

Towards Improved Assessment - 1 Why and How to Assess?

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Assessment begins with identification of the learning goals and ends with a judgement concerning the extent to which those goals have been achieved.

There are two main purposes of students' assessment (examinations): to improve the quality of learning; and certification of knowledge or performance. In medical education certification leads towards licensing to deal with human lives, thus both these objectives become increasingly important (Figure).

Generally, judgement is required to achieve both the goals. In the first it directly serves the needs of the student (internal motivation) and in the second it contributes to motivation through the recognition of achievement. Students neglect learning, if the latter is weak. Unfortunately, resource pressures increasingly lead medical teachers to protect assessment system, tools and content for official recognition at the expense of self and peer assessment for learning.

What is Being Assessed Currently

Learning in medical students is so intensely driven by the content and methods of assessments that all other aspects of the (undergraduate and postgraduate) curricula (that are not graded) are literally swamped down. Despite, good intentions of teachers, examination content encourages a narrow approach to learning that emphasizes reproduction of what is presented in lectures and tutorials at the expense of critical thinking, deep understanding and independent activity, which is extremely desirable for graduating doctors and other health professionals. The structured examination syllabus discourages students from taking initiatives beyond their lecturer's interpretation of course, and they spend their time 'swotting for examinations'.

What Should be Assessed

Schultheis¹ recommends that examination questions should focus on major observable and measurable, not minor, knowledge or skills objectives (that participants in an educational program are expected to acquire) e.g. aspects related to common health problems in Pakistan. A frame work for relevant assessment is presented in Figure.

How to Assess

Planning a Test

Choosing the appropriate content, method and tools of assessment are extremely vital to make any test valid, reliable and objective (Table 3).

Table of Specifications (blue print)

For content validity of the examinations, questions should be developed in accordance with the approved Table



Figure. What and why of assessment.

Table 1. Why test????

- > Identify areas of deficiency
- > Identify strengths and weaknesses of the curriculum
- > Make decisions about promotions
- > Communicate to students the important material
- > Motivate students for studying

of Specifications (blue print) for the course and certifying examinations.^{1,3,4} (Tables 2 and 3).

Course objectives Table of specifications
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 Construction of questions

The Table of Specifications provides not only the number of questions to be used per course area in an examination, but also the number of questions for different levels of cognitive taxonomy.⁴

Table 3. Selection of valid¹ and relevant² tools.

Question type	Specific tools	Objectives of recognition and recall	Objectives of interpretation	Objectives of problem solving
		C1	C2	C3
MCQs	T/F	+++	±	--
	One best	+++	+++	±
	Matching	±	+++	±
Essays	Structured essays/open ended questions	+++	+++	±
	Long essays	+	+++	++
	PMPs	++	+++	±
Viva	Structured	+++	+++	±
	Unstructured	+	++	++
Short cases		++	++	--
Spots		+++	++	--
Long cases		+	++	++
OSCEs		+	++++	±

Matching and selecting the appropriate tools

Table 2 is an imaginary table constructed to provide an example to the readers. The real tables can be formulated after correlation with Table 3. The combined blue print will help the paper setters and teachers in selecting and formulating valid and relevant examination It will also help in decreasing overlaps with increasing objectivity.

Types of Assessment

Maximum Performance (generally summative, certification of knowledge or performance): what a person can do by applying the best of efforts (achievement tests;

Table 2. Table of specifications. Anatomy for Year 1 (MCQs).

		Total number of questions		
		Recall	Interpre- tation	Problem solving
Upper limb (10)	Hand (3)	1	1	1
	Forearm (3)	0	2	1
	Arm (4)	1	1	2
Lower limb (10)	Foot (3)	1	1	1
	Calf (4)	1	1	2
	Thigh (3)	0	2	1
Abdomen (6)	Stomach (2)	1	1	0
	Liver (3)	0	2	1
	Pancreas (1)	0	0	1
Thorax (4)	Heart (1)	0	1	0
	Lungs (3)	0	2	1
	Trachea (0)	0	0	0

() indicate the number of questions allowed

attempting to test what has been learnt) at a given time. Indicators of the best performance is generally high/low scores e.g. Professional Examinations.

Tools: MCQs, essays, viva, OSCEs, practicals, etc. can all be used for assessing the maximum performance of learners at a given time.

Utility: Results of these assessments are by and large used to certify successful completion of a course, curriculum, etc. e.g. the MBBS professional examinations. It may form a substantial part of certification but responsibility to determine just who is competent to practice medicine, and at what standard, is time consuming and requires significant examiner training and acceptance.^{5,6}

Recommendations for modified use: The results of this performance (during a very short period) should not be capable of making or breaking persons' career and future.

To make assessments meaningful the system and tools used should be criterion- referenced and supported by feedback and results of continuous performance. The system should be simple transparent, fair and defensible.⁷

Continuous Performance⁸⁻¹⁵ (to improve the quality of learning and can be either diagnostic, summative or formative or a combination of all three): What a person does regularly in routine (normal and emergency) circumstances can only be gauged satisfactorily by continuous observation and measurement. Hence continuous assessment is the regular review of the learners' progress or development. This can also be defined as typical performance, which predicts a person's capability to perform and react in similar situations (aptitude tests which predict attitudes, interests, adjustments and other personality traits: associated with descriptors rather than high scores).

Tools: Portfolios, Log books, written assignments, open book examinations, presentations, MCQs may all be used to assess the progress and development. Although all these tools can be used to assess learners' knowledge of basic medical sciences periodically, continuous assessment and the relevant tools are exceptionally relevant and valid for assessing the development of behaviors and procedural skills competencies.

However, it is essential to have clearly defined pre-determined standards and criteria for the learners and assessors. It is also facilitatory (and increases the objectivity) to the process to measure each student's baseline performance independently, at the commencement of the course(s). The subsequent observations should be made and measured in relation to each student's own baseline (starting) performance rather than against the periodic performance of other students. This reduces the competition amongst the learners and helps build a helping environment.

Utility: Continuous assessment is one of the most important tools for evaluating different behaviors (progress and adaptations). Regular formative assessment allows identification of students with inadequate preparation for the certifying (maximum performance) examinations. When this assessment is used for formative purposes and feedback (via peer, self, and teacher) is provided periodically according to pre-determined criteria and objectives, it helps and motivates the teacher and learner to identify the strengths and weaknesses and work towards overcoming the deficiencies.

In medical education, continuous assessment can be used for assessing the acquisition of knowledge, development of attitudes related to clinical medicine and life on the whole; and the capability to integrate and apply the acquired knowledge of basic medical sciences appropriately (problem solving).

However, if results of these continuous assessments are used for summative purposes the competitiveness and stress defeats the main goals of the exercise. If continuous assessment component becomes completely formative, students tend to ignore it completely or take decreased interest in it.¹⁶ This assessment allows identification of students with inadequate preparation for the certifying examination the results of continuous performance can be used to determine the eligibility for the final examinations.

There is no simple solution for this dilemma. A balanced mix of various assessment tools in accordance with the needs and objectives generally provides a constructive learning atmosphere and motivates learners to excel rather than compete.

Conclusion

Currently, assessments in medical education require and utilise significant time and resources but much of it is of limited educational value in the various systems as in most of the medical examinations the principal emphasis is on ranking students rather than encouraging and reinforcing learning. This distribution of grades discourages high quality teaching and learning. Procedures to ensure equity and accuracy are not well defined or consistently applied and most importantly the academic staff is not well versed in the methods of assessment or the educational foundations underlying them.

It is therefore recommended that the primary focus of assessment should be to: encourage, direct and reinforce learning; maintain standards and provide certification; and establish guidelines on the appropriate amount, mode, and spread of assessment. To inculcate fairness and criterion referencing assessment, objectives and standards should be clearly communicated to students and assessors beforehand. Marks and grades should be awarded through reference to predetermined standards rather than in reference to the performance of other students in the subject.¹⁷

Having discussed the principles that should underlie all valid and reliable assessment tool. We will try to analyse the various tools that are currently being used with reference to the principles for construction and mechanisms to interpret the various item behaviors.

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