

Integrating Subjects through Problem-based Learning: A South Asian Perspective

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Abstract: South Asia is a densely populated region. Recently there has been a rapid increase in the number of medical schools. In Nepal the curriculum emphasizes the teaching of the basic science subjects in an integrated manner. The emphasis on problem-based learning and the methods of assessment varies between medical schools. The medical subjects in South Asia are taught in a traditional, subject-wise fashion using didactic lectures. Problem-based learning uses clinical cases as the context for students to study basic and clinical sciences. It is difficult for medical teachers to tone down their passionate attachment to their specialty. In South Asia, problem-based learning only rarely cuts across subjects. Certain medical schools have tried an integrated approach to learning using problems. The repetition of questions in examinations encourages rote learning. Problems are repeated, and the problem solving exercises become a matter of testing recall. Medical schools should debate problem-based learning. Hybrid curricula can be considered. Problem-based learning across subjects should be considered. Students should be prepared for practice in the new millennium.

South Asia is a densely populated region of the world. The countries of the region have gotten together to form an association called the South Asian Association for Regional Cooperation (SAARC). The members of SAARC are India, Pakistan, Nepal, Sri Lanka, Bangladesh, Maldives and Bhutan.

Increase in medical schools in South Asia - Many of these countries had been ruled by the British, and the British legacy in medical education still continues. In the last sixty years there has been a tremendous increase in the number of medical schools in South Asia. In Nepal, there were a total of twelve medical schools in 2005 and two institutions offering only postgraduate courses.¹ In the year 2000, Bangladesh had 11 medical schools, India had 140, Pakistan had 19 medical schools, while Sri Lanka had 6 medical schools.² Recently many more medical schools have been opened.

Curriculum and assessment in Nepal - The author teaches in a medical school in Nepal and was educated in India. In Nepal, the university curriculum emphasizes an integrated approach to medical education. The basic science subjects are to be taught in an integrated manner and are to be threaded into Community Medicine and Clinical orientation, as appropriate.³ The Institute of Medicine, Kathmandu, Nepal emphasizes a community-based medical education and integrated, problem-based learning.⁴ The assessment system in Nepal varies between medical schools. Some medical schools have a system-based assessment through problems while others assess on the basis of individual subjects.

Traditional teaching and assessment - However, the medical curriculum in most schools is taught in a traditional, subject-wise fashion predominantly through didactic lectures. Assessment continues to mainly test factual knowledge and recall. Pharmacology and therapeutics is a vital discipline in medical schools. In pharmacology, an author has said that there can be no dispute that we as a group of academics have failed to keep the curriculum abreast of the rapid changes in the subject.⁵ The author was mainly referring to India, but the scenario may also be applicable to other South Asian countries.

Problem-based learning - Problem-based learning (PBL) uses clinical cases as the context for students to study basic and clinical sciences.⁶ PBL provides an environment where the student is immersed in a practical, on-going activity in which he/she receives feedback from other students and the instructor.⁷ The student receives guidance and support from friends and peers. Learning is multi-directional, including other students, tutors and professors.⁸ The learning is functional, based on solving a real problem.

'Subjects' in the medical curriculum - PBL requires a problem-based and not a subject-based approach to learning. In basic sciences the material usually provided through lectures and laboratories seems irrelevant to the practice of clinical medicine.⁹ Medical teachers have been trained as specialists, and it is difficult for teachers to tone down their passionate attachment to their specialty. In our institution, PBL takes place only in certain individual

subjects. The world of medicine has been broken into fragments by the narrow domestic walls of 'subjects'. A holistic approach to a particular subject only takes place during the student seminars for a very limited set of topics.¹⁰

'Subjects' and problem-based learning - In South Asia, PBL rarely cuts across subjects. PBL is not the main teaching modality, and students only occasionally actively search for information. It has been said that one of the hardest things about running a PBL curriculum is making sure that what is happening is actually PBL.¹¹ PBL should promote student directed learning. Many different educational activities may occur under the guise of PBL, some of which foster student-directed learning and some of which do not.¹² In a medical school in the United Kingdom (UK), a series of training courses for the faculty were started before introducing PBL and the college also trains students regarding PBL.¹¹

Examples of PBL in South Asia - In a medical college in Bangladesh only around 60% of the faculty members were in favor of PBL to be included in the undergraduate medical curriculum though the percentage increased after exposure to a symposium.¹³ In India, a medical school had used PBL to teach 'Physiology of the thyroid gland' to undergraduates.¹⁴ However, the PBL did not integrate different subjects. In a medical school in Karachi, Pakistan PBL sessions were found to improve analytical performance and the thought processes of students.¹⁵

Integrated problem-based courses - Integrated problem-based courses in basic sciences have been introduced in medical schools in developed countries.^{16,17} A problem-based learning curriculum has been implemented in an Argentinean medical school.¹⁸ The authors state that alternatives to PBL, including hybrid curricula, should be explored, and medical schools should be aware of the difficulties involved in implementing a PBL curriculum.¹⁸ The Ziauddin medical university in Pakistan has introduced an innovative self-learning process.¹⁹ Vertical and horizontal integration has produced better understanding of the subjects.

Assessment examinations - The question sets for the theory examination are usually repeated ad nauseam. The students prepare for the theory examination by going through the important questions of the previous years. The questions predominantly test factual recall. In the practical examination, the students have often been shown the problems/charts.⁵ Teachers do not want their students to be confronted with an unknown question, problem or chart in the examination. The 'problem solving exercises'

become a matter of testing recall.⁵

A clinical problem is an excellent way to integrate the different basic science subjects and to ensure vertical integration with the clinical disciplines. The medical schools should debate the idea of problem-based learning. Certain schools already have problem-based curricula. PBL may be expensive in terms of faculty and resources. Hybrid curricula can be considered. PBL sessions cutting across subjects should be given serious consideration. Self-directed learning and life-long skills should be emphasized to prepare students for practice in the new millennium.

References

1. Shankar PR, Mishra P, Dubey AK. Modern medical education in Nepal. *The Clinical Teacher*. 2006;3:65-68.
2. World Directory of Medical Schools. Seventh edition. World Health Organization: Geneva: 2000.
3. Kathmandu University. Curriculum for Bachelor of Medicine and Bachelor of Surgery (MBBS). Part-One Basic Medical Sciences. Third version. Dhulikhel, Nepal: 2001.
4. Hale C. Community-based learning: an experience. In: *Essentials of Medical Education* Adhikari RK, Jayawickramarajah PT (eds.). Health Learning Materials Centre, Kathmandu, Nepal: 1996. pp. 64-72.
5. Gitanjali B. Editorial New wine in new bottles. *Ind J Pharmacol*. 2004;35:63-64.
6. Finucane PM, Johnson SM, Prideaux DJ. Problem-based learning: its rationale and efficacy. *Med J Aust*. 1998;168:445-8.
7. Peterson M. Skills to enhance problem-based learning. *Med Educ Online* <http://www.med-ed-online.org/f0000009.htm#f0000009>. Accessed on December 11, 2006.
8. Albanese MA, Mitchell S. Problem based learning: A review of literature on its outcomes and implementation issues. *Acad Med*. 1993;68:52-81.

9. Rangachari PK. Basic Sciences in an Integrated Medical Curriculum: The Case of Pharmacology. *Adv Health Sci Educ Theory Pract.* 1997;2(2):163-171.
10. Giri BR, Shankar PR. Student seminars as a means of integrating basic science subjects at the Manipal College of Medical Sciences, Pokhara, Nepal. *New Zealand Student Medical Journal.* 2006;5: 24-25.
11. Taylor DCM. Reflections from the salt mine- 8 years' experience of problem-based learning. *The Clinical Teacher.* 2004;1:59-61.
12. Maudsley G. Do we all mean the same thing by "problem-based learning"? A review of the concepts and a formulation of the ground rules. *Acad Med.* 1994;74:178-85.
13. Rahman ME, Rahman S, Musa KM, Shuvra MR. Knowledge and attitude of faculty members on problem based learning. *Mymensingh Med J.* 2004;13:20-24.
14. Bhattacharya N, Shankar N, Khaliq F, Rajesh CS, Tandon OP. Introducing problem-based learning in physiology in the conventional Indian medical curriculum. *Natl Med J India.* 2005;18:92-95.
15. Baig LA, Asad F. Introducing problem-based learning in a medical school with traditional/ conventional curriculum. *J Coll Physicians Surg Pak.* 2003;13:378-381.
16. Vidie B, Weitlauf HM. Horizontal and vertical integration of academic disciplines in the medical school curriculum. *Clin Anat.* 2002;15:233-235.
17. Sivam SP, Iatridis PG, Vaughn S. Integration of pharmacology into a problem-based learning curriculum for medical students. *Med Educ.* 1995;29:289-296.
18. Carrera LI, Tellez TE, D'Oltavio AE. Implementing a problem-based learning curriculum in an Argentinean medical school: implications for developing countries. *Acad Med.* 2003;78:798-801.
19. Barakzai Q. Transition from traditional to innovative teaching in and beyond pharmacology at Ziauddin Medical University. *Acta Pharmacol Sin.* 2004;25:1220-1232.

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