an essay about the study of social ecology of VR therapy

the "emerging Other"

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key questions

- How can we investigate social dimensions of VR-based sessions ?
- Which actors are on the stage ?
- Why should we care about that ?

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Data have been collected during **54 sessions**, with **9 patients** and **3 therapists.**

The protocol was the **ECT** (Experiential Cognitive Therapy).

Virtual environments were the **VEPDA** (Virtual Environments for Panic Disorders and Agoraphobia)

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We used a **qualitative content analysis** approach to underline **how therapist and patient interact within virtual reality**.

What does

qualitative content analysis

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mean ?

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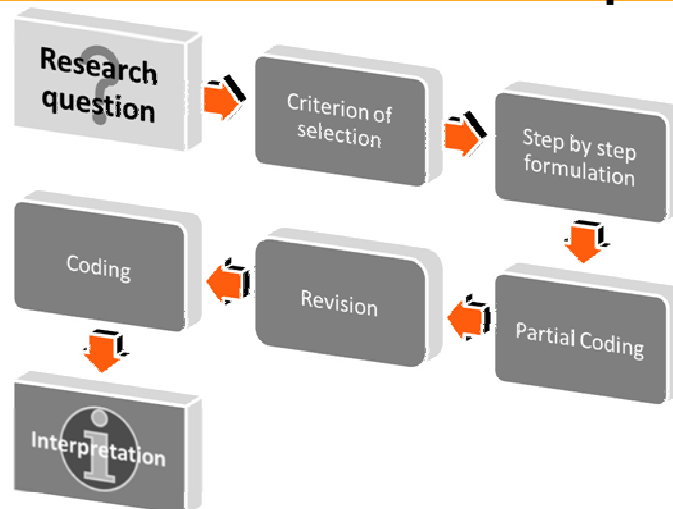di Psicologia della Comunicazione

qualitative content analysis

- Content analysis is "the use of **replicable** and **valid method** for making **specific inferences** from text to other states or properties of its source".

<div align="right">Krippendorff, 1969</div>

- Content analysis has two major approaches: **inductive category** development and **deductive category** application.

inductive category definition process

documentational table

A "documentational table" (Constas, 1992), represents the procedural elements of categorization:

- **origination**: identifies the locus of category construction;
- **verification** details the strategies used to support the creation and application of categories;
- **nomination** is concerned with the naming of categories;
- **temporal** designation addresses the temporal characteristics of such process.

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origination

Category **origination** is based on 3 sources:
• The **Scaffolding action** (1.3) category is based on both literature and investigative perspective;
• **Others categories** are based on a interpretative position, and they emerged during data analysis and have been designated in a iterative confrontation by the investigators.

	A priori	A posteriori	Iterative
Origination:			
Where does the authority for creating categories reside			
Partecipants			
Programs			
Investigative	1.3		
Literature	1.3		
Interpretative			1.1, 1.2 , 2 , 3 , 4

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verification

The **verification** component was applied both iterative and at the end of the coding process on a technical way:
•To pretest categories, we **randomly selected 11 sessions** (representing 20% of data) and two coders independently coded the selected sessions.
• To quantify the degree of agreement during the preliminary pretest and final intercoder reliability, we used **Cohen's kappa method**.
• As **reliability levels** in pilot test ranged from .65 to .72, we proceeded to code the full sample: according to the exploratory nature of this study and to considerations presented by Rietveld and van Hout, we judged this range acceptable.

Verification:
On what grounds can one justify a given category ?

	A priori	*A posteriori*	*Iterative*
Referential			1.3
Technical		1.1, 1.2, 1.3, 2 , 3 , 4	

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nomination

The **nomination** component was accomplished on a "**a priori**" literature-based way for Scaffolding category (Steiner, 1994), and "a posteriori" for other categories, with labels based on a interpretative position

Nomination:
What is the source of the name used to describe a category

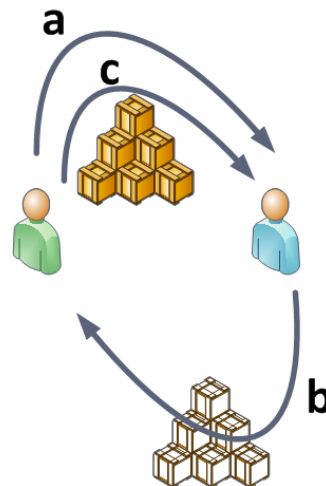|	*A priori*	*A posteriori*	*Iterative*
Literature	1.3		
Interpretative		1.1, 1.2 , 2 , 3 , 4	

some results

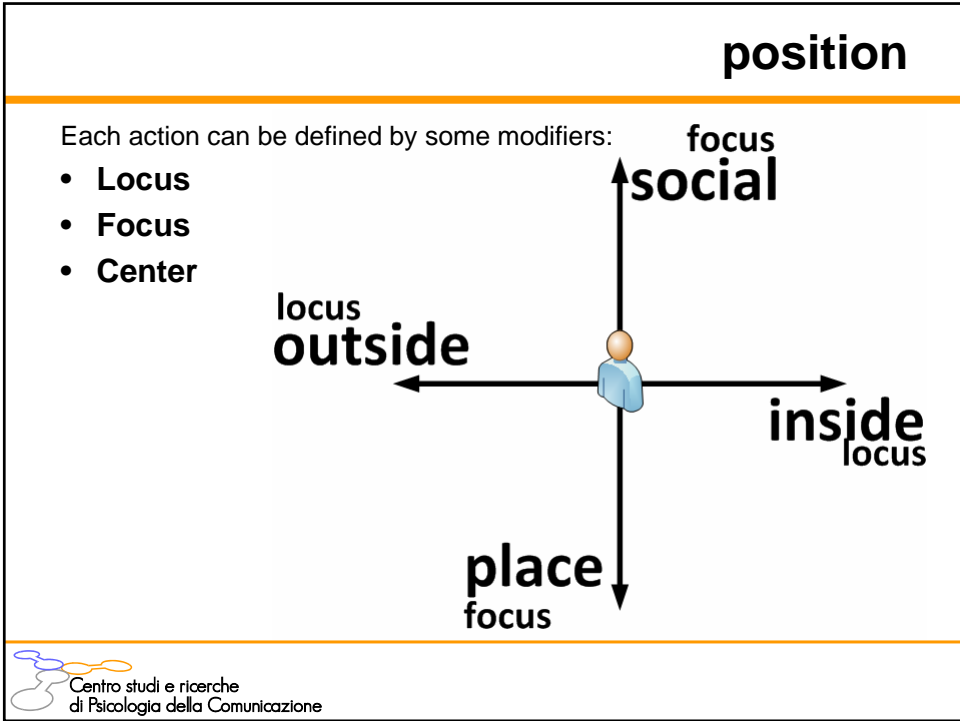Generated categories during this study are related to :

1) the type of **conversational action** actors can perform;

2) relative **position** of actors;

3) **focus** of each action.

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conversational actions

Three types of conversational actions :

- **Request (a)**

- **Description (b)**

- **Scaffolding Action (c)**

position

Each action can be defined by some modifiers:

- **Locus**
- **Focus**
- **Center**

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do you mind some numbers?

Categories frequency

Category	Freq.
Action	1860
Request	864
Description	672
Scaffolding action	324
Locus	
Inside VE	339
Outside VE	103
Focus	
Place	281
Social	391
Other agnition	295
Intention Attribution	96
Center	442

emerging other

Intention Attribution (d) code can always be found after a **Scaffolding (c)** action
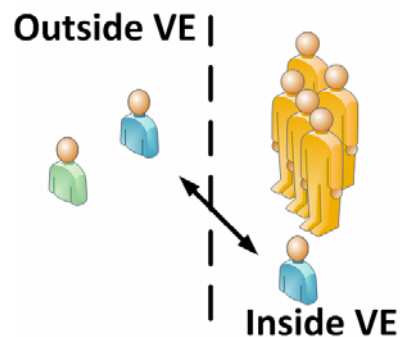
Actors co-define the existence of others inside VE

dialogical position

Self **Centered** descriptions are more frequent than non self.

Inside VE code is more frequent than **Outside VE** code.

Actors co-define dialogical position of self inside VE

Outside VE |

Inside VE

discussion

Patient and therapist **co-define** actors, meanings and events of VE experience.

Patient describes VE as a "**surrounding**" social environment.

Why should we care about it ?

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discussion

if…

- VR-based sessions are a **social context**, that could be analyzed with psychosocial tools and methods;
- Social dimensions of VE help patient **"being there"**;
- Patient and therapist, while interacting, can populate VR-session with **"emergent" others**;

then…

conclusion

- **Therapist can modify patient's experience** of "being there" using his conversational actions.
- We can **understand user's experience** by analyzing co-definition of the VE elements, narration and actors.
- We can **design VR artifacts** that support scaffolding actions.
- We can study **presence** by an ecological perspective.

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next steps

Further studies should compare the **sense of presence** attribution, based on conversational actions, to some other presence measurement methods, such as behavioural elements or questionnaire.

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acknowledgements

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Thank you !

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