
Viewpoint

Examination Reform at the Grassroots: Teacher as the Change Agent

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Examination reform requires three things-intelligence, courage and skill. If intelligence and courage for innovation are there, the skill can be developed. Perhaps, the best way to develop this courage is to review criticism of the present examination system. Too often, teachers continue to reproduce the evils of the existing system. A major reason for this could be the highly sophisticated and statistical halo given to evaluation procedures. The present communication is intended to highlight some of the changes in the UG examination system, which are within the reach of any teacher, without a conflict with University or MCI requirements.

Let us first review some of the shortcomings of present examination system, vis-a-vis the importance of evaluation. The basic aims of student evaluation at the institutional level are: (i) to determine success or failure on the part of the student; (ii) to provide a feed back to the student regarding his shortcomings and the level that he has attained; and (iii) to provide feed back to the teacher regarding efficacy of his

teaching. Against this background, the traditional examination system has the following shortcomings: (i) *Unreliability* of the marks obtained-which means that different examiners will give different marks to same student. Even when re-marking, the same answer book, examiners often contradict themselves(1); (ii) *Chance* plays a significant role in deciding whether a student is allotted to a tough or a lenient examiner. Moreover, the examinee has no way of knowing as to what the examiner actually wants and has to resort to guessing-another place where luck plays a major role; (iii) *Bluffing*: A student who knows little but who is skilled and imaginative at writing can bluff the examiner into believing that he knows; (iv). *Emphasis on product and not on process*: This is especially true of practical examinations. A student may say that liver is palpable 4 cm below costal margin but did he know how to correctly palpate and measure it, is difficult to say; (v) *Neglect of attitude assessment*: A good doctor is not necessarily the one who may be knowing everything-rather it is the one who can empathise with the patient and give him comfort by his words and actions. At present, there is no emphasis on assessing communication skills, learning habits, interpersonal relationships, etc.; and (vi) The present system is wasteful and inefficient, especially with essay type questions; and there is often a trade off between spending that extra time or resorting to 'impression marking'.

Therefore, the need of the hour is to reduce "subjectivity" involved in the process of evaluation and to bring in more of "objectivity".

There are some common arguments

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given by most teachers for not using objective examinations: poor teacher-student ratio, busy schedule of the teachers and resistance from student community. However, on closer scrutiny it would be clear that all these are truly reasons for discarding the traditional examinations and introducing objective examinations in an innovative manner.

One of the pre-requisites of objective evaluation is to give a precise task to the student, which is interpreted identically by him as well as the examiner. Secondly the questions framed for the examination must be based on the learning objectives and should have adequate clarity. If we are able to remove the ambiguity from questions, nothing more may need to be done.

Any system of teaching-learning aims to impart: (z) knowledge, including critical thinking and analyzing ability, (it) skills, and (Hi) positive attitudes. Students always learn only what is going to be evaluated(2)- a corollary of it being that what is not evaluated will not be learnt. The evaluation tools should therefore address all domains of learning.

A. Evaluation of Knowledge

Traditionally, essay type questions have been used for evaluation of knowledge but they have an unacceptable inter-examiner variation(3) putting the student to the mercy of chance. The argument given in their favor is that they teach students to express themselves. This may be true, provided the errors are pointed out and explained to them so that they can write better. Unfortunately, this is never done. It is also said that objective type questions can not test thinking-suffice it to point out that objective questions were originally used for intelligence tests and nobody accuses intelligence tests of not measuring thinking! Over the years, a number of modifications have been

made regarding utility of objective tests to assess knowledge. Of the many options available, short answer questions and multiple choice questions interest us.

(0 Short Answer Questions

These questions require the student to provide an answer, which may be a word, a sentence or a paragraph(4). Since the correct answer is predetermined, there is little chance for ambiguity. Another way to make use of this format is to write what are called structured essay questions(5). An example of each of these questions will help to illustrate the point better.

Short answer questions:

- * What is the infant mortality rate of India as per 1996 estimates?
- * What is the dosage schedule of digoxin for a premature infant?
- * Enumerate 'four cleans' which will help in reducing neonatal mortality rate.

Traditional essay question:

- * How will you approach a child with severe anemia?

To make it more objective, this question can also be written as follows:

Structured essay question:

- * What are common causes of anemia in a 2 year old child?
- * Enumerate 5 common investigations which may help you in arriving at a diagnosis.
- * What will the peripheral smear show in dimorphic anemia?
- * How will you give total dose iron infusion?

It is to be noted that while the traditional essay question gives a wide scope to the

student, the structured format restricts the answer. All the students are likely to interpret the question in the same way making comparisons easy and fair.

(ii) Multiple Choice Questions (MCQs)

These provide alternative answers to the student who is required to tick the correct one out of these. Writing good MCQs is an art which can be perfected with practice. Interested readers can refer to guidelines which are available regarding framing of a good question(6). Quality of a MCQ depends on the quality of distractors (alternatives other than the correct answer)-hence it requires some thinking on the part of the examiner to write efficient distractors.

The format of questions to be used will vary with the purpose of evaluation. If a teacher wants to know the adequacy of his teaching, short answer questions can be used. They are easy to construct and the answer given by students provide a good collection of common misunderstandings about a topic. These can be later used to construct good quality MCQs. Similarly, for end of block evaluation, structured essay question are useful tool and permit comprehensive evaluation of various aspects of a topic.

MCQs have a variable effect on learning. In fact in this era of PG entrance examinations, they are becoming a major and primary source of learning. However, most of the times, these questions are from books available in the market. Many of these distort learning. Teachers should themselves learn the art of MCQ writing so that evaluation can become more objective.

A word about short notes may be pertinent here. We increasingly encounter 'short notes' in many question papers, but these do not serve any useful purpose. Being ba-

sically miniature essays, they suffer from all the shortcomings of essay type questions. Moreover, different students may deal with different aspects of a topic (*e.g.*, short note on ORS may be attempted as physiological basis of ORS, WHO recommended ORS, home made ORS, recent advances in ORS, *etc.*) and yet be marked equally.

B. Evaluation of Practical Skills

Practical skills are an important weapon in the armoury of a physician yet they are evaluated very subjectively as at present. An alternative method-objective structured clinical examination(7) or OSCE as it is called-has been extensively used and found useful. In essence, OSCE involves multiple stations-each station presenting a definite task to the student, to be performed in a specified time. The stations can be a *procedure station*-where the student performs a procedure (taking weight, recording BP, palpating liver, *etc.*) and may be observed by the examiner with the help of a check list or a *question station*-where short answer question related to previous stations are to be answered. The following example will make it clear.

Procedure station:

Palpate the abdomen of this child.

Observation check list	Marks
• Stands on the right side of patient	2
• Flexes knee and hip joints	3
• Warms the hands	2
• Palpates and measures the liver gently	1
• Palpates and measures the spleen gently	1
• Palpates the kidneys	1

Question station: These can be directly related to the procedure, e.g.,

The liver is palpable 6 cm below costal margin True/False

The spleen is not palpable True/False

The question can also be related to knowledge component, e.g., What are five common causes of hepatomegaly in this age group.

OSCE permits objective evaluation of clinical skills within a short time and a large number of students can be evaluated using this technique. History taking, communication, common clinical procedures, identification and use of drugs and instruments, interpretation of laboratory reports, performance of common bed side investigations-are some of the areas which can be evaluated using OSCE. However, while OSCE may be suitable for evaluation of individual skills, the analyzing and synthesising ability of the student is best evaluated using clinical case presentation(8). A combination of both methods generally provides a better result than either of the methods used alone.

It may be mentioned here that success of OSCE lies in the check list-which should be designed by breaking the total skill into individual components. A finer and objective breakage provides better reproducibility of results.

C. Evaluation of Soft Learning Areas

A doctor needs to be more than a mere technocrat-this requires learning of many things other than technical information and clinical skills. Communications skills, interpersonal relationships, study habits, attitude towards patients, teachers and peers, scientific attitude, *etc.* are some of the examples of these aspects. Evaluation of these requires a careful observation of the behav-

ior of the student by the teachers, peers or even the student himself. Association of Indian Universities has brought out a monograph(9) on evaluation of these non-scholastic abilities. With minor modifications, many of these can be applied in our situation(10). Once the students know that they will be evaluated on these areas, they will make a deliberate attempt to learn these skills and unlearn the undesirable ones. The evaluation process, however requires a continuous observation of the student throughout the period of studies(11). Such continuous observation will also promote regular study habits amongst the students.

Designing good evaluation tools requires time and effort, which is more than repaid in the form of better student learning. It is also important to mention but merely applying a particular tool is not enough-how well that tool has been designed makes all the difference. A poorly made OSCE station or a poorly written MCQ is likely to distort learning. One of the accepted means of quality assurance of 'stations' or questions is peer review and should be used as much as possible. It may also be pointed out that the tools and techniques of evaluation mentioned above are only representative and not exhaustive. In addition to these, a whole variety of evaluation techniques(12) are available and can be referred to by interested readers.

The purpose of this communication is to make teachers aware that they too can initiate a change in the examination system, in addition to helping the students learn medicine in a better way. It has rightly been stated by Mager(13) that if you can't change the curriculum, you should change the evaluation system and the nature of learning will automatically change.

REFERENCES

1. Mishra VS, Harper E Jr. Ninety marking

- ten. *In: Readings in Distance Education.* Eds. Murugan KS, Panda SK. New Delhi, Indira Gandhi National Open University, New Delhi, 1988; pp 26-31.
2. De Cecco JP, Crawford W. *The Psychology of Learning and Instruction*, 2nd edn. New Delhi, Prentice Hall of India, 1986.
 3. Edwards D. A study of reliability of tutor marked assignments. *Assessment Higher Educ* 1979; 5:16-21.
 4. Bonney R, *Objective Testing in Education and Training*, 1st edn. London, Pitman Education Library, 1973.
 5. Verma M, Chhatwal J, Singh T. Reliability of essay type questions: Effect of structuring. *Assessment Higher Educ* 1997; 4: 265-270.
 6. Hubbard JP, Clemens WV. *Multiple Choice Examinations in Medicine*, 1st edn. Lea and Febiger, 1961.
 7. Harden RM, Gleeson FA. Assessment of clinical competence using an objective structured clinical examination. *Med Educ* 1979; 13: 41-54.
 8. Verma M, Singh T. Experiences with OSCE as a tool for formative evaluation in Pediatrics. *Indian Pediatr* 1993; 30: 699-701.
 9. Association of Indian Universities. *Assessment of Non Scholastic Abilities: Monograph*, 1st edn. New Delhi, Association of Indian Universities, 1985.
 10. Singh T, Natu MV. Assessment of affective learning in medical education. *Trends Med Educ* 1995; 2: 4-5.
 11. Natu MV, Thomas AG, Singh T. Continuous internal assessment: concepts and application in medical education. *Trends Med Educ* 1995; 2:16-18.
 12. Shanon S, Norman G. *Evaluation Methods: A Resource Handbook*, 2nd edn. Ontario, Me Master Universities, 1995.
 13. Miller GE, Fulop T. *Educational strategies for health professions.* Geneva, World Health Organisation. Public Health Papers No. 61; 1974.
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