

Learning outcomes

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Introduction

Learning outcomes are an essential part of any unit outline. A learning outcome is a clear statement of what a learner is expected to be able to do, know about and/or value at the completion of a unit of study, and how well they should be expected to achieve those outcomes. It states both the substance of learning and how its attainment is to be demonstrated.

Learning outcomes not only serve the purpose of directing the content and design of a unit of study, they form the basis of assessment and are also linked to the larger outcomes of learning set by the University in the form of generic and/or course/discipline-specific graduate attributes.

Because of their clear linkage to assessment, students will achieve the learning outcomes to differing degrees.

What they are not

Learning outcomes are not simply statements that describe the content/syllabus of the unit (of the type ‘You will/to gain an understanding of X, Y, or Z’). Nor are they statements of what the lecturer intends to do.

‘Outcomes’ versus ‘objectives’

Objectives statements can vary in form and nature – they can range from general ‘curriculum’ objectives, to more specific ‘learning’ objectives, to even more specific ‘behavioural’ objectives. They may be expressed as intentions on the part of the lecturer (e.g. ‘The objectives of this unit are to ...’), or as desired outcomes (‘By the end of this unit you should be able to...’). It is the latter form – the outcome statement – that has the most power in informing teaching and learning, whether it be called a ‘learning outcome’, ‘learning objective’, or some other name. An outcome statement clarifies intention. It is squarely focussed on the learner and is performance-oriented, beginning with an action verb (e.g. ‘demonstrate’, ‘apply’ etc.) and signalling the desired level of performance. A learning outcome is thus an unambiguous statement of what the learner is expected to achieve and how he/she is expected to demonstrate that achievement.

The value of effective learning outcomes statements

An effective set of learning outcomes statements informs and guides both you and your students:

For teaching staff: It informs:

- the content of teaching
- the teaching strategies you will use
- the sorts of learning activities/tasks you set for your students
- appropriate assessment tasks
- course evaluation.

For students: The set of learning outcomes provides them with:

- a solid framework to guide their studies and assist them to prepare for their assessment
- a point of articulation with graduate attributes at course and/or university (i.e. generic) level.

From this, effective learning outcomes statements should:

- identify important learning requirements (the ‘content’ of learning – the range and type of knowledge, skills and values required)
- use clear language, understandable by students and other potential clients
- link to the generic and/or course graduate attributes
- be achievable and assessable, and
- relate to explicit statements of achievement (e.g. level of understanding required).

Identifying the range of knowledge and cognitive skills in your unit

Kinds of knowledge

There are different kinds of knowledge. Biggs (1999) identifies four kinds:

1. *Declarative* knowledge: knowing what, or knowing about – the ‘content’ of knowledge
2. *Procedural* knowledge: knowing how to do things
3. *Conditional* knowledge: knowing when to do things
4. *Functioning* knowledge: knowing how to employ the first three types of knowledge to solve problems and function as an effective professional.

(See Biggs, J. 1999. ‘Formulating and clarifying curriculum objectives [Ch. 3]. In *Teaching for Quality Learning at University*. Society for Research into Higher Education and Open University Press. Buckingham, UK.)

The range of cognitive skills

At university we expect our students to be able to do more than simply recall on demand large amounts of information – the simplest of declarative knowledge. We expect them to be able to apply what they have learnt in new and different situations, and to be able to analyse, interpret, evaluate and synthesise information – what we

identify as critical thinking skills. There is in fact a hierarchy of cognitive skills, from simple recall through to the highest levels of critical thinking. This hierarchy is captured in Bloom's (1956) *Taxonomy of Educational Objectives*.

The following table provides a quick reference to Bloom's Taxonomy, relating his categories in the cognitive domain to a simplified list appropriate to our university environment.

Bloom's six cognitive levels	Levels of learning
Knowledge (lowest level)	Knowledge
Comprehension	Comprehension
Application	Application
Analysis	Critical Thinking
Synthesis	
Evaluation (highest level)	

Bloom also identifies other domains of 'understanding' or behaviour – the psychomotor domain (physical skills) and the affective domain (to do with the attainment of attitudes and values).

While Bloom helps us to think about these aspects of learning separately, it's important to remember that, when students engage in learning, the cognitive, affective and psychomotor aspects of their learning are in fact inseparable.

To find out more about Bloom's taxonomy visit the Teaching and Educational Development Institute's web site at the University of Queensland:
<http://www.tedi.uq.edu.au/downloads/Bloom.pdf>.

Note: Other authors have developed hierarchies of learning objectives/outcomes that recognise stepped, qualitative differences in learning – e.g. Biggs & Collis (1982) SOLO taxonomy.

A general *Google* search will also locate other useful references and resources.

Implications for writing your learning outcomes

Your learning outcomes should therefore telegraph the nature and cognitive level of understanding expected.

Here are three examples from different disciplines that do this is:

Example 1:

At the completion of this unit students should be able to:

- evaluate the comparative effectiveness of cognitive behavioural therapy and psychoanalytic psychotherapy in the treatment of tobacco addiction.

Example 2:

At the completion of this unit students should be able to:

- apply the theories of situational management to the resolving of industrial relations conflicts in the context of enterprise bargaining.

Example 3:

At the completion of this unit students should be able to:

- select and carry out appropriate tests to detect the presence of particular microbial species.

Clearly, to achieve the outcomes in the first two examples will require more than simply the presentation of relevant information by their lecturer – students will need to be engaged in activities that provide opportunities to develop the higher order skills involved.

Writing learning outcomes statements

Here are some key points to assist you in writing learning outcomes statements:

- Remember to consider the student's perspective when writing learning outcomes and ask what should the student be able to know, do at the end of this unit that they could not do at the beginning.
- Start your learning outcome statements with an *action* verb. For cognitive outcomes use verbs that go beyond knowledge and comprehension. Aim for higher-level verbs which require students to evaluate, analyse, synthesise and critique. The use of these verbs ensures that the learning is measurable. For a range of possible action verbs, see the University of Queensland at <http://www.tedi.uq.edu.au/downloads/Bloom.pdf>
There may be other, more appropriate, discipline-specific action verbs as well (for example, as components of professional competency statements).
- Try to keep to one discrete learning outcome per statement, unless they are closely related.
- Focus only on what's important; avoid the trivial. An outcome statement should capture in an integrated way the abilities, skills, attitudes and/or values that will demonstrate the attainment of that outcome.

In summary, they should be general enough to capture important learning, but clear and specific enough to be 'measurable' (i.e. assessable).

For further advice on writing learning outcomes statements, see the University of Queensland at www.tedi.uq.edu.au/teaching/assessment/learningGoals.html (Note: UQ uses the term 'course learning goals' for their outcomes statements.)

How many to write for your unit?

There are no hard and fast rules here, as it depends on factors such as:

- The range of learning intentions – knowledge development? skills development? attitudinal/values change?
- Length – whether a short course, semester, or full year
- The particular discipline/course specific or generic graduate attributes you wish to develop.

However, as a guide for a single semester unit, around 4-6 statements in the Unit Outline may suffice. Any less and they will probably be too general and vague to be of any real value to either yourself in terms of planning appropriate teaching and learning strategies and activities and assessment tasks, or to your students in guiding their learning. Significantly more and you risk students losing sight of the ‘big picture’ you are trying to convey through the statements.

Learning outcomes statements are also appropriate for elements within a unit of study – module, topic, lesson, etc. These statements can elaborate on and reveal further, more specific details about intended outcomes.

Linking learning outcomes to graduate attributes

You will need to identify which course/discipline specific and/or generic graduate attributes you intend to develop, and to what extent, as part of your unit planning and documentation. These should be reflected in the learning outcomes. By linking the graduate attributes to your learning outcomes you ensure that they are addressed in the teaching and learning activities and assessment for your unit. This becomes sound evidence for students that they have indeed developed in some way these particular attributes. The full text on the University's Generic Graduate Attributes Policy can be found at

http://acserv.admin.utas.edu.au/acservices/meetings/Senate/Appendix/3_01D1.doc

The following web resource provides a good overview on the link between learning outcomes and capability (attribute). The resource also briefly covers the higher level of learning and its association with capability.

Writing learning outcomes for capability - RMIT University

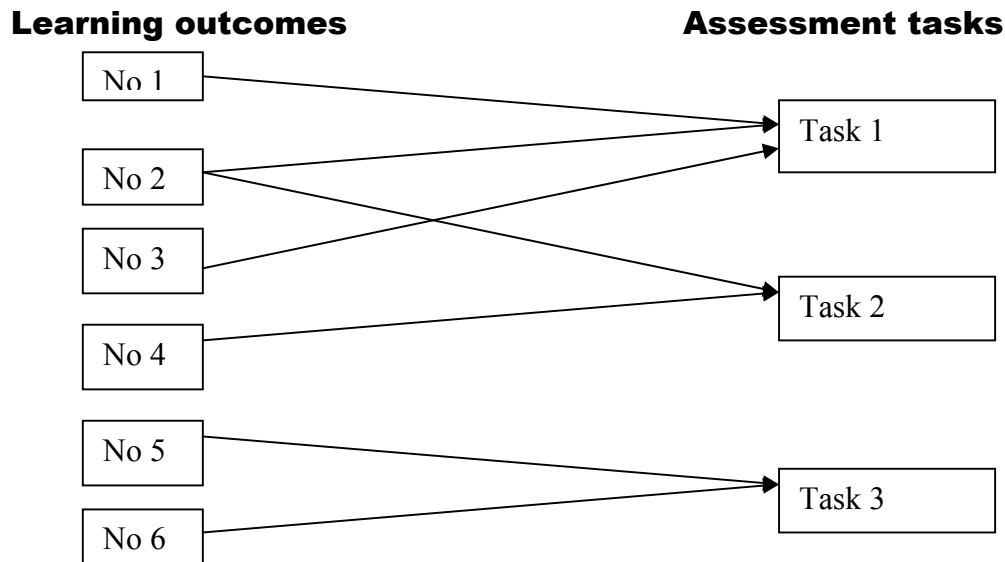
<http://mams.rmit.edu.au/5cjbpbzm3jdz.pdf>

Linking learning outcomes to assessment

The assessment process examines the extent to which students have achieved the intended outcomes of the unit. Therefore in designing an assessment program it is essential that the learning outcomes form the basis of what is assessed and how it is assessed.

Each outcome should be assessed. If a stated outcome is not assessed, neither you nor your students will know if it has been realised. If the learning outcome is framed in such a way that assessment is not feasible, you need to reframe it so that demonstration of attainment is possible.

This does not mean that you need the same number of assessment tasks as learning outcomes – for example, the one assessment task may measure the level of attainment of a number of related learning outcomes. You can construct a simple table to map the links between your learning outcomes and assessment tasks. This may not only reveal where you might be under assessing, but also highlight where you may be over assessing a particular learning outcome. For example:



Linking learning outcomes to teaching and learning strategies

The action verbs of your learning outcomes will flag the sorts of learning activities that will best lead to their attainment. For example, if one learning outcome is for students to be able to analyse and interpret data, then there should be activities where students are asked to analyse and interpret data, and opportunities for them to monitor, assess and receive feedback on their progress regarding these skills. If, as an outcome, students are expected to be able to construct a written argument based on particular discipline conventions, then they will need to be taught the skills involved and engaged in activities that allow them to practise and refine those skills.

Bringing it all together

You might like to download a planning table to bring the various aspects related to learning outcomes together. [Note: the table is provided in both A4 and A3 format. A3 will give you more table cell space to add information.] The table links learning outcomes with graduate attributes, assessment tasks, and teaching and learning strategies/activities.

[Table in A4 format](#)

[Table in A3 format](#)

Mapping learning outcomes relationships for your unit

Course:	Code:	Undergraduate <input type="checkbox"/> Postgraduate <input type="checkbox"/>
Unit:	Code:	Year: 1 <input type="checkbox"/> 2 <input type="checkbox"/> 3 <input type="checkbox"/> 4 <input type="checkbox"/> 5 <input type="checkbox"/>

Graduate attributes [generic and/or course/discipline- specific]	Learning outcomes	Teaching & learning strategies/activities	Assessment tasks

Course-specific graduate attributes (‘Exemplars’)	Learning outcomes	Teaching & learning strategies/activities	Assessment tasks