Learning outcomes and instructional objectives: is there a difference?

R.M. HARDEN

Centre for Medical Education, University of Dundee, UK and Education Development Unit, Scottish Council for Postgraduate Medical and Dental Education

SUMMARY   *Learning outcomes are broad statements of what is achieved and assessed at the end of a course of study. The concept of learning outcomes and outcome-based education is high on today's education agenda. The idea has features in common with the move to instructional objectives which became fashionable in the 1960s, but which never had the impact on education practice that it merited. Five important differences between learning outcomes and instructional objectives can be recognized: (1) Learning outcomes, if set out appropriately, are intuitive and user friendly. They can be used easily in curriculum planning, in teaching and learning and in assessment. (2) Learning outcomes are broad statements and are usually designed round a framework of 8–12 higher order outcomes. (3) The outcomes recognize the authentic interaction and integration in clinical practice of knowledge, skills and attitudes and the artificiality of separating these. (4) Learning outcomes represent what is achieved and assessed at the end of a course of study and not only the aspirations or what is intended to be achieved. (5) A design-down approach encourages ownership of the outcomes by teachers and students.*

A move from instructional objectives to learning outcomes

Teachers, curriculum developers and instructional designers have long recognized the value of analysing the subject matter to be learned in terms of the intended learning outcomes. In the 1960s the concept of instructional objectives and the work of Mager (1962), Bloom and associates (Bloom *et al.*, 1956), Krathwohl *et al.* (1964) and Popham (1969) attracted attention. Over the past four decades, however, the emphasis in education, including medical education, has been on methods of teaching and learning and assessment and on instructional strategies and tactics. More recently, attention has moved, at least in some measure, from an emphasis on the education process to a consideration of the product and the expected learning outcomes of the students' studies. The AMEE guide on outcome-based education (AMEE, 1999) highlighted this move to an outcome model of education and described the advantages of adopting such an approach in the training of doctors.

Differences between instructional objectives and learning outcomes

The question arises as to whether the concept of 'learning or instructional objectives' is different from the concept of 'learning outcomes'. According to Melton (1997) 'the term "learning outcome" is simply an alternative name for "objective". The terms have in fact often been used interchangeably.' 'The current literature of curricular design', suggested Allan (1996), 'is replete with equivocation and obfuscation regarding the definition of educational intention'. Any distinction between the terms is not helped by the way in which, in a report by the General Medical Council on undergraduate medical education in the UK (GMC, 2001), they are used interchangeably (Harden *et al.*, 2002). In an article 'The emperor's new clothes: from objectives to outcomes', Prideaux (2000) questions whether such differences do matter. He suggests, 'Contemporary experienced educators are now called upon to distinguish between outcomes and aims, goals and objectives … I ask myself whether such fine distinctions really matter.' In this article it is argued that the differences between the terms 'learning outcomes' and 'instructional objectives' do matter. Five differences are highlighted which have practical implications for the curriculum developer, the teacher and the student. These relate to:

1. the detail of specification;
2. the level of specification where the emphasis is placed;
3. the classification adopted and interrelationships;
4. the intent or observable result;
5. the ownership of the outcomes.

The differences are summarized in Table 1.

Detail of specification

One difference between learning objectives and learning outcomes is obvious from inspection of published examples. The level of detail in the specification is different. A set of instructional objectives used to describe a course or curriculum was extensive and detailed. The list of curricular objectives produced by the Southern Illinois University School of Medicine in 1976 took 808 pages and objectives for the Abraham Lincoln School of Medicine (1973) 459 pages. One result of having such long lists of objectives was that it was not possible to see the wood for the trees, with the massive detail obscuring the overall aims of the curriculum. An additional problem of the detailed lists was that subsequent revision proved very difficult, if not impossible.

Correspondence: Professor R.M. Harden, Centre for Medical Education, Tay Park House, 484 Perth Road, Dundee DD2 1LR, UK. Tel: +44 (0)1382 631972; fax: +44 (0)1382 645748; email: r.m.harden@dundee.ac.uk

Table 1. Distinctions between instructional objectives and learning outcomes.

Area of difference	Instructional objectives	Learning outcomes
1. The detail of the specification	Instructional objectives are extensive and detailed *Implication—They are difficult and time consuming to use*	Learning outcomes can be described under a small number of headings *Implication—They provide an intuitive, user-friendly and transparent framework for curriculum planning, teaching and learning and assessment*
2. Level of specification where the emphasis is placed	Instructional objectives emphasize specification of instructional intent at a lower and more detailed level *Implication—This may trivialize and fragment and make it difficult to get agreement*	Learning outcomes emphasize a broad overview with a design-down approach to a more detailed specification *Implication—Key areas of learning are emphasized, making it easier to get agreement. It also results in more flexibility in their use*
3. The classification adopted and interrelationships	Instructional objectives are classified into discrete areas: knowledge, skills and attitudes *Implication—This ignores the complexities of medical practice and interrelationships*	Interrelationship of learning outcomes with nesting of outcomes, knowledge embedded and metacompetences recognized *Implication—This reflects the behaviour expected of a doctor and encourages application of theory to practice and a holistic integrated approach to patient care*
4. Intent or observable result	Statement of aims and instructional objectives are perceived as intentions *Implication— They may be ignored in practice as unrealistic*	Learning outcomes are guaranteed achievements *Implication—They are institutionalized and incorporated into practice*
5. Ownership	Aims and objectives are owned by the curriculum developer and reflect a more teacher-centred approach to the curriculum *Implication—They are perceived as prescriptive and threatening to the teacher and student. It is more difficult for the student to identify with them*	The development and use of learning outcomes can engage teaching staff and reflect a more student-centred approach *Implication—Teachers identify with the outcomes and students take more responsibility for their own learning*

Rigid rules were promoted too for writing instructional objectives in behavioural terms. Guilbert (1981), for example, listed 214 verbs that should be used when specifying an objective. Such statements of behavioural objectives, Prideaux (2000) suggested, 'became complex to write, so complex that educators would not necessarily write them but would choose from pre-prepared examples stored in item banks'. The instructional objectives movement became, in practice, a ritualistic listing of long sets of behavioural statements, which at best had only a marginal effect on the educational process and at worst stifled any enthusiasm on the part of the teacher for teaching and on the part of the student for learning. Instructional objectives were perceived as time-consuming to prepare and difficult to integrate in the teaching and learning and curriculum-planning process. Their adoption required far more time than teachers typically had at their disposal.

In contrast, experience has shown that learning outcomes, which can be defined as broad statements describing what students should possess on graduation from a course, can be readily embedded into curriculum planning, into the preparation for teaching sessions and into student study guides. In assessment too, learning outcomes can play a key role. This utility of learning outcomes is illustrated in the context of the Dundee under-graduate curriculum. A statement of the 12 learning outcomes for the curriculum, prepared in the form of a table on a single A3 sheet, has proved a convenient and practical introduction for all teaching staff and students to the learning outcomes agreed for the curriculum. The learning outcomes make up a key part of the grids which help to ensure that appropriate content is sampled in written and clinical examinations. The final student assessment is based on portfolios presented by students to demonstrate their mastery of each of the 12 learning outcomes (Davis *et al.*, 2001). Experience showed that staff can reach agreement about and can identify with a set of 12 learning outcomes in a way that they found difficult to do with detailed lists of objectives.

Level of specification

A second difference between instructional objectives and learning outcomes lies in the level of specification where the emphasis is placed. The major focus in the instructional objectives movement was, as described above, at the level of detailed instructional objectives.

In outcome-based education, in contrast, the emphasis rests at a higher level. An example is the 12 broad learning outcomes identified in the Dundee three-circle model

(Harden *et al.*, 1999a; Harden *et al.*, 1999b). These learning outcomes, in a 'design down' approach, are then expanded in more detail. The 12 main outcomes are sufficiently robust to be used in both undergraduate and postgraduate education as a tool for planning curricula and assessment. The importance of a clear framework when learning outcomes are planned and discussed has been emphasized in the context of postgraduate training (Harden 1999) and in defining areas to be addressed in a staff development programme (Hesketh *et al.*, 2001).

This emphasis on a framework may not be too different from the views of Tyler in his seminal work *Basic Principles of Curriculum and Instruction* (Tyler, 1950). The advocates of the objectives movement such as Bloom *et al.* (1956), Mager (1962) and Krathwohl *et al.* (1964) who followed, however, placed the emphasis on statements of behavioural objectives that were detailed and specific. Marinker (1997) criticized the 'pedagogical reductionism of behavioural objectives' and argued that, if adopted in medicine, behavioural objectives produced actors rather than doctors or thinkers.

A problem associated with placing the emphasis on the detailed specification of objectives, rather than on an overall framework, lies in the difficulty in achieving agreement nationally or internationally. Even within a school there may be difficulty achieving a consensus. The Abraham Lincoln School of Medicine, for example, produced a majority and a minority report. Difficulties of this kind are, at least in part, the reason why past attempts to agree a global core curriculum in medicine have failed.

In contrast, reaching agreement is significantly easier with the 'learning outcomes' approach, which emphasizes a broad overview of what is expected of the student and identifies the key areas to be mastered. The five Scottish medical schools, for example, all with different approaches to teaching and learning medicine and no history of agreement on educational issues, were able to agree a common set of learning outcomes for the Scottish doctor (Simpson *et al.*, 2002). Using a similar approach the Institute of International Medical Education was able to achieve an international agreement on the global requirements for medical education (IIME, 2002).

The need for greater flexibility and more open access to medical training has been identified. The outcome-based approach, with emphasis on the broad areas of competence to be mastered, facilitates more flexible curriculum development, as suggested by Catto (2001) when he chaired the Education Committee of the General Medical Council in the UK: 'Now that the arrangements for entry to medical school are becoming more flexible, with several universities starting shorter medical courses for graduates, we are likely to focus on the outcomes of the undergraduate medical course.'

Relationship between the components

Traditionally, learning objectives as described by Bloom and co-workers (Bloom *et al.*, 1956; Krathwohl *et al.*, 1964) were divided into three different unrelated categories: knowledge, skills and attitudes. This neglects, however, the complexity of medical practice and the important interaction of the cognitive, affective and psychomotor domains.

A major criticism of this widely used set of categories of learning objectives and of the use, more generally, of instructional objectives involved their inadequacy as predictors of the complex nature of learning (Stenhouse, 1975; Eisner, 1967). Eisner (1967, p. 254) claimed that 'The outcomes of instruction are far more numerous and complex for educational objectives to encompass'. Davidoff (1996, p. 47) made the same point in the context of medical education and reported that 'the Residency Review Committee makes clear that it has moved beyond the traditional "learning objectives" definition of curriculum beloved of the classroom educator, and has faced up to the realities of clinical education', and went on to argue that 'it is therefore the task of clinical education to take learners past being "merely well informed" and on into being full-fledged doctors, with the skills and competencies they need to "put it all together", to perform at a high professional level'. The importance of relating educational outcomes to the practice of medicine is emphasized in the trends to problem-based learning, task-based learning, authentic learning, situated learning, patient-centred learning, service learning and community-based education. Competence in medicine, suggested Hager & Gonczi (1996) can only be seen in the context of complex tasks where knowledge, skills and attitudes are all integrated and combined as they are in real life. Mastery of individual objectives does not necessarily mean that the doctor will be able to integrate them to perform a more complex task. Even in simple tasks, such as measurement of a patient's blood pressure, there is implicit in the student's action a set of knowledge including, for example, where to position the cuff and what to listen for on auscultation of the pulse, the skills of putting on the cuff and auscultation and the demonstration of an appropriate attitude to the patient.

In traditional lists of instructional objectives, much was lost too by excluding objectives that could not be precisely specified and classified. Prideaux (2000) noted that 'Outcomes that are difficult to define or hard to measure, but at the same time are educationally and professionally significant and worthwhile, should not be omitted because of their supposed "imprecision". Creativity, judgement and responsibility must not be ignored …' Commenting on changes required in higher education in an age of 'supercomplexity', Barnett (2000) wrote: 'The key problem of supercomplexity is not one of knowledge; it is one of being. Accordingly, we have to displace knowledge from the core of our pedagogies. The student's being has to take centre stage. Feeling uncertainty, responding to uncertainty, gaining confidence to insert oneself amid the numerous counter-claims to which one is exposed, engaging with the enemy, and developing resilience and courage: these are matters of being. Their acquisition calls for a revolution in the pedagogical relationships within a university.'

Learning outcomes can be specified in a way that covers the range of necessary competences and emphasizes the integration of different competences in the practice of medicine. An important feature of the three-circle model of learning outcomes (Harden *et al.*, 1999a, 1999b), is that it does just that. In the inner circle are the seven learning outcomes relating to what a doctor is able to do, i.e. the technical competences expected of a doctor ('doing the right thing'); in the middle circle the learning outcomes

relating to how the doctor approaches his or her task with knowledge and understanding and appropriate attitude and decision-making strategies ('doing the thing right'); and in the outer circle the ongoing development of the doctor as an individual and as a professional ('the right person doing it').

Intent or observable result

A fourth distinction between instructional objectives and learning outcomes relates to the different ways in which they may be perceived by teachers and by students. Instructional objectives are viewed as intended achievements. They focus on intent and may be regarded as unrealistic or impractical. Such good intentions can be dismissed or ignored for a variety of reasons. Learning outcomes, in contrast, are broadly defined complex abilities that are demonstrable and focus on observable results. They force the teacher and student to think things through and be focused from the start on their achievements.

Teachers, if they are to be truly effective, need a vision of the outcome of the students' learning, not just a dream but a learning plan which can be achieved. Thus an educational approach based on learning outcomes can be distinguished from one related to educational aims and objectives that uses more intangible ideas (Jenkins & Unwin, 2001).

Ownership

For the reasons given above, in the past the time-consuming task of developing a set of instructional objectives and trying to integrate this into the curriculum was undertaken by only a few enthusiasts. The long list of behavioural objectives produced was seen by the rest of the teaching staff as imposing on them and taking away their ownership of the teaching and learning. The process tended to disenfranchise the many staff not involved directly and the result was to devalue the teacher. In contrast, in the design-down approach associated with learning outcomes, wide consultation is possible in obtaining agreement about the key outcomes, with responsibility for developing enabling outcomes for each broad learning outcome given to different groups or individuals with an interest in the aspect of clinical practice. For example, a member of staff with a special interest in medical ethics may address the relevant outcome and a group with responsibility for clinical skills training in the school may take responsibility for the outcome relating to clinical skills.

Conclusions

The terms 'instructional objectives' and 'learning outcomes' are sometimes used interchangeably. They both relate to the product of learning and to educational intentions and have similar meanings. In practice, however, there are significant differences. Five distinctions are presented in this paper. Understanding these will help the reader to explore and implement an outcome-based approach in his or her own teaching.

In the four decades since their use was first promoted, instructional objectives have had little impact on teaching practice, assessment or student learning. This is not because the need to emphasize or describe the product of education is unimportant. Rather it is because the instructional objectives movement accumulated a lot of baggage, which overburdened and proved unacceptable to teachers and to those concerned with curriculum planning. Institutionalizing and embedding instructional objectives within a medical curriculum in any real and meaningful way that impacted on the day-to-day activities of teaching and learning proved too difficult for all but the most devout enthusiasts. Even then, problems arose which proved difficult to address. Discussing the preparation of instructional objectives, McAvoy (1985) suggested that 'the mere mention of objectives induces near-apoplexy in some medical teachers, while others revere them to the point of worship'.

Brady (1994) described the emergence of outcome-based education from the objectives movement of the 1950s. He argues, however, that learning outcomes are more able to meet current demands made in education where there is a clamour for greater accountability through demonstrated performance. Learning outcomes are, argues Allen (1996), 'not fettered by the constraints of behaviourism. Learning outcomes represent what is formally assessed and accredited to the student.' Repackaging the concept of instructional objectives as learning outcomes but with significant differences in both the package and its contents has changed what was an educational ideal, usually unachievable, to a powerful tool which already in the past 2 years has had, where it has been introduced, a powerful impact in the curriculum, on teaching methods and on assessment.

The question was asked: 'learning outcomes and instructional objectives—is there a difference?'. From one perspective the answer is no—both are concerned with educational intentions and the product of the educational endeavours. There are, however, significant distinctions and these are explored in this paper. The UK Quality Assurance Agency for Higher Education (2000) used in their programme specifications the term 'outcomes' to explore learning intentions rather than the more traditionally used term 'aims and objectives'. They argued that the reason for doing this was that the concept of an outcome is more closely linked to the learning and assessment process.

It has to be recognized, however, that both terms—'instructional objectives' and 'learning outcomes'—are used to describe educational intentions or achievements and that what is more important than the term employed is what it is used to describe. What matters is that statements relating to the product of learning:

1. are user friendly and not too cumbersome and can be readily adopted by teachers and students and incorporated into their day-to-day practice and experience;
2. highlight the key broad learning outcomes and offer a flexible framework where individual institutional and national differences can be accommodated (in outcomes models with which teachers have engaged, for the most part, seven to 12 broad outcomes have been identified);

3. take account of the realities of medical practice where knowledge, skills and attitudes are integrated to make up competences (such an interaction is demonstrated in the three-circle model of learning outcomes—Harden *et al.*. 1999b);
4. identify what is achieved and assessed rather than what the intentions are (learning outcomes are a key component of blueprints or grids for assessment);
5. engage the individual teacher and student and give them some measure of ownership of the process.

It is more important that what is described corresponds to these criteria and to the right-hand rather than the left-hand column in Table 1, than whether the term 'outcome' or 'objective' is used. There are advantages, however, in adopting a standard terminology: 'learning outcomes'.

The description of learning outcomes provides a useful language for communicating about a curriculum and for sharing learning resources. Having a common nomenclature and framework, Halpern *et al.* (2001) suggested, will facilitate the introduction of new content within schools and programmes, across departments and among institutions nationwide. We are likely to see increasing attention paid in the years ahead to learning outcomes and to outcome-based education. As suggested by Cretchley & Castle (2001), 'OBE can be useful in specifying clear targets and criteria for success which are open to public inspection and debate, apart from the bureaucratic advantage of forming part of a coherent qualifications system.

Notes on contributor

RONALD M. HARDEN is Director of the Centre for Medical Education, University of Dundee and Director of the Scottish Council for Postgraduate Medical and Dental Education's Education Development Unit.

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