Promoting Integrated Learning And Open-book Examinations In South Asian Medical Schools

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My opinion

Abstract:
South Asia has a large proportion of the world’s population and medical schools. The examination pattern is traditional and emphasizes factual recall of information. Evaluation can serve a number of purposes in medical education. In Nepal the six basic science subjects and Community Medicine are taught in an integrated manner during the first two years of the course. Assessment however continues to be on the basis of individual subjects. In India different basic science subjects are taught at different periods of the course.
In Nepal basic science education is structured in the form of organ systems. Different subjects teach the particular system in the allotted time period using didactic lectures. Clinical problems, self-directed learning and problem solving sessions will be more effective in integrating subjects. In addition to horizontal integration vertical integration with clinical subjects is also important.
Formative assessment has an important role in learning. Assessments should ideally be integrated. Open book exams (OBEs) can be used as one of the methods to assess the ability to retrieve information. Assessment should emphasize concepts and understanding rather than stressing factual recall of information.
South Asia has a good proportion of the world’s medical schools and creates a large percentage of the world’s health manpower. The examination pattern remains largely traditional and emphasizes factual knowledge and mastery of information. Rote learning is emphasized throughout school. Educational objectives are becoming important in many countries. Sessions are planned to achieve the objectives and evaluation provides the means to know whether or not the objectives have been achieved [1]. Evaluation can also serve as feedback on the effectiveness of the teaching-learning process.
Formative assessment gives feedback to students about their learning process and steps to be taken to further improve it.
Assessment in Basic Sciences in Nepal:
It has been said that whoever controls the examination, controls the curriculum and controls the way students learn. The world over, many medical schools are adapting an integrated curriculum where various subjects serve as tools for solving a patient problem. In Nepal, the seven basic science subjects (Anatomy, Physiology, Biochemistry, Pharmacology, Pathology, Microbiology and Community Medicine) are taught in an integrated organ-system based manner during the first four semesters with regular clinical contact. The Kathmandu University emphasizes integrated problem-based learning but the students are still assessed subject wise [2]. In Tribhuvan University, there are integrated system-wise papers but each subject still sets its own questions and students do not bring together knowledge of various basic science subjects to solve a clinical problem [3].
Assessment in basic sciences in India:
In India the subjects of Anatomy, Physiology and Biochemistry are taught and examined at the end of the first year of the undergraduate medical (MBBS) course and the subjects of Pathology, Microbiology and Pharmacology are taught and examined during the next eighteen months. To the best of my knowledge assessment is on a subject basis and integrated assessment is not carried out. Animal experiments are still being used in Physiology and Pharmacology in a few universities. No reports of open book assessment in medical education in India were obtained on doing a PubMed and Google Scholar literature search.
Promoting integrated learning:
Kathmandu University (KU) recommends that the different academic departments should identify in an integrated manner the educational objectives which are to be achieved and that teaching of the various subjects should take place synchronously [2]. However, I personally feel that integration is best achieved using clinical cases or case scenarios.
When a doctor practices and sees a patient he/she will have to bring together and integrate various subjects and use his/her knowledge and skill to treat the patient. If subjects are taught individually then knowledge often stays compartmentalized. Over years of practice many doctors achieve the skill of integrating subjects and focusing the knowledge towards patient care. If the student learns this skill right from the first day of medical school then he/she would be much better equipped to handle patient problems.
Sequential didactic lectures which are used for integrated learning in many schools is not very effective in integrating subjects and teaching the student to orient the knowledge towards patient care. Student seminars emphasizing a particular disease are found to be an effective means of integration. Manipal College of Medical Sciences (MCOMS) conducts student seminars every fortnight and these seminars have been effective in integrating basic science subjects [4]. At KIST Medical College, Lalitpur correlation seminars are held at the end of each organ system. The topic/s for the seminar/s and the objectives to be covered from each department/subject are discussed in detail. Basic science curricula have been studied at Chiropractic colleges in a recent article [5]. At most chiropractic colleges basic sciences eg. general anatomy, physiology, biochemistry, etc are taught as stand-alone content domains. The lack of integration creates difficulties for students who need to understand how the parts function together as an integrated whole and apply this understanding to solving clinical problems. More horizontally integrated basic science curricula could be achieved by several means: according to the author. Integrated Part I National Board of Chiropractic Examiners questions, a broader education for future professors, an increased emphasis on integration within the current model, linked courses, and an integrated, thematic basic science curriculum. "Anatomizing" is a new verb used to describe the breaking apart of a complex entity such as the human body, into isolated pieces of information for study [6]. The problem is the parts can never equal the complex, integrated whole. This practice does not prepare medical students for the inevitable task of dealing with the integrated structure-function of the human body, both normal and diseased, as patient managers. Assessment questions focusing on recall of previously memorized information fosters the learning behavior of only memorization. Examination questions that assess student understanding and integration of the content will foster high-quality learning producing better practitioners and lifelong learners. These articles stress the importance of integrated learning of the Basic Sciences with clinical relevance of assessment questions in promoting integrated learning among students.

Small group problem-solving sessions:
A set of common clinical problems should be identified and students should work in small groups towards solving the problem. The facilitator should identify learning issues and create a conducive environment for study. Each small group should contain not more than ten students. Lectures should be reduced to the minimum and should be only for topics which cannot be covered through problems. For specific practical skills resource sessions can be organized. Faculty members can help students better understand their subject through the perspective of the patient problem. In addition to horizontal integration among basic science subjects and Community Medicine vertical integration with clinical subjects should also be done. This will create greater interest among students for learning the basic sciences. In my institution objectives from the clinical sciences are also given to students during the correlation seminar and a clinical faculty member is also associated with seminar preparation and assessment. During the clinical years basic science subjects should also be included in student seminars. This will help students revise these subjects and further underline their importance in treating patients.

Integrated learning sessions using clinical problems have been tried in some South Asian medical schools. At the Ziauddin Medical University in Pakistan vertical and horizontal integration among subjects has been achieved using problem-based learning [7].

Formative and summative assessments:
Formative assessment during the learning sessions should be done. Group dynamics, participation in group activities and ability to approach the clinical problems in a correct manner are various parameters which can be assessed. Formative assessment of students during pharmacology practical sessions are carried out at KISTMC and student performance in formative assessments is considered during the final pharmacology practical exams [8].

The summative assessment should at least partly be integrated and open book examinations can be considered. In Singapore the curriculum of Community, Occupational and Family Medicine (COFM) aims to produce graduates with the skills to critically appraise evidence, prevent and manage diseases and promote health in the community and in primary healthcare [9]. Innovative assessment methods such as open book examinations (OBEs), objective structured communication stations and evaluation of student participation in group work are used.

Open book exams:
With the information overload in medicine, the emphasis is shifting from knowing something to knowing where to find the information. Core basic knowledge is important but many other things can be looked up. OBEs strongly favor this shift in emphasis. I believe students should be assessed through a clinical problem which they try to answer in an integrated fashion using textbooks and other sources. I am ambivalent about allowing internet sources of
information in the examination as the information retrieval is very quick and does not need any effort on the part of the student. Doctors in practice can however use the net for quick information once they have mastered ‘retrieval’ skills during the course of study.

The department of Pharmacology at MCOMS teaches students to select a personal or P-drug for a disease condition on the basis of efficacy, safety, cost and convenience. During the practical examinations students choose a P-drug for a given disease condition, verify the suitability of the selected P-drug and write a prescription. They are allowed to refer to textbooks and other sources [10]. The students learn to retrieve information, critically appraise it and make informed choices. They were in favour of the OBE [10]. OBE is also used in the P-drug selection exercise during Pharmacology practical examinations at KISTMC. Thus at least a part of the assessment of students should stress OBEs, information retrieval skills rather than only rote learning and factual recall.

Student perspective about integrated curricula and open book exams:

In 2001 the University of New South Wales Faculty of Medicine in Australia started designing a curriculum-management system to support the development and delivery of its new, fully integrated, outcome-based, six-year undergraduate medicine program [11]. The Web-enabled curriculum-management system is known as eMed, and comprises a suite of integrated tools used for managing graduate outcomes, content, activities, and assessment in the new program. The eMed functions were determined by organizational and curricular needs, and a business management perspective guided its development. Evaluation results indicated a high level of user acceptance and approval. Integrated online formative assessments were introduced in an Australian medical school [12]. The assessments were administered to students enrolled in the first two years of the undergraduate medical program. Participation in formative assessments was associated with a higher end of course score. I could not come across studies dealing with student perspective towards OBEs in the literature.

Conclusion

OBEs can be used in assessment in medical education in different institutions. This will provide more data about its role and place in the assessment system. Integrated, small group learning using clinical problems and assessment stressing student understanding of concepts and their application in practice should be more widely adopted in south Asia. I am sure that in the future our students will thank us for this!

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