

S4Game

TRAINING OF SOFT SKILLS FOR SURGICAL TEAMS USING AN IMMERSIVE SERIOUS GAME

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HANDBOOK OF SOFT SKILLS TRAINING USING VIRTUAL REALITY AND SERIOUS GAMES FOR SURGICAL TEAMS IN THE OPERATING ROOM

One of the main commitment of the project was to develop a practical manual on soft skills and their acquisition. Previously, no such extensive handbook describing these skills through practical examples has been available. Thanks to the work of the consortium, this missing publication has become available.

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This handbook assists to Continuous and Vocational Education and Training (CVET) teachers, trainers and their institutions to organize training activities on soft skills for surgical and endoscopy teams, so the main target groups are health professionals working in the operating

and endoscopy room (OR): surgeons, endoscopists, nurses and anaesthetists, who want to improve their soft skills.

The handbook consists of two main parts. The first part focuses on the theoretical and practical background of the 5 main cognitive skills (leadership, decision making, situation awareness, teamwork, communication and interaction) and on the traditional ways of surgical training. Furthermore, this part introduces the surgical team members, their tasks and responsibilities and the potential of information technology (IT) and virtual reality (VR) to be integrated into surgical education. Each chapter follows the same structure. First, the theoretical background of each skills is presented, based on the recent literature, and then the most important competences needed to acquire the skills are described from the practical perspective, using examples from the real life. Infoboxes summarise the most important information as a take-home message and these are illustrated with photos of life in the operating room.

The workbook-like second part focuses even more on practice, using 10 real-life examples to illustrate the importance of cognitive skills in surgery and the operating room. Each case study focuses on the main and one or two secondary soft skills. The practical cases are presented in the same structure, aimed at including the different elements and details that are necessary to put the case into practice. Brief theoretical information highlights the soft skills to be trained in the practical case, together with a brief introduction on its relevance. After presenting the case, the chapter describes the training approaches, the needed resources and offers a possible assessment methodologies to be used.



#EXCERPT FROM THE S4GAME HANDBOOK

"Non-technical skills (NTS) or soft skills, terms that will be used indistinctly in this handbook, are interpersonal (e.g. communication, teamwork, leadership), cognitive (e.g. decision making, situation awareness) and personal resource (e.g. coping with stress and fatigue) (Flin et al., 2008). They have been proved important in a wide range of high-risk work environments, such as aviation, industry or military. In these domains, information might be fragmented, in situations with sudden changes, where time pressure might be intense, and errors might even have mortal consequences..."

...Many adverse events in an operating room (OR) occur due to human errors, which better training in soft skills can potentially prevent, resulting in a reduction of patient morbidity and mortality (Siu et al., 2016). Current methods for soft skills training are e-courses, e-games or seminars at Continuous Vocational Education and Training (CVET) schools, using best practices, discussions, consultations, model situations or case studies. This training in surgery has not been standardized yet and still presents room for improvement and development of training tools and methods (Ounounou et al., 2019). Thus, CVET of surgical team members in soft skills is still a must. Besides, new technologies for training, such as virtual reality and serious gaming, are still not widely used for surgical training and more particularly for soft skills training.

Virtual reality (VR) is a disruptive technology with great social impact, which offers visual and audio immersion using a head-mounted display that shows 3D images, so senses are artificially stimulated and deceived to accept another reality. The applications of VR go beyond the entertainment industry and can be applied in very disparate fields such as military, healthcare, construction or education. In surgery, these head-mounted displays have been used for image guidance and augmented reality, data display, communication, and education/training (Rahman et al., 2019).

Serious games (SG) are games with educational goals that provide learners with an innovative, entertaining way of learning; helping them to understand complex problems and train multiple circumstances in several fields. SG also provide safe mechanisms for CVET in healthcare (Gentry et al., 2019). Teachers acknowledge their great potential and are willing to use them. Besides, the improvement of the underlying technology increases the use of SG. Surgical training has already benefited from SG, for the acquisition of psychomotor skills, by applying gamification concepts while using regular simulators (Kerfoot and Kissane, 2014), or addressing team working (Kreutzer et al., 2016). In comparison to expensive simulators or OR costs, SG provide a relatively cheap, safe environment with a wide variety of cases for health professionals in general (Wang et al., 2016) and surgical skills training in particular (Graafland et al., 2012)."

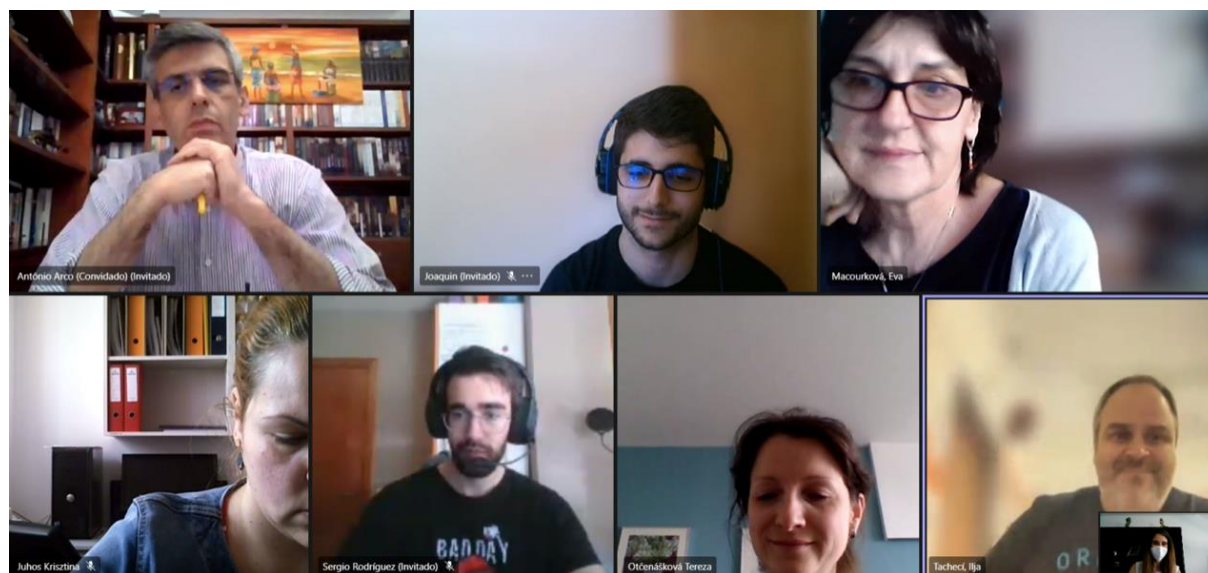
#S4GAME UNDER THE COVID OUTBREAK

The consortium has also been active during COVID-19. Weekly online meetings were held to discuss the handbook issues, details on game development and questions related to the S4Game project. The project will end in 2 months, but there are still many exciting tasks ahead.



#2nd PROGRESS MEETING AND FOLLOW-UP MEETINGS

Due to the COVID-19 pandemic, the 2nd project meeting was held online (via MS Teams) on 22nd and 23rd June 2020 instead of travelling to Budapest. The meeting focused on the project progress, the handbook and further improvement of practical cases. The basis of the future serious game was also discussed and the development of the serious game has started.



After this, biweekly online follow-up meetings have been held in order to further advance on the development of the project results.

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