

The results obtained for the first cohort of students assessed using this method appear promising. Module convenors found the system workable and 98% of the students passed their SSM on the first attempt, with 76% of the class obtaining an overall grade of merit or above.

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A COMPUTER SIMULATION DESIGNED FOR PROBLEM-BASED LEARNING (PBL) IN PATHOPHYSIOLOGY

P Rosado Pinto, T Gamboa, Y Robert & A Rendas

Departments of Medical Education and Pathophysiology, Faculty of Medical Sciences, Campo de Santana, 130 1198 Lisboa Codex, Portugal

PBL is increasingly used in medical education under various formats. Most applications involve the analysis of clinical problems in small groups and apply multiple methods of assessment. On the other hand, much less attention has been paid to the pedagogical process occurring during the PBL sessions, probably because it is difficult to capture the dynamics of the tutorials if one is involved in it.

The purpose of the paper is to describe the development and application of a computer simulation based on the PBL approach as described by Barrows which has the following objectives: acquisition of knowledge in a clinical context, development of medical reasoning, stimulation of self-directed learning and motivation.

The problem-based learning system (PBL) is a computer program designed to run in Windows environment, derived from the problem-based learning

module (PBLM) (Distlehorst & Barrows 1982) and, like it, has the following features: the initial information is scarce and additional data about the patient must be requested by asking sequential questions obtained from available lists. The PBL is divided in phases starting with the history and finishing with the laboratory tests and other diagnostic procedures; hypotheses are generated throughout the process and can be changed according to the information obtained and to the knowledge acquired during the self-learning periods occurring between sessions.

The PBL differs from the PBLM in the following features:

- before receiving the information requested the students have to write down in the appropriate window the reason why they asked the question and what they expect as an answer;
- every hypothesis has to be justified and can be reinforced, rejected or maintained throughout the process;
- the learning issues and the learning resources have to be related to each other and written in detail.

The PBL has been used in the teaching of Pathophysiology since 1996 and allowed the achievement of the objectives stated by Barrows. Two classes of students with an average of 130 students each analysed around 40 PBLs, three per group of 10 students. The sessions were accompanied by a tutor and an older student. In the end, prints from the various sessions were obtained, allowing an accurate representation of the problem-solving process which can be analysed afterwards. The students also produced a final report summarizing the pathophysiological mechanisms relevant to the case. In what concerns the interaction with the program and the method, a questionnaire filled by the students at the end revealed that they consider the PBL user-friendly and the method highly motivating. We could also verify that the number of learning issues identified and studied by the students was larger than the learning objectives selected by the tutors at the beginning of each PBL.

The PBL is a useful instrument to register the problem-solving sequence(s) of reasoning occurring during the analysis of a problem using the PBL approach. Moreover, it is also useful not only for the tutors but also for the students who can receive more accurate feedback on their performance.

References

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