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Opinion

"Beyond Competence", Assessment for Capability

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1) Outcomes have been adopted in preference to competences in medical education because it promotes a higher order of professional capability.
2) New assessment instruments have been introduced to examine a student's capability in both undergraduate and postgraduate phases.
3) The principle of preparing students to be 'capable doctors' is international. Leading medical educators around the world are introducing changes to traditional courses to achieve this.

Key words: outcomes, capability, assessment

INTRODUCTION

The primary responsibility of the medical school is to prepare their students to master the reality of today and prepare for the challenges of tomorrow[1]. The key question is "how will medical schools do this?"

This question has been explored by a number of national authorities and leading medical institutions, including the World Federation for Medical Education[2], the UK General Medical Council[3], and the Council of Deans of Scottish Medical Schools[4]. They have all put forward recommendations or proposals that describe what a student should be able to do, or know, or believe, by the end of their period of training. The Scottish Doctor Project uses the terms 'outcomes' rather than 'competence' as a basis for developing capability and the reason for this has been explained elsewhere[5].

ASSESSMENT FOR COMPETENCE

The reforms in undergraduate medical education have been a real challenge to supporters of tradition. In the traditional curriculum, an area of knowledge is taught and the students are then given a formal examination. Taking anatomy as an example, in the traditional course, anatomy is timetabled as a distinct subject and is taught through a series of lectures and anatomy practical demonstrations and whole-body dissection which may last for several weeks (over ten in Japan). At the end of the course, there is usually a written examination and a practical "spot-recognition" or oral examination. The same pattern is followed more most other subjects. This pattern of teaching follows the "Radical Behaviourist" approach to education outlined elsewhere[5].

In this system, students are told what they

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have to know, and their task is to remember enough to pass the examination. The examination establishes that the students are 'competent' in the subject, though after passing the exam the students forget most of what they were taught, and enter another "remember and pass" the cycle in next course. For the student, the underlying process is one of superficial learning and transient-competence. The traditional educational objectives, such as GIO (general instructional objective) and SBOs (specific behavioral objectives) may undermine the educational process. It is common for students to see them as "teacher-determined" lists of items that are "crossed-off when done" in order to pass the exam.

The curriculum reforms within the United Kingdom have largely replaced discipline-based courses with an integrated body-systems based programme[3] that embraces early clinical integration and adopts a modern approach to learning and assessment. Competence in anatomy is still core knowledge, but is integrated with other basic sciences that are all taught within a clinically relevant context. Three UK schools (Glasgow, Manchester and Liverpool) adopted problem-based learning with courses that are defined by cases or problems and not by a timetable of lectures in subjects or disciplines. The students are responsible for decisions about their learning, and are not dependent on the content of lectures in establishing what they need to learn. This Constructivist philosophy places the judgement of the individual student at the centre of the learning process[6], and engages the students in self-directed learning and fosters real understanding of the subject. In such courses, students learn to construct their own "key questions" (learning objectives) that will lead them towards relevant learning.

ASSESSMENT FOR CAPABILITY

Having established a programme that teaches for 'capability' rather 'competence', how might capability be assessed? Medical schools in the United Kingdom have been developing techniques to do this and of the 20 or more examples of assessment that are recorded in the 'Scottish Doctor'[4], many are designed to assess capability. The trend is to develop assessment instruments that test judgement and performance and that are used by a range of people. These include the individual student making judgments about themselves (self-reflection/self-assessment), judgments by other students (peer-assessment) by teachers (formative and summative assessment) and by examiners (summative assessment). Schools that have adopted problem-based learning recognise the significance of the student "learning how to learn" and have therefore developed techniques that test a student's capability to learn for themselves.

Imperial College, London, for example, has such an examination as part of the problem-based learning programme. Students are given a 1000 word narrative about a clinical situation. The students have two weeks to analyse the narrative, decide what the key learning points are, and complete their research using a wide range of resources. The narrative is about a clinical situation (events in a busy clinic, for example) and as it is not discipline or subject based then a single 'course-text-book', is insufficient. The students then take a formal written examination with questions based on the clinical-narrative. There are further examples that illustrate the trend towards assessment of capability.

In the College of Medicine in Edinburgh, students complete formal peer assessment exercises on at least six occasions in the first two years. The students work in groups of 8-10 for problem-based learning and student-selected components and conduct a peer-assessment exercise (which is completed on-line) at the end of each semester or module. Experience and infor-

mal observations by one of the authors (PE) suggest that the individual's first attempt may be daunting, but by the end of Year 2 students report that they value the exercise and feel confident in themselves and when working with others.

Assessment by tutors occurs by observation of clinical procedures, such as history taking and clinical examination[7]. This is not opportunistic, but is organised and formally recorded in a clinical log-book, portfolio or similar record of work. Assessment by examiners is conducted as part of the final examination where students present their course work (case reports) as the basis for a Viva. The external examiner is required to conduct an in-depth discussion with the student about their understanding of their own clinical experience. Overall knowledge by written examination remains an essential part of the assessment process, but some schools (Maastricht, Charité and Dundee) have adopted a 'progress test' that is taken by all the students, several times a year. The advantage being that an individual can compare their performance against every other student, and can recognise their own increase in knowledge. Knowledge acquired in year 1, and subsequent years, is re-examined, and therefore not forgotten but frequently revised and developed.

Overlooking the need to prepare an assessment strategy that is valid and relevant may be a self-inflicted pitfall when adopting such a curriculum model. The nature of assessment must match the nature of the outcomes. Therefore, it is logical that if an outcome of the course requires a student to be able to make clinical judgements, then students should be assessed in situations where they are making clinical judgments.

POSTGRADUATE PHASE

The impact of the reforms in the undergraduate phase would be diminished without continuity into the postgraduate phase. However, in 2005, a new structure to the UK postgraduate training programme[8] was introduced that sets out to assess performance and capability of doctors in training. Assessments are all work-placed based and include direct observation of procedures and skills, observed clinical events, case-based discussions and a peer-assessment tool known as multi-source feedback. The Postgraduate Medical Education Training Board[9] is the statutory body that brings authority and quality assurance to the process and it is likely that it will influence the undergraduate arena.

CONCLUSION

In the UK, the development of assessment for capability, based upon outcomes rather than competences, has been central to the reforms in undergraduate and postgraduate medical education. The vision is to prepare doctors who are masters of the reality of today but can respond and adapt to manage the predictable and unpredictable events in the future. The vision is international and Medical Educators, globally, are demonstrating the capability for making the vision a reality.

EXPLANATIONS OF TERMS USED

Behaviourist[10]: A philosophical belief that learning is expressed as an automatic behaviour

Constructivist[11]: A philosophical belief that understanding is achieved when the learner is responsible for building their own ideas and explanations, which are tested.

Outcome: An educational attribute that defines the desirable characteristics of an individual at the end of a programme of study.

Competence: The ability to perform a skill or complex task in controlled conditions.

Capability: The ability to perform complex tasks in real situations or stressful circumstances.

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和文抄録

1) 高度職業人としての医師を育成するために,「コンピテンス」よりも「アウトカム」の概念に基づいた医学教育が導入されつつある.
2) 卒前においても卒後においても, 医師としての能力(実践・判断・適応力)を評価するさまざまな新しい評価法が導入されてきた.
3) 有能な医師を育成するための教育原理は世界共通であり, 各国の医学教育分野のリーダー達は, 有能な医師育成をめざして, 伝統的な教育に変革を導入しつつある.