EXTRACTING USER NEEDS FOR A NEW E-LEARNING SERIOUS GAME FOR PSYCHOMOTOR SKILLS TRAINING IN MINIMALLY INVASIVE SURGERY

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BACKGROUND

Psychomotor skills training in minimally invasive surgery (MIS) is currently done through in-person courses delivered in specialized training centres. Medical students and first-year residents are usually left out of the scope of these courses. To provide ubiquitous training means to these groups, we propose a novel e-learning approach for psychomotor skills training: Kheiron Training System (KTS). Moreover, the approach appeals to motivate the users by including serious gaming in the training process.

METHODS

In order to determine the requirements of this serious game, four co-creation workshops were organized. These workshops got together representatives of the target groups to work on new ideas and explore how former individual knowledge can trigger new training concepts. These joint activities allow determining technical requirements as well as studying in depth the current training needs. Participants previously filled in a questionnaire regarding the use of serious games for surgical training (Figure 1).

Figure 1. Methodology for the extraction of user requirements of the KTS serious game.

RESULTS

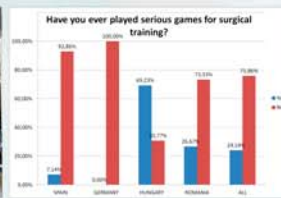Figure 2. Screenshot of a co-creation workshop using Google Hangouts.

Figure 3. Percentage of users who has ever played serious game for basic surgical training.

The co-creation workshops were carried out in Spain, Germany, Hungary and Romania. Medical students and residents participated at the workshops. Partner Institutes could follow up each local workshop online (live transmission). Google Hangouts was used to this purpose. All partners connected to the event, the host partner welcomed the participants and introduced the rest of partners. Then, the presentation video of the project and presentation videos of all partners were watched. As mentioned, initially a revision of results of the questionnaires was made and followed by discussion and brainstorming on the characteristics of the serious game for psychomotor skills training in minimally invasive surgery (Figure 2).

In all, over 55 medical students and first-year residents were asked about their needs for surgical psychomotor skills training. Most of them have never used a serious game for surgical training (Figure 3), mainly due to their lack of awareness and unavailability of this type of systems, but they consider the serious game a possible way of training (Table 1). Characteristics that would encourage them to use the serious game were also discussed (Table 2).

Table 1. Most mentioned reasons to use a serious game for basic surgical training.

Why would you use a serious game for basic surgical training?
It is very useful for training and acquisition of skills in the initial stages.
The learning curve can be shorter.
To acquire skills that can only be acquired through hands-on practice.
Practice must be done elsewhere but in patients.
Learning through play.
Natural environment for the new generations (Y and Z generations).

Table 2. Most requested characteristics of a serious game for surgical psychomotor skills training.

Characteristics of a serious game for surgical psychomotor skills training
Realistic.
With different levels of difficulty and challenges.
Use of actual surgical tools.
Encourage use and participation.
Provide feedback to the user.

CONCLUSION

There is an actual need for proving new ICT-based training systems for psychomotor skills training in the field of MIS. This e-learning serious game will provide medical students with an early access to surgical training and residents will be able to train more hours without a need to move to specialized training centres. The final goal is to improve training of psychomotor skills amongst European stakeholders in a ubiquitous manner and regardless of their location.

FOR FURTHER INFORMATION:

The KTS Project

The main objective of KTS project is to design, to develop and to validate a serious game and the supporting material in order to provide medical students and (novel) surgeons with an innovative ICT-based approach for training basic key psychomotor skills in minimally invasive surgery (MIS).

www.kts-project.eu

Kheiron Training System

Visit our website and YouTube channel for further information! Send your questions to cpo.kts@ccmijesususon.com

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