

Interactive Simulation of Patients

Learning issues

The purpose of the present project is to use modern multimedia technique in simulations of typical patient cases within different disciplines. The simulations are constructed to suit PBL and the design is intended to stimulate student activity and discussions between students. Among other features, the simulations are totally controlled by the students and the communication with the program is in a natural language. The learning effects and other possible outcomes of the project will be evaluated through necessary user feedback and log-functions built into the program, by teachers and students at the participating departments, by experts in pedagogical development and by external experts. A panel of Swedish and foreign experts in multimedia and medical computer aided learning has recently evaluated the ISP system. The project was found technical outstanding and very interesting and as the medical multimedia expert Hal Lyon, Professor of Health Sciences at Notre Dame College (Manchester, New Hampshire), pointed out "This appears to be the foundation for an excellent patient simulation program to teach clinical reasoning and diagnosis. ISP is one of the best systems in the World and in certain areas also the best system". Initial results from ongoing tests with students at different university hospitals in Sweden are encouraging and will be used for refining the final patient cases.

The educational setting for the clinical training varies considerably between different universities and even between the different hospitals within Karolinska Institutet. Moreover, Medical practice differs considerably, not only between different countries but also between different universities and even between different hospitals in the same region. The follow-up possibilities within the ISP system with a stored track of the different users different approaches to the simulated patients make it very easy and attractive to compare the diagnostic routines, thereby arriving to regional, national or even international consensus on different typical cases. These facts are two interesting aspects of the Swedish LearningLab (SweLL) extension of the ISP projects, called ISP-VL. In this projects, or experiment as it is called with the SweLL framework, we offer students at different universities (KI, UU, Stanford) to meet and discuss patient management problems with a possibly increased understanding of national and other differences in the medical culture.

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A number of specific indicators of success will be determined and evaluated:

- **The function** of the simulation process will be assessed and linked to the learning goals (understanding of clinical problems and problem solving).
- **The virtual** collaborative environment between students from three universities, two in Sweden and one in the USA will be tested and compared to the outcome from interactions within traditional group settings.
- **As has been** mentioned is one of the main goals in the project to support and strengthen the students beliefs in their abilities in clinical problem solving. It is also an important aspect to get the students emotionally involved. These aspects will be studied in the students involved.
- **The impact** on the teachers to cooperate on the advancement of simulation tools and different pedagogical methods will be studied.
- **An important** aspect of the project is to explore the similarities and the differences between Sweden and the USA what regards educational procedures, routes in clinical problem solving, and criteria in classifications and differences in illness panorama. This will most probably have effects on student learning in general and excellence of learning in particular.
- **The cost-effectiveness** of this potentially individualized system will be evaluated.
- **In excess** of these more educational issues will the function of the technical base of the system be monitored and evaluated in terms of technical functioning and importance for the project workflow.