



Writing learning outcomes

The key criterion for choice of assessment methods must be curriculum alignment, in which assessment tasks relate, in mode and substance, to unit learning objectives.

Learning outcomes represent the translation of the teacher's design aims into specific, tangible, attainable learning achievements for students, usually expressed as observable demonstrations of what students know, are able to do, or are able to accomplish. Learning outcomes are those specific outcomes which are observable through students' performances and which constitute the basis on which assessments are made of students' achievement.

Learning outcomes represent a critical part of the means through which a curriculum becomes 'constructively aligned' because they are a pivotal link between teaching intentions and the assessment of student learning. Biggs' (2003) principle of constructive alignment depicts all aspects of teaching working in a mutually supportive way: the curriculum, the teaching and learning methods, the assessment processes, the atmosphere in the classroom (real or virtual), the interactions between teachers and students, and the institutional climate.

Writing your learning outcomes is a great place to start in designing your unit around the principles of alignment.

Conceptualising learning outcomes

Learning outcomes are specific and clear statements of what students are expected to learn and able to demonstrate at the completion of their program of study (Ramsden, 2003). Through their study, students learn many things: knowledge, skills, abilities, values and attitudes. All these 'learnings' can represent learning outcomes which can be explicated as broad degree outcomes, or as more specific unit-level outcomes.

A statement of learning outcome clarifies intention, but is squarely focussed on the learner. It is performance-oriented, typically beginning with an action verb (e.g. 'demonstrate', 'apply'), typically written in the future tense, typically relating the action to the unit content, and typically specifying the desired level of performance. A learning outcome should be a clear statement of what the learner is expected to achieve and how he/she is expected to demonstrate that achievement. Usually, there would be a limited number of learning outcomes statements for a unit of study, for example 5 or 6, rather than a vast number of very specific statements.

An effective set of learning outcome statements informs and guides both teachers and students.

For teaching staff, learning outcomes inform:

- the content of teaching
- the teaching strategies used
- the sorts of learning activities/tasks students will undertake
- the assessment tasks set
- how the learning will be assessed
- For students, learning outcomes provide:
 - a solid framework to guide their studies and assist them to prepare for assessment
 - a point of reference with regard to their own development of course and/or university-level graduate attributes.

Designing learning outcomes

The best learning outcomes are written in terms of what students will be able to do and demonstrate as a result of learning in a unit of study. They therefore need to be observable in a way that can allow differentiation between poor and excellent achievement against standards which have been articulated. They should be general enough to capture important learning, but clear and specific enough to be assessable.

Types of learning

Analysing learning at its different levels of cognitive complexity is a useful way of considering learning outcomes for a unit of study. Bloom's taxonomy (Bloom, 1956) provides an accessible framework for describing learning outcomes according to different levels of cognitive complexity starting from 'factual knowledge'. Bloom's original taxonomy has been usefully extended by Anderson and Krathwohl (2001) to include a 'creation' category to the cognitive process dimension and a 'knowledge' dimension to differentiate amongst different types of knowledge. The matrix can be used to make explicit the learning outcomes within the assessment design of units of study.

The Knowledge	The Cognitive Process Dimension
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Dimension	Remember	Understand	Apply	Analyse	Evaluate	Create
Factual Knowledge						
Conceptual Knowledge						
Procedural Knowledge						
Meta-cognitive Knowledge						

The language of learning outcomes

The **cognitive process dimension** on the grid can be used to classify the outcomes you intend for your students, and therefore inform your choice of verbs in describing these:

Remember means to retrieve relevant knowledge from long-term memory. Verbs include *recognise, recall*.

Understand is defined as constructing meaning from instructional messages: oral, written or graphic. Verbs include *interpret, exemplify, classify, summarise, infer, compare, contrast, translate, map, explain*.

Apply means to carry out or use a procedure in a given situation. Verbs include *execute, implement*.

Analyse means to break material into parts and determine how they relate to each other and to the overall structure or purpose. Verbs include *differentiate, organise, attribute, synthesise, distinguish, deconstruct*.

Evaluate means making judgements based on criteria and standards. Verbs include *check, critique, judge, test, monitor, review*.

Create means pulling elements together into a new pattern or structure. Verbs include generate, design, hypothesise, construct, plan, *produce*. (Anderson & Krathwohl, 2001)

The **knowledge dimension** contains the four major types of knowledge you might intend your students to use:

Factual knowledge is knowledge of discrete elements of content, including knowledge of terminology or of specific details or elements.

Conceptual knowledge is knowledge of more complex, organised forms such as classifications, categories, principles or generalisations, theories models and structures.

Procedural knowledge is the knowledge of how to do something, including the use of skills and algorithms, techniques and methods. This category also includes knowledge of 'when to do what'.

Meta-cognitive knowledge is a meta understanding; that is, the learner knows what they know and don't know and knows what to do to come to know. It is both self-knowledge and strategic knowledge (Anderson & Krathwohl, 2001).

Higher order learning

Engaging students in their learning is highlighted by many authors as central to effective learning. Involving students in authentic tasks requiring higher order thinking skills such as analysis, synthesis, evaluation and creation has been shown to engage students in more active and productive learning. Higher order learning should be the hallmark of all university learning.

Designing an aligned curriculum

In an aligned curriculum, all components in the teaching system – the intended learning outcomes, the teaching methods used, the resources to support learning, and the assessment tasks and criteria for assessing learning – are aligned and facilitate the achievement of the intended learning outcomes.

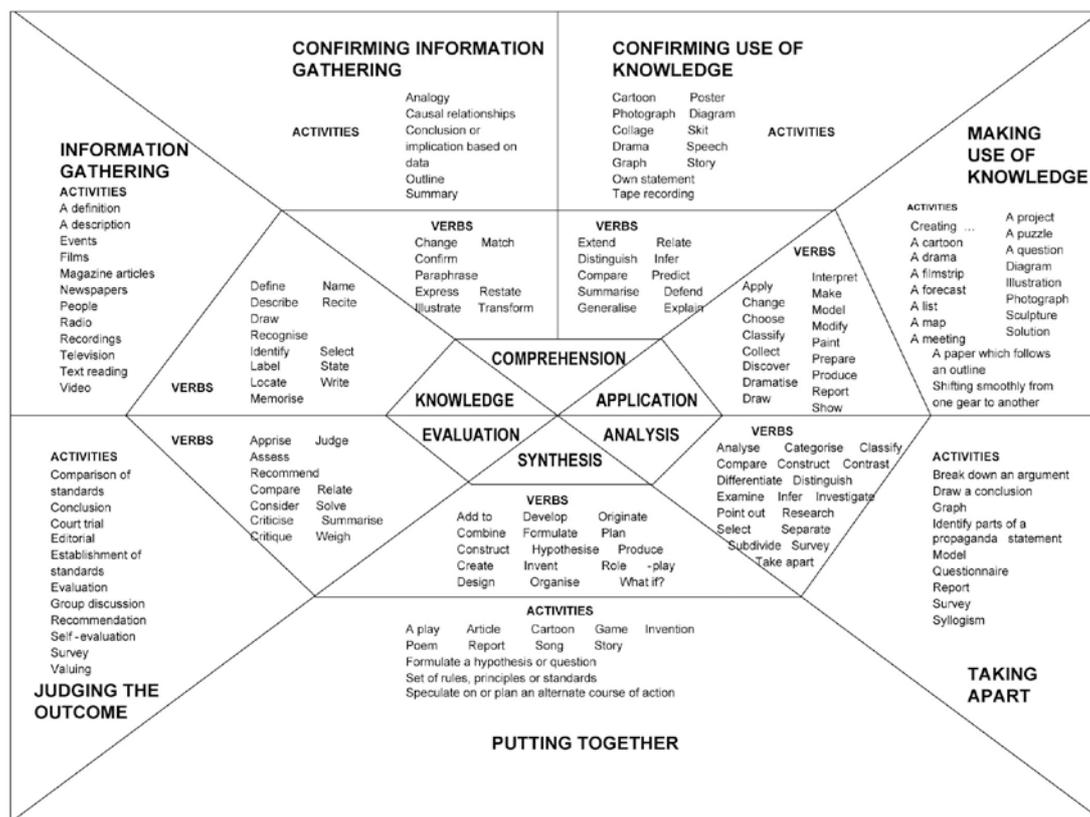
The main steps in the alignment process are:

1. Defining the intended learning outcomes (which determine the teaching and curriculum objectives – the steps we take to achieve the learning outcomes)
2. Choosing teaching/learning activities likely to lead to, help and encourage students to attain these intended learning outcomes
3. Engaging students in these learning activities
4. Assessing what students have learnt using methods that enable students to demonstrate the intended learning and, in the case of formative assessment, giving feedback to help students improve their learning
5. Evaluating/judging how well students match learning intentions: a process that is guided through explicit and manageable criteria
6. Awarding marks/grades in line with these judgements (Jackson, Wisdom & Shaw, 2003)

Learning outcomes and assessment

Constructing effective learning outcome statements will also help you in designing meaningful and engaging assessment tasks. If the outcomes are designed in such a way that they indicate what students will be expected to demonstrate at the end of the unit of study, it is easier to determine assessment tasks which allow students to demonstrate their understandings, skills or attitudes.

A useful way of conceptualising the relationship between learning outcomes and the selection of appropriate assessment tasks is represented in the diagram of the “task-oriented question construction wheel” (St Edward’s University, 2004), based on Bloom’s original taxonomy. You can use this wheel to identify assessment tasks which align with learning outcomes at different levels of cognition.



Task-Oriented Question Construction Wheel based on Bloom's Taxonomy © 2004 St Edward's University Centre for Teaching Excellence

References and useful links

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