

**(27) The Sense of Presence in a sample of patients  
with neuropsychological dysfunctions  
during a VR-enhanced cognitive rehabilitation**

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**Abstract**

Cognitive rehabilitation aims at enhancing the development of skills and strategies necessary to overcome cognitive deficits, overall with persons affected by traumatic brain injuries.

Computer-based tools could enhance the administration of cognitive rehabilitation even if there are a lot of open issues related to efficacy, ethics and ecological validity.

About this last issue, are computer-based rehabilitation procedures useful for patients' everyday life? Is there a realistic and efficacy transfer of knowledge between the tasks carried out in labs and the life outside the hospital?

Among the different computer-based technologies, Virtual Reality plays a key role in the assessment and rehabilitation of psychological functions. But with this new tool, it is necessary to carry on a realistic cost/benefit analysis in order to evaluate which is the added value of VR in different applications in comparison with traditional approaches.

Traditionally VR designers typically aim at creating an engaging environment in which users feel present. The focus for VR developers seems to be "presence" and all the systems to improve it.

The substantial challenge for the designers and users of VR is *how* to use immersive environments to support clinical practice. So which are the core characteristics of a virtual environment in order to ensure a kind of presence that is functional and useful for mental health applications?

The major aim of this work is to show the results of a study related to the measure of the sense of presence using the ITC-SOPI Questionnaire (Italian version, currently under validation) in a sample of neuropsychological patients (with "Frontal Syndrome") during a VR-enhanced cognitive rehabilitation. The results are shown in comparison with a sample of normal subjects.