

# How do patients feel present in VR?

Matteo Cantamesse, Ph.D.



Centro studi e ricerche  
di Psicologia della Comunicazione



# key questions

- How can we investigate the feeling of being there ?
- How can we understand what happens during VR sessions?

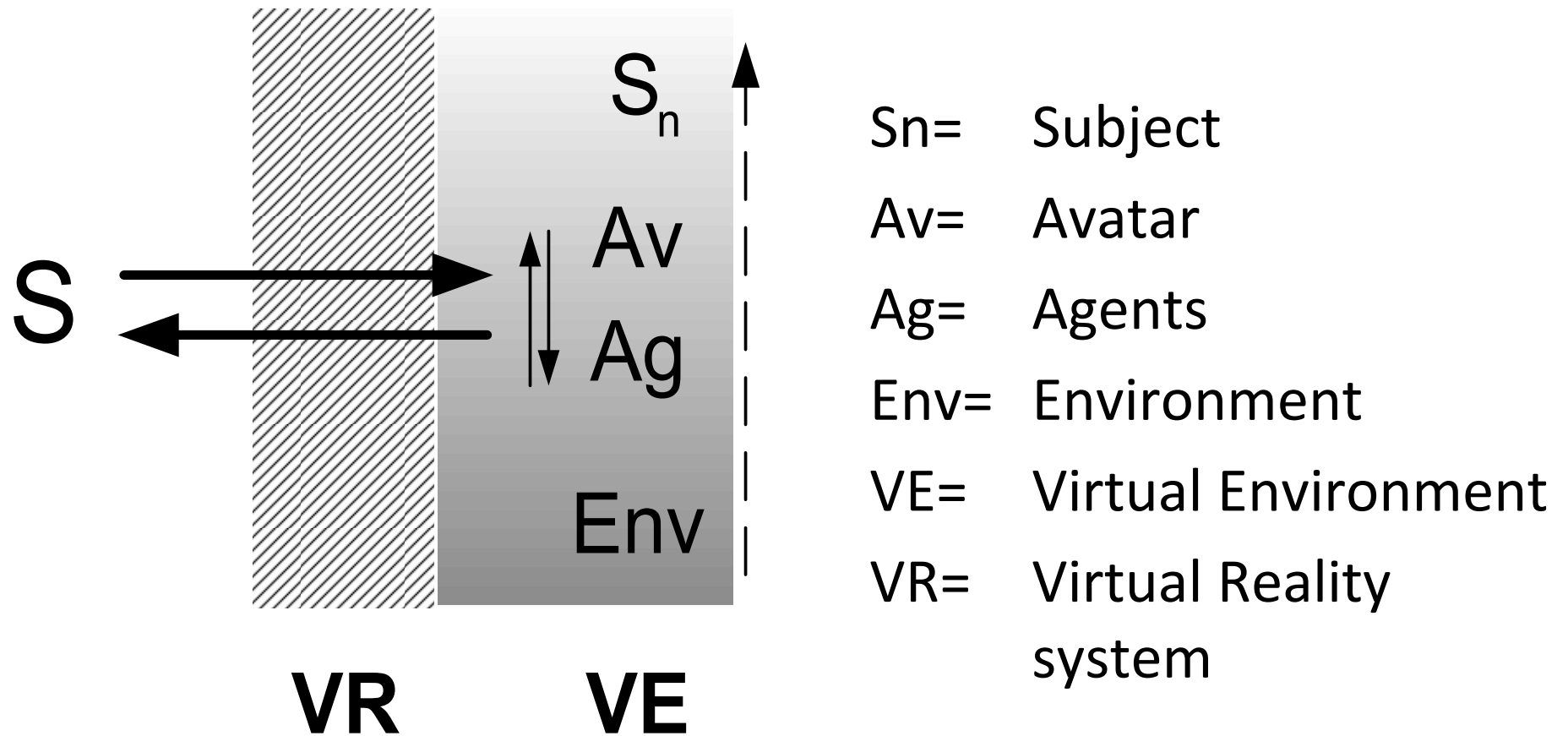


**Q1: Is it possible to use a **qualitative** approach to investigate presence in Virtual Environment?**

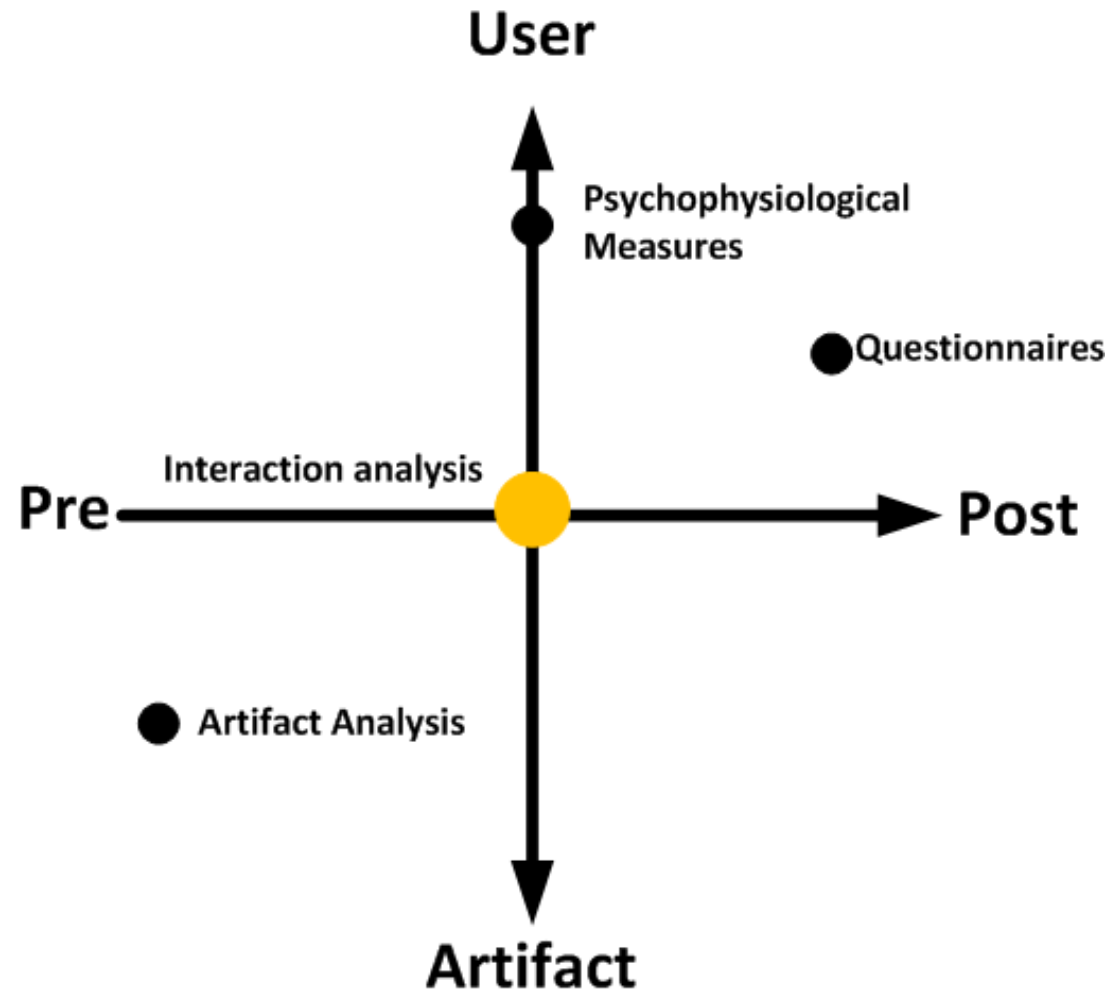
**Q2: is there any difference in the presence experience between two **successive immersions**?**



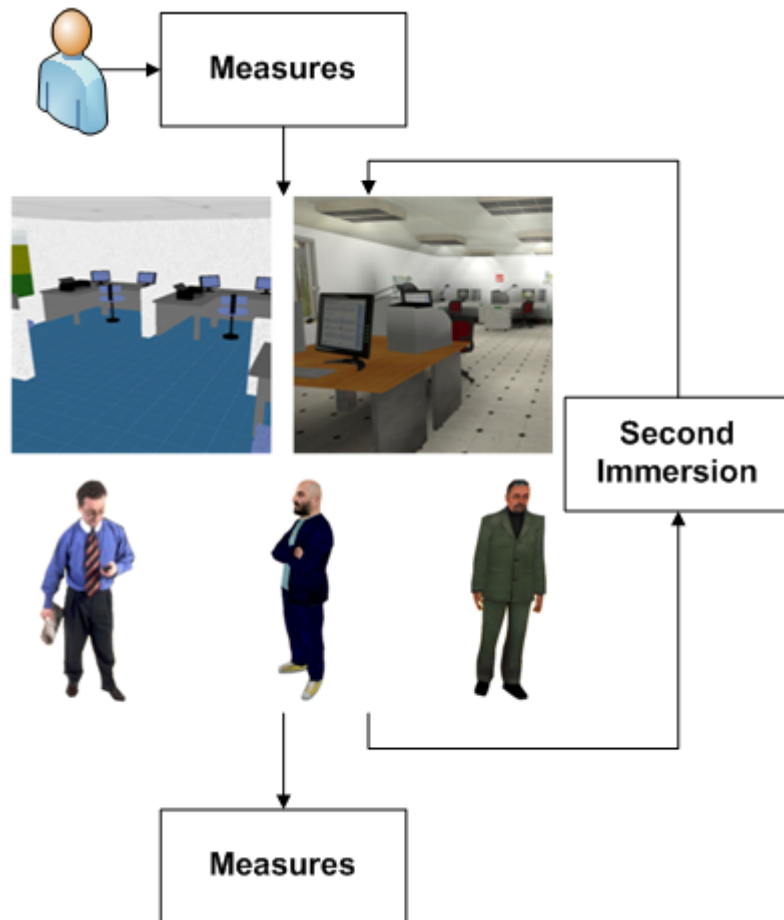
**Virtual Reality experience can be described as the interaction between subject and virtual environment by the mediation of technology.**



# How can we study presence ?



# 48 participant experienced 1 immersion with Thinking Aloud and 1 immersion without thinking aloud



- **Participants**

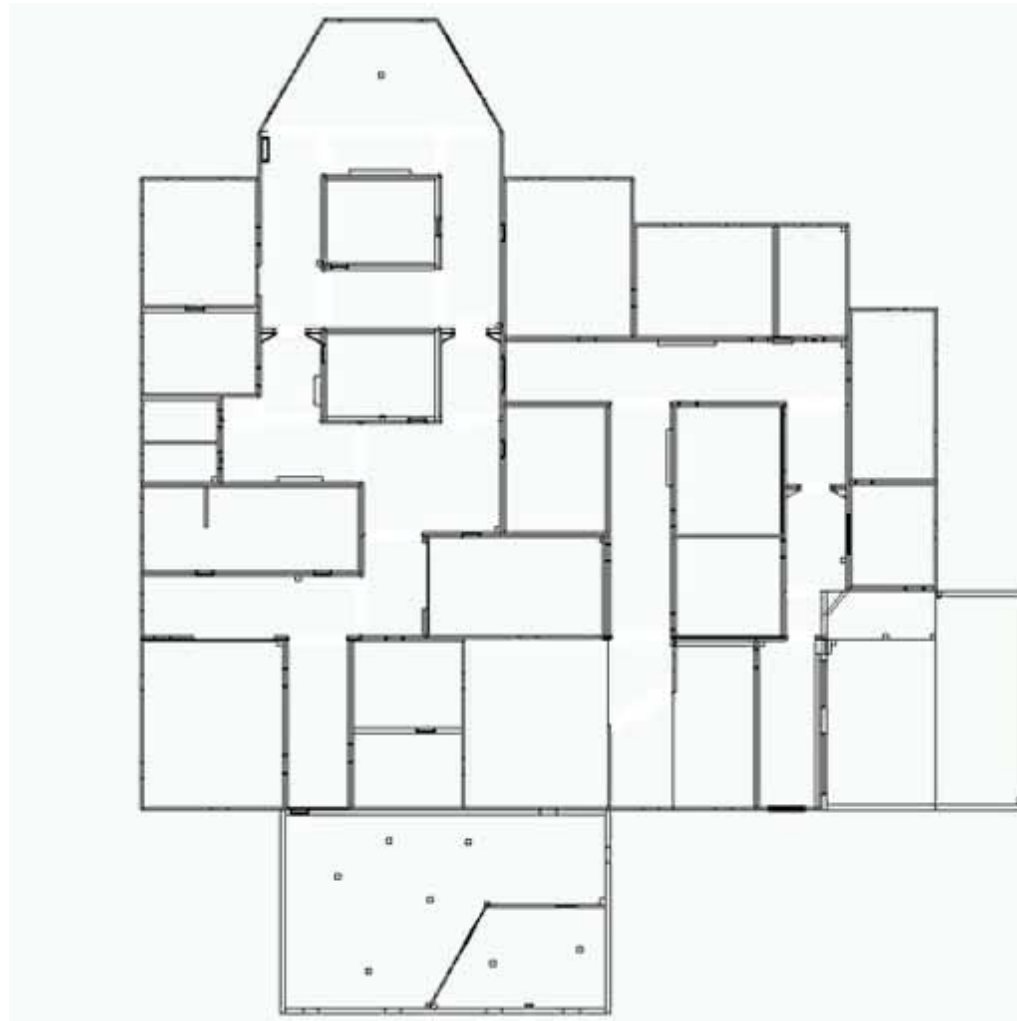
- 48 (24 m, 24 f)
- Age $_{18} <> 36$  ( $M= 23.92$ ,  $SD= 4.17$ )

- **Measures**

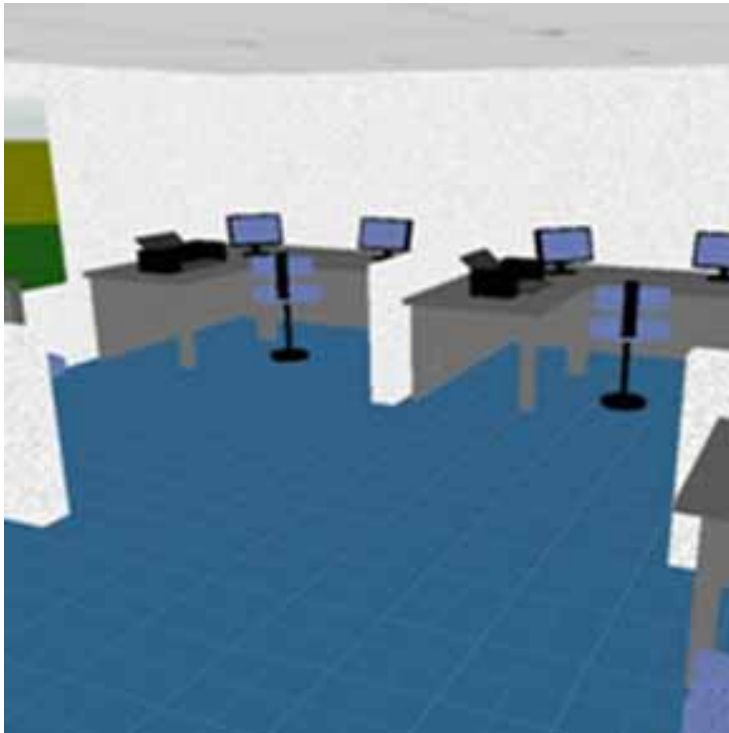
- Igroup Presence Questionnaire
- Social Presence Questionnaire
- Simulator Sickness Questionnaire
- Presence Assessment – short
- Cybersickness Assessment – short
- Spatial Memory Test



# VE layout

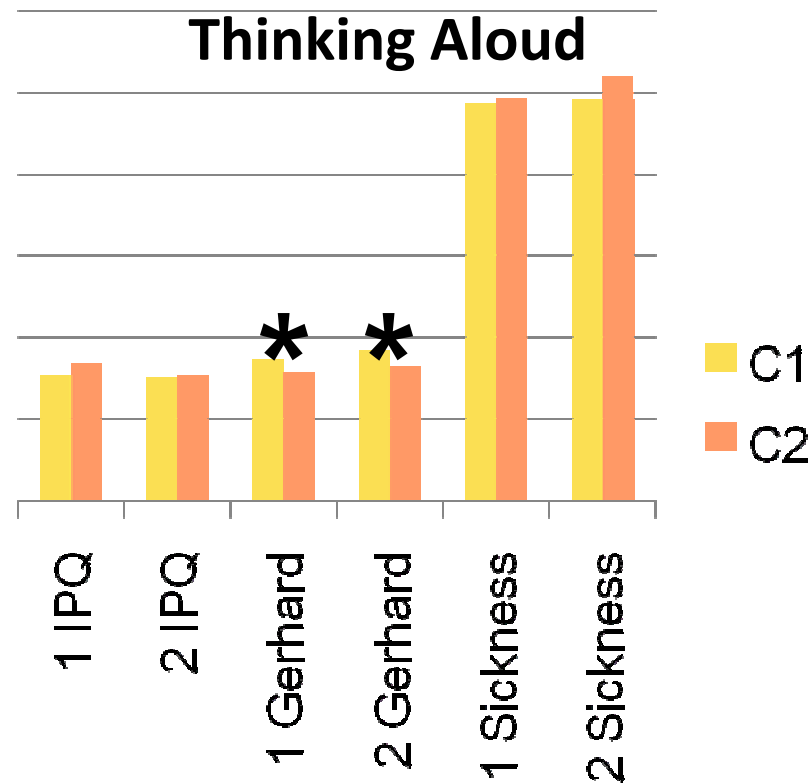


# Virtual Environments





**There are significant differences between TA and no-TA immersions regarding attention to avatars and to oneself actions**

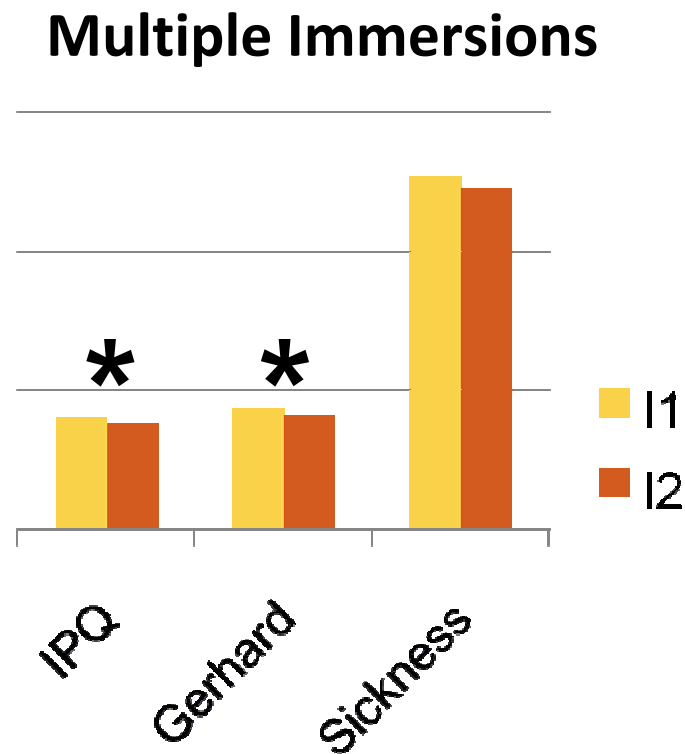


# Do you mind some numbers ?

	C1	C2	Mann-Whitney U	Z	Asymp. Sig
CVE_1	3,50	3,42	264,000	-,517	,605
INF_1	4,16	3,80	198,000	-1,888	,059
COM_1	2,11	1,22	182,000	-2,516	,012♦
IMM_1	3,13	3,25	262,000	-,553	,580
AVA_1	3,42	3,33	268,000	-,420	,674
AWN_1	3,33	2,53	162,000	-2,620	,009♦
IVM_1	3,48	3,15	230,000	-1,204	,229
CVE_2	3,83	3,50	226,000	-1,308	,191
INF_2	4,55	3,61	164,000	-2,575	,010♦
COM_2	1,64	1,47	282,000	-,131	,896
IMM_2	3,50	3,25	240,000	-1,002	,316
AVA_2	4,33	3,38	188,000	-2,079	,038♦
AWN_2	3,72	3,22	216,000	-1,499	,134
IVM_2	3,41	3,50	272,000	-,332	,740



**There are significant differences between first and second immersion for IPQ and Gerhard scales**



# Presence VS Immersions

	Immersion 1		Immersion 2		Z	Asymp. Sig.
	Mean	SD	Mean	SD		
IPQ 2 - IPQ 1	3,05	,7139	2,86	,66	-2,968	,003**
Gerhard2 - Gerhard 1	3,35	,68	3,13	,94	-2,606	,009**
Sickness 2 -Sickness 1	33,66	19,96	29,92	23,20	-1,673	,094



# discussion

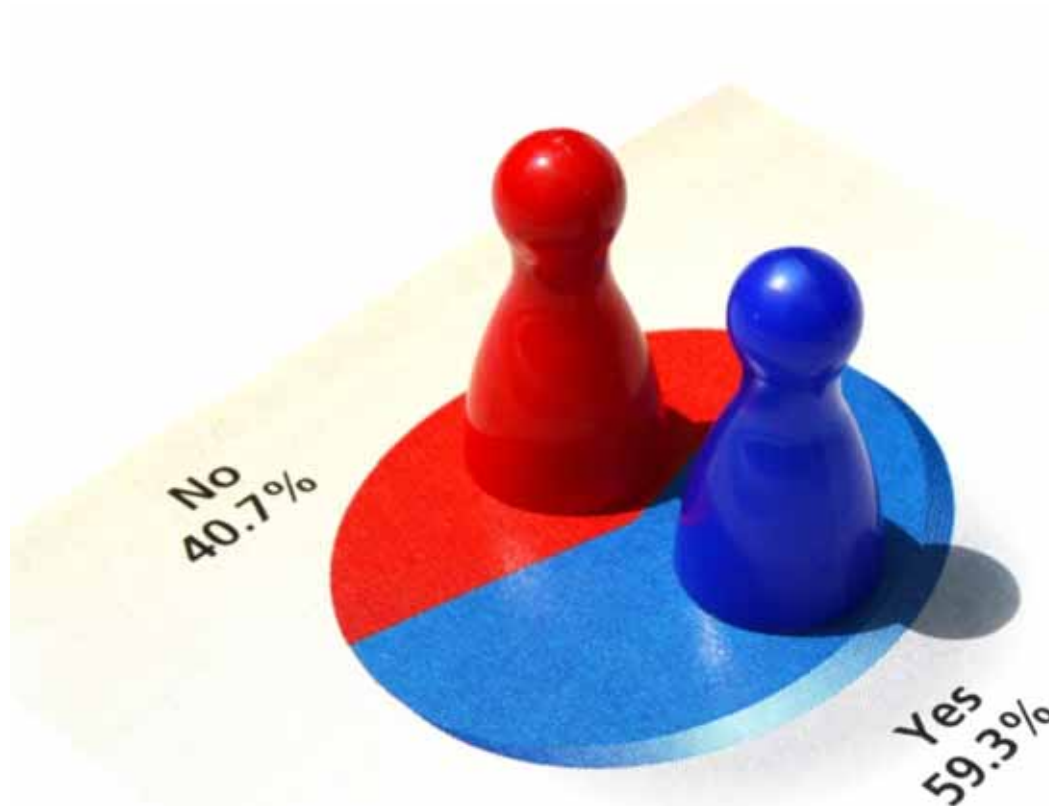
While exploring a Virtual Environment, the Thinking Aloud task modify the private experience.

**Why should we care about it ?**



**Results:** we can use the Thinking Aloud technique for studying experience in VR

**BUT!**



## next steps

Repeat the experiment with non-Italian participants \*;

Repeat the experiment with other VR.

\*Data already collected, we just have to analyze them!  
(Thanks to S.Bouchard)



**end**

**Thank you !**

**matteo.cantamesse@unicatt.it**



Centro studi e ricerche  
di Psicologia della Comunicazione