Enhancing learning through constructive alignment

Professor John Biggs

Open University 14 May, 2009
Outcomes-based Approaches

Three main forms of outcomes-based approaches. All focus on educational outcomes, each based on a different philosophy.

1. Outcome-based approaches at school level. Originally devised by William Spady for disadvantaged children, but later used generally e.g. Target Oriented Curriculum (TOC) for individualising teaching.

2. Outcomes-based approaches at institutional level, used for benchmarking, credit-transfer. Have little directly to do with enhancing teaching and learning.

3. Outcomes-based Approaches to Student Learning (OBASL). Defining learning outcomes at programme and course level, to enhance teaching and learning.
What the UGC said

“The UGC’s goal in promoting outcome-based approaches is simple and straightforward—improvement and enhancement in student learning and teaching quality.” (Alice Lam, May 05)

The UGC has asked local universities to show that they have thought through the "learning outcomes" they expect their students to achieve, and that they are organising educational experiences to enable students to achieve these outcomes. ...
Outcome-based Approaches to Student Learning (OBASL): the Intended Learning Outcome (ILO) is central

Teaching: To facilitate attaining the ILOs

ILO: What the student has to do

Assessment: How well the student has attained the ILOs
Implementing OBASL using Constructive Alignment

Teaching: Engaging the student in the verb in the ILO

ILO: What the student has to learn

Assessment: How well the student has met the ILO
## Constructive Alignment

### Intended Learning Outcomes (ILOs)

expressed as verbs students have to enact

<table>
<thead>
<tr>
<th>A</th>
<th>The very best understanding that could be reasonably expected: verbs such as hypothesise, apply to “far” domains, generate, relate to principle, etc.</th>
</tr>
</thead>
<tbody>
<tr>
<td>B</td>
<td>Highly satisfactory understanding: verbs such as explain, solve, understand main ideas, analyze, compare, etc.</td>
</tr>
<tr>
<td>C</td>
<td>Quite satisfactory learning, with understanding at a declarative level: verbs such as elaborate, classify, cover topics a to n,</td>
</tr>
<tr>
<td>D</td>
<td>Understanding at a level that would warrant a Pass: low level verbs, also inadequate but salvageable higher level attempts.</td>
</tr>
</tbody>
</table>

### Teaching / Learning Activities

- Designed to elicit desired verbs
- May be:
  - Large class activities
  - Small class activities
  - Teacher-managed
  - Peer-managed
  - Self-managed
- as best suits context

### Assessment Tasks

- Format such that the target verbs are elicited and deployed in context.
- Criteria clearly allow judgement as to the quality of the student’s performance.
Constructive alignment was born at HKU.

I was teaching psychology not so that the students could tell me what psychology they had learned, but how they could use psychology in order to teach better. They should be telling me if and how it had, not me telling them how I thought it should.

They placed their evidence and reflections in a portfolio.

Lecturing to them and giving them an MCQ was obviously irrelevant to the real aims of the course: teachers would use psychology to teach more effectively.
If students are to learn desired outcomes in a reasonably effective manner, then the teacher’s fundamental task is to get students to engage in learning activities that are likely to result in their achieving those outcomes... It is helpful to remember that what the student does is actually more important in determining what is learned than what the teacher does.

(Shuell, 1986: 429)
This is in fact a design for teaching:

1. Define the *intended learning outcomes* that refer not only to content to be learned, but what is to be done with that content and to what standards.

2. Create a learning environment that is likely to engage the student in *learning activities* that will bring about the intended outcomes.

3. Use *assessment tasks* that directly address the outcome and that enable you to judge if and how well students’ performances meet the criteria.

4. Transform these judgments into summative grades.
Intended Learning Outcomes (ILOs)

- Statements of what students are expected to be able to do after studying a course/programme.
- Expressed from the students' perspective.
- Expressed in the form of action verbs leading to observable and assessable behaviour.
- Related to criteria for assessing student performance.
Intended Learning Outcomes (ILOs)

University level
What are the attributes of an ideal graduate of Open U?

Programme level
What are the intended learning outcomes for students enrolled in the degree programme?

Course level
What are the intended learning outcomes for students taking a particular course at a particular level within the programme?
Distinguish the *kind* of knowledge you want

**Declarative** knowledge:
- Knowing *about* things
- Knowledge we can declare to someone in writing or telling
  e.g. ‘Distinguish between topic-based and outcomes-based teaching’

**Functioning** knowledge:
- Knowledge we *put to work* in solving a physics problem, analysing a case study, designing a building, making an argument
  e.g. ‘Write an ILO for a subject you are currently teaching’
Alignment with teaching and assessment is created by the verbs in the ILOs

- For example: “Explain the historical evolution of nursing science”

- Teaching is specifically aimed at activating the verb – students do the explaining, say to each other providing feedback from rubrics defining aspects of a good explanation. They don’t just listen to the teacher doing the explaining.

- Students should be unable to complete the assessment tasks unless they enact the same verb that is in the ILO. Students individually explain to the class how they see the historical evolution of nursing. The teacher, perhaps using peer assessment too, assess each on the same rubrics.

- Weak form of alignment: ‘congruence with’ ILO.
### Programme and Course ILOs

Alignment between the programme and course ILOs

<table>
<thead>
<tr>
<th>Programme ILOs</th>
<th>Course ILOs</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Course 1</td>
</tr>
<tr>
<td></td>
<td></td>
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<td></td>
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</tr>
</tbody>
</table>

1. **Are the ILOs aligned?**
2. **Do the course ILOs appropriately address the programme ILOs?**
3. **Are the weightings appropriate?**
4. **Are there any gaps?**
Procedures in designing Course ILOs

1. Decide what kind of knowledge is to be taught - *Declarative* or *functioning*.

2. Select the topics to be taught.

3. Decide the levels of understanding/performance the students are expected to achieve for the different topics.

4. Consider if all the ILOs are of equal importance.

5. Ensure a clear understanding and agreement of the ILOs within the teaching team and other relevant parties, e.g. External Reviewer.

6. Communicate the ILOs to students.
The SOLO Taxonomy with sample verbs indicating levels of understanding/performance

Prestructural | Unistructural | Multistructural | Relational | Extended Abstract
---|---|---|---|---
Competence

Incompetence aspect

Incompetence | Incompetent | Misses point

Prestructural | Unistructural | Multistructural | Relational | Extended Abstract

Competence

Identify

Name

Follow simple procedure

Combine

Describe

Enumerate

Perform serial skills

List

Analyze

Apply

Argue

Compare/contrast

Criticize

Explain causes

Relate

Justify

Create

Formulate

Generate

Hypothesize

Reflect

Theorize

..
Designing Teaching/Learning Activities (TLAs) to Align with Intended Learning Outcomes

Having designed Programme ILOs and the Course ILOs, we now need to design suitable Teaching/Learning Activities that will facilitate students achieving the ILOs. The best to do this is to activate the verbs or learning activities embedded in the ILOs.

NB: there are many alternatives to lectures and tutorials, even in large classes.
**Typical ILO**

<table>
<thead>
<tr>
<th>Describe</th>
<th>reading/lecture followed by presentation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Explain</td>
<td>tutorial, written essay</td>
</tr>
<tr>
<td>Integrate</td>
<td>project, assignment</td>
</tr>
<tr>
<td>Apply</td>
<td>project, case study</td>
</tr>
<tr>
<td>Solve problem</td>
<td>PBL, case study</td>
</tr>
<tr>
<td>Design, create</td>
<td>project, creative writing</td>
</tr>
<tr>
<td>Hypothesise</td>
<td>experiment, project</td>
</tr>
<tr>
<td>Reflect</td>
<td>reflective diary</td>
</tr>
</tbody>
</table>

*The point is not how you are going to teach but how and what you want your students to learn.*

*NOTE! Many of these TLAs can be assessments tasks as well. Then you have excellent alignment.*
Assessment Tasks (ATs)

- provide students the opportunity to demonstrate whether or not they have achieved the ILOs and what level their performance is in those ILOs.

- should be appropriately designed or selected to address the ILOs that we want to assess.

- different assessment methods (tasks) address different ILOs. There should therefore be several kinds of task.

- provide the evidence allowing teachers to make a judgment about the level of a student’s performance against the ILOs and to award a final grade.
Designing Assessment Tasks (ATs)

Steps:

1. Select a practicable task that embodies the target ILO verb. (Try the TLA first).

2. Develop grading criteria so that you can make a judgment on how well the ILO has been met by a student’s performance on each assessment task.

3. Decide how the graded performances can be combined to give a final grade.
Common ILOs

Describe

Describe essay question, exam, oral presentation (peer assessment)

Explain

Explain assignment, essay question exam, oral, letter-to-a-friend

Integrate

Integrate project, assignment

Analyse

Analyse case study, assignment

Apply

Apply project, case study, experiment

Solve problem

Solve problem case study, project, experiment

Design, create

Design, create project, experiment

Reflect

Reflect reflective diary, portfolio, self-assessment

Communicate

Communicate a range of oral, writing or listening tasks, e.g. presentation, debate, role play, reporting, assignment, precis, paraphrasing, answering questions etc.
Assessing quantitatively by using marks or qualitatively by using rubrics?
Assessing by Marks

For:

- Used to it.
- Seems to be the logical way to assess in certain courses.
- Logistically easy.

Against:

- Defines quality in terms of accumulating small quantities.
- Measurement error also accumulates, thus invalidating fine discriminations. E.g. there is no valid difference between 74 and 75, yet to the student it can make a BIG difference - an A or a B, or worse, a pass or fail.
- Sends undesirable messages to students (backwash).
Assessing by grading with Rubrics

For:

• Student’s performance is appropriately assessed against what they are intended to learn – *criterion-referenced*.
• Backwash is positive.
• The final grade tells students what they have achieved and what they need for a better grade.

Against:

• Requires a different mind set for some teachers.
• Initially more work in designing ILOs, suitable assessment tasks and rubrics, but once established is no more extra work than marking.
Qualitative assessment involves making judgments against criteria (rubrics), not by counting ‘marks’.

If ILOs are to reflect workplace or ‘real world’ standards it is not appropriate to state and assess them in terms of marks obtained.

Assessment tasks should likewise reflect the ‘real world’ ILOs.
Grading ILOs or Assessment Tasks?

Normally we grade the task (assignment, project, etc.) but logically we should grade the ILO directly.

Question becomes: how well did the student do in the ILO (explain ...; reflect ...; create ...), not on how well did the student do in the project, the exam, ...

The student’s transcript might then present a profile in terms of learning outcomes, which would probably be of more use to an employer than a GPA, or profile of marks.
### Some Rubrics for Direct Grading of ILOs

<table>
<thead>
<tr>
<th>ILOs</th>
<th>Marginal Pass</th>
<th>Satisfactory</th>
<th>Good</th>
<th>Excellent</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Explain</strong></td>
<td>D</td>
<td>C-</td>
<td>B-</td>
<td>A-</td>
</tr>
<tr>
<td>Able to identify and briefly write about</td>
<td>1.00</td>
<td>1.70</td>
<td>2.70</td>
<td>3.70</td>
</tr>
<tr>
<td>limited points.</td>
<td></td>
<td>2.00</td>
<td>3.00</td>
<td>4.00</td>
</tr>
<tr>
<td>Very little evidence of using these points</td>
<td></td>
<td>2.30</td>
<td>3.30</td>
<td></td>
</tr>
<tr>
<td>to provide reasoning to why they are</td>
<td></td>
<td></td>
<td></td>
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<tr>
<td>inter-related.</td>
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<td></td>
<td></td>
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<tr>
<td>Able to identify a number of relevant</td>
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</tr>
<tr>
<td>points with some details. Uses these</td>
<td></td>
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<td></td>
<td></td>
</tr>
<tr>
<td>points to provide a fair reasoning or</td>
<td></td>
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<tr>
<td>causality. No evidence of a comprehensive</td>
<td></td>
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<td></td>
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<tr>
<td>overview of reasoning or causality.</td>
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<tr>
<td>Able to identify a full range of relevant</td>
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<tr>
<td>points with details. Supported by relevant</td>
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<tr>
<td>literature. Points are organized to</td>
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<tr>
<td>provide a conditions. Able to link</td>
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<tr>
<td>current situations in real-life</td>
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<td></td>
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<tr>
<td>professional contexts.</td>
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<tr>
<td>Reflect</td>
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<td></td>
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<tr>
<td>Able to use available information to</td>
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<tr>
<td>self-evaluate and identify limited</td>
<td></td>
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<tr>
<td>aspects of own strengths and weaknesses</td>
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<tr>
<td>in a general sense. No evidence of</td>
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<tr>
<td>suggestions of ways to improve</td>
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<td></td>
<td></td>
</tr>
<tr>
<td>performance. No evidence of theory being</td>
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<tr>
<td>used in self-evaluation.</td>
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<tr>
<td>Able to use available information to</td>
<td></td>
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</tr>
<tr>
<td>self-evaluate and identify more aspects</td>
<td></td>
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<tr>
<td>of own strengths and weaknesses in a</td>
<td></td>
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<tr>
<td>general sense. Little application of</td>
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<tr>
<td>theory in self-evaluation and limited</td>
<td></td>
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</tr>
<tr>
<td>suggestions of ways to improve</td>
<td></td>
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<td></td>
</tr>
<tr>
<td>performance.</td>
<td></td>
<td></td>
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</tr>
<tr>
<td>Able to use available information to</td>
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</tr>
<tr>
<td>self-evaluate and identify the full range</td>
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<td></td>
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<tr>
<td>of own strengths and weaknesses. Self-</td>
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<tr>
<td>evaluation is based on theory.</td>
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<tr>
<td>Increasingly able to suggest ways to</td>
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<td></td>
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<tr>
<td>improve performance.</td>
<td></td>
<td></td>
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</tr>
<tr>
<td>As in “Good”. Able to generalize self-</td>
<td></td>
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</tr>
<tr>
<td>evaluation to beyond existing context.</td>
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<tr>
<td>Suggest ways of improving performance in</td>
<td></td>
<td></td>
<td></td>
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<tr>
<td>a specific context.</td>
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<td></td>
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</tr>
<tr>
<td>Marginal</td>
<td>Adequate</td>
<td>Good</td>
<td>Excellent</td>
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<td>C+</td>
<td>B+</td>
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</tbody>
</table>

The pieces of evidence are relevant and accurate, but are isolated, addressing one aspect of the course. Demonstration of understanding in a minimally acceptable way. Poor coverage, no originality, weak justification of portfolio items. Inappropriate self-evaluation.

The evidence is relevant, accurate and covers several aspects of the course. Little evidence of an overall view of the course. Demonstrates declarative understanding of a reasonable amount of content. Able to discuss content meaningfully. Good coverage but little Application or integration. Fair justification of items. Attempted realistic self-evaluation.

The evidence presents a good appreciation of the general thrust of the course. Good coverage with relevant and accurate support. A clear view of how various aspects of the course integrate to form a thrust or purpose. Good evidence of application of course Content to practice. Portfolio items well justified. Realistic self-evaluation.

As in “B” but with higher degree of originality and evidence of internalization into personalized model of practice. Good evidence of reflection on own performance based on theory. Generalizes course content to new and unfamiliar real-life contexts.
For OBASL to work, impediments to successful implementation must be removed

- all references in policies and procedures to norm-referencing and grading on the curve. ILOs are meant to establish what students know and can perform and at what level of competence. Grading by comparing students is incompatible with constructive alignment.

- all references in policies and procedures to quantitative marking, in percentages or anything else.
Bibliography and some websites on constructive alignment


**General Descriptions of CA**
- [www.engsc.ac.uk/er/theory/constructive_alignment.asp](http://www.engsc.ac.uk/er/theory/constructive_alignment.asp)

**Applied to a Web course in botany**
- google.com.hk/search?q=%22Constructive+alignment%22&hl=en&lr=&start=10&sa=N
- *Economics*
  - ideas.repec.org/a/che/ireepp/v2y2004i1p9-38.html
- *Advanced physiology*
  - advan.physiology.org/cgi/content/full/27/3/146

MORE IF YOU GOOGLE “CONSTRUCTIVE ALIGNMENT”