Chapter 3 Specifying aims and learning outcomes

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Overview

There is very wide variation in practice in the specification of course aims, objectives and learning outcomes. This wide variation in practice is sometimes accompanied by lively debate, even argument. The 'educational objectives' movement was seen by some academics as recommending an inappropriately precise specification of the intended outcomes of education, and brought the whole idea of describing educational outcomes into disrepute. And, educational movements apart, some academics feel that they know what they want their students to learn, and see little point in writing this down in any form beyond a syllabus that specifies what they will teach.

This chapter is concerned with both the history and the practice of specifying what students learn. Course design has traditionally been an individual activity although as pressures for benchmarking and programme specifications begin to take effect, there is less opportunity for solitary academics to design a course around their own particular research area or expertise. In the UK, debate about the purposes of higher education and the specific mission of individual institutions increasingly defines the context within which courses are designed. Notions of standards and subject-related benchmarking are pulling together with notions of 'graduateness' through the activities of the UK Quality Assurance Agency (http://www.qaa.ac.uk/). Such developments constrain individual freedom even more.

This chapter is set within these political and pedagogical contexts. The first section begins with a number of short quotes that address the aims and purposes of higher education, then the aims of universities and finally aims for programmes of study in higher education. This suggests a hierarchy of aims, somewhere within which your course, programme or area of work will probably be located. You may find that an awareness of aims at different levels will be important, particularly if your organisation's quality assurance systems involve checking your course aims against institutional or professional aims.

Section 3.1 considers course aims. Extract 3.1, by Paul Ramsden, discusses the need for clarity in developing the aims, objectives and content of a course, and goes on to consider issues such as structure and teaching methods. In particular, Ramsden says, students are often unclear about what we want them to learn. Setting out clear aims and objectives helps reduce negative feelings about their learning experience and increases their likelihood of success.

Section 3.2 is concerned with learning outcomes. Extract 3.2 – the most substantial extract in this chapter – is a comprehensive review by Joanna Allan of the history of objectives and learning outcomes. Allan provides a further context for the current debate about the specification of student learning in terms of outcomes. She provides an historical account of their association with behaviourism, describes concerns about their implementation, and offers broader definitions than have traditionally been applied, to include subject-based, generic academic and personal transferable outcomes.
Extracts 3.3 and 3.4 in Section 3.3 illustrate a range of approaches to specifying or measuring the outcomes of learning. Much of this writing comes out of the considerable volume of research into student learning that has taken place in the last 20 years or so. The SOLO taxonomy described in Extract 3.3 was developed by John Biggs and others, initially from an analysis of learning in schools, but has now been applied extensively in universities, particularly in Australia.

This extract also contains a comparison of the SOLO taxonomy with that of Bloom (1956), favoured by many writers of learning outcomes because of its clearly hierarchical nature and associated clear descriptors. The Bloom taxonomy first appeared more than 40 years ago, and although we critique it here, we feel it is still a valid device for use in course design.

Extract 3.4 represents a somewhat different research tradition within Europe, emanating primarily from Sweden. Marton and his colleagues have sought to describe qualitative differences in the nature of students' understanding. They suggest that students do not simply learn or not learn, or understand or fail to understand. Rather, students understand differently, and it is important to understand these differences. Section 3.4 examines some current thinking about the use of skills and competences as outcomes, and does so from a number of perspectives. Some approaches in the UK built on the development of vocational qualifications, with a related debate about the role of underpinning knowledge in a competence-based framework. Similarly, the adoption of the notion of 'key skills' by schools and colleges is now finding its way into higher education, leading to a heated debate about the aims and purpose of higher education, not least in relation to the world of work. We return to Extract 3.2 to consider these developments. Section 3.2 also describes an example of embedding skills within the curriculum of a whole institution, including a quote from the website of the small US liberal arts college, Alverno College. Their 'ability-based curriculum' uses much of the language familiar to those involved in the notions of 'enterprise', 'transferable skills' and 'graduate skills' in the UK and elsewhere in recent years.

3.1 What do we mean by 'aims'?

The aims of higher education

What are aims and where do they come from? We will start here by considering the aims of higher education as a whole. The Dearing Report (National Committee of Inquiry into Higher Education, 1997) stated that:

The aim of higher education is to enable society to make progress through an understanding of itself and its world: in short, to sustain a learning society.

(National Committee of Inquiry into Higher Education, 1997, section 5.10)

While the term 'learning society' has become a familiar mantra in the late twentieth century, Dearing's statement of the four main purposes of higher education proved more contentious:

- to inspire and enable individuals to develop their capabilities to the highest potential levels throughout life, so that they grow intellectually, are well-equipped for work, can contribute effectively to society and achieve personal fulfilment;
to increase knowledge and understanding for their own sake and to foster their application to the benefit of the economy and society;

to serve the needs of an adaptable, sustainable, knowledge-based economy at local, regional and national levels;

to play a major role in shaping a democratic, civilised, inclusive society.

(National Committee of Inquiry into Higher Education, 1997, section 5.11)

While these aims and purposes have been criticised for, among other things, being too instrumental towards the needs of the economy, with a consequent emphasis on 'skills' (Blake et al., 1998), they will appear familiar to many as the context in which much of the debate within their own institutions is being framed. Most universities put great store by the employability of their graduates and feel a commitment to ensuring that they leave as well prepared as possible for the world of work. Similarly, partly as a result of changed funding regimes, many institutions have a greater commitment to widening access to, and participation in, higher education than was the case twenty years ago.

Aims of institutions

Moving from the aims and purposes of higher education in general to individual institutions, Barnett (1990) in his seminal work, *The Idea of Higher Education*, argues that for an educational institution to be worthy of the title 'higher' it should meet a set of necessary conditions.

An institution of higher education justifies the title when it fosters educational processes of the appropriate kind. The analyses in this book suggest six conditions, which together constitute such processes. Higher educational processes promote:

1. A deep understanding, by the student, of some knowledge claims.
2. A radical critique, by the same student, of those knowledge claims.
3. A developing competence to conduct that critique in the company of others.
4. The student's involvement in determining the shape and direction of that critique (i.e. some form of independent inquiry).
5. The student's self-reflection, with the student developing the capacity critically to evaluate his or her own achievements, knowledge claims and performance.
6. The opportunity for the student to engage in that inquiry in a process of open dialogue and cooperation (freed from unnecessary direction).

(Barnett, 1990, p. 203)

Barnett emphasises that 'higher education' reflects the development of the mind of the individual student to the point where he or she is able to reflect critically on experiences or propositional knowledge (knowledge of the subject or discipline), or knowledge through action. He argues that:
These levels of reasoning and reflection are ‘higher’, because they enable the student to take a view (from above, as it were) of what has been learned.

(Barnett, 1990, p. 202)

Further, ‘higher’ education is not constrained to a particular institutional type or form, as learning can be independent of teaching. However, ‘higher education’ can be helped by being located within institutions.

White (1997) questions Barnett’s philosophical and historical ‘emancipatory’ views of higher education that students are to be ‘inducted into discipline-transcending reflection and ultimately into a more adequate self-understanding’ (p. 7). He questions whether the term ‘higher’ necessarily implies higher-order thinking, or whether ‘higher education’ is just at a different administrative level from school or further education and could equally be referred to as ‘university’ or ‘tertiary’ education. Further, higher-order thinking is not unique to higher education but can be characteristic of schools, home education or other learning contexts. White sees the real distinction being between compulsory and post-compulsory education; the latter involving greater elements of choice. White goes further in contending that the ‘national curriculum’ elements of higher education – what Barnett might call emancipatory learning – reduces the freedom of choice of students, some of whom may choose to study a narrowly defined discipline area, and actually ‘becomes morally unacceptable towards adult students’ (p. 13).

If an educational institution meets Barnett’s criteria for designation as ‘higher’, then we need to move to the next aspect: the subject or programme.

Aims of subjects or programmes

Much criticism has been heaped on the development of ‘new’ disciplines such as media studies, leisure and associated subjects, as well as on the proliferation of modular or combined studies programmes. In joining this debate, Blake et al. (1998) contend that:

A subject fit for study at degree level [...] should have these characteristics:

1. It must embody a tradition of enquiry in which there are continuities in the sets of problems and in the methods of research, although there will be disagreement about these. Hence it is essentially public in character.

2. It must involve the study of sets of texts that are shared by practitioners of the subject as common reference points, although there will be disagreement about these texts and there need be no canonical list.

3. Crucially it will involve the exercise of critical judgement in relation to the objects of enquiry, but this will be evident also in a recurrent introspection about the nature of the subject in question. Thus the tradition will incorporate dissent not only over methods of procedure but over the nature and purpose of the enquiry itself.

4. Such criticism and dissent will make sense in the light of those continuities, and it will be possible in virtue of the critical vocabularies that the discipline provides.
Studying the subject involves an initiation into those critical vocabularies.

5 Whether vocational or 'purely academic', a subject must be of intrinsic interest and always worthy of further pursuit. This is not, of course, to say that it will necessarily or always be pursued in that way but it must incorporate subject matter that is potentially fascinating, whether or not it has a pay-off in terms of its ultimate usefulness.

6 However specialized, a subject must have a bearing on life as a whole. It cannot like a game have no significance beyond the pursuit in question.

7 It must have an unlimited capacity to develop.

(Blake et al., 1998, pp. 44–5)

While accepting that this list needs further interpretation, Blake et al. believe that it identifies qualities that should be promoted in subjects, though some may not be promoted 'where the emphasis is on the apparently more rigorous attempts at specification that are currently advocated' (p. 45).

A further statement of the general educational aims and objectives of a course – one that is still attractive to many – comes from the Council for National Academic Awards:

[3..] development of students’ intellectual and imaginative powers; their understanding and judgement; their problem solving skills; their ability to communicate; their ability to see relationships within what they have learned and to perceive their field of study in a broader perspective. Each student's programme of study must stimulate an enquiring, analytical and creative approach, encouraging independent judgement and critical self-awareness.

[4] The objectives will specify in more detail the knowledge and skills to be developed by the course and evaluated in the assessments.

(Council for National Academic Awards, 1991, p. 18)

This section has proposed a hierarchy of aims of higher education, an institution and a programme. Before moving on to see the implications of this for your own practice at course level, it is worth reflecting on how the elements of this hierarchy match up against your own experience of studying and teaching in higher education.

**Reflection 3.1 Considering your aims in context**

Map either Barnett's conditions or Blake et al.'s characteristics onto either the institution at which you studied and the courses you took there or the institution at which you now work and the courses that you teach. What are the similarities between Barnett/Blake and your own list?

What would you add to either list?

To what extent does Dearing's statement of the four main purposes of higher education match your own experience as a student or teacher?
If you were to compare your responses to the questions in Reflection 3.1 with those of a colleague, you might be surprised by the apparent diversity of answers. This might well be a result of the different disciplines you studied and the academic and professional traditions inherent in the arts, humanities, sciences or social sciences areas.

There may be a tradition in English and history of critiquing texts or commentators, in science of acquiring analytical and research skills, and in the social sciences of greater application of theory to social and political situations. There may also be differing degrees to which the discipline is built upon an accepted body of learning which students have to absorb, compared with other areas where the emphasis is on making sense of the subject from the learner's perspective, not least in many areas of the performing and fine arts.

Further differences might emanate from the nature of the institution(s) at which you studied or teach. The pre-1992 universities and polytechnics in the UK demonstrated very clear and distinctive differences, the major difference – usefully, if perhaps simplistically – characterised as 'academic' as against 'vocational'. Whilst the formal removal of the binary divide has clouded these differences somewhat, there is still a sense in which the so-called 'new' universities retain a vocational or professional orientation in their programmes whilst the 'old' universities emphasise their academic nature. Many of the new universities place a heavy emphasis on 'sandwich' placements on courses such as business studies, social work or public administration, where students have the opportunity to gain practical experience in a work environment. Programmes may also be designed to give significant exemptions from professional qualifications on graduation. Many professions still take entrants without the corresponding undergraduate qualifications, resulting in many graduates from classics, humanities and even engineering at pre-1992 universities entering accountancy and management consulting. However, all universities look to the employability of their graduates, and initiatives such as Enterprise in Higher Education and the development of industry-specific vocational qualifications and standards have enhanced this in the UK. We will return to this in the final section of this chapter.

Why teachers should specify aims

Making the link between general educational aims and the educational experiences of students, Laurillard comments that:

Defining learning objectives sounds to many academics like a fearsome constraint on their creative teaching aspirations ... But the point of having learning objectives is to answer the question: how will you know if the students do understand, appreciate, or see in a new way?

(Laurillard, 1993, p. 183)

Defining the objectives, or what the students will be able to do, would normally start from a teaching aim, or what the teacher is trying to do within the subject. We can define a teaching aim as follows: 'The aim of a course is what those responsible for a course intend the course to achieve. The aim might refer to the students, to the subject matter, to what the course should help the students to do, and to some of the main issues that the course will consider.'
The aim may also describe or be accompanied by an explicit rationale for the course – why and how it matters – giving more information to the students as the basis for their choice between courses. The next stage is to establish the objectives or intended learning outcomes for the course. By developing objectives or outcomes that are precise, necessary and complete, it becomes easier for the teacher to establish what evidence would show that the student has learned. Figure 3.1 shows how these elements can fit together.

Figure 3.1 Relating aims and outcomes to methods

As we shall see later, the move to the specification of learning outcomes puts the emphasis on what the students will be able to do as a result of the teacher’s teaching.

Extract 3.1 is taken from a chapter entitled ‘The goals and structures of a course’ in Learning to Teach in Higher Education by Paul Ramsden (1992). This is only a short extract, designed to give a flavour of Ramsden’s approach, but the emphasis is clearly on being explicit about what we want the student to learn in higher education as the basis for how teachers should go about their teaching (see also Chapter 5 in this pack).
EXTRACT 3.1
STUDENTS' EXPECTATIONS OF COURSES IN HIGHER EDUCATION

Paul Ramsden

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Ramsden makes a strong case for making clear statements about course aims and objectives (or outcomes) in order to guide both students and teachers as to the context of learning. Earlier in his book he refers to three theories of teaching; theory 1 (referred to in Extract 3.1 above) sees teaching as telling or transmission; theory 2 views teaching as organising student activity; while theory 3 refers to teaching as making learning possible. Hence Ramsden’s contention that a teacher following the first theory would find it difficult to use aims and objectives to reflect the student’s role in the process of teaching. However, you may find the extent to which the specified aims and objectives or outcomes in your own institution help you is somewhat variable.

**Activity 3.1 Comparing different aims**

Choose two courses with which you are involved, ideally at different levels.

1. What are the aims of the programme(s) of which they are part?
2. How coherent are the links between the aims of the programme(s), those of your courses and what you want students to learn (the learning outcomes)?
3. What do you do if there are gaps or overlap?

If you are teaching on a single honours subject programme which has been designed for a discrete cohort of students, you may find that there are coherent links between the expected learning outcomes of students on individual courses and the aims for the programme as a whole. There may also be a tight framework of co-requisites and prerequisites, together with some integrating courses that enable students to see the ‘big picture’. This makes it difficult for students not taking the whole programme to dip in to individual courses, particularly at higher levels, as they will not have the prerequisite underpinning knowledge or skills.

Alternatively, you may find that your courses are part of a wider, more disparate, modular programme where, within certain limits, students are free to make choices. While they may be constrained to two or three subject areas or ‘fields’ it may be difficult to see anything other than a broad aim for their programme as a whole. This may give you greater freedom in specifying the aims and outcomes of your course, but it means that you may have to have a much clearer rationale for it, to enable students to put it in the context of their overall studies.

### 3.2 What are learning outcomes?

The aim of the course describes the overall intentions for the course of those who design and run the course. The learning outcomes describe what students need to be able to do to complete the course satisfactorily.

A good learning outcome communicates clearly - to intending and current students, to those who will teach and assess the course, and to those who will consider the student for further study or for employment - what the student will be able to do on completing the course.
At first sight, this definition may appear to be very teacher focused, casting outcomes in stone before the learning experience has even begun, and long before the assessment has verified what has been learned. Much of the early debate about objectives (and later outcomes) has centred on this point – the extent to which outcomes are predictable, anticipated and determined by the teacher. This does not mean that outcomes are not useful if cast in this way, as a quote from a respondent to a survey I carried out in 1997/98 acknowledges:

The clearer the learning outcomes the easier it is to plan delivery and assessment. The easier it is to identify assessment criteria. Also if learning outcomes are clear and these are made transparent to the learner then the easier it is for them in terms of managing their learning and assessment and generally being in the know of what is happening.

(Macdonald, unpublished research)

From objectives to outcomes

A number of writers and practitioners have criticised learning outcomes for being too ‘behavioural’. However, as we shall see, this criticism is only valid if the intention is to be able to specify, observe and measure everything that the student is to learn and to give no credit for anything learned in any other situations or under different conditions. Part of the distinction between objectives and outcomes derives from the nature of the relationship between teacher and student and the role of the former in deciding what, how and when learning will take place and how it will be verified. Objectives can be very teacher focused; learning outcomes can more readily embrace student-determined learning.

This section of the chapter examines the historical development towards the current position and links to a later section on current debates about competence and skill as outcomes of student learning. Extract 3.2 provides a comprehensive historical account of the development of the specification of what students should learn, whether couched in terms of objectives or outcomes. The first half of the extract sets the historical context by tracing the development of objectives from rational curriculum planning and the work of Tyler in the late 1940s, through the various categories of ‘objectives’: educational, instructional, behavioural, non-behavioural, teaching and expressive. It was with ‘expressive’ objectives, and the work of Eisner, that the alternative term ‘outcomes’ began to replace ‘objectives’, signifying something of a shift from teacher to student focus.

The move from objectives to outcomes also allows for a greater degree of flexibility or uncertainty about what will be learned and for the student to have greater responsibility for it. By recognising that a learning experience may result in subject-specific, teacher-specific and personal, student-specific outcomes, ‘personalised’ learning can lead to more unpredictable learning outcomes. However, if these outcomes are expressed clearly, particularly within the context of an individual unit or module (‘course’ in the context of this pack), students will be better able to focus on what they need to know and be able to do as well as on the criteria by which they will be assessed.
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Chapter 3  Specifying aims and learning outcomes

Allan, J. (1996) 'Learning outcomes in higher education',
A learning outcomes approach

Allan has comprehensively described the history of the debate around objectives and outcomes over the last 40 to 50 years, and highlighted the reasons for much of the unease that many academics feel about them today. Chapter 1 of this pack recognises that the design of 'rational planning models' starts with the specification of objectives, the goals that are being aimed for.

The term 'learning outcomes' was adopted by some to differentiate between intended and unintended outcomes of a learning engagement. Others, including Otter (1992), use the term to identify what the student achieves rather than the learning input. Otter expresses one of the rationales for the use of outcomes as being:

The need, in response to changing staff:student ratios, for students to take greater responsibility for their own learning, enabling academic staff to concentrate more on facilitating learning, and on assessment. This requires both academic staff and students to be clearer about what it is that students are expected to achieve, and they must be helped to find ways of learning and achieving the outcomes that are most suitable for them.

(Otter, 1992, p. 3)

This matches the approach advocated by Ramsden (in Extract 3.1) that course design should begin with clear statements about what students should learn rather than with content and teaching methods.

Atkins et al. (1993) in a report commissioned by the UK Department of Employment, identify a series of advantages and disadvantages to adopting a learning outcomes approach. However, the disadvantages appear to come from a fairly rigid viewpoint about student learning and course design in higher education. Most of the criticisms can be answered in practice, particularly where greater responsibility is given to students for identifying aspects of their own learning and the criteria by which they will be assessed. However, the report does conclude that:

... there is much to be said for the clarity that a learning outcomes approach brings with it, especially when the criteria of judgement are made explicit too ... A learning outcomes approach is therefore likely to improve the quality of assessment practices which is badly needed.

(Atkins et al., 1993, p. 47)

It is worth reiterating Allan's point that:

The challenge to designers of curricula in higher education is now to harness the use of learning outcomes to view learning from the perspective of the learner, rather than the lecturer, and thereby to enrich the quality of learning experienced by undergraduate students.

(Allan, 1996, p. 104)
Activity 3.2 Questions about outcomes in your courses

1. Thinking about the two courses you selected in the previous activity, to what extent is it possible to identify 'subject-specific' and 'personal' outcomes? How far do the latter subdivide into 'personal transferable' and 'generic academic' outcomes?

2. From your understanding of the policy of your institution, how specific are you and your colleagues expected to be about aims, objectives and learning outcomes when designing and planning courses? What advice and support is provided to help you meet the policy requirement and what processes are used to check it?

3. To what extent is this kind of detailed information about aims, objectives and learning outcomes used to tell students what they will be doing or to inform their choice about what courses to take?

There are three quite different activities here. The first requires some thought as to what makes the courses different from others in terms of the subject-specific outcomes (which may include knowledge of the content, methodology and literature) and personal and generic outcomes. We will return to these later as they are central to the debate about skills development and the nature of 'graduateness'.

The second activity requires you to think about the way you write your courses, the help you may receive from sources such as an Educational Development Unit, and the way in which validation or quality assurance mechanisms are used to ensure that you have adopted the appropriate approach.

The final activity gets to the nub of why learning outcomes are important. If used properly, they inform students what they will learn as a result of studying a course and therefore give them the basis for making choices between different courses.

Together with the rationale and aims for a course, learning outcomes enable students to make informed choices, as well as helping teachers put the course within the context of the programme or the student's learning package. However, given that learning outcomes have come to be recognised as important, we now need to look at what it is that students learn.

3.3 Defining levels of outcome

Recent research into student learning has resulted in a growing and more widely accessible literature examining what students learn – and the outcomes of that learning – as well as how and why students learn. In addition to Bloom's well-known taxonomy of educational objectives, the SOLO (Structure of the Observed Learning Outcome) taxonomy, devised by Biggs and Collis (1982), has attracted growing interest, particularly in Australia.
The SOLO taxonomy

Biggs and Collis described five structural levels of learning outcomes, which ranged from irrelevance or incompetence to expertise. The taxonomy represents a totally generic framework about the structure of knowledge rather than describing differences in understanding about specific topics. Although it was developed in a school context, SOLO has increasingly been used to analyse the structure of student learning in other contexts, including higher education. The taxonomy can be used as a way of structuring curriculum objectives, whether the aim is to increase knowledge or deepen understanding and, as we shall see later, can be used as the basis for developing grading in assessment schemes.

Extract 3.3, by John Hattie and Nola Purdie, outlines the elements of the SOLO taxonomy and some uses to which it can be put when developing programmes of learning. The main aim of the chapter from which this extract is taken was to show the SOLO model in use with students in teacher education programmes in universities. However, it also provides a succinct description of the model as well as a comparison with Bloom.

In concluding the chapter Hattie and Purdie (1998) comment that:

One of the major reasons why Bloom’s taxonomy has survived is that there have been few alternative models ... We believe that the SOLO taxonomy offers teachers of students at all levels an alternative tool that can be used not only as a basis for selecting items for a test (as was the original intention of the Bloom taxonomy), but which also can provide structures to help teachers devise appropriate instructional processes, engage in curriculum and task analysis, make judgements about the quality of learning that takes place in the classroom, and instigate appropriate remedial procedures where necessary.

(Hattie and Purdie, 1998, p. 168)
The implication of the SOLO taxonomy for course design and assessment is that teachers should seek to address the middle three elements (unistructural, multistructural, relational) explicitly. As students address new subjects, their structural organisation of the knowledge may begin at the unistructural level, before moving on to the multistructural and relational levels. As they develop and learn more about a subject, levels of structural organisation of knowledge recur in a cyclical way.

Trigwell and Prosser (1999) describe studies where the SOLO taxonomy has been used to gauge students’ understanding of a topic before and after teaching. They found in one study at the end of a topic that only five per cent of students gave answers that were classified as relational and could demonstrate an acceptable understanding of the topic. Biggs (1988) comments that:

The original application of SOLO was to the outcome, and creative writing tasks have been used for such an analysis. SOLO analysis may, however, apply to the planned discourse structure as well as to the observed discourse structure ...

It is worth quoting further from this extract as Biggs deals explicitly with a particular academic task, essay writing, that should illustrate how SOLO can be used in a range of course design contexts.

SOLO analysis hinges on the level of abstraction of the contents discussed. The three middle levels – unistructural, multistructural and relational – deal with content at the level of abstraction sought in the question, but with differing degrees of effectiveness. Prestructural writing is at an inappropriately low level of abstraction (e.g., an academic case addressed by narrating personal experience), and extended abstract is at a higher level and more general than that which would suffice. These levels of discourse structure ... are outlined in Table 3.1, showing their relationship to genre and to the approach to writing that both stems from the discourse structure proposed at the planning stage and contributes towards creating the structure finally emerging in the outcome.

(Biggs, 1988, pp. 197–8)
Table 3.1 also highlights the fact that SOLO can be linked to approaches to learning. Thus, if we are aiming to enable students to develop and demonstrate deep approaches to learning, learning and assessment tasks should be structured so as to require a relational structure to their learning.

In illustrating the use of SOLO in developing grading systems for assessment in higher education, Biggs (1992) proposed a category system based on letter grades A, B, C, D and F, where each grade describes a qualitatively different kind of performance. The grades are ordered along a scale of increasing acceptability, from unacceptable (F) to exemplary (A). Grade F would be multidimensional and represent failure to learn, or 'moral' issues requiring administrative decisions, such as cheating. The other grades relate to the SOLO taxonomy, where:
D is unistructural: the student understands one or a few basic aspects of the course;

C is multistructural: the student has understood or used several aspects of the course but integrated them;

B is relational where the parts form a coherent whole and represents a structure that most questions should require and a performance that should be reasonably expected of students;

A goes beyond what is expected and ‘involves a level of originality, elegance, or generalization which is more than we might like rather than what we might reasonably expect’.

(Biggs, 1992, p. 5)

Within each category Biggs suggests that there are three levels indicating whether the student has achieved the level minimally, adequately or very well. The grades can then be combined for administrative purposes, while remembering that these are qualitative measures of the structure of learning rather than measures of ‘how much’ a student has learned.

Activity 3.3 Using SOLO to consider your student assignments

Take any of your current assignments that are to some degree open-ended.

1 Describe what a student answer or piece of work might look like if it revealed an approach that was: (a) unistructural; (b) multistructural; (c) relational.

2 What grade would you give to an answer at these different levels?

3 What response would you make to a student who gave an extended abstract answer?

Using the earlier table from Biggs (1988) and his grading scheme you should begin to see what is required of students when setting an assessment task. Is it merely the listing of facts, perhaps demonstrating a surface approach to learning? Or are students required to adopt a deep approach to their learning by presenting an integrated answer, focusing on the whole? Does your marking scheme allow for an extended abstract approach and give appropriate credit for it, or would such an answer be judged ‘not to have answered the question’?

Qualitative differences in student learning

While many of the approaches to objectives and outcomes reflect what the teacher anticipates students will learn, there has been a body of research examining what the students actually learn. This work has been particularly developed in Sweden by Ference Marton, Lars Owe Dahlgren and others. The emphasis in this work is not on how much – or how much more – students have learned, but rather on qualitative differences in that learning. Researchers point to students approaching or experiencing the tasks in different ways, with consequently different understandings. The distinction is made between those who adopt a surface approach to learning and therefore focus on the sign, for example the text itself, and
those who adopt a deep approach to focus on what is signified, for example the meaning of the text.

The term 'learning' itself is problematic but Dahlgren contends that:

The qualitative approach to research on learning which is reported in this book ... rejects the description of knowledge as discrete pieces of knowledge passed passively from teacher to learner, and tested in terms of whether or not the student can reproduce verbatim those elements. Instead of concerning itself with 'how much is learned', it seeks to investigate 'what is learned'. Necessarily this qualitative type of research is concerned with the learning of realistically complex passages which contain a description or an explanation of a phenomenon. If students are given such a text and asked to read it carefully in order to be able to answer questions about its content, it is possible to investigate 'what is learned' in a naturalistic setting – an experimental situation in which both content and instructions are closely similar to what students normally experience in higher education.

(Dahlgren, 1997, p. 27)

Now read Extract 3.4, in which Ference Marton points out the existence of qualitative differences in the ways that students learn.
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Extract 3.4 indicates one of the main findings of this area of research, that it is not how much students have learned that is of interest, but rather what they have learned and the differences between students in their understanding of the same learning. Marton refers to these as *referential* aspects of the learning outcome. In this case, there are also differences in the students’ understanding of how the text is organised, that is, of the *structural* aspect of their learning outcome.

Dahlgren and others in Sweden have carried out a series of studies on students’ understanding of economic concepts. In one study four qualitatively different meanings were derived from the analysis of responses to an open-ended question on the meaning of equilibrium in an economic system:

- A  Equilibrium means that there is a balance between income and expenditure.
- B  Equilibrium means that there is a balance between export and import.
- C  Equilibrium means that there is a balance between supply and demand.
- D  Equilibrium means that resources are allocated in such a way that no one can profit from a reallocation except at the expense of someone else.

(Dahlgren, 1988, quoted in Prosser and Trigwell, 1999, pp. 116–17)

With respect to this topic, D is the most complete meaning, while C would be acceptable. Meanings A and B are less acceptable because they are less complete; only eight students demonstrated the desired understanding. Students also took a traditional examination which showed a negative correlation between marks and the level of understanding, suggesting that the examination is not testing the same understanding. Further tests two years later showed that considerably higher levels of retention were demonstrated by students who had a higher level of understanding (C and D).

A further study of students’ understandings of basic economic concepts and of everyday economic phenomena concluded thus:

At the beginning of this paper, we suggested that several academic disciplines had in fact been generated from a network of well-defined relations between a number of basic concepts and principles. It must surely be an essential function of teaching to secure the students’ understanding of the basic network of ideas. But in practice, given the many other demands on him [sic], the teacher may well fail to meet individual demands for explanations or clarification. In response, the average student’s strategy for coping with the impossibly rapid pace of teaching is, naturally enough, to try to learn everything by rote. It is certainly possible to pass an examination without understanding, if only the necessary rules are correctly memorised.

(Dahlgren and Marton, 1978, p. 34)
The authors acknowledge that this is a rather dismal picture of teaching and learning but conclude that, with some reduction in course content, there are ways of promoting a deeper understanding of the subject matter. However, a starting point is to recognise that different students may demonstrate different understandings of the same subject matter.

**Reflection 3.2 Learning and learning outcomes**

Take a topic from your own subject area.

What qualitative differences in student learning of this topic might you anticipate or have you noticed? What are the implications of this for your teaching and assessment?

It is not uncommon for the assessment methods we use to find out how much students have learned, rather than how students differ in their understanding of their learning of a topic. You may have found that students have two or three different ways of understanding the same topic. The issue for you is to decide which of those is completely wrong, or less complete, and how you can check on this and provide feedback to the students appropriately.

How many of us produce ‘indicative contents’ for our courses and then cover everything? An interesting exercise is to take this content and divide it into ‘essential’ and ‘desirable’. We may then be in a position to focus on student understanding of a more limited range of topics and concentrate on enabling them to learn what is meant by that learning, rather than purely on the topics themselves.

By tackling the issue of defining levels of outcomes, and examining the use of the SOLO taxonomy and qualitative differences in student learning, this section has probably had you looking at some unfamiliar and more challenging areas of research and writing. However, these approaches are increasingly influencing many educational developers in their work with teachers in the UK, Scandinavia and Australia. An area that may be much more familiar to you is the debate concerning skills and competences as outcomes of learning.

### 3.4 Skills and competences as outcomes of learning

In the UK, the ‘learning outcomes’ approach came to particular prominence in higher education through a report authored by Otter (1992) and also through the spread of vocational qualifications of various sorts. The current focus on learning outcomes also came partly from the UK government’s emphasis in the early 1980s on setting standards for training the workforce. In particular, the specification of levels of competence would, it was argued, lead to the realisation of the standards of performance expected. National Vocational Qualifications (NVQs) were developed for a range of performance levels from basic to postgraduate equivalent across a range of occupations. Subsequently, General National Vocational Qualifications (GNVQs) were introduced, which contained the knowledge, understanding and skills underpinning a range of NVQs. The term ‘learning outcomes’ was used to specify GNVQs.
The debate has also been widened by the growing emphasis on graduate and employment skills. 'Skills Development in the UK', a report commissioned by the Committee of Vice-Chancellors and Principals of the Universities of the UK and the Department for Education and Employment, was the latest to address the issue. The report is principally concerned with employability skills for full-time undergraduates and the way these contribute both to the careers of graduates and to the wider prosperity of the economy.

15. Indeed, there are many lists of skills being produced but considerable similarity between them. They have remained reasonably consistent over time. They address the need for the graduate to be a 'knowledge worker', a member of a 'learning organisation', and a manager of his/her own 'career'; to have both specialist knowledge and process skills; and to make an immediate contribution to the profitability and competitiveness of the employer. There is however less consistency between employability skill proponents over how the skills in the list are defined; how they can best be developed; what 'standards' students might aspire to reach in these skills; and how these standards are to be assessed - if at all.

...  

18. The skills concerned in promoting employability can be categorised in various ways. For the purposes of this report a starting point might be:

- Traditional intellectual skills;
- The 'new' core of key skills;
- Personal attributes deemed to have market value;
- Knowledge about how organizations work and how people in them do their jobs.

(Committee of Vice-Chancellors and Principals, 1998, p. 3)

The report goes on to examine each of these categories in turn and highlights some of the dangers of concentrating on the list of five key skills: communication both written and oral; application of number; information technology; improving own learning and performance; and working with others. The first three have been given most prominence by the government and qualifications bodies and they can be easily assessed. However, employers are putting increasing emphasis on the last two, even though they are more difficult to assess. Further, concentrating on key skills as a group may reduce the attention to the other three equally important 'skills'. Whilst recognising that there are strong inhibitors to skills development in higher education, the report outlines a series of strategies to encourage it. As well as senior management commitment and a strategic direction in institutions, the report suggests a number of strategies that are relevant to this chapter, including how to embed skills development in course design; the appropriate quality assurance processes, monitoring and evaluation; appropriate assessment strategies and the role of student input. The role of other agencies and stakeholders, including employers is also discussed.
In the introduction to an earlier report, Lee Harvey and colleagues observed that:

Employers want people who are going to be effective in this future, changing world. Employers indicate that what they want now, and in the foreseeable future, are intelligent, flexible, adaptable employees who are quick to learn and who can deal with change. Graduates are much more likely than non-graduates to meet these criteria ...

Employers want people who can rapidly ‘fit in’ to the workplace culture, work in teams, exhibit good interpersonal skills, communicate well, take on responsibility for an area of work, and perform efficiently and effectively to add value to the organization – they want adaptive recruits. (p. 1)

... A degree might be necessary or desirable but employers are looking for a range of other attributes when employing and retaining graduates. This will continue to be the case in the foreseeable future. Graduates will need to develop a profile of attributes: knowledge, skills, abilities and personal attributes that suit them to work in the organization of the future.

(Harvey et al., 1997, p. 63)

Extract 3.2 gives more of the context of learning outcomes within current developments both in higher education and training. Allan introduces the notion of ‘capability’ as a link to the ‘personal transferable outcomes’ discussed earlier. Core or key skills have become an integral part of competence-based courses and a number of institutions have adopted the notion for embedding in all their programmes. This has proved controversial for reasons discussed below, but political and economic pressures are likely to keep the debate alive.

The Dearing Report, in the chapter on ‘The nature of programmes’, makes the following recommendation:

**Recommendation 21** We recommend that institutions of higher education begin immediately to develop, for each programme they offer, a ‘programme specification’ which identifies potential stopping-off points and gives the intended outcomes of the programme in terms of:

- the knowledge and understanding that a student will be expected to have upon completion;
- key skills: communication, numeracy, the use of information technology and learning how to learn;
- cognitive skills, such as understanding of methodologies or ability in critical analysis;
- subject specific skills, such as laboratory skills.

(National Committee of Inquiry into Higher Education, 1997, p. 141)
As this quote from the Dearing report hints, there has been much debate and controversy in recent years about how broad the curriculum becomes in terms of the skills, capabilities and competences that are being developed and assessed. Notions of ‘enterprise’, ‘employability’ and ‘graduate skills’, often supported by funded initiatives, have resulted in a far different notion of learning outcomes than would be recognised by many graduates of 15 to 20 years ago.

A particular critic of these approaches has been Ronald Barnett, whose views are reflected in the titles of some of his recent writings such as The Limits of Competence (1994) and Beyond competence (1997).

Competence, then, is not problematic as an educational aim, even in higher education. It becomes problematic when either or both of two conditions are fulfilled: firstly, when competence becomes a dominant aim, so diminishing other worthwhile aims; or, secondly, when competence is construed over-narrowly.

(Barnett, 1994, p. 159)

Higher education is seeing two sharply opposed definitions of competence. The two definitions, termed here operational and academic, contain alternative clusters of related ideas, turning on different interpretations of transferability, skill, communication, situations, focus, orientation, critique and epistemology. Each definition is coherent in itself but, in being opposed to the other definition, is inevitably narrow in character. We have here polar opposites (even if the ice is melting and the waters are merging).

(Barnett, 1994, p. 170)

Barnett is equally scathing about the two concepts of competence. Whether it be academic – ‘built round a sense of the student’s mastery within a discipline’ – or operational – ‘essentially reproducing wider societal interest in performance, especially performance likely to enhance the economic performance of UK Inc’ – they are rival concepts of competence, representing a claim on higher education, seeking to protect or advance a cause. Further, the concepts are ideological, reflecting structured social interests – ‘roughly the one external and the other internal to the academic world’. In challenging the overall rationality of these concepts, Barnett presents an alternative of ‘beyond competence’ reflecting the ‘life-world’ where ‘what is at issue is an education for the world of human life’ (Barnett, 1994, p. 178).
Activity 3.4 Your institution’s policy on specifying learning

1. Outline your institution’s guidance or policy on the specification of student learning in terms of knowledge, skills, attributes, values or other elements to be included.

2. What are the practical implications for you in terms of course design, delivery and assessment of your institution’s policy?

In many universities there are policies concerning the specification of skills, attributes and values, as well as knowledge, as the outcomes of student learning. The operationalisation of these policies can be through course planning guidelines, validation procedures, monitoring and review, or through the external examiner system. It is increasingly common for professional bodies, such as those for accountancy and law, to require accredited programmes to reflect the skills necessary to operate professionally. Some qualifications, particularly in subjects allied to medicine, offer a ‘licence to practice’ on successful completion.

It is worth reflecting on the knowledge, skills, attributes and values included in H850, the course for which these materials were designed. It is obviously not enough to know your subject and know how to teach it. There are other aspects, or outcomes, that have to be demonstrated for you to be considered a professional teacher in higher education.

Alverno College in the United States has been at the forefront of developing the ‘ability-based curriculum’ that specifies a range of abilities that students must demonstrate as well as indicating what that means at different levels. The extract from Alverno College’s website gives a flavour of the approach adopted and the explicit link to the assessment process:

Alverno’s unique emphasis on learning the abilities needed to put knowledge to use – commonly called ‘ability-based education’ – has gained national praise.

Since the early 1970s, the Alverno College faculty have been developing and implementing ability-based undergraduate education, refining education in terms of abilities needed for effectiveness in the worlds of work, family, and civic community. The distinctive feature of an ability-based approach is that we make explicit the expectation that students should be able to do something with what they know.

The specific abilities identified by our faculty as central to our approach to liberal arts and professional education are:

- Communication
- Analysis
- Problem solving
• Valuing in decision making
• Social interaction
• Global perspectives
• Effective citizenship
• Aesthetic responsiveness

(Alverno College website, 1999)

There are many ideas embedded in the Alverno curriculum to which we cannot do justice here. These include the fact that they have a generic statement of outcomes with statements of level for each, and that every course specifies which two outcomes it addresses at which level. Further, the entire institution shares a common set of criteria for assessing these outcomes regardless of subject area.

**Reflection 3.3 Alverno’s eight abilities in your course**

Several of the abilities specified in the Alverno ‘ability-based curriculum’ will be familiar to those who have adopted some notion of skills development and assessment in their own courses.

How far are each of Alverno’s eight abilities reflected in the courses with which you are involved?

How might each of the abilities be developed and assessed in different ways as students progress through different years or levels of a programme?

You may find it difficult to see how a number of the abilities can be developed and assessed at different levels on your course, particularly if you are not in the liberal arts and professional education areas that characterize Alverno College. However, some institutions are adopting frameworks such as this, perhaps without due consideration of its impact on all disciplines.

**Conclusion**

The range of extracts used in this chapter can only give a flavour of the debate surrounding the specification of aims, objectives and learning outcomes – whether at sector, institutional, discipline, programme or course level. Journals such as *Studies in Higher Education*, *Higher Education*, and *Higher Education Research and Development*, among others, provide the current state of the debate, though much of it is also carried on in the features and letters pages of the educational press. There is a wide, and growing, literature that either presents the case for, or a critique of, the various approaches touched on here. Though often of a somewhat philosophical nature, the literature does provide the rationale for more practical approaches to the detail of course design. In particular, much of the research and writing is concerned with how student learning can be improved as a major outcome of the design process. And starting with clear specification of aims and outcomes is a key to this.
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Tables