# Towards a Psychosocial Ergonomics of Virtual Immersive Telepresence

## Analysis of Virtual Environments for the Treatment of Anxiety Disorders

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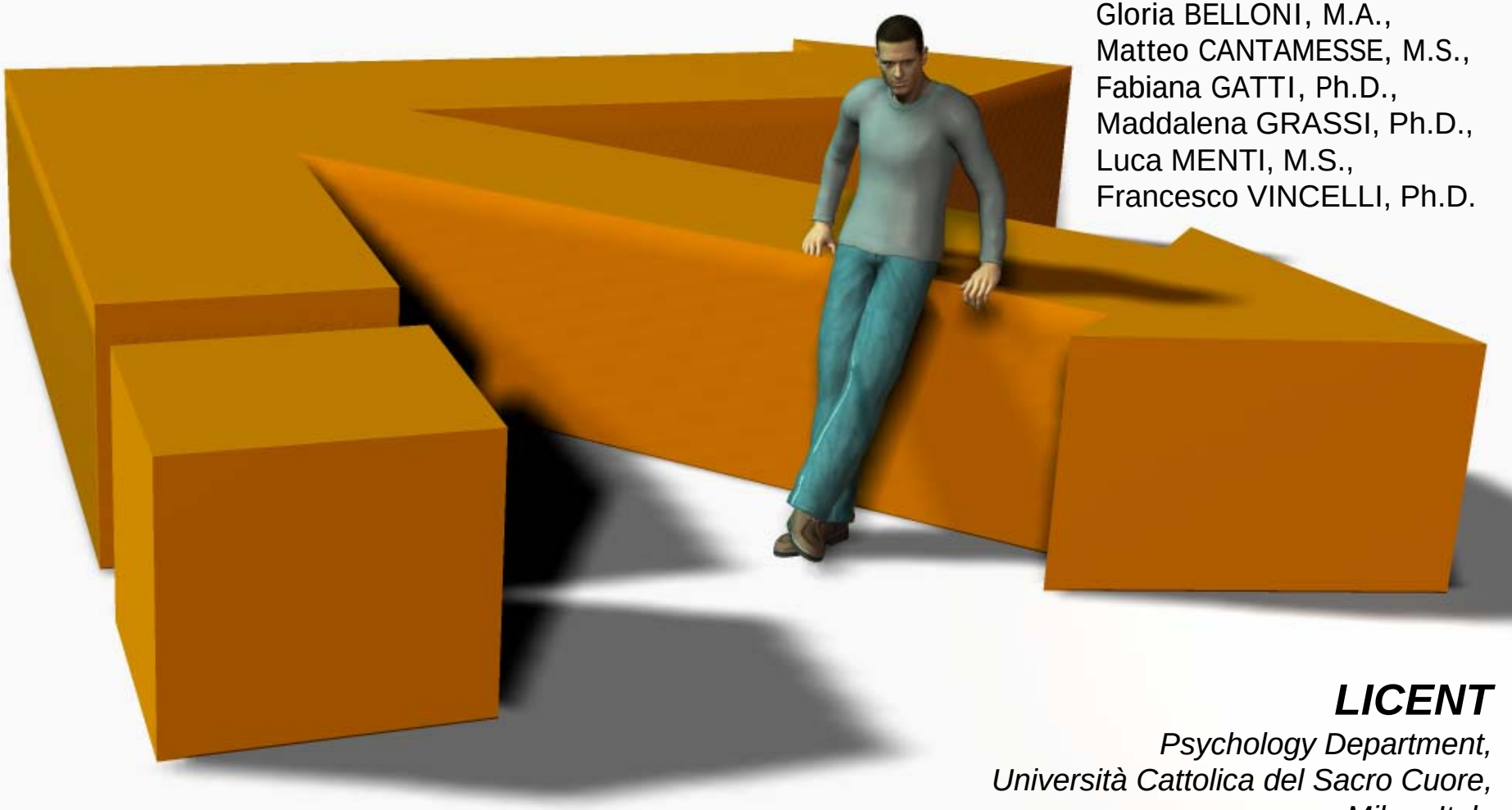

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# The start: VEPSY Project

**VEPSY UPDATED** was a *European-Union funded* research project for Telemedicine and Portable Virtual Environments for Clinical Psychology.

The main goal of the project was to prove the **technical and clinical viability** of using portable and shared Virtual Reality systems in clinical psychology.

The project won the **Honourable Mention Award** at the “eHealth Award 2004”, Cork organised in cooperation with the European Commission

General scope of **NeuroTIV FIRB** project:

- to provide enhancements to the tools for the treatment of patients;
- to plan actions for dissemination of its results
- to integrate the approach to ergonomic analysis of 3D Virtual Environments for psychotherapy

# Role of **LICENT** équipe:

- **Processing of the Virtual Reality (VR) models usable in clinical contexts**:
  - Gathering technical requisites guaranteeing optimal functioning;
  - Gathering and processing of the clinical requisites enabling the VR modules to be effective for their target pathologies;
  - Development of offline VR modules for anxiety disorders that are suitable for the requisites gathered.

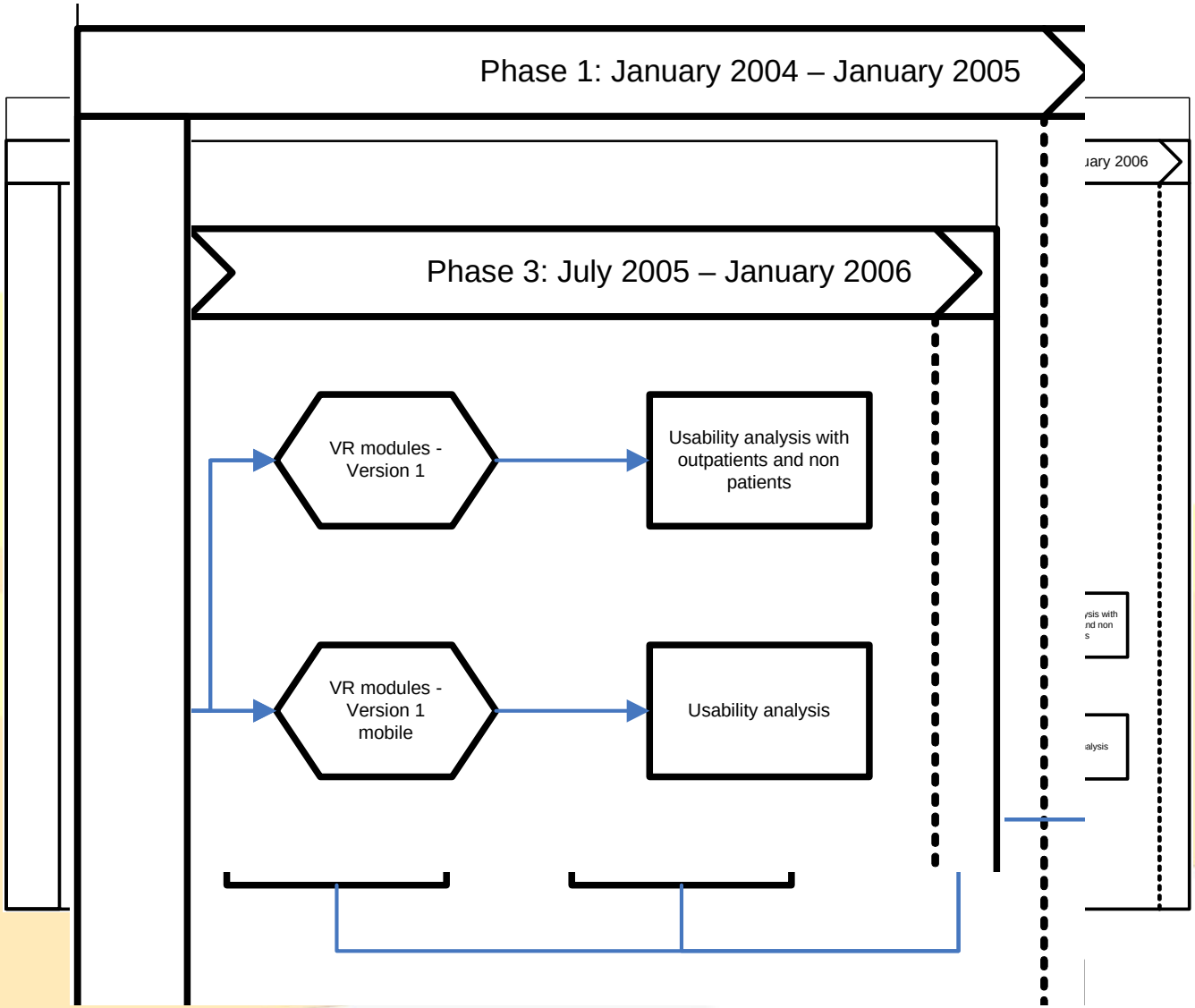
- **Usability analysis of the developed VR modules for clinical use**:
  - Analysis of modules for anxiety disorder treatment to be used in the physical co-presence of therapist and patient;
  - Analysis of VR modules for the treatment of eating disorders in both co-presence situations and at a distance;
  - Fine-tuning of VR modules on the basis of the tests performed.

We are driven by an **integrated approach** to the ergonomic analysis of virtual environments in psychotherapy of anxiety disorders.

**Main characteristics** of this approach are:

- respect of situation ecology, intended as
  - **Ecology of context**
  - **Ecology of users**
- **Design** of a community of practice composed by psychotherapist users.

# Project's Flowchart



We are facing **2 challenges** from a methodological point of view:

- from one side, **the need to adapt and to integrate** on a heuristic basis classic usability evaluation methods to specific artifacts such as 3D Virtual Environments for clinical applications;
- from the other hand, the problems arisen by **integration of expert evaluation** of VR environments user-based tests carried out in real context of use.

We believe that those challenges could be faced by:

Shifting from

**object ergonomy** to **process ergonomy**

**Ecology of context**:

- We need to search for evidences of how people, in specific social situations, are able to solve complex tasks producing shared meanings and achieving their goals during interaction

**Design of a community of practice**

- The methodological goal consisted also in the identification of usability requirements of the specific *community of practice* by whom Virtual environments are to be used

# Tools' Modulation

Data had been producted by means of different situations:

- **functional analysis** of VR environments;
- **Observational analysis** of videotaped patient-VR environments interactions, therapist-patient interactions and therapist-patient-VR environments interactions during therapy sessions
- **Semi-structured interviews** to out-patients
- **Usability tests** performed by out-patients
- **Different data analysis technique**, both quantitative and qualitative, are presently applied to data producted.

# Some ScreenShots

# Novelty

Main goal of the study is to go ‘beyond interfaces’, extending ergonomic analysis of 3D virtual environments use in psycotherapy to such topic as:

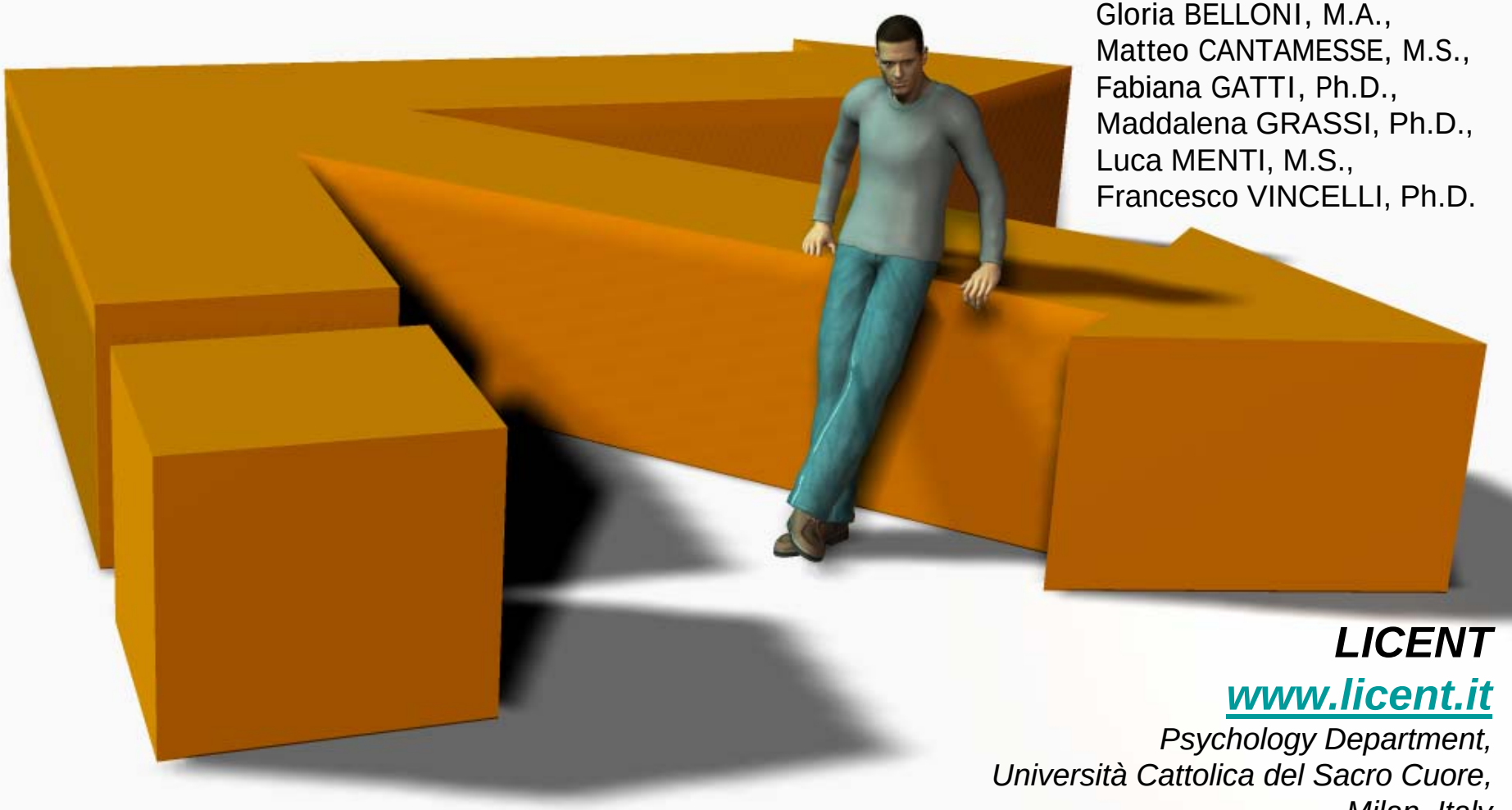
- their pragmatict context of use,
- the culture of use featuring the community of professional users,
- side-effects and by-products of their application.

Analysis outcome:

- ergonomic characteristics tailored by psycotherapist
- user’s experience features as managed by psycotherapist during therapeutic process
- back to the Psychosocial approach
  - » Ongoing Cognitions
  - » Ongoing Representations
  - » Acted interactions (verbal and non verbal)

VR modules’s enhancement/improvements driven by deeper awareness of their ecological value

# Thank you



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