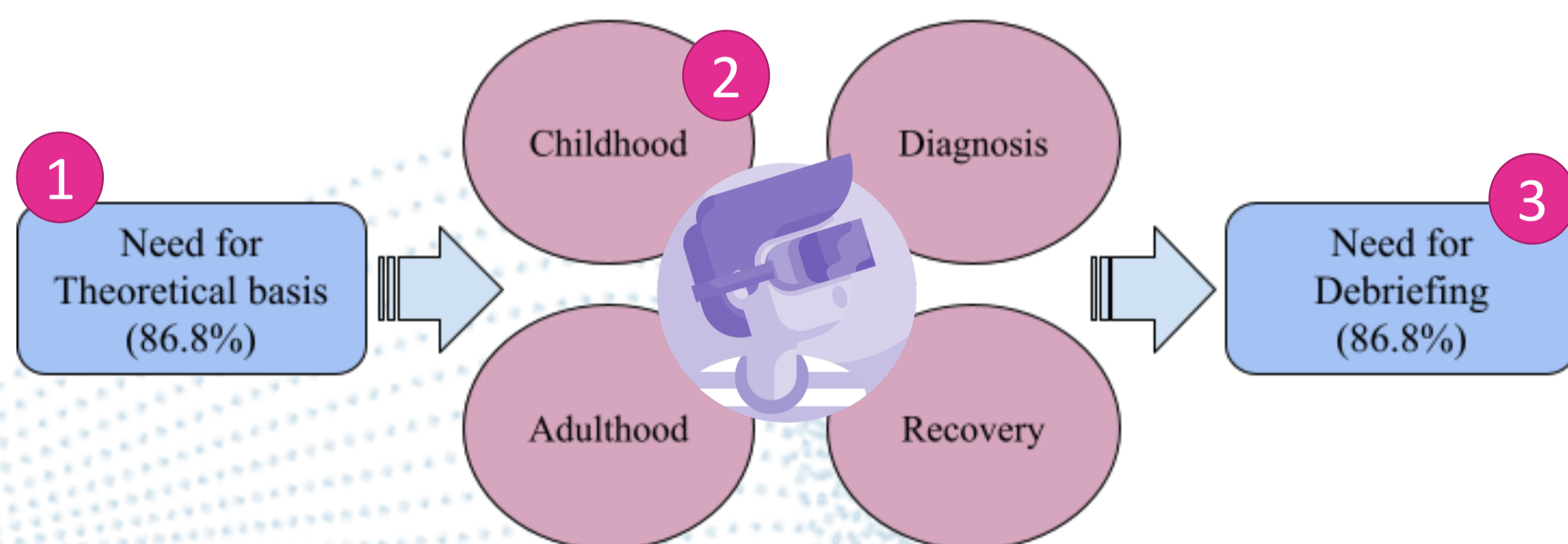


Figure 1. Augmented reality simulation methods according to our sample.



## DISCUSSION

- ❖ According to our sample: lack of clinical practice in their training and the most useful lessons for understanding the experience of symptoms are internships or contact with patients.
  - **AR could be a solution!**
- ❖ Students are interested in an augmented reality simulation of the symptoms of schizophrenia **outside a clinical/professional context**.



## OBJECTIVES

Our objectives were:

1. Gather **students' needs** and **expectations** regarding their **training**,
2. Determine the **relevance** of a simulation in AR and its **implementation context**.



## METHOD

A mixed participatory approach:

- ❖ Step 1: **Focus group** including N=6 psychology students
  - ➔ generating the survey



Q: As part of your training, do you think it would be relevant and interesting to put these symptoms into practice using AR?

- Man1: « Absolutely. Especially the positive symptoms, to put ourselves in the shoes of people who experience these symptoms. »
- Woman4: « I totally agree, but I'd also like to have that for the negative symptoms. »

- ❖ Step 2: **Online questionnaire** (LimeSurvey)

❖ 20 items to assess:

- ❖ **Mental Health Training:** satisfaction and importance of clinical practice in training curriculum
- ❖ **Feelings of legitimacy** for future professional practice
- ❖ **Schizophrenia related training:** characteristics and satisfaction
- ❖ **Augmented reality:** interest and content of an AR tool for schizophrenia training



Q: Would you be interested in an augmented reality simulation of these symptoms as part of your training?

- Yes, for positive symptoms    
  Yes, for negative symptoms    
  Yes, for positive and negative symptoms    
  No



## PERSPECTIVES AND IMPLICATIONS

We design a first AR prototype to simulate the symptoms of schizophrenia based on this study result and the available literature in training and destigmatisation:

### DESCRIPTION OF AR PROTOTYPE

**Participant:**

- Equipped with headphones and keyboard
- Play the role of a drama student
- Must complete a task on a virtual computer + Virtual television screen (figures 2, 3)

**Symptomatology for now:**

- Auditory hallucinations
- Delusions: of reference, theft of thoughts
- Feeling of being watched



Figure 2. The two virtual screens. On the left, the computer screen with the task to be carried out; On the right, the virtual television, which broadcasts some of the participant's responses.

In progress: **Viability study** with 3 research questions

- Is the simulation able to **reliably represent symptoms** of schizophrenia?
- How effective is the AR environment in providing **an engaging user experience**?
- What is the potential of this tool to be used for **educational purposes**?

If the viability study is positive, to go further: Future research will focus on testing the simulation in terms of **training and destigmatizing efficacy**.



Figure 3. A student testing the AR device. She must complete a task on a virtual computer (homework) while experiencing symptoms of schizophrenia.