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**Carlo Galimberti, PhD**

M. Cantamesse, PhD candidate, G. Belloni, MA, F.Gatti, PhD, M.Grassi, PhD

**The transformation of therapy through the introduction of VR:  
a psychosocial integrated approach to investigate the VR therapy design process**



Centro studi e ricerche  
di Psicologia della Comunicazione

Centre of Study and Research  
on Communication Psychology



## **Content:**

- Objectives
- VRET (Virtual Reality Exposure Therapy)
- Reference projects
- Theoretical framework
- Challenges in usability evaluation: from VEPSY to NeuroTIV towards a psychosocial integrated approach

## Objective

Development of a psychosocial model for analysing the **usability** and **ergonomics** of virtual environments used in **cognitive behavioural psychotherapy** within the context of two projects dedicated to VR-supported cognitive behavioral psychotherapy

## VRET (Virtual Reality Exposure Therapy)

**Cognitive-Experiential Therapy aims to:**

- De-condition fear reactions
- Modify representation of reality and distorted convictions regarding panic-symptoms
- Reduce anxiety-related symptoms

The innovative aspect is the integration of cognitive behavioural techniques with the experiences offered by VR.

Recent studies identified pathologies with which VR based cognitive therapy is most effective:

**Panic disorder** and **Agoraphobia**

## Projects

**VEPSY UPDATED** was an IST *European Project - 5th FWP*  
"Telemedicine and Portable Virtual Environments for Clinical Psychology".

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

2001 - 2003



**NEUROTIV** is a MIUR -FIRB National project

2004-2007

## Theoretical framework

### Ethnometodological approach

A perspective that gives evidence of how people in specific **social situations** succeed in facing and solving complex tasks producing shared meanings and achieving their goals, in order to make their actions successful and understandable by other people involved in interaction

## Challenges in the usability evaluation: the VEPSY experience

VEPSY project: main goal was to obtain **usability evaluation** of processes of VR use as performed by 'real' users in 'real context of use'

- Basic functional evaluation
- Minimum threshold of ergonomic acceptability on the basis of specific guidelines prepared by our research unit
- New method taking into account requirements needed by:
  - Psychotherapists
  - Patients affected by specific psychopathologies
- Integration of results after Large Clinical Trials (comparison and interaction with the clinical group)

## VEPSY project: lessons learned

### We know

- Users are immersed in a social and goal-driven/oriented context
- The ambiguity inherent to everyday situations (re)presented in VR environments can be used/modulate to sustain the treatment

## VEPSY project: lessons learned

### We need

- A more context-situated analysis in order to better understand possible discrepancies between standard clinical protocol and the real use of VR environments during the treatment
- More in-depth analysis about requirements connected with the realism of experience intended as a physical and psychosocial features of VEs

## Next step: the NeuroTIV Project

From the usability point of view, the validity of system's requirements can be significantly different NOT ONLY between patients and non-patients  
**BUT**  
also with reference to the efficacy of the specific therapeutic approach



The ergonomic evaluation was included in the design process since the very beginning of the project  
The attempt to meet clinical and ergonomic requirements are now two aspects of the same design process and cannot be considered separately

## NeuroTIV project: clinical-ergonomic evaluation

Phase	Therapist 1			Evaluation	Object
1	Patients VR n=4			Clinical-ergonomic	Basic VR Modules
1	Patients CBT n=4			Clinical	
1	Patients WL n=4			Clinical	
	Therapist 1	Therapist 2	Therapist 3		
2	Patients RV n=3	Patients RV n=3	Patients RV n=3	Clinical-ergonomic	VR Modules Release 1.0
2	Patients CBT n=3	Patients CBT n=3	Patients CBT n=3	Clinical	
2	Patients WL n=3	Patients WL n=3	Patients WL n=3	Clinical	
3	VR Outpatients n=4			Ergonomic	VR Modules Release 2.0

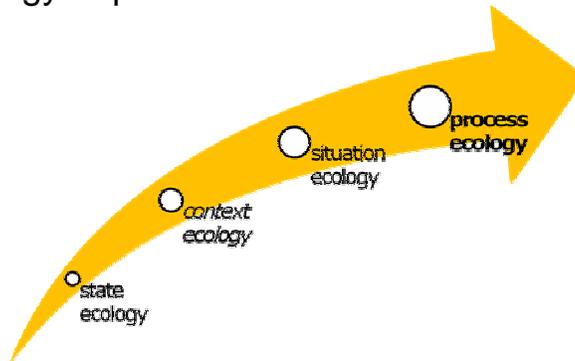
## NeuroTIV project: clinical-ergonomic evaluation

### Data from...

- ...the **outpatients** considered as subjects suitable for user-tests rather than only for video-recorded interaction analysis
- ...the **panel of therapists** considered as “expert users” and reference targets

## Ecology of process

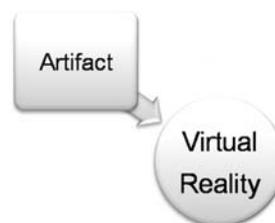
From an ecology of state-oriented perspective we attempted to shift the focus to the concept of ecology of process.



**VR therapeutic sessions could be analyzed as a psychosocial space.**

In order to understand it we need to study:

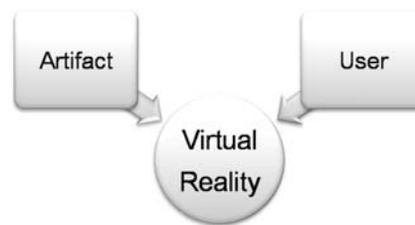
- Artifact



## VR therapeutic sessions could be analyzed as a psychosocial space.

In order to understand it we need to study:

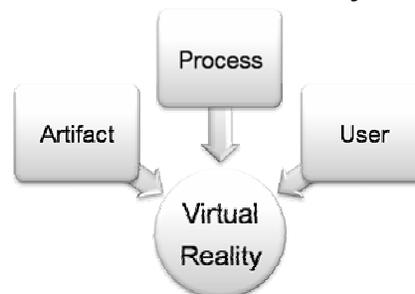
- Artifact
- User



## VR therapeutic sessions could be analyzed as a psychosocial space.

In order to understand it we need to study:

- Artifact
- User
- Process

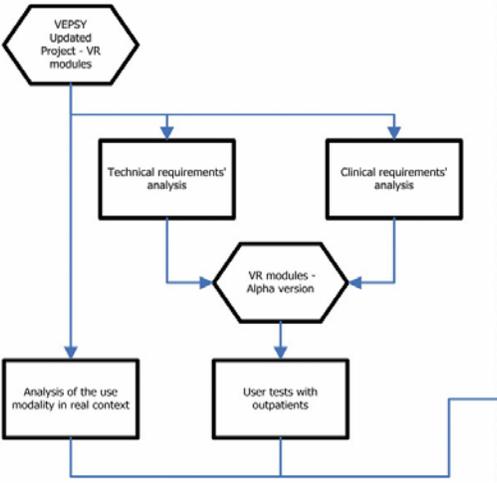


# Process

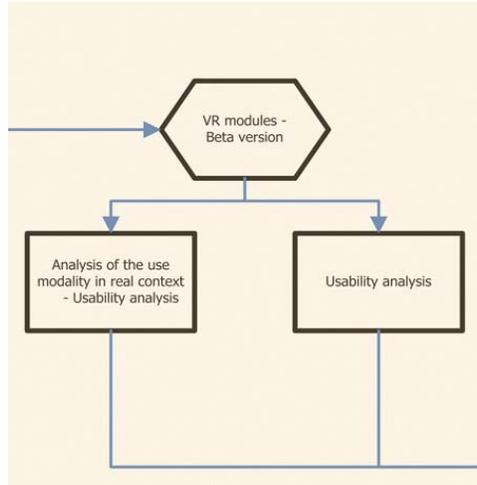
Which processes are involved in VR-based therapy ?

Process	Focus
Therapeutic process	Clinical
Comunicative process	
Interaction process	Usability
Design & development process	
Learning process	Psycho-social (Community of practice)
Experience sharing process	

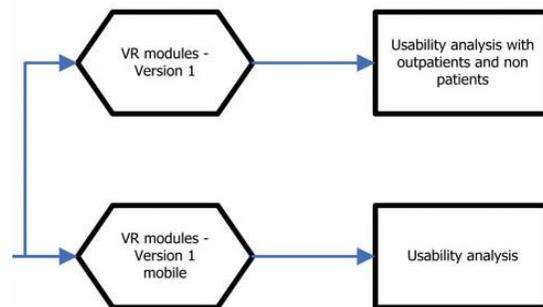
# Phase 1

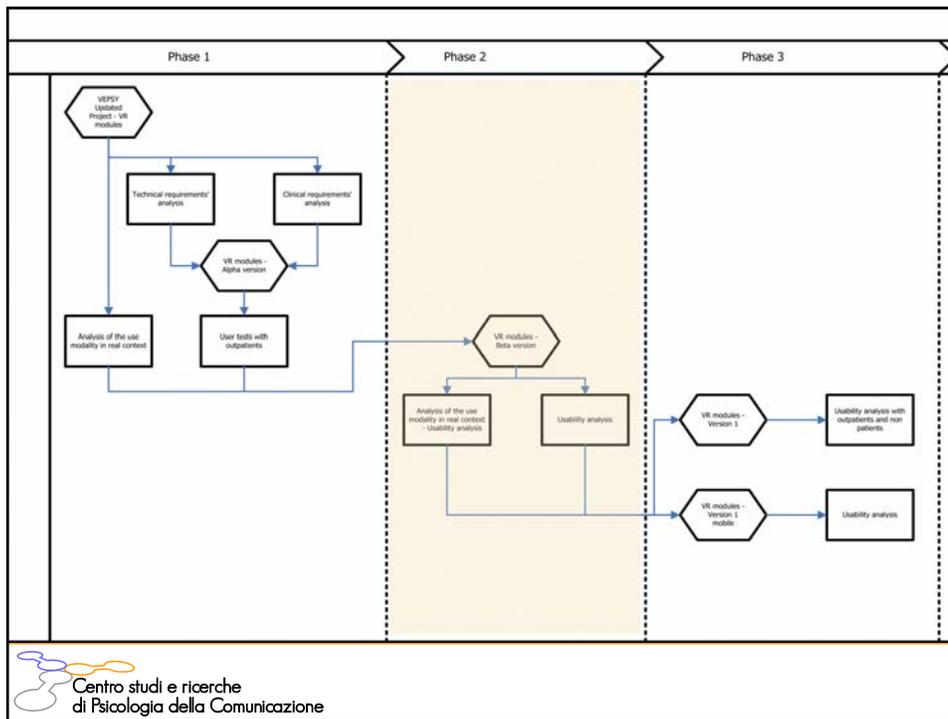


## Phase 2



## Phase 3





## guidelines for a psychosocial approach

VR is not only an “addictional” tool

VR is not only an extension of therapeutic setting

## VR as an interactional context

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VR is a 'real' interactional context

- physical
- social
- semiotic
- pragmatical

## VR as an interactional context

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Before (VE design)

After (Interaction analysis)

## using a psychosocial approach

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### After (Interaction analysis)

- the social ecology of VR-therapy: the “emerging Other”
- Key elements of social presence in VR-based therapy sessions

## acknowledgements

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