WRITING LEARNING OUTCOMES

A practical guide for academics

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Introduction

This handbook is specifically designed to support academics to develop and design learning outcomes for their courses. This handbook presents succinct and practical information for academics interested in learning more about learning outcomes by providing some general background information on learning outcomes, their function and some practical strategies for how to start thinking about and writing them.

This handbook is designed to:

- provide an introduction to the main concepts related to learning outcomes and course design, such as aims, goals, taxonomies, learning objectives, learning outcomes and constructive alignment;
- provide a succinct presentation of the most commonly used taxonomies of learning and their use in writing learning outcomes; and
- provide a guide to designing learning outcomes that are aligned with course aims, able to inform selection of content, development of teaching strategies, design and selection of teaching materials (and resources).

Why learning outcomes?

An outcomes-based approach presents a range of advantages for those who teach and design courses in higher education. For example, they bring clarity, precision and transparency to curriculum design, teaching practice and assessment.

The shift to learning outcomes opens course design to better curriculum alignment and accountability in teaching and learning. Well-designed learning outcomes bring clarity of expectations for student performance, and open up new possibilities for increased student satisfaction.

Learning outcomes and taxonomies of learning are now central for teaching and learning in higher education. They provide possibilities to achieve what is commonly called 'curriculum alignment'. Curriculum alignment involves organising curriculum in a coherent structure with aims, learning outcomes, teaching strategies, content and assessment all aligning in order to improve both the coherence of curriculum and student learning.

What are learning outcomes?

As suggested by the terminology, learning outcomes are statements of desired results of learning that are expressed in words that make it clear how measurement can be achieved. Therefore, learning outcomes provide a basis for measuring and reporting on student achievement. Nusche described learning outcomes as 'personal changes or benefits that follow as a result of learning', noting that these changes or benefits 'can be measured in terms of abilities or achievements' (Nusche, 2008).

Learning outcomes can be succinctly defined as statements of what a learner is expected to know, understand, and/or be able to demonstrate after completion of a process of learning. A relevant and comprehensive definition of learning outcomes can also be found in the Australian Qualifications Framework (AQF):

> The learning outcomes are constructed as a taxonomy of what graduates are expected to know, understand and be able to do as a result of learning. They are expressed in terms of the dimensions of knowledge, skills and the application of knowledge and skills.

> (The AQF Second Edition January 2013, p. 11)

The AQF – the national policy for regulated qualifications in Australian education and training – places an explicit focus on learning outcomes, structured in a taxonomic framework. In addition to the AQF providing a definition of learning outcomes it also introduces key concepts related to outcome-based course design. The aim of the AQF in encouraging the Higher Education sector to use learning outcomes, is to 'enable consistency in the way in which qualifications are described as well as clarity about the differences and relationships between qualification types.' (AQF, 2013).

The focus in recent years on learning outcomes represents a shift from the traditional 'teacher-centred' approach, where the common practice was to design courses starting from the content or what the teacher was to deliver in a certain amount of time, to a 'student-centred approach'. In the student centred approach the focus is shifted towards what students are expected 'to know, understand, and/or be able to demonstrate after completion of a process of learning' (Vlasceanu et al., 2004, p. 42).

Learning outcomes have the potential to improve course design and quality in higher education. The writing and use of learning outcomes shifts the focus to effective learning and teaching and can lead to greater transparency for students and all stakeholders involved in higher education. Learning outcomes can serve as a general organising principle for practice in learning and teaching and encourages a shift to student-centred pedagogies. They open possibilities for diverse assessment practices that are able to connect curricula to new contexts created by the fast pace of change in technology and workforce demands.

However, the task of writing learning outcomes is not an exact science and requires careful consideration and reflection before implementation. The advantages of learning outcomes for a clear and transparent curriculum design remain passionately disputed by some scholars. The main accusation against this shift in higher education is that learning outcomes bring a dangerous move of emphasis from learning to outcomes, leading to a utilitarian ethos and the marginalisation of significant learning. There is also concern that the move to learning outcomes has resulted in a loss of considered discussion of the kinds of knowledge that are important in education (for example see Biesta 2009; Young 2009). Transparency in design and assessment is also disputed by scholars looking at specific difficulties in wording learning outcomes (Hussey and Smith, 2002).

Critical views also point out that the prescriptive nature of learning outcomes may lead to a utilitarian and simplistic perspective of what higher learning means. Such formalisation of learning is seen by critics to lead to adverse effects for students, their academic pathways and

professional future. As Bennett and Brady note, there *'is a danger to students because it pretends that their problems have more to do with easily quantifiable outcomes'* (Bennett and Brady, 2012, p. 41).

It is important to take into consideration these risks and critical points when we design and write learning outcomes. Teaching and learning should stay flexible and consistent with a pedagogic ethos that encourages scholarship, creativity and the unrestricted pursuit of ideas. No one approach has the ability to solve the complexity that is good curriculum, teaching and learning. Nevertheless, the shift towards learning outcomes aims to improve learning and in this sense, students, academics, course designers and policy makers can use learning outcomes as a starting framework for teaching, learning and assessment.

What is the difference between aims, learning objectives and learning outcomes?

The structural distinction between learning objectives and learning outcomes is that learning objectives relate to learning from a teachers' point of view and are closer to a teacher-centred approach, while learning outcomes refer to what a student will be able to do as a result of learning, hence are sources of evidence in the student-centred approach.

- **Aims** or **goals** in teaching and learning are broad sentences reflecting general intentions and desired outcomes of an institution, program or course.

  These important statements stay clearly distinct from learning outcomes. Aims serve the important function to indicate and promote the main values and general directions that guide the process of teaching and learning.

  Aims reflect vision and general intentions, and the overall desirable results.

  > *Example: Curriculum and teaching practices aim to link students' learning experiences to the world graduates will confront.*

- **Learning objectives** refer to teachers' intentions for learners, such as what students will be taught during the course or program.

  It is important to note that learning objectives reflect what teachers do.

  > *Example: Students will be taught the conceptual and theoretical tools used in reasoning and problem solving, such as statistics, probability, logic, and decision theory.*

- **Learning outcomes** are statements of what a student will be able to do or demonstrate at the completion of a certain sequence of learning (course, program).

  Learning outcomes are mainly concerned with the achievements of the learner and less with the intentions of the teacher.

  Learning outcomes inform students of what is expected of them in terms of performance, to achieve desired grades and credits.

  > *Example: At the end of the course students will be able to demonstrate the ability to use mathematical and statistical techniques relevant to the business subjects taught.*

Learning taxonomies and a list of useful verbs to design learning outcomes

Taxonomies help us answer some key questions on learning, teaching and curriculum structure: 'What do we want students to learn?', 'Why do we want them to learn that?' and 'How can we know that they learn that?'. Learning taxonomies are the source of learning outcomes and facilitate the shift from a teacher-centred approach to a more student-centred approach, focused on learning.

The meaning of the term taxonomy originates from the Greek 'taxis' ('arrangement') and 'nomia' ('distribution'). In their current understanding, taxonomies represent 'distribution by categories' or, simply said, 'classifications'. Learning taxonomies are a classification able to organise the knowledge, skills, values or behaviours that teachers aim to teach. Learning taxonomies are used to organise different stages of learning development, providing a practical framework for selecting the appropriateness of specific learning outcomes for courses at different levels of complexity.

In education, the most well known taxonomy is that developed by Bloom in the 1950s with its three main domains: Cognitive, Affective and Psychomotor. The hierarchy of cognitive processes involved in learning has received most attention and was further developed to capture and organise the process of learning, in a hierarchical structure. Since Bloom published in 1956 his taxonomy of learning a number of scholars have developed different models, which are hierarchical or cyclical. (see Appendix 1 for further examples of taxonomies).

Bloom's taxonomy of educational objectives has been repeatedly revised and developed over time, most notably in 2001 by Anderson and Krathwohl. This taxonomy is used to classify educational goals, learning outcomes and standards, and provides a framework suitable to structure learning and teaching in a more transparent and efficient manner. The example below reflects this taxonomy and useful verbs that can be used to design learning outcomes.

Type of learning	Verbs
Knowledge (recalling facts)	state, identify, select, define, name, match, quote, cite, report, deliver, write, relate, perform, identify, indicate, list, name, recall, recognise, select, state, recount, illustrate
Comprehension (capacity to see and understand relationships)	associate, convert, compare, outline, translate, summarise, arrange, defend, discuss, describe, distinguish, estimate, explain, interpret, infer, demonstrate, outline, report, restate, review, suggest
Application (use of knowledge)	apply, determine, illustrate, restructure, solve, use, change, develop, employ, construct, demonstrate, discover, dramatise, employ, illustrate, interpret, investigate, conduct, modify, operate, organise, classify, practice, predict, prepare, produce, schedule, sketch, solve, translate

Type of learning	Verbs
Analysis (deconstruction and investigation of knowledge)	analise, examine, differentiate, examine, distinguish, categorise, question, summarise, research, categorise, differentiate, compare, critique, relate, select, debate, determine, probe, structure, discriminate, experiment, distinguish, identify, question, solve, test
Synthesis (combining information into a new connected unit of knowledge)	combine, assemble, compose, create, unify, formulate, design, integrate, propose, synthesise, adapt, rearrange, compile, construct, devise, explain, generate, plan, restructure, collate, systematise, propose, rearrange, reconstruct, systemise, relate, reorganise, revise
Evaluation (judging the value or appropriateness)	evaluate, assess, critique, rate, score, conclude, criticise, judge, defend, validate, prioritise, disprove, criticise, discriminate, estimate, contrast, revise, grade, justify, interpret, measure, calculate

Table 1. Bloom's Taxonomy

Practical strategies for writing learning outcomes

There is no pre-determined structure for learning outcomes, as their final form is always dependent on what students are expected to achieve in every specific course or program. However, there are some key elements that should be observed in writing learning outcomes. Below are some suggestions that may assist in writing intended learning outcomes.

In writing learning outcomes:

- Think about what students should be able to know or do upon successful completion of the course. The writer should focus on learning outcomes that precisely indicate what main skills, abilities and knowledge will be acquired by students at the completion of the unit of learning.
- Start with a clear statement. The writer can start with the sentence: *'On completion of this (subject/course/program), students should be able to... (demonstrate/express/design etc.)'*
- Write learning outcomes in the future tense and choose a verb, from a taxonomy (eg Bloom's above or see Appendix), able to describe most precisely the intended outcome. It is recommended to use only one verb appropriate both to the level and the discipline to structure each outcome.
- Avoid verbs susceptible to different interpretations of what actions they require. This type of verb indicates in general behaviours that cannot be objectively measured (e.g. know, understand, become aware of, appreciate, learn, become familiar with, think etc.)
- Write clear, simple and concise sentences that can be understood by students, peers, internal and external bodies.

- In writing learning outcomes it is important to keep in mind that we assess what is taught. Find learning outcomes that are a source of objective data for assessment, indicating clearly what learners have to understand, know and/or be able to do. All learning outcomes have to be observable and measurable. Also consider whether the learning outcomes encourage the use of a diverse range of assessment methods and encourage both formative and summative assessment.

  Tip: Use a verb able to lead to assessment tasks suitable to reveal for any objective evaluator what the student knows or is able to do or demonstrate at the required level (e.g. define, describe, compare, apply, determine, demonstrate, explain, analyse, question, critique, create, design, assess, test, generate, devise etc.)

- Look for learning outcomes that can collectively lead to the achievement of the aims of the program and are aligned with graduate attributes and university values.

- Ask colleagues or students to review your learning outcomes to ensure that they are clear, specific, unambiguous and aligned to the course level.

The use of verbs specific to different levels included in this guide facilitate the design of meaningful learning experiences for students, increase transparency and alignment to standards for quality in teaching and learning.

Some common issues

In the complex task of learning and teaching, in planning a new course, subject or program it is possible to make some routine errors that will affect the function of learning outcomes and their positive impact. The list below addresses some common routine errors in writing learning outcomes able to guide teaching, learning and assessment:

- Learning outcomes are mentioned or written as learning objectives. Learning outcomes describe what students are able to do after the completion of a process of learning, while learning objectives relate to what teachers intend to do during and before the completion of this process;

- A learning outcome statement is too specific and fragmented for the course/subject level. The language may be too prescriptive and detailed, indicating various tasks related to a lecture rather than a course;

  Example: 'On successful completion of this course students should be able to communicate findings using a common format in a poster session'. This is a specific task that can be placed under a general learning outcome which is relevant for communication skills.

- A learning outcome statement is composed of multiple sentences or includes many verbs (several learning outcomes are presented as one statement). This impacts on the transparency and clarity of expectations. Learning outcomes should be clearly assessable, written in terms that enable testing of whether or not the student has achieved the specific outcome at the required standard. This problem can be addressed by finding a single verb that can optimally express the intended learning outcome.

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1   Graduate attributes summarise the set of values, knowledge and skills that students develop during their time at the university.

- The use of a 'weak' verb for learning outcomes. Stating learning outcomes in high general terms such as 'learn' or 'understand' is not helpful to set up objective and effective assessment tasks.

  Example: *'Students will be able to understand statistical indicators from planning reports and professional publications' can be reworded: 'Students will be able to explain the use of statistical indicators in the context of reports and professional publications'.*

- State unrealistic learning outcomes. Learning outcomes should be balanced in terms of the time, level and resources available to students for successful completion.

- Include learning outcomes that will not (or cannot) be assessed. When writing learning outcomes it is important that they should align with assessment: all learning outcomes should be assessed.

How many learning outcomes?

The number of learning outcomes will always vary according to the level of study, award-type and desired outcomes. Therefore, there is no set or good number of learning outcomes for a subject or course. The only valid criteria is to set the number of learning outcomes able to support and enhance learning and provide optimum alignment with content, resources (e.g. time allocated for study) and forms of assessment.

It is important to have a sufficient number of learning outcomes to secure adequate information for comprehensive assessment, able to demonstrate achievements in learning and provide information for improvements in teaching and course design. Too many learning outcomes can be a source of confusion for students in terms of specific expectations for the successful completion of a course/program and can diminish the capacity to orient teaching to achieve specific outcomes of learning. In conclusion, it is important to set a balanced number of learning outcomes, in line with your overall aims and the level of study.

Learning outcomes and constructive alignment

Statements of intended learning outcomes for each course of study are informed by the overall aims of an institution of higher education, program, subject or course. They are informed and should align with the generic skills and attributes required of graduates and their context within the field of study.

Standards or requirements for employment related to the field of study may inform the intended learning outcomes. Learning outcomes should relate to the assessment criteria and should be assessable. The clarity of learning outcomes not only impacts on student engagement, but also impacts on the perceived equity of assessments and student engagement in learning (on how students perceive assessment as being fair and equitable).

There is an intrinsic link between aims, teacher's goals, course content, learning experiences, teaching strategies and assessment. Teaching strategies are also designed in direct correlation to assessment processes. Course design and teaching should provide various opportunities to enable students to learn the knowledge and skills required to be successful in that course.

The graphical representation below presents a model of this cycle that can be used by policy makers, course designers and teaching practitioners for quality assurance, improvement of course design and teaching practice for student engagement in learning.

Constructive alignment reflects the shift to outcomes-based education. It facilitates the use of learning outcomes as an integral part of a cycle designed to secure an ongoing improvement of teaching and student experience and learning.

In Australia, the national agency of quality assurance (TEQSA) take as a point of reference the Higher Education Standards Framework (Final Proposed Higher Education Standards Framework - Advice to the Minister. Australian Government, Department of Education and Training, 2014), which specifically indicates that assessment is effective if methods of assessment remain *'consistent with the learning outcomes being assessed, are capable of confirming that all specified learning outcomes are achieved and that grades awarded reflect the level of student attainment'* (item 1.4.3, p. 8). Therefore, it is important to design learning outcomes in alignment with assessment tasks and teaching strategies, and to create opportunities for students to use learning experiences to achieve measurable outcomes.
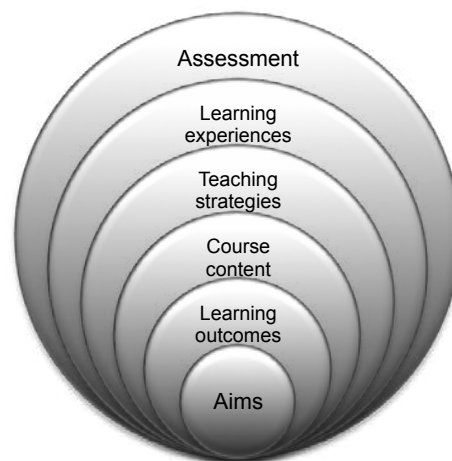
A graphical representation of how learning outcomes can be used in practice to fine-tune and enhance quality of teaching and learning is presented in the image below:
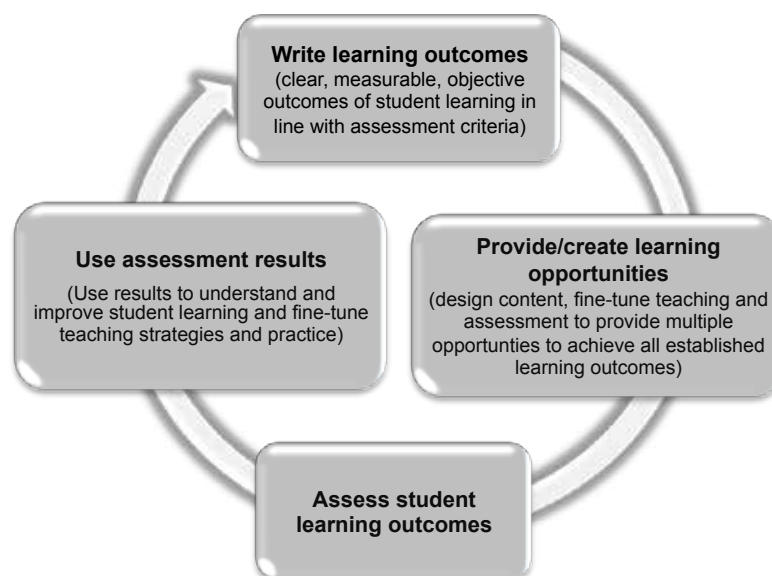
Practical examples of learning outcomes

Level: graduate (research higher degree)

Upon completion of the degree the candidate will be able to:

- demonstrate a critical understanding and mastery of architectural and design theories
- demonstrate independent research methodologies at an advanced level
- develop and express their own design position in an effective and lucid manner
- exhibit an advanced understanding of the philosophical and ideological discourses underpinning design theories.

Level: Graduate

On successful completion of this subject, students should be able to:

- Apply research skills and specialist knowledge in new contexts;
- Analyse leadership structures in a range of contexts from a variety of different perspectives;
- Identify and develop key learning and leadership strengths in themselves and their peers;
- Communicate effectively to non-specialists.

On successful completion of this subject, students should be able to:

- Analyse and integrate the key findings from research findings into a coherent story about the major influences on student and teacher learning.
- Understand and apply how to reflect on the evidence of impact in a school
- Understand and apply program logic, degree of implementation, and evaluating effects of interventions
- Critically evaluate the empirical research that studies impact in schools
- Develop tools for using to evaluate impact in multiple situations

Level: undergraduate

On completion of this course, students should be able to:

- define core economic terms, concepts and theories.
- demonstrate the ability to apply economic reasoning to contemporary social and economic issues.
- use quantitative and statistical techniques.
- analyse critically, evaluate and convey information on the use of complex financial products, services and financial instruments
- critically evaluate professional accounting and business issues emerging from strategic developments in practice and accounting regulation

Checklist to self-evaluate your learning outcomes

The following list of items can be used to self-evaluate a list of intended learning outcomes:

☐ Learning outcomes are clearly stated, in clear and unambiguous language.

☐ All learning outcomes clearly indicate what the students should learn.

☐ All learning outcomes use one verb that is aligned to the level of the course/program.

☐ The learning outcome is significant and meaningful in the long term.

☐ Learning outcomes provide a guide for the development of learning activities, teaching and assessment.

☐ All intended learning outcomes can be assessed effectively – you can envision assessment tasks able to achieve this.

☐ Learning outcomes are aligned to the level of study, faculty and university strategic priorities and values.