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## Promoting integrated learning and open-book examinations in South Asian medical schools

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## My opinion

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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 in South Asia.

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.

### **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.

### **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 [5].

#### **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 [6].

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 [7]. 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 [8]. The students learn to retrieve information, critically appraise it and make informed choices. They were in favour of the OBE [8]. 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.

## Conclusion

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Thus OBEs have an important role to play in medical education. 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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