5 Writing and using aims and learning outcomes

Introduction

An example of a learning outcome is:

Example 1
At the end of reading this chapter the reader is expected to be able to produce effective learning outcomes for a module in higher education, pointing out the main components of the learning outcomes.

The map of module development is repeated in order to demonstrate the context of aims and learning outcomes within the process of module development.

The role of the aim in module development is to provide direction and orientation in terms of content for the writing of learning outcomes, while the standard and degree of learning challenge in a learning outcome is drawn from the level descriptors. Most of this chapter will concern learning outcomes since they are more central to the processes under discussion, as we now focus on learning rather than teaching (D'Andrea, 1999). Aims tend to be associated with objectives, and the chapter will briefly consider objectives and provide some reasons for abandoning their use.

The ideas behind learning outcomes

The history of ideas

The outcomes-based approach to learning and programme and module development had its origins in the work of the behavioural psychologists in the early part of the twentieth century. Their influence has eventually shifted the orientation of teachers from teaching to learning, though the association of this shift with the unpopular behaviourist movement might not be generally welcomed!

In the middle part of the last century a number of behaviourists became interested in the teaching/learning situations in school, and developed ideas of programmed learning that was delivered through teaching machines. The 'delivery' of teaching in this manner necessitated the deconstruction of material into sequences of appropriately linked ideas. From this developed the 'learning technology' movement, with Mager as one of its best known proponents (Mager, 1975). Mager wrote about the writing of what he called 'instructional objectives'. These objectives were more or less what we would now call 'learning outcomes'. The ideas were then
applied in pockets of provision (eg Stones and Anderson, 1972) and became particularly associated with 'objective' assessment and programmed learning. The rapid development of computer technology began to take forward the ideas of programmed learning in more sophisticated ways, still with learning at the centre. Interestingly now there are signs that some areas of technology have become increasingly focused back on teaching, presentation and instruction as the current passion for elaborate and 'good-looking' web sites has emerged.

A second line of development of outcomes-based approaches came about from the developing concern with skills shortages and the perceived poverty of vocational education. Following analyses of occupational activities and competences, systems of national vocational qualifications (NVQs) were developed. NVQs describe how a person is required to demonstrate competence in a particular area, and there is no indication about what instruction needs to be used to enable the reaching of that level of competence.

The third development of outcomes-based learning came about as a result of the credit development movements in the UK in the early part of the 1990s. Credit was not always outcomes-based, but in the projects to which reference has been made in Chapter 1, the volume of learning is based on the notional time taken to achieve given learning outcomes at a specified level (Moon, 1995c). As we have described earlier, it is primarily this source of influence that has led to the widespread use of learning outcomes in higher education at present. However, in considering learning outcomes now, it is useful to recognize the existence of the related developments. They have often been the source of negative reactions to the use of learning outcomes. As I have described, in the first workshops on learning outcomes, the assumed link between learning outcomes and NVQs generated much antipathy, and still the charge is being made that learning outcomes are mechanistic and destroy the real essence of learning (Allan, 1996). In a way these are helpful arguments. It is important that higher education continues to recognize that the good qualities of good learning are those that cannot necessarily be specified in advance (Otter, 1992; Broadfoot, 2000). It is important in the use of learning outcomes that we tread an appropriate path between precision in specification of learning and the openness to unexpected areas of learning. A significant principle here is that learning outcomes should be written at threshold. This matter will be discussed at length in later parts of this chapter.

The role of learning outcomes

The use of learning outcomes and associated threshold assessment criteria provides a mechanism for describing learning either in prospective terms - to be achieved - or in retrospective terms - learning that has been achieved already. The main example here is of learning outcomes, usually within modules, that are accumulated for a qualification. In individual terms, an example of retrospective uses of learning outcomes is in the accreditation of prior experiential learning (APEL).

Learning outcomes should be closely related to assessment criteria. The two sets of statements should work together so that it is often the case that a more general kind of learning outcome statement is supported with more detailed assessment criteria. Where the outcome statement is written in a relatively precise and focused manner, the role of assessment criteria may be less critical.

While the principal purpose of learning outcomes concerns standards of student learning, and the relationship of learning to assessment, there are many other ways in which such statements may be used once they have been written. It is worth bearing in mind the purposes for learning outcomes when they are being written, because these may affect such factors as the use of words. For example, the audience for the learning outcomes may need to be considered if communication of the learning outcomes to a lay audience (eg employers) is a primary concern. This might imply the explanation of more technical words or an accompanying glossary.

Some of the broader purposes for which learning outcomes might be used are:

- They make it possible to be explicit about what is expected of the learner in terms of learning to be attained and the assessment.
- They provide a means of indicating to learners the link between their learning and the manner in which learning is to be assessed.
- They can provide an indication of the standards that the individual teacher or the higher education community expects of
learners, particularly if the relationship of the learning outcomes to level descriptors is made explicit.

- They are a good way of communicating the learning purpose that the module is intended to fulfil. They provide information to other teachers, students and employers (etc) and they can be used within marketing material.
- They can be a useful tool for communication with external examiners.
- The use of learning outcomes provides a means of judging and attaining consistency of volumes and standards of learning within and across institutions, particularly with regard to the same subject material.
- Learning outcomes at level 3 might be compared with the subject benchmark statements for the subject, in order to determine how closely the latter are being followed (see later). Subject benchmarks do not have to be followed by subject teachers, but the rationale for an alternative approach should be justified (QAA, 2000c).
- In the context of a credit-based higher education system, learning outcomes are part of the definition of credit, as part of the measure of volume of learning.
- In providing information about what a learner has achieved, a set of learning outcomes is a kind of transcript.
- Skills and other components of learning can be identified within a module from an observation of the language in which learning outcomes are described. A map of skills within a programme can then be developed.
- Sometimes it is useful to use special standard learning outcomes across all modules in a level so that, for example, specific skills or issues of plagiarism are addressed in an agreed and consistent manner (see examples below).

Some related developments: subject benchmarks and programme specifications

While we return to subject benchmarks and programme specification in Chapter 9, they do have some relationships to learning outcomes and therefore should be mentioned here. Benchmarks may, for example, influence the manner in which learning outcomes are constructed.

Subject benchmarks are, in effect, generalized statements of the learning outcomes that might be achieved by a student completing an honours degree in a particular subject area. The initiative followed the recommendation of the Dearing Committee (NCIHE, 1997), and the work on the benchmarks has been published by the QAA over several years. Forty-two subjects and subject areas were identified for the process of development of the benchmarks. Expert groups, drawn from across the UK, were charged with the task of constructing the statements, initially at threshold level and later to describe the performance of the average or typical student. Some subject benchmark groups also described excellent students. The first three groups worked on law, chemistry and history.

Subject benchmark statements are written (at present) just for the honours degree level, and are likely to be most influential on learning at level 3, and hence for learning outcomes written for modules at level 3. Benchmarks should, of course, influence the writing of learning outcomes only if they are a fair reflection of the content of the learning. Similarly, if benchmark statements do influence the manner of writing learning outcomes for level 3, this form of writing should be demonstrated in the progression from level 1. Even if the benchmark statements are not so helpful for a particular programme because it draws from more than two disciplines, they can be useful as a source of appropriate vocabulary for the subject in question. The subject benchmarks are available from the QAA web site (QAA, www).

Dearing also promoted the idea of a programme specification, which amounts to the design of a common format for the description of all higher education programmes. The format encompasses many similar characteristics to the forms used to describe modules, including material about level, aims, curriculum, teaching, learning and assessment information and sources of maintenance of standards (etc) (QAA, 2000c). Of relevance to this chapter on learning outcomes is the section on ‘programme outcomes’.

Generally speaking, the term ‘learning outcome’ has been applied to the outcomes of relatively small blocks of learning such as those that emanate from modules or short courses. Programme outcomes are outcomes-based statements about the whole programme, and therefore encompass more than simply the sum of the learning outcomes for modules in the highest level of a qualification. When they are written for honours degree programmes, it is
also expected that they will pay some regard to the subject benchmark statements. These issues are discussed in a broader context within Chapter 9.

**Definition and examples of learning outcomes**

In terms of definition, a learning outcome is:

*a statement of what a learner is expected to know, understand and be able to do at the end of a period of learning and how that learning is to be demonstrated.* Learning outcomes are linked to the relevant level and since they should generally be assessable they should be written in terms of how the learning is represented.

Sometimes the definition of a learning outcome is written in terms of ‘the learner will (be able to do something)...’ In these days of litigation, it is safer to use the notion of ‘expected to be able...’ since a teacher has no real control over a student’s learning. The student may simply not turn up to lectures. An alternative approach to the word ‘expected’ is a tentative form of terminology such as ‘intended’ or ‘anticipated’ learning outcomes. In any case, the principle is that no one can make a student learn; we can only hope that learning will occur. The existence of a learning outcome that states that a student will learn something does not ensure that the student gets out of bed to come to the lecture. This matter is one of those that emphasize the difference between the activities of teaching and learning – and that learning is something only the student can control.

Learning outcomes do not usually specify curriculum details, but they refer to more general areas of learning. There may be an exception to this in science and applied science subjects (see the next section). However, as a ‘rule of thumb’ it is unlikely that there will be more than eight learning outcomes per module. If there are more than ten, they are probably specifying too much curricular detail and may then be unmanageable in the process of assessment.

Ironically, the suggested number of eight as a maximum for learning outcomes could apply to a day course or a three-semester module if both are, in effect, the size of unit that will be assessed at one time. In other words, there is no common practice in the size of the ‘chunks’ of learning that are written as learning outcomes, and the result is that on a shorter course, there may be fewer learning outcomes and they will tend to be more detailed.

I have indicated before that it is important to relate learning outcomes to a level where they are relevant. One implication of this is that it is not appropriate to use the same learning outcomes for a module that may be delivered at two different levels. It is all right for the teaching of a module to be common to students at two levels, and even the actual assessment task can be similar, but the learning outcomes and the assessment criteria will reflect the actual level and will differ between the two modules.

The examples of learning outcomes that follow are numbered. The first example is that found at the beginning of this chapter. They are numbered for purposes of reference in later chapters in this book, in particular Chapter 6 on assessment criteria, in which criteria associated with these learning outcomes are given as examples for that chapter. In some cases, comments are made about specific features in the learning outcomes.

**Example of learning outcomes**

**Example 2: level 2 BEd programme**

At the end of the module the learner is expected to be able to:

- explain the more common reasons for difficult behaviour in primary school children in class situations, indicating standard techniques for ameliorating that behaviour

  or: within the context of a class situation, demonstrate and evaluate the use of appropriate examples of positive reinforcement for the purpose of the improvement of behaviour.

**Example 3: level 3 English literature**

At the end of the module, the learner is expected to be able to:

- demonstrate detailed understanding of the influences of the historical and social context within which the chosen text is set, both from the study of the text itself and from the study of other contemporary literature.

(Comment: this learning outcome could mention the text by name, but by focusing on the skills to be acquired, one avoids being tied to the same text
Example 4: level 2 physics
At the end of the module, the learner is expected to be able to:
perform correctly calculations on wave functions and in the solution of the Schroedinger equation for a range of one-dimensional problems.

Example 5: level 3 physics
At the end of the module the learner is expected to be able to:
describe and explain the function of the basic devices of optoelectronics; optical fibres; liquid crystal displays; bi-polar and surface field effect transistors and MOS light emitting diodes.

Example 6: level 3 mathematics
At the end of the module, the student will be expected to be sufficiently familiar with the techniques of multivariate analysis in order to be able to handle straightforward multivariate data sets in practice.

Example 7: level 3 independent studies
At the end of the module, the learner will be expected to have developed an agreed set of learning outcomes for a 2,500 word project, based on level descriptors for a level 3 learner, and to demonstrate that she has achieved the outcomes and completed the project to the reasonable satisfaction of her tutor.

(Comment: in this learning outcome, the project learning outcomes will be written by the learner, and hence the learning will relate to the descriptors which will, in a sense, dictate the criteria and the manner in which the module is set up – i.e. the rationale for an independent studies module.)

Example 8: level 1: a skills module on academic writing for any student
At the end of this module, the student will be expected to be able to explain and demonstrate the main features of effective academic essay at level 1.

Example 9: use of a learning outcome to alert students to potential plagiarism (based on Gosling and Moon, 2001) – could be in any discipline, level 1
At the end of the period of learning, it is intended that the student will be able to discuss how plagiarism can occur intentionally or unintentionally in academic work, and identify ways of avoiding it through appropriate referencing.

Example 10: Master’s level, social policy
At the end of the module, learners will be expected to be able to describe the historical development of social policy and judge the value of key developments in health care from the perspective of social policy.

Example 11: Master’s level, reproductive health
At the end of the module, learners will be expected to be able to appraise the consequences of a range of key socio-cultural influences on sexual and reproductive health (including sexually transmitted diseases, adolescent sexuality, female genital mutilation, the effects of culture and media).

Example 12: Master’s level, learning log module in a leadership programme
At the end of the module, in an oral presentation, making reference to their learning journal entries, learners will be expected to evaluate the role of reflection in their work situations, indicating its values and the role or potential role of negative influences. They will be able to indicate how they can improve their use of learning journals in future use.

Example 13: level 1 skills in physics
At the end of the module, students will be able to demonstrate effective grasp of a range of communication skills that will underpin their further studies in physics. These will include maintenance of a physics note-book, preparation of a CV, the ability to read an academic article and discuss it in a brief presentation.

(Comment: it could be argued that example 13 represents more than one learning outcome. By having all the communication skills in one outcome,
the implication is that a student failing one part, fails the whole learning outcome. It can be assumed that there will be other learning outcomes for this module, that also represent a number of small tasks.)

Example 14: level 1 introduction to chemistry module

At the end of the module, it is intended that the student will be able to write a concise, clear and tidy report of a laboratory practical that must be laid out in the prescribed format.

Example 15: level 1 introduction to acting/drama programme

At the end of the module, the student will be expected to be able to work with others in small task-orientated groups, participating and interacting in the group in a productive manner for him/herself and for the group as a whole.

Some forms of module may seem to be problematic for description in advance through statements of learning outcome. An example is negotiated learning, or modules that are described as ‘independent studies’ (see example above) where, as a part of the module, the learner identifies the subject matter to be studied (and represented in a project, essay etc). In such cases the learning outcomes (quite logically) will relate to the learning of the skills of autonomous learning, project skills and other matters that will usually be the rationale for the design of such a module anyway.

The categorization of learning outcomes

Since the Dearing Report (NICHE, 1997) put an emphasis on skills learning in higher education, it has been common practice to categorize learning outcomes into the apparent characteristics of learning to which they refer. These are usually in accordance with the headings used in the SEEC credit level descriptors, so some learning outcomes might refer to subject-specific knowledge and understanding another group might refer to cognitive or core academic skills, and another might refer to other skills (key/transferrable, or other terminology).

Although the development of such categorization systems may apparently be justified on the basis of convenience for analysis of the components of a module (see below), there is a logical problem in this procedure. Let us take for an example a cognitive or core academic skill such as analysis. The existence of categorizations suggests that we should be able to describe the analysis processes undergone by, say, a level 2 student, in a statement that is devoid of reference to content or the nature of the material that is being analysed. The statement should simply consider the nature of the analytical processes. However, in reality, the sophistication of analytical skill is largely determined by the complexity of the material that is being analysed. A child of five can analyse, so long as the material for analysis is sufficiently simple. In other words, to describe the analytical skills of a level 2 student is only possible with reference to the complexity of what is probably categorized as ‘knowledge and understanding’. On the basis of this argument, it is illogical to try to write learning outcomes that are categorized as described above. The same reasoning lies behind the suggestion that looking at one item in level descriptors alone, without reference to other descriptors, cannot give a good picture of the level implied.

There are, however, practical values in attempting to introduce some categorization of learning outcomes where it comes to key or transferrable skills that are developed in modules. As we have indicated earlier, the practical skill content of programmes is a current major concern in higher education. The indication of where skills are developed within modules through reviewing the learning outcomes provides an easy method of mapping the skill content of modules and ultimately of the whole programme. Although skills are related to other abilities, and to some extent (sometimes) to the complexity of the material, it is more possible to write reasonable skills learning outcomes that make sense alone.

On the basis of the paragraphs above, a reasonable suggestion is that a general set of learning outcomes should be written for the module, with the outcomes related to skills either asterisked or drawn up separately.

Learning outcomes, aims and objectives

Chapter 1 described how, in the early days of learning outcomes workshops, one of the major issues concerned the use of learning
outcome language in contrast to the aims and objectives that were in common use at the time. Not only did learning outcomes cause upset to a system that, people argued, had only recently been imposed, but there were difficulties in helping people to see the differences between the language of aims and learning outcomes.

The difference between learning outcomes and aims is that aims are written in terms of teaching intention, and/or indicate what it is that the teacher intends to cover in the block of learning (curriculum coverage). Learning outcomes are descriptions of what the learner is expected to learn in the period of learning defined. Learning outcomes should imply the standard of learning expected. This is another example of the distinction between teaching and learning. Aims are more about teaching and the management of learning, and learning outcomes concern the learner learning.

On the basis of most aim statements, it is entirely possible for a lecturer to go into a lecture theatre at the times of the lecture slots, to teach the course and thereby to fulfil the aim whether or not there are any students present. Student learning does not affect the achievement of the aim unless the aim refers to learning, such as 'aiming to encourage...' or, more optimistically, 'enable' learning.

Because teachers set aims and are usually the agents implied in the aim statement, aims are much more under the control of the teacher. Learning outcomes are not under the control of the teacher but are subject to the whim or will of the learner, and hence are subject to the skills of influence and faith, or hope in the teacher that the learner will learn broadly what has been described.

Where do objectives fit in? Basically, the term 'objectives' tends to complicate the situation, because objectives may be written in the terms of teaching intention or expected learning. In other words, they may look like aim statements or learning outcome statements. It is not unusual to find both forms under one heading of 'course objectives'. This means that some descriptions are of the teaching in the module and some are of the learning. Those that are called 'behavioural' or 'learning' objectives are more likely to be written in learning outcome format, but the confusion may still occur. This general lack of agreement as to the format of objectives is a complication, and justifies the abandonment of the use of the term 'objectives' in the description of modules or programmes.

Since learning outcomes and aims have different functions – one being concerned with teaching and the management of learning, and the other with learning – it is useful to write an aim for a module in addition to learning outcomes. An aim can be a statement of general teaching intention and coverage, as well as indicating the content of the module and its relationship to other learning or the whole programme. It may indicate prerequisite or co-requisite modules. In effect, an aim provides direction for the module. Aims do not need to be long statements, and they should certainly take up less space on any form of module description than the learning outcome statements, since the latter is the focus of the module: the learning element and not the teaching.

Some examples of aim statements are:

The aim is to provide an introduction to the application of statistical theory in general insurance.

(maths, level 3)

The aim of the module is to introduce students to the basic areas of digital electronics, as they may be encountered in physics instruments, and to provide the necessary theoretical background to carry out experimental investigations.

(physics, level 1)

Students will need effective communication skills to complete many of their modules, and to succeed in a job after they graduate. This module aims to provide students on all of our programmes with an effective and common grounding in (written and interpersonal skills).

(skills module in physics, level 1)

The aim of the module is to review disciplinary issues in the primary school classroom. We will consider the sources of difficult behaviour, and strategies for discipline and control.

(BEd, level 1)

This module will provide a general introduction to European Union law.

(law, level 2)

In this introductory module, students will be introduced to the modular programme as it is run at Pumphrey University. They will be required to consider, justify and organize the design of the programme of study that they will follow in levels 1 and 2 with weekly tutorial support.

(level 1 module on a modular programme)

This module is the dissertation module in Sociology. With appropriate supervision, during this period students will write dissertations on the topics that they have detailed and had approved in their plans.

(a dissertation module in any programme, level 3)
The aim of this module is to consider basic educational theory and the manner in which it informs health education practices.
(Master's level, MSc in health education/promotion)

This is an independent studies module. The aim is that students should be enabled to gain skills of independent study through their work on planning, researching and executing satisfactorily a project that has been approved by their tutors.

(level 2 module, any programme)

This is an introductory module on mathematics for biology students. It is primarily aimed at those students who have not studied mathematics in sufficient depth to cope with requirements in this programme. The continuous assessment will mean that students become exempted from classes once they have reached the required standard.

(level 1 module, biology)

This module follows on from module NNNN (module code), study of which is a prerequisite for entry to this module. This module will aim to cover more advanced and detailed material on the history of landscape, focusing on the study of woodland.

(level 2 in a group of modules on the theme of heritage in the provision of an adult and continuing education scheme)

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**Writing learning outcomes**

**The components and language of learning outcomes**

A well-written learning outcome is likely to contain the following three components:

- A verb that indicates what the learner is expected to be able to do at the end of the period of learning.
- A word or words that indicate on what or with what the learner is acting. If the outcome is about skills then the word(s) may describe the way the skill is performed (eg 'jump up and down competently').
- A word or words that indicate the nature (in context or in terms of standard) of the performance required as evidence that the learning was achieved.

We use examples 3 and 6 from pages 57 and 58 to exemplify the components of learning outcomes.

In the first example, learners were expected to 'demonstrate detailed understanding of the influences of the historical and social context within which the chosen text is set, both from the study of the text itself and from the study of other contemporary literature'.

The verb is 'be able to demonstrate' (what the learner has to do).

The words that indicate on what or with what the learner is acting are 'the influences of the historical and social context' etc.

The words that describe the nature of the performance are 'demonstrate detailed understanding' and 'the study of the text' and 'the study of other contemporary literature'.

Example 6 says, 'At the end of the module, the student will be expected to be sufficiently familiar with the techniques of multivariate analysis in order to be able to handle straightforward multivariate data sets in practice'.

In this example, the verb is complex. It is 'will be sufficiently familiar with'.

The words that indicate on what or with what the learner is acting are 'the techniques of multivariate analysis'.

The words 'handle straightforward multivariate data sets' describe the nature and context of the performance that shows that the learning has been achieved.

The third component of the learning outcome is apt to be omitted. Since it is the component that provides the main links to assessment criteria and level descriptors, its presence is important to ensure the links in the cycle (see Figure 5.1). On occasions when there are very clear assessment criteria that are obviously linked to the learning outcome in other components, the third component may be less important. There will be more discussion of the relevance of this to assessment criteria in the next chapter.

Learning outcomes that are written for different disciplines may differ in their components because of the structures of knowledge. In some areas of science disciplines, there is a generally agreed hierarchy of knowledge, so that the aspect of optoelectronics mentioned in example 5 is likely to be generally acknowledged as level 3 material for physics students. The nature of the subject matter, in such cases, will itself largely determine the level at which the module is offered, and extra words that indicate the depth of knowledge may not be necessary. In contrast, in many humanities and arts subjects, a knowledge component may be encountered in modules at any level, and issues such as the depth or context of the
knowledge will indicate the level of the module. An example of this is shown in learning outcome example 12. The text in this learning outcome may be the subject of study at more or less any level. In this case it will be the level of learning challenge, in relation to the sophistication of the learner’s knowledge and skills, that will determine the actual level of the module. Greater detail is needed of the way in which the learner must act in order to demonstrate success in achieving the learning outcome.

Some learning outcome statements may not order the components in the same sequence as above, and a learning outcome statement does not need to be written in one sentence alone. However, many learning outcome statements that run into multiple sentences are actually several learning outcomes, and problems may then arise when it comes to the development of appropriate assessment criteria and the designing of assessment tasks. Theoretically there can be a problem when one component of a multiple learning outcome is not achieved satisfactorily, in that the student technically then fails the whole learning outcome.

Another common fault in the writing of learning outcomes is that they refer to learning and not the representation of learning. A poorly written learning outcome might say, for example:

At the end of the module, the learner will be expected to know the health and safety practices of laboratory work.

(level 1 chemistry)

We can only tell if the student knows these practices if she is caused to demonstrate her knowledge. She might be asked to write a report, to answer questions, to explain the practices orally and so on. A more appropriate form of this learning outcome might be:

Example 16: level 1 chemistry

At the end of the module, the learner will be expected to be able to show to a demonstrator that she has a working understanding of health and safety practices with reference to a specific laboratory experiment, through an oral or written report on this aspect of the experiment.

We assess the representation of learning, not the learning itself. A learner may ‘take in’ ideas and may have learnt them, but until we can see the ideas represented, we cannot know that the learning has occurred. There will always be different ways in which the same learning can be represented, and learners may be more able at one form of representation than another. A dyslexic student may have learned something but she may be unable to represent it in writing. Learning outcomes need, therefore, to be written in terms of the representation of learning (eg not ‘be able to understand’, but ‘be able to demonstrate understanding of...’).

The box on pages 67 to 69 provides some useful vocabulary for writing learning outcomes (and assessment criteria). Some of the words are about the process of learning, and some about the representation of learning. It is often suggested that words like ‘understanding’ or ‘know’ should not be used in learning outcomes. The problem is as described above: that only words that refer to the representation of learning will indicate that the learning has been achieved. There is no problem in the use of such words, so long as a means of knowing that the learning has been achieved is present as well. Sometimes it is also appropriate to include other words that modify the learning word (eg ‘know thoroughly’ or ‘know in detail’). The difference between ‘know’ and ‘know thoroughly’ will need to be made evident in the assessment criteria.

Some vocabulary for writing learning outcomes and assessment criteria

Finding the right words to use to describe learning can be difficult, particularly when the statements should relate to generic level descriptors. The following list is provided as an aid in this process. The words are organized for convenience under headings that might be seen to accord with those from Bloom’s taxonomy. However, no hierarchy is intended. Some words would fit several headings, and individually words cannot be related to a particular level or standard. It should be remembered that a child of eight can synthesize a word from a series of letters: the level of difficulty of the word (ie the complexity of the subject matter), in this case, will determine the level of the task. The list of words below is simply a vocabulary list (gleaned from a variety of sources).
Activities giving evidence of knowing

Define, describe, identify, label, list, name, outline, reproduce, recall, select, state, present, be aware of, extract, organize, recount, write, recognize, measure, underline, repeat, relate, know, match.

Activities giving evidence of comprehension

Interpret, translate, estimate, justify, comprehend, convert, clarify, defend, distinguish, explain, extend, generalize, exemplify, give examples of, infer, paraphrase, predict, rewrite, summarize, discuss, perform, report, present, restate, identify, illustrate, indicate, find, select, understand, represent, name, formulate, judge, contrast, translate, classify, express, compare.

Activities giving evidence of knowledge/understanding

Apply, solve, construct, demonstrate, change, compute, discover, manipulate, modify, operate, predict, prepare, produce, relate, show, use, give examples, exemplify, draw (up), select, explain how, find, choose, assess, practise, operate, illustrate, verify.

Activities giving evidence of analysis

Recognize, distinguish between, evaluate, analyse, break down, differentiate, identify, illustrate how, infer, outline, point out, relate, select, separate, divide, subdivide, compare, contrast, justify, resolve, devote, examine, conclude, criticize, question, diagnose, identify, categorize, point out, elucidate.

Activities giving evidence of synthesis

Propose, present, structure, integrate, formulate, teach, develop, combine, compile, compose, create, devise, design, explain, generate, modify, organize, plan, rearrange, reconstruct, relate, reorganize, revise, write, summarize, tell, account for, restate, report, alter, argue, order, select, manage, generalize, précis, derive, conclude, build up, engender, synthesize, put together, suggest, enlarge.

Activities giving evidence of evaluation

Judge, appraise, assess, conclude, compare, contrast, describe how, criticize, discriminate, justify, defend, evaluate, rate, determine, choose, value, question.

The box on pages 69 to 71 outlines a useful exercise that can act as a summary to a session on the components and language of learning outcomes: or it can act as a self-test for this chapter. The text provides the explanation.

An exercise in distinguishing learning outcomes from teaching intentions (aims)

Introduction

The exercise below is based on documents for the accreditation of a short professional development course in health education submitted to a university. The regulations regarding the submission required a course description in terms of aims and learning outcomes. You will see that there was confusion. Which are aims, which are learning outcomes? To complicate matters, many of the learning outcomes are written poorly. As a reminder, there are three components to a well-written learning outcome:

- verb (what the learner will be expected to do);
- what the learner is acting on/with (usually the object of the verb);
- an indication of how one will know that the learner has reached that standard (usually indicated in terms of standard, or in statements about the context or difficulty of the work).
Learning outcomes should also be testable. Think about whether the statements below are what they say they are – aims or learning outcomes – and, if they are anything like the latter, are all of the components present?

Aim 1

The aim is to help participants to develop their role as health educators in their everyday work so that health education is not separated from normal activities.

Learning outcomes

- Participants will be able to describe a range of health education methods that they might use in their work.
- They will be offered the opportunity to explore their existing health education role and identify ways in which they might develop and extend that role.
- They will develop an understanding of the principles and aims of adult learning.
- The programme will enable them to gain basic awareness of methods of planning of health education interventions.

Aim 2

To provide participants with an opportunity to expand their understanding of theoretical and practical aspects of working with groups.

Learning outcomes

- Participants will be able to describe the roles that people tend to adopt when functioning in groups and to discuss the roles in relation to a series of given case students of group functioning.
- Participants will consider the impact of their membership in a variety of personal and professional groups.
- Participants will experience three leadership styles.

- Through role play, they will demonstrate that they are able to cope effectively with the behaviour of difficult group members.

Aim 3

The participants will be able to explain the basic theory of communication skills.

Learning outcomes

- They will be able to show that they can incorporate a range of new communication skills and strategies into their existing competencies.
- They will have explored their current abilities in communication in a variety of settings.

Aim 4

The aim is to equip participants with the skills to use effectively a variety of resources in health education strategies.

Learning outcomes

- To enable participants to learn effective means of using a variety of educational resources.
- The participants will be able to evaluate health education videos for their content and potential audience using the evaluation framework provided on the course.
- Participants will be able to discuss the merits and disadvantages of three (given) health education packs, at least one of which deals with stopping smoking.
Learning outcomes and their location at minimum/threshold standard

Learning outcomes are statements that indicate what is the essential learning, and as essential learning, they are written at minimum acceptable or threshold standard. The learning described in learning outcomes is the learning that must be attained in order that the learner can pass or achieve the learning. Although we do not directly associate the use of learning outcomes and the grading system (see later in this section), in effect, learning outcomes are written at whatever is the mark that distinguishes between pass and fail (and sometimes this mark will be different between undergraduate and postgraduate programmes). It is this point that really stresses the role of learning outcomes in quality assurance.

There are important implications of the paragraph above. The fact that learning outcomes are essential means:

- that a learner attains or fails to attain a learning outcome, and therefore attains or fails to attain 'essential' learning;
- and on this basis if the learner attains some learning outcomes and fails to attain others and then, technically, she fails the module.

In practice many institutions do not operate this system and compensation is allowed. The view is taken that if some outcomes are passed 'well', they can compensate for others that are not passed. Technically this represents a confusion between a grading system and the use of learning outcomes, because learners pass or do not pass essential learning outcomes.

We use the word 'technically' with some consideration here, because it is in this sort of 'regulation-speak' that we are apt to forget how 'woolly' most learning outcomes actually are. Is it possible to tell absolutely without doubt whether a student has attained or not attained a learning outcome? Consider this example:

Example 17: level 1, biology

At the end of the module, the learner will be expected to be able to explain in detail the main functions of the cell wall in algae.

We have said before that we are trying to improve our precision in the matter of managing learning, but we must acknowledge the limitations of this approach. It is a form of word play. The passing or failing of the above learning outcome could be a matter of opinion. The addition of written assessment criteria that indicate the parts of the cell wall that should be mentioned might help if that level of detail was appropriate, but how do you judge the effectiveness of an 'explanation in detail'?

There are, of course, some learning outcomes that provide absolute information about whether they have been passed or failed: for example, those involving calculations that are correct or not correct. We do need a clear system that indicates that learning outcomes are written at threshold, but at the same time we need to recognize the limitations of their precision in practice.

While we have talked above about learning outcomes that are 'essential', it is perfectly possible to write 'desirable learning outcomes'. However they should clearly be labelled as such, and the system well explained to students. Terminology such as 'module learning outcomes' could be helpful in distinguishing desirable from essential learning outcomes. Later in this chapter we suggest a system in which the latter are written formally for identified purposes.

A further implication of the idea that learning outcomes are essential is that any system of grading is a separate operation from passing or failing to pass a learning outcome. Grading is a very common process, but it is usually an option rather than a necessity in most situations in higher education. It might be a necessity if there is a requirement to distinguish between students by their level of achievement within modules (eg where only very competent students are allowed to proceed along a particular path of learning). Grading seems to be used mostly because it provides feedback to students and staff, and because students like to know how they are getting on, rather than only that they have passed or failed (see Chapters 6 and 7). When grading is used, the criterion for achieving a learning outcome will match the pass/fail point for the grading. As we will indicate later, this is the grading assessment criterion on the pass-fail line, with further grading assessment criteria grading above or below this line.

Many people are surprised when they realize that learning outcomes are written at threshold standard. As Chapter 1 showed, it
has been a contentious issue in workshops. However, the use of such a standard is fully justified in terms of creating a clear relationship between assessment and level of learning. It is, in effect, this relationship in which the notion of the ‘standard’ of a programme is most strongly represented. The reasoning for this goes back to the difficulty in writing generic level descriptors at threshold standard. If we cannot prescribe the threshold of acceptable attainment in the level descriptors, the ‘drawing of this line’ has to belong in the standards that are articulated in learning outcomes in modules. Subject benchmark statements have to some (variable) extent taken this role of articulating standards, but they are only available at level 3 and they only ‘work’ for programmes that adhere closely to the subject matter that they describe.

There is also another important area of reasoning that supports the maintenance of threshold standard for learning outcomes. The reasoning is demonstrated in Figure 5.2.

The figure represents a notional view of student achievement, from 0 to 100 per cent. Writing a learning outcomes threshold standard (or on the pass/fail line – say at 40 per cent) can be said to ‘tie down’ what is described as the lowest 40 per cent of achievement. It means that that area of learning is prescribed by the learning outcomes, and the learning that is described must be achieved. Learning outcomes at threshold test the student what she must do in order to pass the module. Writing learning outcomes at threshold in this way forms a sort of contract between the teacher and the student: ‘If you achieve these, I will let you pass the module.’ It seems completely fair to indicate to a student the standard that she must reach in order to pass. Ironically while many would agree with this latter statement, they then go on to argue that learning outcomes should be written for the ‘average’ student – and a logical flaw in their argument thereby appears. A theoretical problem arises here as well, in the identification of what ‘average’ means: is it at 55 per cent or 60 per cent or 65 per cent, or where? In order to relate ‘average’ to a pass/fail point of 40 per cent, we would need to express it also at a percentage.

An important point is made by this model (Figure 5.2) in terms of the perceived nature of higher education as the opportunity for the exploration of ideas, the development of creative approaches to subject matter and the chance to reflect in an independent manner. In the model, the learning above the threshold or pass/fail line does not have to be ‘tied down’ in description. In other words, if the pass mark is 40 per cent, we are talking of 60 per cent of the learning being unaffected by the writing of essential learning outcomes, although they will have given an orientation to the learning. It is ‘space’ in which the higher qualities of higher education learning can be expressed in the student’s learning and perhaps within the approaches to teaching and/or the teaching process. Seen in this way, the writing of learning outcomes at threshold is fair to students, provides accountability and a form of liberation of learning, in that it allows for the expression of these higher qualities of higher education learning.

The story does not quite end here because in practice, we tend further to tie down expected learning by the imposition of the system of grading and associated grading assessment criteria. Grading represents a form of system of ‘desirable learning outcomes’, but for clarity it is probably better not to use the same term, particularly since we will be suggesting its use for a slightly different purpose later in this section.

**Learning outcomes and assessment: some further points**

While learning outcomes are meant to have a clear relationship to assessment, in practice this tends to be a somewhat confused area. Certainly, all learning outcomes should be assessable; in other words they should be written in terms that enable testing of whether or not the student has achieved the outcome. Furthermore, we have mentioned above that learning outcomes need to be written in the language of representation of learning.
While we can say that all learning outcomes need to be assessable - capable of being assessed - they may not all need actually to be assessed in practice. Whether or not they are all assessed can be an institutional issue, and clearly there are situations in which all learning outcomes do need to be assessed, such as where licence to practice or competence to perform an essential vocational task is concerned.

In other situations, we might accept that we sample learning outcomes. In practice this often happens in examination situations. In an examination paper in which students have a choice as to which questions to answer, they are often not tested on every learning outcome. Since sampling actually happens, it may be more a matter of whether sampling is recognized officially or not. It is probably important to say that all students should at least expect to be tested on each learning outcome and should prepare for such testing, even if the chosen assessment method actually samples. However, even the preparation may not occur where learning outcomes are assessed by a choice of coursework essays, and where specific essays may test one or other of the outcome statements.

We have suggested that it may be appropriate to assess a sample of learning outcomes in order to make assumptions about the achievement of all learning outcomes. Theoretically we should be able to assume that all outcomes have been achieved in order to 'pass' the student on a particular module. However, systems of condonement and compensation are common and in practice, as we have suggested, it is usual for examination boards to make allowance for (and, in effect, confuse) by how great a margin a student has passed some learning outcomes, in order to compensate for some clearly not achieved. In such a situation, it is often the case that norm-referenced assessment is creeping into what is technically a criterion-based system (see Chapter 6).

Learning outcomes in vocational programmes

In higher education, most learning outcomes are written for testing directly at the end of a module. Occasionally there is a gap, and a first semester module is assessed at the end of the second semester. However, in the case of much vocational education, the ability of the learner to demonstrate learning at the end of a block of learning (a module or a short course) is of little use. The value of the learning from the module or course is for its application in practice situations in the workplace at a later time. Usually this is long after it is possible for the course organizer to gain access to the learner for assessment purposes, although arrangements with workplace tutors may be made. In effect, the important learning outcomes are really those that might be tested at this later time, but they are often not under the control of the teacher, or designer of the initial programme.

It is usual to expect all learning outcomes to be subject to assessment. However, there may be value in making an exception in this case and writing two sets of learning outcomes. The first set (type 1) can be assessed at the end of the period of learning (module or course). The second set (type 2) can then concern the application of the learning to practical situations in the workplace. They may not actually be tested, but they will provide a 'sense of direction' to the programme, and indicate to learners, those involved in teaching on the module/course, employers and others, the expected standard of practical performance that can be expected to result from the learning.

Another application of thinking of this sort can be applied in a conventional degree situation. Here the learning outcomes from modules may be viewed as type 1 learning outcomes which are then modified by the broadening of knowledge from other modules to become type 2 learning outcomes at the end of a programme. These would not actually be assessed but may be represented by the programme outcomes in a programme specification (see Chapter 9).

Using desirable or aspirational learning outcomes

We have suggested that there are many uses for learning outcomes, and one of these is for marketing an individual module or the modules within a programme or a course. It is evident from discussion from workshops and courses on writing learning outcomes that there is a problem here which creates negativity towards the use of learning outcomes. One kind of comment that is frequently made is that allowing students only to see the minimum expectations can lead to them choosing to work only for the lowest standard to 'get through'. While this is probably true of some
students in all institutions, they may often not be the kind of students who will look at learning outcomes anyway. However, a more significant comment is often made that allowing employers to see threshold learning outcomes gives them a poor impression of modules or whole programmes. Clearly one way around this is to separate official module descriptions from publicity material, not using threshold learning outcomes on the publicity material. Another method would be to write some ‘aspirational’ or ‘desirable’ learning outcomes for the module or course. That indicate in reasonably formal language what a good student is expected to achieve.

A second, and completely separate, reason for developing ‘desirable’ learning outcomes is to support the writing of grade assessment criteria, because as the next chapter will indicate, this form of assessment criteria only tenuously relates to learning outcomes at pass/fail point. Hence the learning outcomes written at threshold do not inform very well the writing of such criteria.

6 Writing and using assessment criteria

Introduction

So far in the structuring of programmes, we have considered the roles of levels, level descriptors and learning outcomes. We now come to consider assessment criteria and how they relate both to learning outcomes and assessment methods. By assessment methods, we mean the task undertaken by the student – such as writing an essay, answering a question in an examination or developing a portfolio – that is subject to assessment. Assessment criteria are the basis on which a judgement of the adequacy of the work is made.

In order to illustrate assessment criteria, I shall take the example of a learning outcome presented at the beginning of the last chapter, and develop an assessment method and some assessment criteria. In this chapter references to examples relate to the numbering system developed in Chapter 5.

Learning outcome (example 1): At the end of reading this chapter the reader is expected to be able to produce effective learning outcomes for a module in higher education, pointing out the main components of the learning outcomes.

In this case, the assessment method is identified and the assessment criteria are written in relation to it. The task could be: to write three learning outcomes that are in a familiar discipline, labelling each with its appropriate level.

Some assessment criteria for the learning outcome above might be:

- The learning outcomes will be written clearly in language that is comprehensible to students at that level in higher education.
- There will be identification of the appropriate level for the learning outcome.
- The reader will be able to point out in the learning outcomes, the three components of learning outcomes discussed in the chapter.