Aligned Teaching: start with the student

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# Objectives of this 4-part training series

After successful completion of this 4-part workshop series, participants should be able to:

* Apply models for aligned teaching when designing learning
* Write effective learning objectives based on Bloom’s taxonomy
* Plan and carry out appropriate learning activities to support the objectives
* Consider learning objectives appropriately when designing assessments

# Series description

Aligned teaching is a core principle recognised across the HE sector and highlighted in the [**QAA Quality Code, Advice and Guidance: Assessment**](https://www.qaa.ac.uk/quality-code/advice-and-guidance/assessment). When learning outcomes, activities, and assessment are well aligned, it can have a dramatic impact on student learning and make it easier for the teacher to design the learning experience.

It all starts with the student: what should they to be able to do after completing the lesson, module, or study scheme? In these interactive sessions, we explore the options for designing aligned teaching to create meaningful learning experiences that help students learn.

As with most aspects of informed teaching, there is no 'one right way' to design or assess student learning. The aim of these activities is to give you the tools to make informed choices for your own teaching context.

Please note that each workshop in this linked series requires a short preparation task. This allows us to spend time during the workshop on applying the principles to your real teaching contexts.

# Key concepts

* Well-written learning outcomes make it easy to plan teaching
* Tell what students will be able to do after the session
* Focus on concrete actions, not ‘demonstrate a knowledge of (topic)’
* Aim for the highest levels possible on Bloom’s taxonomy

# Constructive Alignment

John Biggs defines [**constructive alignment**](https://www.heacademy.ac.uk/system/files/resources/id477_aligning_teaching_for_constructing_learning.pdf) this way:

'Constructive alignment' starts with the notion that the learner constructs his or her own learning through relevant learning activities. The teacher's job is to create a learning environment that supports the learning activities appropriate to achieving the desired learning outcomes. The key is that all components in the teaching system - the curriculum and its intended outcomes, the teaching methods used, the assessment tasks - are aligned to each other. All are tuned to learning activities addressed in the desired learning outcomes. The learner finds it difficult to escape without learning appropriately.

# Understanding by Design / Backward Design

Like constructive alignment, backward design focusses on aligning the outcomes, activities, and assessment to design an integrated learning experience. This method focusses on teaching for understanding and transfer and the use of backward design when planning teaching.

Bowen (2017) summarises the key principle of backward design as follows:

Our lessons, units, and courses should be logically inferred from the results sought, not derived from the methods, books, and activities with which we are most comfortable. Curriculum should lay out the most effective ways of achieving specific results… in short, the best designs derive backward from the learnings sought.

Based on Wiggins & McTighe (2011), the backward design process can be illustrated as follows:

# Bloom’s Taxonomy of Learning Objectives

Bloom’s Taxonomy outlines a hierarchy of functions in the cognitive domain. Each level includes all the levels beneath it – you can’t evaluate something without knowing the facts, understanding them, being able to apply a principle to a new situation, etc. There is an updated version of the taxonomy. The change is to reverse the two top categories, renaming Synthesis as Create, and rephrase the nouns into verbs. [**Vanderbilt University’s Bloom’s Taxonomy page**](https://cft.vanderbilt.edu/guides-sub-pages/blooms-taxonomy/) explains both.

## Updated version

1. create
2. evaluate
3. analyse
4. apply
5. understand
6. remember

## Original version

## Challenges of Bloom

Most of the taxonomy is straightforward, but the **Comprehension** level is a challenge to apply well. This is where staff often fall back on ‘demonstrate an understanding of’ in their learning objectives. This begs the question – what does a student **need to do** to demonstrate this understanding? In our modules database, there are a lot of objectives written in this language. This can lead to lectures that simply tell students a list of facts and tests that only require students to regurgitate the lectures without learning anything. Yes, they need facts, but they need to be able to use those facts to carry out a task. If the learning objectives are specific about what students are expected to do with the facts, it is easier to design the learning activity and assessment. Appropriate objectives make it easier to design effective learning activities and assessments.

# How we use it

As a baseline for higher education, we should aspire for students to take the principles we are teaching and **Apply** them to a new situation. Rather than asking participants to ‘demonstrate a knowledge of (topic)’, think instead about what concrete actions and decisions they should be able to take, such as **Analyse** a data set and draw sound conclusions from it, or **Evaluate** contrasting arguments or explanations and explain why a particular one is more persuasive. They could ‘make an informed decision’ about how best to approach a problem scenario, which reaches the **Evaluation** level. [**University of North Carolina, Charlotte’s Course Objectives page**](https://teaching.uncc.edu/services-programs/learning-resources/course-design/writing-measurable-course-objectives) gives an easy formula for writing learning objectives. [**University of Nottingham’s guide**](https://www.nottingham.ac.uk/teaching/documents/guidance/lo-guidance.pdf) is also excellent.

# Designing assessment - think outside the box

Consider alternatives to the standard options.

|  |  |
| --- | --- |
| * Essay / Report * Exam * Presentation * Lab report | * Reflective journal * Video / digital story * Poster * Group role-play / project * Self and peer assessment * Scenario-based project * Web site / blog / wiki * PhD by interpretive dance (!) |

## Tips for meaningful marking criteria

Again, marking criteria should be pinned to the learning outcomes. Give students the marking criteria in advance - this helps demystify the assignment brief and makes it easier for students to carry out the task successfully.

There are a number of **forms that marking criteria can take**, which vary across different departments and disciplines. Some departments use a pre-filled-in grid or rubric with descriptors of each criterion at each level, while others use a list format or a sliding scale. There is no single ‘right’ approach, so I'd advise finding the format that most closely matches your department's existing practice.

## Seven Principles of Feedback (2009)

These principles are from [**REAP report**](http://www.reap.ac.uk/reap/public/Resources/fb_principles.pdf) (Re-engineering Assessment Practices in Higher Education, 2009):

1. Helps clarify what good performance is (goals, criteria, expected standards);
2. Facilitates the development of self-assessment (reflection) in learning;
3. Delivers high quality information to students about their learning;
4. Encourages teacher and peer dialogue around learning;
5. Encourages positive motivational beliefs and self-esteem;
6. Provides opportunities to close the gap between current and desired performance;
7. Provides information to teachers that can be used to help shape the teaching.

## Jisc Seven Principles of Good Assessment and Feedback (2022)

The Jisc [**Principles of good assessment and feedback: How good learning, teaching and assessment can be applied to improving assessment and feedback practice**](https://www.jisc.ac.uk/guides/principles-of-good-assessment-and-feedback) (2/3/2022) are consistent with the Aberystwyth University APEX learning and teaching strategy.

1. **Help learners understand what good looks like** by engaging learners with the requirements and performance criteria for each task
2. **Support the personalised needs of learners** by being accessible, inclusive and compassionate
3. **Foster active learning** by recognising that engagement with learning resources, peers and tutors can all offer opportunities for formative development
4. **Develop autonomous learners** by encouraging self-generated feedback, self-regulation, reflection, dialogue and peer review
5. **Manage staff and learner workload** effectively by having the right assessment, at the right time, supported by efficient business processes
6. **Foster a motivated learning community** by involving students in decision-making and supporting staff to critique and develop their own practice
7. **Promote learner employability** by assessing authentic tasks and promoting ethical conduct

# Tips for using assessment and feedback to make learning stick

* Retrieval practice reinforces learning – better than just recognition practice
  + “Practice tests and spaced study are both highly potent for enhancing learning and memory. Combining these two methods under the conditions in which they are most effective (i.e., practice tests that invoke successful retrieval from long-term memory and spacing study across days) yields a promising learning technique referred to as successive relearning.” (Dunlosky & Sciartelli)
  + Interleaved and spaced practice helps students retain what they’ve learned
  + Incorporate retrieval practice into higher-order thinking – problem-solving task that requires them to retrieve prior knowledge
* Link learning outcomes/objectives to learning task and assessment
  + Use learning activity to develop skills targeted in LOs
  + Designing marking criteria to measure how well they use the targeted skills when performing the assessment tasks
* Feedback – Feed forward, make feedback useful for students in their future learning, teach them how to use it
* Authentic assessment – build your learning outcomes and assessment tasks around real-life tasks your students are likely to carry out in the future

## Sambell & Brown’s formula

Sambell and Brown set out a useful formula in their article, [**Writing better assignments in the Post-Covid19 era: approaches to good task design, Covid-19 Assessment Collection**](https://sally-brown.net/download/3179/)

We will work with their approach across several of the workshops in this series. I’ve rephrased their formula to create a brief version:

1. **Scenario** – authentic context for the assessment
2. **Verb** – keep this to one word and make it active
3. **Object** – the knowledge/material you want them to work with, the object of the verb
4. **Evidence** – what the student does to show that they’ve achieved the outcome
5. **Modifiers** – use if needed to provide more detail about achievement, these can form elements in your marking criteria

Below is an example from their article. Notice that elements B and C together make a complete sentence; and D and E together make a complete sentence.

|  |  |
| --- | --- |
| 1. **Context relevant to your subject area** | You are working for a social enterprise which is struggling to maintain momentum during the Corona19 crisis. |
| 1. **Verb/educational outcomes** | Interpret… |
| 1. **What? i.e. object** | …a range of complex and at times incomplete financial and other data. |
| 1. **Outcome/evidence of achievement** | Compile a meaningful summary leading to a forward action plan… |
| 1. **Modifiers/developments/ range statements (context specific)** | …that will give your funders confidence in your abilities to remain viable. |

## University Policy

Please see sections [**3.2 and 3.3 of the Academic Quality Handbook**](https://www.aber.ac.uk/en/academic-registry/handbook/taught-schemes/) for our university’s policies and procedures for assessment and feedback.

# Resources and references

* [**ABC Learning Design Toolkit**](http://blogs.ucl.ac.uk/abc-ld/home/abc-ld-toolkit/)
* [**Active Learning Network downloadable books and resources**](https://activelearningnetwork.com/publications/)
* [**AdvanceHE webinar on assessment**](https://advance-he.zoom.us/recording/play/1mBxNx0x1smwTi5lOmqt5Kw-D8beD7dtaHYv236fI4aLviasMM2LXP510HDRkntY?continueMode=true) (especially Kay Sambell’s talk on exemplar essays – 15 minutes into recording)
* Anderson, L. W., & Krathwohl, D. R. (2001). *A taxonomy for learning, teaching, and assessing: A revision of Bloom's taxonomy of educational objectives*. New York: Longman.
* [**Armstrong, P. (n.d.) Bloom's Taxonomy, Vanderbilt University Center for Teaching**](https://cft.vanderbilt.edu/guides-sub-pages/blooms-taxonomy/)
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* Biggs, J.B. (2003). *Teaching for quality learning at university.* Buckingham: Open University Press/Society for Research into Higher Education. (Second edition)
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* Bowen, R. S., (2017). [***Understanding by Design***](https://cft.vanderbilt.edu/understanding-by-design/). Vanderbilt University Center for Teaching.
* Carnegie Mellon University Eberly Center, "[**Creating and Using Rubrics**](https://www.cmu.edu/teaching/assessment/assesslearning/rubrics.html)".
* Disruptive Media Learning Lab, Coventry University, [**“L-E-A-R-N”, *Beyond flipped***](http://flipped.coventry.ac.uk/learn/)
* Ferrell, G. & Knight, S. (2022), [**Principles of Good Assessment and Feedback**](https://www.jisc.ac.uk/guides/principles-of-good-assessment-and-feedback), *Jisc*
* Nicol D. J. & Macfarlane-Dick, D. (2004). *Rethinking Formative Assessment in HE: a theoretical model and seven principles of good feedback practice*.
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* [**QAA Quality Code, Advice and Guidance: Assessment**](https://www.qaa.ac.uk/quality-code/advice-and-guidance/assessment)
* Reynolds, H., & Dowell Kearns, K. (2017) ‘[**A Planning Tool for Incorporating Backward Design, Active Learning, and Authentic Assessment in the College Classroom**](https://www.tandfonline.com/doi/full/10.1080/87567555.2016.1222575)’, *College Teaching*, 65:1, 17-27
* Sambell, K. & Brown, S. (17/8/2020) [**Writing better assignments in the Post-Covid19 era: approaches to good task design**](https://sally-brown.net/download/3179/), *Covid-19 Assessment Collection*
* UCD Teaching and Learning. [**Using Biggs' Model of Constructive Alignment in Curriculum Design**](http://www.ucdoer.ie/index.php/Using_Biggs%27_Model_of_Constructive_Alignment_in_Curriculum_Design/Introduction)
* [**University of North Carolina, Charlotte’s Course Objectives page**](https://teaching.uncc.edu/services-programs/learning-resources/course-design/writing-measurable-course-objectives)
* [**University of Nottingham’s guide**](https://www.nottingham.ac.uk/teaching/documents/guidance/lo-guidance.pdf)
* University of Strathclyde, Glasgow. (2009) [**Re-engineering Assessment Practices in Higher Education (REAP report)**](http://www.reap.ac.uk/reap/public/Resources/fb_principles.pdf)
* [**Vanderbilt University, Bloom’s Taxonomy**](https://cft.vanderbilt.edu/guides-sub-pages/blooms-taxonomy/)
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* Witthaus, G. [***Storyboarding for Learning Design***](https://artofelearning.org/resources/storyboarding/) *Open Online Course (OOC)*
* [**York Pedagogy**](https://www.york.ac.uk/staff/teaching/themes/theyorkpedagogy)
* [**Young, C. & Perović, N. (20/7/2016) Rapid and Creative Course Design: As Easy as ABC?, *Procedia - Social and Behavioral Sciences*, 228, pp. 390-395**](https://www.sciencedirect.com/science/article/pii/S1877042816309843)

# Activity

Here are some learning objectives from real modules and training sessions. Identify their level on Bloom’s taxonomy (**1 remember, 2 understand, 3 apply, 4 analyse, 5 evaluate, 6 create**). Remember that higher levels include the functions of the levels below them.

On successful completion of this module/training session, students should be able to:

* Discuss the functions, development and canonical status of Western landscape painting and photography.
* Identify a research problem or subject and design an appropriate research strategy.
* Use key terminology to classify, define and interpret works of art and visual culture.
* Carry out art historical research; assess and cite secondary sources.
* Explain the purpose and role of accounting and finance in different types of organization
* Use appropriate techniques for the recording, presentation, analysis and interpretation of ecological field data.
* Select appropriate hardware and systems software for desktop and server deployment
* Write about challenging literary texts in a critically-focused and well-structured manner.
* Plan a lecture that includes an appropriate balance of presentation and interaction, promoting student-centred active learning in a traditional classroom setting.
* Analyse a presentation to identify areas where structural adjustments (such as adding a summary slide, providing visual cues to topic transitions, etc) can reinforce student learning.
* Make an informed choice for using technology for marking student assignments.

Rephrase the learning objectives below, reaching as high as possible on Bloom’s taxonomy and using **active verbs**.

| **Original learning objective** | **Rephrased version** |
| --- | --- |
| List, describe, explain, illustrate, compare and contrast alternative approaches to accounting, costing, profit determination and budgeting. |  |
| Demonstrate knowledge of the adaptations to the environment of plants, animals and micro-organisms. |  |
| Demonstrate an awareness of literacy and numeracy needs in different contexts and different cultures. |  |
| Demonstrate critical engagement with relevant sources. |  |
| Demonstrate in both creative and evaluative writing, an understanding of a range of poetic practices. |  |
| (On completion of the module, students should have) An awareness of the fundamental principles of stratigraphy and the key personalities responsible for formulating them. |  |

# Looking at your own module critically

Look at the official module description of a module that you teach and apply these principles to evaluate and rephrase the learning objectives.

* Do the learning objectives use active verbs?
* How high do they reach on Bloom’s taxonomy?
* Are there any similar to ‘demonstrate a knowledge of (topic)’ that can be rephrased in more concrete language?
* How are they be related to real tasks that students should be able to carry out?

Have a go at translating one or more of the objectives into more concrete language below.

| **Original learning objective** | **Rephrased version** |
| --- | --- |
|  |  |
|  |  |
|  |  |