

Constructive Alignment in Action: Imaginative Curriculum Symposium

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ALIGNING THE CURRICULUM TO PROMOTE GOOD LEARNING

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Teaching and learning take place in a system

Teaching and learning take place in a whole *system*, embracing classroom, department and institutional levels. In a poor system, the components (curriculum, teaching and assessment tasks) are not necessarily integrated and tuned to support learning, so that only 'academic' students spontaneously use higher-order learning processes. In an integrated system, all aspects of teaching and assessment are tuned to support high level learning. Constructive alignment (CA) is such a system. It is an approach to curriculum design that optimises the conditions for quality learning.

Something very like CA was proposed over 50 years ago by Tyler (1949), but the time was not ripe, partly for reasons alluded to in the assessment sections below.

'Learning takes place through the active behaviour of the student: it is what he does that he learns, not what the teacher does' (p.63)

Example of a poor, non-aligned system

'I hate to say it, but what you have got to do is to have a list of 'facts'; you write down ten important points and memorize those, then you'll do all right in the test... If you can give a bit of factual information – so and so did that, and concluded that – for two sides of writing then you'll get a good mark.'

Quoted in Ramsden (1984: 144)

A good teaching environment is consistent. Teaching and assessment practices are aligned to the aims of teaching.

So what does a good system look like?

Problem-based learning (PBL) is a very good example of aligned teaching. In PBL, the aim is to produce graduates who can solve professional problems, the main teaching method is to get the students to solve professional problems, the assessment is judging how well they have solved them. There is alignment all the way through. Most approaches to teaching can be aligned more effectively than they are already.

What is constructive alignment?

The 'constructive' aspect refers to what the learner does, which is to *construct meaning* through relevant learning activities. The 'alignment' aspect refers to what the teacher does, which is to set up

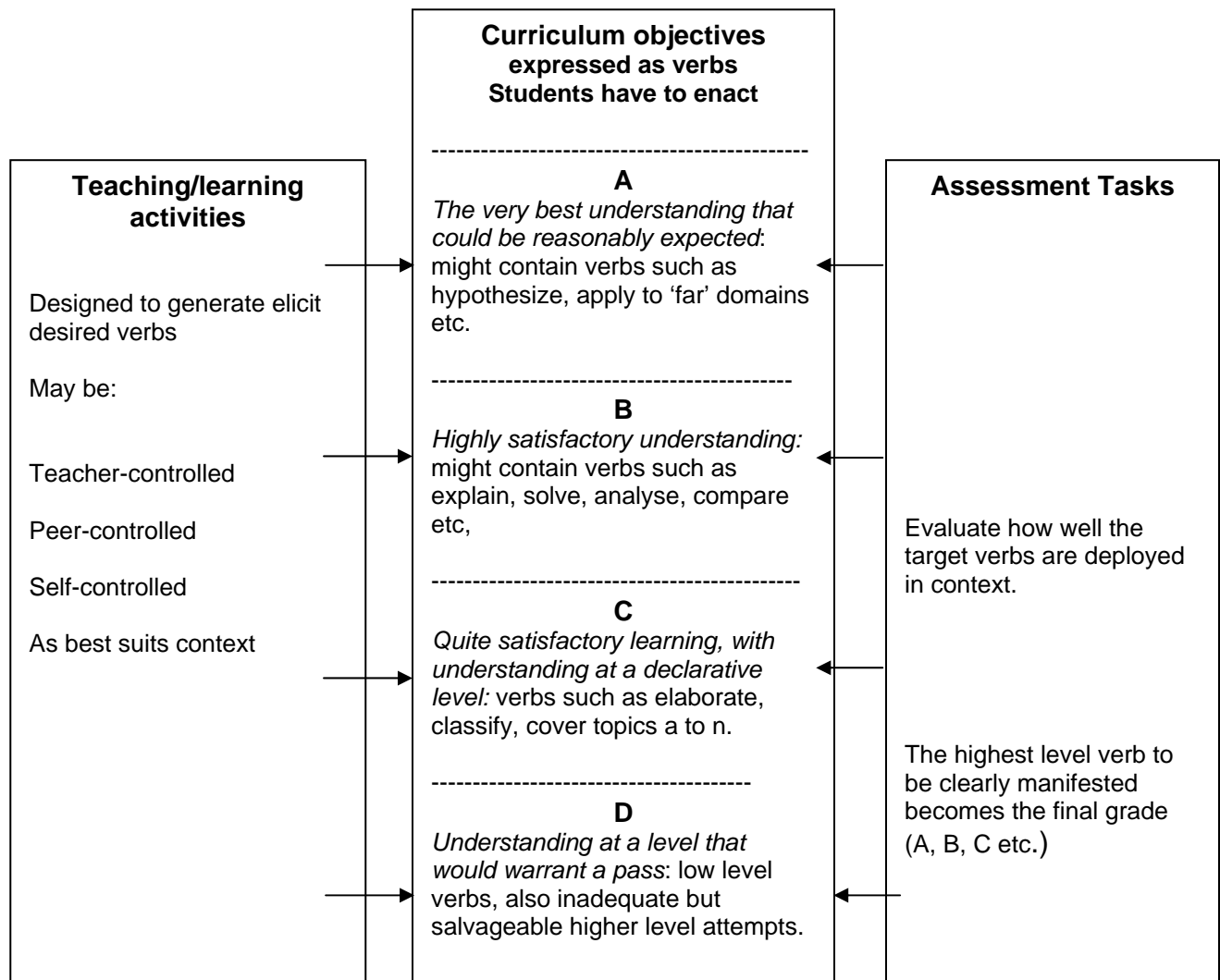
a learning environment that supports the learning activities appropriate to achieving the desired learning outcomes. The key is that the components in the teaching system, especially the teaching methods used and the assessment tasks, are *aligned* to the learning activities assumed in the intended outcomes. The learner is 'trapped', and cannot escape without learning what is intended.

We focus here on aligning a semester length unit or course. There are four major steps.

1. Defining the intended outcomes (the objectives)
2. Choosing teaching/learning activities likely to lead to attaining the objectives
3. Assessing students' learning outcomes to see how well they match what was intended
4. Arriving at a final grade

These components are brought together in Figure 1:

Figure 1: Aligning teaching/learning activities and assessment tasks to the curriculum



Defining the objectives: The intended outcomes

When we teach:

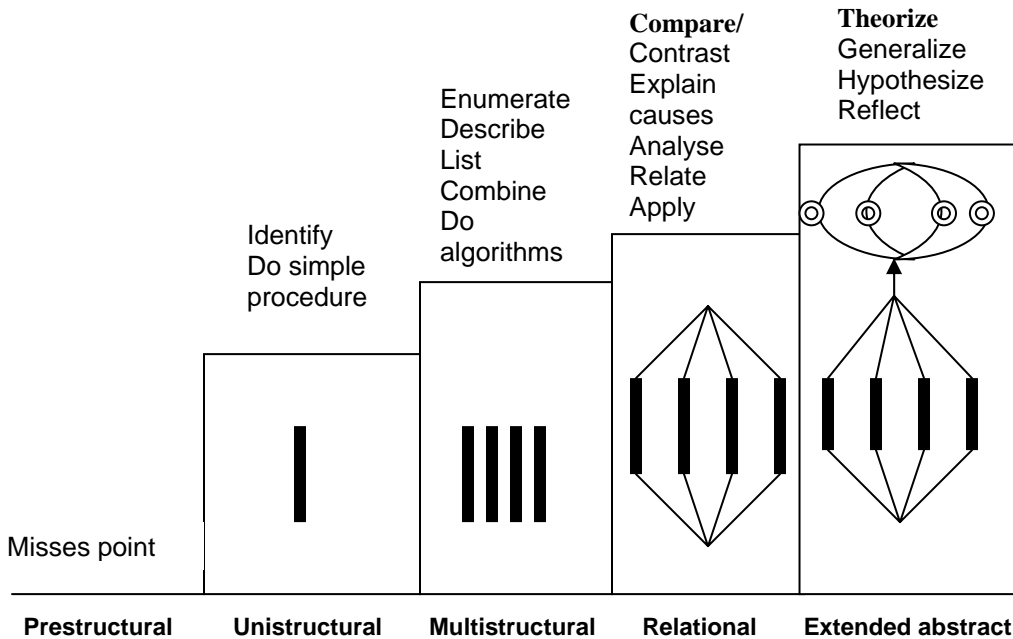
- a. we must have a clear idea of what we want our students to learn
 - b. on a topic by topic basis, we must have a further idea as to how well we want each topic to be understood
 - c. distinguish *declarative* knowledge and *functioning* knowledge.
- a. Declarative knowledge is knowledge that we can 'declare': tell somebody, read about. To really understand something, you see the work differently, and behave differently towards that part of the world. Telling somebody about it is way down the epistemological food-chain. Good students will themselves turn declarative into functioning knowledge in time, but most will not if they are not required to.

We have to state our objectives in terms of what we want students to do. We should require them to perform their understanding, not just tell us about it.

- b. Some topics require a deeper level of understanding. Students only need to know about some, understand others at a level that allows them to be put to work. Topics need to be stated in terms of what the students are required to do, not what you the teacher have to 'cover' in class, or set as required reading. Think *verbs*.

Following are four levels of understanding, with some illustrative verbs for each level, based on the SOLO Taxonomy (Biggs, 2003).

Figure 2: A hierarchy of verbs for aligning TLAs and assessments to objectives



Those verbs, and others that suit your own discipline, become the markers throughout the system. They need to be embedded in the teaching/learning activities, and in the assessment tasks. They keep us on track.

Choosing teaching/learning activities (TLAs)

In an aligned system, our TLAs help activate the required verbs, which the default TLAs, lecture and tutorial, do only in the case of top students.

TLAs can be teacher-directed, peer-directed, or self-directed (Table 1):

Table 1: Verbs likely to be elicited by some TLAs:

<i>Each teaching/learning activity</i>	<i>A form of learning</i>
Teacher-controlled lecture, set texts think a-loud questioning advance organizer concept mapping tutorial laboratory excursion seminar	reception of selected content demonstrate conceptual skills clarifying, seeking error structuring, preview structuring, overview elaboration, clarification procedures, application experiential knowledge, interest clarify, presentation skill
Peer-controlled various groups learning partners peer teaching spontaneous collaboration	elaboration, problem-solving, metacognition resolve differences, application depends whether teacher or taught breadth, self-insight
Self-controlled generic study skills content study skills metacognitive learning skills	basic self-management information handling independence and self-monitoring

Assessing students' learning outcomes

Faulty assumptions and practices about assessment do more damage than any other single factor. Students learn what they think they'll be assessed on, not what's in the curriculum.

The trick is, then, to make sure the assessment tasks mirror what you intended them to learn.

However, many common assessment practices make such alignment all but impossible.

Two approaches to assessment

Two approaches to assessment underlie current educational practice:

1. The traditional quantitative approach. We 'mark' student performance and allocate grades, either by arbitrary cut-off points, or grade on the curve (norm-reference). The technology here derives from psychometric theory.

2. Qualitative and criterion-referenced. The score an individual obtains reflects how well the individual meets preset criteria, the objectives.

What's wrong with the traditional approach to assessment?

1. Expressing performances as percentages is assumed to create a universal currency that is equivalent across subjects areas, and across students. This assumption is completely unsustainable.
2. A high average in most components of a course covers failure in other components. The logic of awarding a pass to a student on a section of the course in which that student has already failed is difficult to grasp.
3. Tests are constructed to be 'reliable': unidimensional, and stable. Complex performances are however not unidimensional, and teaching is supposed to produce change in what is being measured, a change usually called 'learning'. Measuring change, using a model that assumes that what is being measured is stable, seems peculiar.
4. Quantifying sends the wrong messages to students. For example:
 - Ideas are equally important
 - Individual trees are more important than the wood
 - You can skip or slack on certain areas if you are doing well elsewhere
 - Written tests make declarative knowledge more important than application
 - Verbatim responses must gain some credit
 - Grading on the curve makes success and failure depend on uncontrollable factors such as relative ability and luck
 - As there is no intrinsic connection between the curriculum and assessment, just focus on what will get you through the assessment.

The points are summarised in Table 2:

Table 2: The demands of the quantitative approach and those of good teaching

QUANTITATIVE APPROACH		GOOD TEACHING
1	Performances need to be quantified, so they are reduced to correct/incorrect units of equivalent value that can be added.	Students learn holistic structures that cannot meaningfully be reduced to units of equal importance.
2	A good test creates "a good spread" between students, preferably normally distributed.	Good teaching produces reduced variance.
3	The characteristic being measured is stable time.	Good teaching produces change: over learning.
4	Students need to be tested under standardized conditions.	Students need to be tested under conditions that best reveal an individual's learning

The alternative: qualitative assessment

Align assessment to the objectives; state desired outcomes as criteria students are to attain, how well they do so is reflected in the grading system. The only way to see if a students' performances match the objectives is to use teacher judgement.

Some see this as 'subjective', but so is making quantitative ratings. Teachers do however need to be clear about what constitutes good learning.

What assessment tasks to use depends on what verbs you want to assess. Some suggestions are given in Table 3:

Table 3: Some different assessments tasks and the verbs likely to be assessed

<i>Assessment Mode</i>	<i>Most likely kind of learning assessed</i>
<i>Extended prose, essay-type</i> essay exam open book assignment, take home	rote, question spotting, speed structuring as for exam, but less memory, coverage read widely, interrelate, organise, apply, copy
<i>Objective test</i> multiple choice ordered outcome	recognition, strategy, comprehension, coverage hierarchies of understanding
<i>Performance assessment</i> practicum seminar, presentation posters interviewing critical incidents project reflective journal case study, problems portfolio	skills needed in real life communication skills concentrating on relevance, application responding interactively reflection, application, sense of relevance application, research skills reflection, application, sense of relevance application, professional skills reflection, creativity, unintended outcomes
<i>Rapid assessments (large class)</i> concept maps venn diagrams three-minute essay gobbets short answer letter to a friend	coverage, relationships relationships level of understanding, sense of relevance realising the importance of significant detail recall units of information, coverage holistic understanding, application, reflection.

Arriving at a final grade

Grading may be done quantitatively or qualitatively. Quantitative grading is done by allocating marks, usually as percentages, to each task, and then grading according to a scale: 75+ is an A, 65=74, a B, and so on. This is however extremely arbitrary, as noted above.

The alternative is qualitative grading, which is done by seeing how well each individual student's assessed performances match what is required, minimally, comfortably, beyond reasonable

expectations. Matching individual performances against the criteria is not a matter of counting marks but of making holistic judgments.

An example follows. The following were the grading I used in a unit in a Master's programme for educational psychologists.

Course Objectives and Grade Criteria

Grading will be based on your attaining the following objectives:

- 1 Demonstrate that you correctly understand and can apply the principles of good teaching and assessment to chosen contexts.
- 2 Demonstrate a knowledge of selected aspects of curriculum design and management and how they relate to the educational system in Hong Kong.
- 3 Show how the content and experiences in this course may enhance your effectiveness as an EP.
- 4 Show evidence of reflective decision-making

Final grades will depend on how well you can demonstrate that you have met all objectives:

A: awarded if you have clearly met all the objectives, displaying deep knowledge of the base content, original and creative thinking, perhaps going beyond established practice.

B: awarded when all objectives have been met very well and effectively.

C: awarded when the objectives have been addressed satisfactorily, or where the evidence is strong for some objectives, weaker but acceptable in others.

F: less than C, work plagiarised, not submitted.

Students produced a portfolio comprising set items (a report, an analysis of a group activity), which we designed to address particular objectives, an item of their choosing, and a self-evaluation. Grading comprised deciding on all the evidence available what grade criterion had been met.

References and Further Reading

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