

New advances in Technology Enhanced Learning for Surgery in Europe

Calin Tiu¹, Alex Negoita Tiu¹,
Patricia Sánchez-González², Ignacio Oropesa², Enrique J. Gómez²,
Ana Gonzalez-Segura³,
Francisco M. Sánchez Margallo⁴, José B. Pagador⁴,
Demetris Antoniadis⁵,
Tim Horeman⁶, Jenny Dankelman⁶,
Andrea Ferencz⁷

1. Medis Foundation, Romania
2. Biomedical Engineering and Telemedicine Centre, ETSI Telecomunicación, Centre for Biomedical Technology, Universidad Politécnica de Madrid, Spain
3. Everis, Spain
4. Centro de Cirugía de Mínima Invasión Jesús Usón Jesús Usón Minimally Invasive Surgery Centre, Spain
5. Cyprus Research and Innovation Center, Cyprus
6. Delft University of Technology, the Netherlands
7. Semmelweis University, Budapest, Hungary

The traditional training model in surgery based on the long-term relationship between resident and tutor is now criticized for being time/resource-consuming and non-patient safe. At the same time, new techniques and technologies for learning are appearing in surgery with unprecedented dynamics. It is vital that novel surgeons not only know how to use technology but also know how to use it appropriately.

This dynamic learning change is influenced by factors such as technological expansion, patient expectations, limitation of training time imposed by the European Working Time Directive. At the same time, we must keep in mind that the new generation of residents, the Millennial generation, is much opened to the virtual world, so more interested in using distance learning, including systems for improving technical skills and promoting self-learning. This evolution imparts to medical training an increasingly important technical component. With the support of technology, learning, training, assessment, certification, are already moving to patient-free settings.

So far it has been noticed the lack of a common European pedagogical framework for learning and accrediting surgical and interventional skills. And the consequence, on the long run can be a limitation of the professional's mobility across the EU. European research projects such as MISTELA, KTS or SurgTTT have established preliminary landmarks on the structured use of Technology Enhance Learning (TEL) based on virtual reality, augmented video, augmented box trainers, distance learning, etc.

Building on these past experiences, a new European project, EASIER, is planned to reach the whole EU surgical community to set the basis for a strategy on a common TEL-based program offering structured learning and assessment.

The aims of EASIER are the development of a new multidisciplinary approach to teaching and learning, developing a new TEL platform devoted to technical and non-technical skills training for facilitating the exchange, flow and co-creation of knowledge.