EDITORIAL

Developments in outcome-based education

R.M. HARDEN

A change of emphasis

Visitors to medical schools are usually shown the new clinical skills centre, the computer learning suite, or the latest interactive response or data projection system with which the lecture theatres have been equipped. These are high-profile features, seductive in their promise of better, easier and perhaps even more cost-effective learning. The visitors have to probe more deeply and often futilely, however, if they wish to see the learning outcomes for the curriculum that students will achieve before graduation and plans as to how these facilities will contribute to each learning outcome. All of this is changing and there is a new agenda for medical education, with a reorientation from process to product. This is not to say that how we teach and how we expect our students to learn is not important. It is. We cannot expect, however, to deliver our learning programme effectively and to choose the most appropriate tools for the task if we have not made the learning outcomes for our courses explicit. The public, the government and our colleagues in the other healthcare professions are asking justifiably for more explicit statements about the product of our medical schools: what sort of doctor are we trying to train and are the needs and expectations of the society in which they will be practising being taken into consideration? Leinster (2002) has drawn attention recently to the need to rethink how we educate doctors, taking into account among other things the changing roles of healthcare professionals, the need to be able to assimilate, evaluate and use new information and the importance of attitudes and communication skills.

Emphasis on learning outcomes

In the UK the General Medical Council (GMC, 2001) revised their 1993 recommendations (GMC, 1993) by adding a new major section to the report which addressed the issue of learning outcomes. The Association of American Medical Colleges in the USA developed a set of learning outcomes for medical education (AAMC, 1998). These were designed to guide individual schools to establish objectives for their own programmes. In the USA, Brown University described their learning outcomes as a list of nine abilities (Smith & Dollase, 1999). The American Board of Internal Medicine (Stobo & Blank, 1998) in a report on Project Professionalism, the Royal College of Physicians and Surgeons of Canada (2000), and the Accreditation Council for Graduate Medical Education (2001) set out learning outcomes for postgraduate and continuing education.

In the UK, the Quality Assurance Agency for Higher Education included outcome-based learning in their 2000 *Handbook for Academic Review*, as a component of the programme specifications to be reviewed. Institutions were expected, for each education programme, to have set out the intended learning outcomes of the programme and the teaching and learning methods that enabled learners to achieve the outcomes and the assessment methods used to demonstrate the achievement.

Development of outcome-based education

Over the past four decades there have been several precursors to this move to outcome-based education. These include competence-based education, criterion-referenced learning and mastery learning, which focus on competences or criterion levels of performance that are achieved by carefully sequenced teaching (Spady, 1982; Brady, 1994). Other ideas and terms attached to outcome-based education include authentic assessment and interdisciplinary outcomes (Schwarz & Cavener, 1994).

Guskey (1992) observed that 'All the basic tenets of what we now call "outcome-based education" were elegantly set forth by Ralph W. Tyler over 40 years ago'. It could be argued that outcome-based education emerged from the objectives movement of the 1950s. Spady was a leading disciple and defined it as: 'Outcome based education means organising for results: basing what we do instructionally on the outcomes we want to achieve' (Spady, 1988).

There are significant differences between the 'instructional objectives' debate of the 1960s and '70s and the emphasis on 'learning outcomes' today. Outcome-based education has come to be characterized by:

- the development of clearly defined and published learning outcomes that must be achieved before the end of the course;
- the design of a curriculum, learning strategies and learning opportunities to ensure the achievement of the learning outcome;
- an assessment process matched to the learning outcomes and the assessment of individual students to ensure that they achieve the outcomes;
- the provision of remediation and enrichment for students as appropriate.

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Criticism of outcome-based education has related to concerns that it places limitations and imposes a rigid model on curriculum developers and teachers; that it limits creativity; that it inappropriately addresses the attitudinal domain; and that it imposes excessive demands on teachers in terms of specification of outcomes, assessment and record keeping. Many disagree with these criticisms. It has been argued that learning outcomes are likely to have a significant impact on education (Brady, 1994; Harden *et al*., 1999a; Harden, 2002).

The value of learning outcomes

Jenkins & Unwin (2001) suggest that learning outcomes help teachers to tell students more precisely what is expected of them. They assert that, by doing this, learning outcomes:

- help students to learn more effectively: students know where they stand and the curriculum is made more open to them;
- make it clear what students can hope to gain from following a particular course or engaging in a particular learning event such as a lecture.

Learning outcomes also help teachers to:

- plan the content of their teaching;
- design their materials more effectively by acting as a template for their teaching;
- select the appropriate teaching/learning strategy;
- inform their colleagues what a particular course or activity is designed to achieve;
- set a blueprint for examinations using the outcomes;
- ensure that appropriate assessment strategies are employed.

These and other reasons for adopting an outcome-based approach in medicine are covered in the AMEE Guide on the topic (AMEE, 1999).

Current developments

This issue of *Medical Teacher* includes four significant contributions to outcome-based education. Given that outcome-based education has associations with the instructional objectives movement of the 1960s, the paper by Harden (2002) asks the question: 'Is there a difference between instructional objectives and learning outcomes?'. It concludes that while both are concerned with educational intent, there are significant differences in how they are interpreted. Learning outcomes are broad statements of what is achieved and assessed at the end of a course of study. Instructional objectives are more specific and detailed statements of educational intent. Other terms such as abilities and goals (AAMC, 1998; Smith & Dollase, 1999) have also been used. Sometimes the different terms are used interchangeably. More important than the terminology, however, is the philosophy of the approach adopted:

- Is the emphasis and starting point a broad, intuitive, flexible, user-friendly approach which offers a practical tool for day-to-day curriculum planning, teaching and learning and assessment, or is it a lengthy list of more detailed specifications of what is expected of the student?
- Does the approach recognize and accommodate the interaction in clinical practice of different outcomes relating to knowledge, skills and attitudes and provide a meaningful hierarchy of outcomes?
- Does the approach imply educational intent or does it describe what will be assessed and achieved by all students before the end of the course?

One result of increasing globalization and greater interaction between physicians of many countries is the perceived need for the definition of a set of core competences that define what a physician is, regardless of where he or she is trained (Schwarz, 2001). Hamilton (2000) challenged readers in a previous editorial: 'Do we, in medical education, not owe it to the world that all doctors be trained to the same standard? The quality of care from doctors is not universally the best. Aviation, shipping, banking, telecommunications, all sustain standards internationally. How would medicine go about it?' In the past, attempts to produce a list of agreed core competences have met with a singular lack of success. The production by the Institute for International Medical Education (Schwarz & Wojtczak, 2002) of a set of learning outcomes, which represent the minimum essential core competences that all physicians must have, is to be commended. The seven domains that emerged in the deliberations were: professional values, attitudes, behaviour and ethics; scientific foundation of medicine; clinical skills; communication skills; population health and health systems; management of information; and critical thinking and research (IIME, 2002). The IIME 'minimum essentials' were defined by a series of committees and working groups representing medical education organizations and senior educational and health policy experts in different regions throughout the world.

Time will tell whether this work will achieve the recognition it deserves and whether the learning outcomes as specified will be adopted in developed and developing countries, in the East and in the West; and in research-led universities and in those where teaching has a high priority. The initial reception has been encouragingly enthusiastic. Despite the resistance to such approaches, which are a feature of many institutions and individuals within institutions, three aspects suggest we can be optimistic about the wider adoption of the approach. These are the wide consultation built into the IIME process of defining the learning outcomes, the specification in broad areas with which teachers, wherever they are based, can identify and agree, and the flexibility inherent in the approach to outcomes adopted.

The learning outcomes agreed by the five Scottish medical schools are described in the paper 'The Scottish doctor—learning outcomes for the medical undergraduate in Scotland: a foundation for competent and reflective practitioners' (Simpson *et al*., 2002). The 12 learning outcomes defined are similar to the seven domains proposed by the Institute for International Medical Education. In the Scottish approach more emphasis is given to the relationship between the outcomes and to the integration of the knowledge, skills and attitudes in the practice of medicine. The technical competences expected of a doctor

are nested, as illustrated in the three-circle outcome model (Harden *et al.*, 1999a, 1999b), within the academic, attitudinal, analytical and creative intelligences relating to how they approach their practice and the personal intelligences relating to the personal development of the individual. It is of significant interest that the outcomes have been accepted by all of the schools despite their very different curricula and educational approaches. One school, for example, has a problem-based curriculum and another one a task-based approach. This experience can only be encouraging for the wider acceptance of learning outcomes, which is the longer-term aim of the IIME.

A rather different approach is the catalogue of learning objectives prepared by the Swiss medical schools, as described by Bloch & Bürgi (2002). Recognizing some of the difficulties previously encountered with 'instructional objectives', the tension between an internal and external locus of control was concealed by changing the term used from 'instructional' to 'learning' objectives. The Dutch Blueprint for training doctors in The Netherlands was employed as a foundation for the work (Metz *et al.*, 1994). The Swiss learning objectives represent a more discipline-based view of medical education than that found in the IIME or the Scottish outcomes. The first section of the catalogue, however, sets out the profile of the doctor by the end of undergraduate education under four headings: basic objective of undergraduate education; knowledge, skills and attitudes; social competence and personality development; and specific objectives. The second section, 'general objectives', is subdivided into medical aspects, scientific aspects, personal aspects and aspects related to society and the healthcare system, each with several further subheadings. A third section of the report lists 283 problems in medicine. These are defined as a complex of complaints, signs and symptoms, e.g. dyspnoea, which may lead a patient to seek medical counsel. The final section lists objectives grouped by discipline with each divided into three domains: clinical pictures, further knowledge and skills.

The catalogue is an impressive and formidable piece of work. Whether it will suffer the fate that sets of objectives have in the past (Harden, 2002) remains to be seen. It is, however, much more than a list of instructional or learning objectives. The 'learning objectives' as described in the first two sections of the catalogue, although presented differently and perhaps less intuitively, are not greatly at variance from the learning outcomes as defined by the IIME and the Scottish medical schools. Although French or German was the language of instruction in the Swiss schools, English was chosen as the preferred language for the catalogue. This may be significant in ongoing attempts to develop global learning outcomes.

Outcome-based education as an educational approach is still in its infancy in medical training. Whether the approach fulfils its early promise remains to be seen. The news to date, however, is encouraging and where it has been implemented outcome-based education has had a significant and beneficial impact. Clarification of the learning outcomes in medical education helps teachers, wherever they are, to decide what they should teach and assess, and students what they are expected to learn. If outcome-based education is to fulfil its great potential in medical education, work is needed to reach agreement on appropriate learning outcomes for

the different phases of medical education internationally and on the most appropriate models for communicating the outcomes leading to the introduction of an outcome-based approach in practice. The papers in this issue make valuable contributions to this task.

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EDITORIAL

E-learning and all that jazz

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The rapid developments in e-learning were highlighted in a previous editorial in *Medical Teacher* (Davis & Harden, 2001). 'Recent technological advances have laid the foundation for a learning revolution that will clearly take place in the years ahead', suggested the Commission on Technology and Adult Learning (2001) in the USA. A major growth of e-learning in higher education has been predicted (Oblinger 2001; Ryan *et al.*, 2000) and the implications for medical education have been argued (Harden, 2000). 'Trying to predict the future of e-learning', however, suggested Karen Mantyla (2001) 'is like trying to guess which colors and shapes will appear at the other end of the kaleidoscope. The color combinations and shapes are wonderful to see, yet they blend and change at the twist of the dial.'

How can the medical teacher keep abreast of current developments in this exciting, rapidly expanding field? Information and reports are published in a wide range of publications including journals such as *E-Learning* (www.elearningmag.com), devoted specifically to the topic, educational technology and computer-mediated learning journals and newsletters, general education journals, medical education journals and publications covering a range of medical specialities. Useful information can also be gained from conferences on the topic (Davis & Harden, 2001). Two key annual conferences in this area are the TechLearn Conferences organized by the Masie Center (www.techlearn.com) and the Online Learning Conferences which have a section on higher education (www.onlinelearningconference.com). Medical teachers with an interest in this area, however, have a need for a source of regular, up-to-date information on the topic with their needs in mind. To meet this demand, *Medical Teacher* will publish from this issue an E-learning news feature, 'E-learning and all that jazz'. This will attempt to provide up-to-date information of interest in this rapidly advancing area. It will highlight education websites of possible interest, available e-learning resource material, new publications in the area, conferences and other meetings on the topic, and other news items relating to e-learning.

The first news feature is on pages 144–150. Future features will be collated and edited by Ralph Bloch from the University of Bern, Switzerland. Items of interest for possible inclusion are welcome and should be sent to Ralph Bloch (Ralph.bloch@iae.unibe.ch) or to the *Medical Teacher* Editorial Office (p.m.lilley@dundee.ac.uk).

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