Study of the impact of added contextual stimuli on the performance in a complex virtual task among patients with brain injury and controls

H Cherni[1], PA Joseph[2], E Klinger[3]

[1,3]Arts Métiers ParisTech – LAMPA – EA1427, Angers-Laval, FRANCE

[2]EA4136, Bordeaux, FRANCE

heni.cherni@ensam.eu, pierre-alain.joseph@chu-bordeaux.fr, evelyne.klinger@ensam.eu

[1]*www.hit-rv.fr*

ABSTRACT

During the last years, researchers showed the feasibility and the interest of using Virtual Reality (VR) among patients with cognitive impairments for the recovery of capacities. While interacting, the VR system provides various kinds of information for different purposes: display of the virtual environment, understanding of the task, but also highlighting of functionalities or delivery of instructions. Generally, in order to improve the patient performance, additional cues are provided to enhance information saliency, such as arrows, change of colors. We define a "contextual Additional Software Stimulus" (contextual ASS) as any additional information delivered by the virtual system, related to the interaction whose absence in the virtual environment does not have an effect on the unfolding of the task. This work was designed to study the effects of contextual ASS on the performance in a daily living simulated task: purchasing items in the Virtual Action Planning Supermarket (The VAP-S). In this purpose, we started by implementing ASS in the VAP-S then we carried out experiments in which 23 healthy subjects (12 M and 11F) and 12 patients with brain injury (12 M) took part. Results show that the deliverance of contextual ASS during the virtual task improves significantly some parameters describing the performance of healthy subject and patients with brain injury.

Full papers will be published in the Conference Proceeding s and will be available to delegates at the conference on Sept. 10.

Full papers will be released on-line in the ICDVRAT archive on March 15.