Integrating the Teaching of Informatics to Medical Students in a Problem-Based Learning Undergraduate Course

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Introduction and Aims

Problem-Based Learning (PBL) approaches to undergraduate medical education have represented a radical departure of the traditional teaching structure. The extensive use of constructivism demands a strong build-up of corresponding student skills and the wide availability of information sources for research and study. It is no wonder, therefore, that proper training in the use of library resources, computers and networks is essential for the success of PBL programs.

The Marilia Medical School of (FAMEMA), in Brazil, has implemented a reform of the undergraduate medical curriculum based on a PBL approach. The present work reports the planning, implementation and integration of computer and networking resources for the support of the PBL program, and the teaching of informatics skills to medical students, using also a problem-based approach.

Methodology

The first step in the present project was to establish a strong set of computer and networking resources. Following this, we planned and implemented a mandatory introductory course in Internet usage and searching skills for first-year medical and nursing students, together. The approach we have used was the same followed by the PBL philosophy, i.e, we set up a set of skills and problems to be used by students, changing to student-centered learning process. Instructors for this course includes Health Informatics faculty members (2), librarians (4) and system annalists (2). In order to evaluate the impact of this course on the students' computer skills and knowledge, we first administered a questionnaire-based survey to all students before the course started, and then compared these with the results of the post-course evaluation of performance, this test is called OSPE (Objective Structured Performance Examination) is based in the OSCE, were students have 3 different stations with 10 minutes to perform each. The stations are complex, usually the students must perform more than one task The unsatisfactory students are re-trained and re-assessed. After the course, the students fill another web form evaluating the course. This questionnaire has three parts: I) Basic Course Aspects, with 15 questions, II) Global Course Evaluation, with 2 questions, and III) Instructors Evaluation, with 5 questions for each instructor. Results were statistically analyzed with the help of the Epi-Info package.

Results and Discussion

After five years of experience using the approach reported here, the use of computers, networks, Internet and databases across the whole curriculum is highly stabilized and accepted at FAMEMA. The overall effect of the course is an average improvement in the computer and searching skills of students, with a relatively short hourly load (14 hrs). The unsatisfactory students in the first OSPE varies, but all of them are re-trained and re-assessed, assuring 100% of skilled students in the basic content of searching skills and internet use.

The course evaluation shows that students learn what they expect or even more (30 to 50% each), their opinion about the course is 'good' or 'very good' in more than 70%. They feel that the course is relevant for their study skills in more than 60% and the useful of the content, including information and skills is appropriate for more than 55%. The instructors ratings range between 'good' to 'very good' in their questions.

The problem-based philosophy of the computer course not only integrated itself well with the overall PBL-based medical undergraduate curriculum, but it as effective per se, mainly because it provided a finite set of well defined and documentable set of skills which were made clear to the student from the very beginning