

The Vascular Medicine Training Application

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Purpose: We present a surgical training application enabling experts in vascular medicine prepare educational, training content for their trainees (medical students, endovascular surgeons under training). The training application offers tutors (experienced surgeons) a distance learning solution for training their students at any time and any place with a minimum cost in budget and time. The trainees (future surgeons) can use real patient data, process this data (mainly the available imaging examinations), go through the whole condition assessment and, finally, take all the important decisions (whether to surgically treat the patient or not, choose surgical intervention method etc.) suggested by a training scenario. The training application is developed as part of the RT3S project¹ of the EU.

Method: The RT3S training application is a novel tool for designing, managing and delivering online collaborative learning activities. It provides tutors with a highly intuitive visual authoring environment for creating sequences of learning activities (i.e., training scenarios). Learning activities range from individual tasks and small group work, to class activities. The RT3S training application implements a modular architecture where tools and learning activities can be added on-the-fly. The implementation platform is LAMS². The architecture consists of two main components, namely the Core and the Activity tools. The Core has modules for Authoring, Administration and Learner/Trainee roles. The Core manages the elements that form the structure of the Learning Design³, the order of the activities, allocating users to groups, managing when users can progress to particular activities, takes care of logins, system administration, etc. The Activity Tools component includes self-contained modules, which form most of the visual functionality of the content the Learner interacts with in the RT3S Training Application. Activity tools are used in order to allow tutors to present information in the form of text, images, links, flash files and any other HTML features, to create a series of questions, to add content into a sequence, to run a synchronous chat or forum over the course of a lesson etc.

¹ [www. http://www.rt3s.eu/](http://www.rt3s.eu/)

² <http://www.lamsinternational.com/>

³ <http://www.imsglobal.org/learningdesign/>

Results: A realistic scenario (i.e., based on a real patient case) has been developed demonstrating basic pre-operation steps (before an angioplasty operation takes place) that are routinely followed once a patient has been accepted into the hospital. A limited number of users (representing different ages, sexes, and experience with relevant applications) were selected for the evaluation of the application using the above scenario. They were provided with a short description of the application, and then they were allowed to use it for almost an hour. The users completed an evaluation questionnaire about functionality, aesthetics, ergonomics, and completeness. Figure 1 illustrates an overview of the evaluation results. The results from this evaluation activity were encouraging since most aspects of the application yielded an evaluation above average that is between 3 and 3.5, with 5 being the highest score, which means that users were satisfied, but improvements must be made. The evaluation of the proposed training application also reveals that the application moves in the correct direction since the scenario-based approach, which was a core decision taken in the early steps of the development, was indeed a very good one and is very well-received by the users.

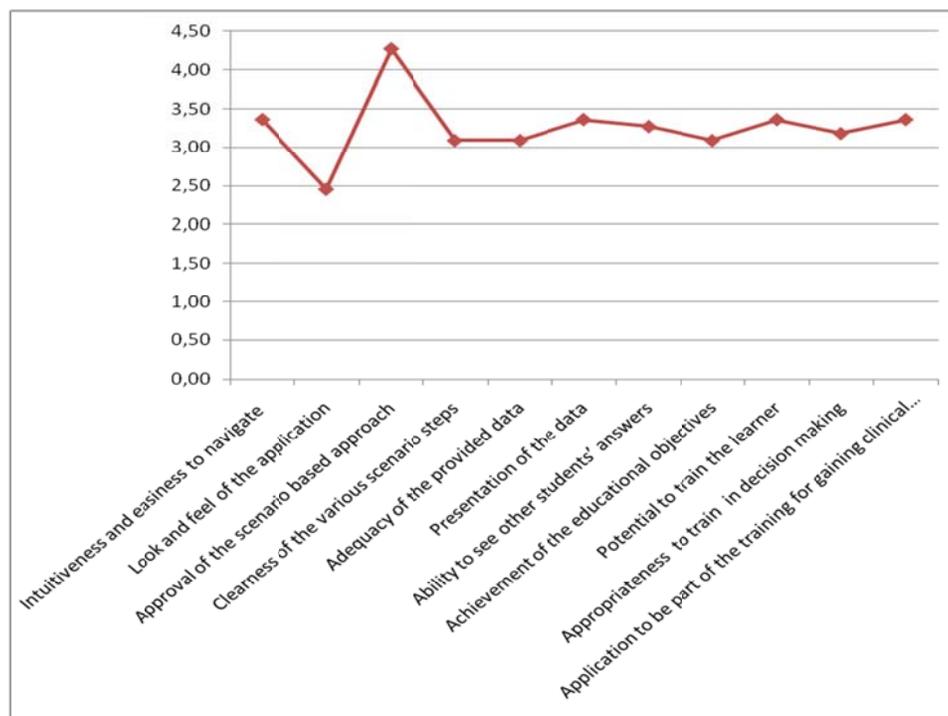


Figure 1: An overview of the evaluation results

Conclusion: We presented a Web-based open source training application which provides learners with unlimited access to training opportunities. More specifically it promotes individual training exercises, facilitates self-paced practice sessions, and captures case details for objective assessment. The training application supports endovascular surgeons at their first steps in the specific competence and their further on-the-job training. By completing the scenarios they become more familiar

with various cases and prepare themselves for making decisions for their patients. Overall, it supports trainees in improving their skills required for competence in vascular medicine.

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