

Quality Assurance of Problem-based Learning (PBL): The Hong Kong Experience

G Tang,*^{MB,BS, FRCOG, FHKAM}

Abstract

Introduction: The Faculty of Medicine of the University of Hong Kong launched its new medical curriculum in 1997. It was an integrated and system-based curriculum, with problem-based learning (PBL) being one of its new pedagogy. This paper describes the quality assurance of the introduction of PBL. **Materials and Methods:** Regular PBL tutor training and case-writing workshops were conducted, with experts both locally and internationally invited to serve as trainers. The monitoring mechanism was the use of paper questionnaires filled by both students and teachers. A group with a view to improve the process and the content of PBL studied the ratings of these evaluations. **Results:** In 3 years, a total of 40 training workshops were held and, 268 tutors and 57 case-writers were initiated. Most of the teachers were convinced that PBL did work even in students who came from a didactic learning background. Extensive and continued refresher PBL workshops would be necessary. **Conclusion:** A stringent monitoring and evaluation process formed an integral part of an effective introduction of PBL in the medical curriculum.

Ann Acad Med Singapore 2001; 30:363-5

Key words: Medical curriculum, Medical education, Monitoring and evaluation

Introduction

The Faculty of Medicine of the University of Hong Kong (HKU) was established in 1887 and its curriculum has been run in a traditional manner for over a century. The Faculty has been a major training ground for doctors in the Community of Hong Kong. Its graduates are registerable with the General Medical Council (GMC) of the United Kingdom. In the late eighties, the GMC produced a document called “Tomorrow’s Doctor” and in the last two decades the medical educational literature is filled with discussions on the need to change the way doctors should be educated. The new medical curriculum is system-based and integrated, and is no longer divided into pre-clinical and clinical years. There is structured learning on clinical and communication skills, as well as law and ethics in medicine.

The single most important as well as contentious education pedagogy is problem-based learning (PBL). PBL has become not only the key component in medical curriculum change, but also regarded as the best way to achieve the goals of medical education in producing doctors who are lifelong learners, with critical thinking, with skilful interpersonal and communication skill and are prepared for team-work.¹⁻⁵

In order to ensure that PBL is run in a manner it is intended so as to achieve its goals, a monitoring and

evaluation system to assure quality is a feature in the new medical curriculum of the Faculty of Medicine of the University of Hong Kong. This paper describes the experience of this process.

Methods

From March 1997 onwards, regular tutor training workshops were organised both for paper PBL cases and for “PBL cases in the ward”. There were also workshops for PBL case-writing. Trainers were invited from overseas as well as from within the Faculty where some teachers have already had extensive PBL experience.

A central administrative body within the Dean’s office was responsible for implementation, monitoring and evaluation. This administrative body handled data collection, analysis and follow-up actions.

The monitoring and evaluation mechanism employed was via questionnaire. Initially, electronic forms of the questionnaires were used, but were found to be unsatisfactory. Paper questionnaires were subsequently used. Students rated the tutors on 8 areas:

1. Allows the group to control the learning process;
2. Helps the group to focus on the topic;
3. Encourages full participation of all members;
4. Provides background information only when necessary;
5. Intervenes only when necessary;

* Dean

Faculty of Medicine

University of Hong Kong

Address for Reprints: Professor Grace Tang, Faculty of Medicine of the University of Hong Kong, 7 Sassoon Road, Pokfulam, Hong Kong.

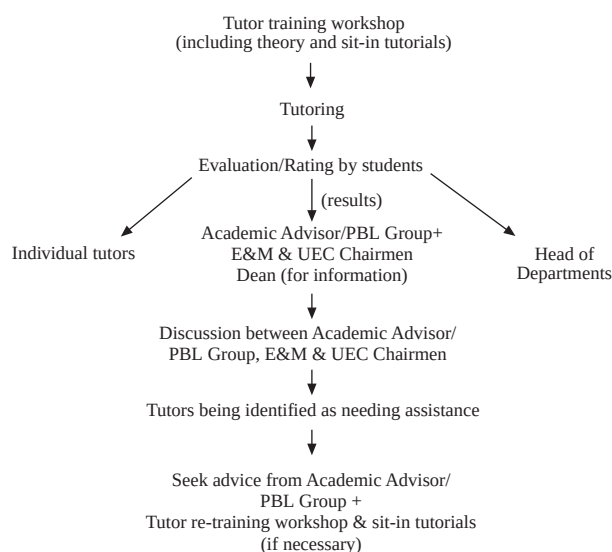


Fig. 1. Monitoring and evaluation scheme for PBL tutor.

6. Is attentive to the individual needs of each group member;
7. Gives mainly positive feedback to the group;
8. Helps the group to think critically and apply new information to the case.

Students were also encouraged to write additional comments when they felt necessary.

The ratings and comments were compiled for the individual tutor's information and also for the Chairman of the Monitoring and Evaluation (M & E) Committee, the Chairman of the Undergraduate Education Committee (UEC), the Academic Advisor who was an expert on PBL, and the Dean's reference. As such ratings and comments were suggestive in nature, Heads of Departments of the tutors were not given the information in the first instance. Remedial PBL sessions were carried out for tutors. Figure 1 shows the monitoring and evaluation of PBL tutors.

For PBL cases, the writing underwent a rigorous process of draft, comments, discussion and re-draft (Fig. 2). After a case had been used, comments were sought from both students and tutors. The case was either refined based on the comments, or was discarded after due consideration by a responsible coordinator and his group.

Results

From March 1997 till October 2000, 31 tutor workshops were held of which 3 were "PBL cases in the ward". There were 10 overseas experts from Adelaide, Flinders, McMaster, Liverpool, Queensland, Texas and Harvard. Altogether, 268 tutors had undergone training of whom some were honorary teachers. Over 90% of full-time teachers had had the tutor training and the minority that had not belonged to the academic chair professors. Most of the

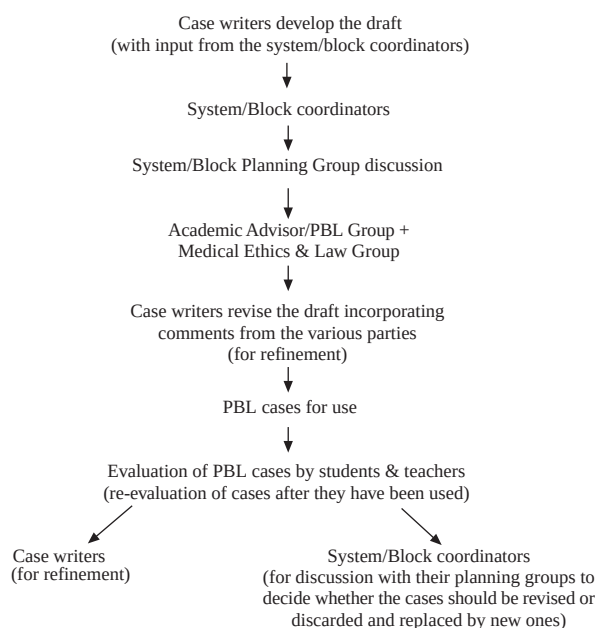


Fig. 2. Monitoring and evaluation scheme for PBL case.

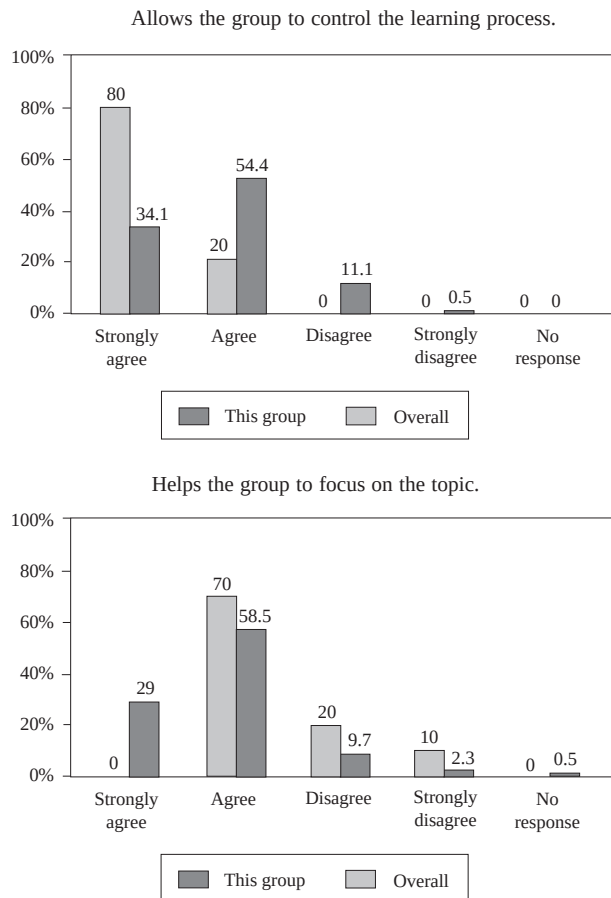
teachers are convinced about the usefulness of the PBL approach in medical education and hence, they wish to have it introduced in the clinical years.

There were 6 PBL case-writing workshops and 57 case-writers were trained. Altogether, 76 paper cases were written. With the permission of the Flinders University, some of their cases were adapted for use in Hong Kong.

Figure 3 shows an example of the individual tutor's score against that of the whole group of tutors for a particular study system. In the last 3 years, there was only one occasion where the Academic Advisor had to see the tutor for some remedial training.

Discussion

It has been pointed out that one of the principal difficulties encountered in the introduction of PBL is that both teachers and students are usually products of a didactic method of teaching and learning, and are therefore skeptical and inexperienced in PBL. It is imperative to have extensive and well-attended faculty development workshops for PBL tutors.¹ The experience at HKU surely reflects truth in these comments. It is our belief that not only should there be intensive training, there must also be continuous and refresher tutor training. The momentum must be kept in order to change the teaching and learning culture, particularly with the teachers. Students, however, can adapt faster and better after a short period of anxiety. Orientation is important to let them know what PBL is like. The traditional teaching in the form of lecture and laboratory sessions complements rather than contradicts PBL.



Overall	Total forms distributed	223
	Total forms returned	217
	Respond rate (%)	97.3
This group	Total forms distributed	10
	Total forms returned	10
	Respond rate (%)	100.0

Fig. 3. Students' rating of tutors for the gastrointestinal and urogenital systems.

Our questionnaire monitoring and evaluation process has provided us with tremendous insight into the PBL material and process. Skeptics could argue that student evaluation is unreliable, for what do students know? Could there be collusion between the students and the tutors, since they rate each other? Such statements undermine the ability as well as the integrity of the students and tutors. Over the last 3 years, the ratings of each tutor remain fairly consistent with different groups of students.

One is naturally concerned with the PBL process. In 1997 when PBL pedagogy was first started, the strategy of co-tutor was adopted. Each tutor served to booster the confidence of another. Each clinical teacher could have the assistance of a basic scientist, and vice versa, particularly in discussion on clinical scenario. With time, this practice

was dropped when PBL becomes more familiar and appreciated. On the other hand, tutor sit-in by an expert can serve to "standardise" the quality of PBL sessions. Monitoring the process by one-way mirror has only been done for teaching purposes. Random video-taping is another quality assurance method. All these are only on the drawing board and have yet to be implemented. When the students' rating is reliable, and the students' performance, such as self-directed learning, communication, critical appraisal, and team-work is more evident, one questions whether additional quality assurance methods are necessary.

A stringent monitoring and evaluation mechanism may produce a Hawthorne effect on student performance. Whatever it is, it is a bonus to the medical education reform. Taking on board this "side effect", it is imperative for the monitoring and evaluation mechanism to be ever-evolving and to be dynamic. The final monitoring is certainly on whether the PBL process itself can be an effective tool to enable the doctors to reason critically, to adopt a holistic approach to medicine, to enhance functional knowledge and to develop the capacity for continued learning and self-assessment.

Conclusion

The monitoring and evaluation mechanism adopted for quality assurance of PBL has so far been found to be effective. It is labour intensive, but the work is necessary to ascertain the quality and the claim for the PBL pedagogy.

Acknowledgement

The Vice-Chancellor of the University of Hong Kong; the Education Administration Team of the Faculty of Medicine, in particular Jeannie Tsang, Grace To, May Lam, Minnie Ma, Jenny Ng; the academic staff of the Faculty of Medicine, in particular T Dixon, M Ip, J Nicholls, Y S Chan, L C Chan, N Patil, Y L Lau; and the medical students.

REFERENCES

- Walton H J, Matthew M B. Essentials of problem-based learning. *Med Educ* 1989; 23:539-58.
- Des Marchais J E, Bureau M A, Dumais B, Pigeon G. From traditional to problem-based learning: a case report of complete curriculum reform. *Med Educ* 1992; 26:190-9.
- Norman G R, Schmidt H G. The psychological basis of problem-based learning: a review of the evidence. *Acad Med* 1992; 67:557-65.
- Moore G T, Block S, Style C B, Mitchell R. The influence of the new pathway curriculum on Harvard medical students. *Acad Med* 1994; 69:983-9.
- Bligh J. Problem-based learning in medicine: an introduction. *Postgrad Med J* 1995; 71:323-6.