PRELIMINARY RESULTS OF A NEW ENVIRONMENT FOR SURGICAL TRAINING VIRTUAL REALITY CONTENTS CREATION

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Current pedagogical needs in medical education are closely related to (1) ethical concerns on learning and training with real patients and substitutives such as animals, and (2) reconciling time devoted to learning with clinical practice, considering the European Work Time Directives. Simulation in medical education is and has been the preferred route to address both pedagogical needs. Virtual simulation has proven to be a valid tool for training; however, current systems restrict usage to tasks and modules offered, without possibility of personalization. We present the Minimally Invasive Surgery Simulator Scenario Editor (MIS-SIM) an environment where users can create, edit and run virtual reality tasks designed for medical training. The environment features an editor allowing users to develop learning tasks, defining its learning objectives and task goals in an easy way.

A first proof of concept has been implemented for surgical training and training activities (demostrators and short courses) have been carried out in three European sites: Spain, The Netherlands and Hungary.

During training activities, 10 different exercises have been created and uploaded to the contents' database. Trained technical skills include hand-eye and bimanual coordination, instrument handling and pulling. Preliminary results with 30 users have shown MIS-SIM training potential, although some functionalities should be made easier. Personalization has been highlighted as the key added value of MIS-SIM with respect to the current competitions in the market: the ability for target users to use virtual reality based learning tools while remaining in complete control of the learning process.

MIS-SIM aspires to break the barrier between VR and medical education by empowering users to create their own tasks. With MIS-SIM teachers/course creators and learners (healthcare professionals & future healthcare professionals) will benefit from an innovative tool to (1) create personalised medical learning contents tailored to preferred learning styles, allowing the creation of individualize learning paths; (2) improve the efficiency of training by focusing on the training needs of the learners and (3) share and sell VR-based didactic contents.