Teaching for Quality Learning at University

What the Student Does

4th edition

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Constructively aligned teaching and assessment

Constructive alignment arose out of an experiment with portfolio assessment. Students were asked to place items in a portfolio as evidence that their professional decision making had been improved by the theory they had been taught in class. The students couldn't be 'taught' the evidence, they had to reflect on their experience and provide it themselves. The teaching method followed from a series of negotiations as to how that evidence might best be obtained, the assessment was on the basis of the quality of the evidence provided. The course was a success, results provoking a rethink of the design of teaching. It seemed that two principles were involved: a *constructivist* theory of learning, and *alignment* between the intended learning outcomes of the course, the teaching/learning activities and the assessment tasks. Enter constructive alignment.

How did constructive alignment come about?

Constructive alignment came about as a result of an experiment with portfolio assessment in a bachelor of education programme. The course, entitled *The Nature of Teaching and Learning*, was a senior-level course in educational psychology for in-service teachers. Initially, the course followed the usual model: topics from the psychology of learning and development that were considered relevant to the improved practice of teaching were taught. The students were assessed in terms of how well the theory, and the relevance of the topics to education, were understood and explained in written assignments.

Then, following a visit to Canada by the teacher of that course, the penny dropped. Writing about the application of psychology to education was not – or should not have been – what the course was about. The course was intended for in-service teachers to improve their own teaching in the classroom, whereas the assessment had nothing to do with their experience or their workplace. The assessment provided no evidence on the question of

whether the course was indeed improving the professional competence of those taking it. What caused the penny to drop and events that happened thereafter are contained in Box 6.1.

Box 6.1 How constructive alignment came into being

In 1994, one of the authors, John, returned to the University of Hong Kong from study leave in Canada, very impressed with the use of assessment portfolios in Canadian elementary schools. He was to resume teaching an evening course in a part-time BEd programme, which was about how knowledge of psychology might improve teaching. In preparing for the course next time round, it struck him that portfolio assessment was worth trying. As the students were teachers during the day, they had plenty of opportunities to see how their knowledge of psychology might be influencing their teaching decisions, which after all was what the course was intended to do. Right, so the students would be assessed on how they could demonstrate that psychology had been influencing their teaching and they were to compile a portfolio of examples of this. When John told the students that this is how they would be assessed, they reacted negatively:

> How am I supposed to do it well when I'm not sure exactly what the professor wants to see in it? . . . though he did say that we can put what means much to us in the portfolio, yet how can I be sure that he agrees with me?

John suggested item types for their portfolios and after a trial run, they got the idea. When they finally submitted their portfolios, John was stunned. They were rich and exciting, the class achieved more A and B grades than ever before, the student feedback was the best he'd ever received. Here is an excerpt from one diary:

> All [the teacher] said was 'show me the evidence of your learning that has taken place' and we have to ponder, reflect and project the theories we have learnt into our own teaching . . . If it had only been an exam or an essay, we would have probably just repeated his ideas to him and continued to teach the same way as we always do!

John didn't know it at the time, but he'd just implemented an example of outcomes-based teaching and learning.

Only he'd called it 'constructive alignment'.

Source: Biggs (1996b)

John thought that the experiment with portfolio assessment had worked so well for two reasons. The first was that the knowledge *about* psychology did

not draw from the students' experience, while the knowledge that was to drive their teaching led to action by the students that was very much within their experience. That gap, between a static body of declarative knowledge and personal action, had to be bridged. On one side of the gap was what Leinhardt et al. (1995) called 'university' knowledge, and on the other side was 'professional' knowledge. University knowledge is abstract declarative knowledge, and what the student has to do here is to label, differentiate, elaborate and justify. On the other hand, 'professional' knowledge is functioning knowledge, which requires the practising professional to execute, apply and prioritize (Leinhardt et al. 1995). Bridging that gap has traditionally been left to the student to do, 'out there', after graduation. That job should be done before graduation, and this is what the portfolio helped students to do. The portfolio experiment and Leinhardt's analysis were fifteen years ago. Nowadays, as we shall be seeing, that contrast is not nearly as striking as it was then, as graduate outcomes address the sorts of things that professionals need to know, an issue we shall be dealing with in the next chapter.

The second, not unrelated, reason why the portfolio scheme had worked so well was because of alignment between theory and practice that was so lacking in Leinhardt's analysis of university teaching and professional requirements. In the portfolio, the learning activities indicated in the intended outcomes were mirrored both in the teaching/learning activities the students undertook, and in the assessment tasks, so that the learning activities the students engaged were those that directly addressed what it was they were supposed to be learning.

What is constructive alignment?

The portfolio experiment was generalized to a design for teaching that was called 'constructive alignment' (CA). 'Constructive' comes from the constructivist theory that learners use their own activity to construct their knowledge as interpreted through their own existing schemata. 'Alignment' is a principle in curriculum theory that assessment tasks should be aligned to what it is intended to be learned, as in criterion-referenced assessment. Constructive alignment extends in a practical way Shuell's statement that 'what the student does is actually more important in determining what is learned than what the teacher does' (1986: 429). The intended outcomes specify the *activity* that students should engage if they are to achieve the intended outcome as well as the content the activity refers to. The teacher's tasks are to set up a learning environment that encourages the student to perform those learning activities, and to assess student performances against the intended learning outcomes.

Focusing on what and how students are to learn, rather than on what topics the teacher is to teach, requires that an intended learning outcome, or ILO, specifies not only *what* is to be learned, the topic, but *how* it is to be

learned and to what standard. The outcome statement thus specifies a verb that informs students how they are expected to change as a result of learning that topic, for example 'reflect on X', or 'apply theory to Y'. That verb, or verbs, should then be addressed in the teaching/learning activities (TLAs), and in the assessment task (AT).

In constructive alignment, the intended learning outcomes are written to include an activity, not just a topic: for example, to *explain* a particular concept. That activity, *explain*, is then specified in the teaching context so that it is activated in order to achieve the outcome. Likewise, that activity, *explain*, is specified in the assessment task, to ascertain if the outcome has been achieved and how well. The target verb *explain* is represented in the teaching/learning context and in the assessment. Likewise in driving instruction, the intention is that the learner learns how to drive a car. The teaching focuses on the learning activity itself: driving a car, not giving lectures on car driving, while the assessment focuses on how well the car is driven. The alignment is achieved by ensuring that the intended verb in the outcome statement is present in the teaching/learning activity and in the assessment task.

The idea of aligning assessment tasks with what it is intended that students should learn is old – it is criterion-referenced assessment, which is how anyone outside an educational institution assesses what has been learned when teaching anyone else anything. A mother assesses how well her child can tie a shoe, not on how well her child performs compared to the kid next door. Yet, as we see in Chapter 10, educational institutions generally became enamoured of norm-referenced assessment, which tells us who learns better than who. That is an important function when selecting from many people for few positions, such as making an appointment to a job from a large field of applicants, or awarding a limited number of university places or scholarships. However, when the aim of teaching is that students learn specified content to acceptable standards, aligning the assessment of learning to what is to be learned is not only logical, it is more effective in getting students to learn. Cohen (1987), after a comprehensive review, was so impressed that he called alignment between the assessment and the intended learning outcome the 'magic bullet' in increasing student performance.

That is all very well for a skill like car driving, you might say, where the learner's activities are explicit, but how can that apply to something that is conceptually of a high level and abstract like learning a theory? The example of *The Nature of Teaching and Learning* course (see Box 6.1, p. 96) illustrates that it can.

The theory in any subject is not only meant to be 'understood', whatever that all-purpose word might specifically mean, but, as was argued in the previous chapter, it is intended to change the way students see the world and thence to change their behaviour towards it. This is obviously the case in professional courses, as we have seen, but virtually all sound learning, whether in medical education or in subjects like pure physics, gives the student a different view of the world, together with the power to change some aspects

of it, such as being able to solve novel or unseen problems. That view, and instances of the empowerment that learning gives the student, should guide the design of the intended learning outcomes for a course or programme.

All good teachers have some implicit idea of how they want their students to change as a result of their teaching so that they can work towards achieving that change when teaching. Constructively aligned teaching systematizes what good teachers have always done: they state upfront what they intend those outcomes to be in the courses they teach – always allowing that other, unintended but desirable, outcomes will emerge that they may not have anticipated. As explained later, we use outcomes statements and open-ended assessment tasks that allow for unintended but desirable outcomes. Unlike some outcomes-based education, such as competency-based, constructively aligned teaching is not closed loop, focusing only on what is predetermined.

Another difference between constructive alignment and other outcomes-based approaches is that in constructive alignment, the connections between ILOs, TLAs and assessment tasks ATs are aligned intrinsically, a 'through train' if you like, on the basis of the learning activities expressed in the outcomes statements. In other outcomes-based models, alignment exists through criterion-referencing the assessment tasks to the ILOs, but not additionally between the ILOs and the TLAs.

Constructively aligned teaching is likely to be more effective than unaligned because there is maximum consistency throughout the system. Like all traditional teaching, the curriculum lists the content topics that are judged desirable for students to learn, but then those topics are translated into outcome statements and the teaching/learning activities steer the students' learning towards those intended outcomes, with the assessments tasks and their rubrics acting as signposts along the way. All components in the system address the same agenda and support each other. As Hattie (2009b: 6) says: 'Thus, any course needs to be designed so that the learning activities and assessment tasks are aligned with the learning outcomes that are intended in the course. This means that the system is consistent.'

The students are 'entrapped' in this web of consistency, optimizing the likelihood that they will engage the appropriate learning activities, helping the Roberts learn *more like* the Susans but leaving them free to construct their knowledge their way. We emphasize the 'more like' because Susan has a richer knowledge base that enables her to create more elaborate constructions than Robert is likely to, but at least Robert can engage in more appropriate learning activities than he would otherwise have done.

Where assessment is not aligned to the intended or other desired outcomes, or where the teaching methods do not directly encourage the appropriate learning activities, students can easily 'escape' by engaging in inappropriate learning activities, which become a surface approach to learning, as exemplified by Ramsden's psychology student (see pp. 24–5).

Cowan (2004) has a related idea to alignment that he says goes 'beyond alignment to integration'. He uses the idea of 'sound standard' assessment which in effect integrates the criteria of assessment and the intended

learning outcomes. The teacher clearly outlines what criteria make a piece of work higher or lower than a sound standard for a pass. The student and other students assess a piece of work becoming very clear as to what constitutes various grades of pass. Wherever possible, teacher-designed TLAs are replaced with student learning activities based on various kinds of reflection.

A critic of the first edition of this book described constructive alignment as 'spoon feeding'. On the contrary, spoon feeding, like the other Level 1 metaphors with their curious affinity to metabolic processes – 'regurgitating', 'chewing it over', 'stuffing them with facts', 'ramming down their throats', 'getting your teeth into' – puts a hold on the student's cognitive processes. Spoon feeding does the work for the students, so that they have little left to do but obediently swallow. Constructive alignment, by way of contrast, makes the students themselves do the real work, the teacher simply acts as 'broker' between the student and a learning environment that supports the appropriate learning activities.

It is also important to remember that while the term 'intended' learning outcomes is used, the teaching and assessment should always allow for desirable but unintended outcomes, as these will inevitably occur when students have freedom to construct their own knowledge. The assessment tasks should be open enough to allow for that: an issue we address in Chapters 10 and 12.

Design of constructively aligned teaching and assessment

Let us now unpack the prototypical example of constructive alignment in the course *The Nature of Teaching and Learning*. There are four stages in the design:

1. describe the *intended learning outcome* in the form of a verb (learning activity), its object (the content) and specify the context and a standard the students are to attain;
2. create a learning environment using *teaching/learning activities* that address that verb and therefore are likely to bring about the intended outcome;
3. use *assessment tasks* that also contain that verb, thus enabling you to judge with the help of rubrics if and how well students' performances meet the criteria;
4. transform these judgements into standard grading criteria.

Intended learning outcomes (ILOs)

The ILOs are statements, written from the students' perspective, indicating the level of understanding and performance they are expected to achieve as

a result of engaging in the teaching and learning experience. The ILOs for *The Nature of Teaching and Learning* course, with the learning activities or verbs italicized, follow:

1 *explain* why a particular course topic is important to teaching;
2 *apply* a course topic to your own teaching;
3 *reflect* on your teaching in terms of a working theory you have gained from the course;
4 *evaluate* a situation that has gone wrong and *apply* a solution.

Each of these verbs addresses 'understanding' at some level: which is why using 'understand' as the verb for your ILOs won't work, because it does not give any indication of the level of understanding required. In the following chapter we shall elaborate on this important question of the level of the outcomes by presenting taxonomies of verbs that are classified in terms of their cognitive level. For the moment, let us stay with explain, apply, reflect and evaluate.

Note that the first ILO, 'explain', refers to declarative knowledge whereas all the rest, 'apply', 'reflect' and 'evaluate and apply', refer to functioning knowledge. In addressing the second ILO, 'apply', the students may choose the same topic as in (1), say expectancy-value theory, but in (1) they explain it verbally while in (2) they are required to apply to their own teaching. 'Reflect' in the third ILO is at a higher cognitive level, requiring students to apply that framework they have constructed from the course to their own teaching as reflective practice. The fourth ILO, 'evaluate and apply', requires the students to spot a problem, evaluate it, then suggest how it might be rectified in light of material taught in the course: this too is at a high cognitive level. The last is an example of the 'reflect–plan–apply–evaluate' sequence of action research. The next question is how students were helped to engage these verbs.

Teaching/learning activities (TLAs)

The verbs the students needed to enact are italicized in our list of ILOs. The TLAs were obtained through negotiation with the students when they saw that the teacher lecturing to them wasn't going to help them achieve the outcomes of the course. The following dialogue, condensed from several sessions, illustrates how this happened (S are students, T is teacher):

S How do we show we can reflect?
T Keep a reflective diary or journal.
S What do we put in it?
T What you think are critical incidents in your teaching, anything that might indicate how your teaching has been improved, such as samples of conversations with your students, lesson plans, samples of student work.
S That's too vague. We need help to decide what to put in.

T Talk it over with your colleagues. A learning partnership's a good idea. Choose a friend, maybe two, and get their phone number, sit next to them in class. Talk it over together. You can help each other. You can see me in a group if you are in real difficulty.
S Wouldn't it be better if we had discussion groups of students teaching the same subjects as we do? Then we can share experiences on similar problems.
T Certainly. I've already booked the room next door. You can meet there.
S But we'll need direct teaching on some things. Won't you lecture us?
T Yes, but only to clarify issues that you raise. There's a topic for each session and I'll give you pre-reading rather than lecture on it. We can clarify each topic in the lecture, as necessary.

And so on.

In short, instead of the teacher doing the work for the students, the students were helped to do what *they* needed to do in order to meet the intended learning outcomes of the course. TLAs included independent learning with the pre-reading with self-addressed questions ('What was the most important idea in today's session?'), and small group learning and collaborative learning with learning partners, a reflective diary, and most important, as all were practising teachers, their workplace, so that all the learning activities mentioned in the ILOs were embedded in the TLAs in one way or another. Box 6.2 summarizes the alignment between ILOs and the TLAs.

Box 6.2 Intended learning outcomes (ILOs) for *The Nature of Teaching and Learning* and aligned teaching/learning activities (TLAs)

1 *Explain* why a particular course topic is important to teaching.
TLAs: plenary sessions with pre-readings and notes used for learning information, clarification and elaboration. Discussion on application to teaching with partners and in small groups.
2 *Apply* a course topic to your own teaching.
TLAs: independent problem solving in workplace, recorded in reflective diary.
3 *Reflect* on your teaching in terms of a working theory you have gained from the course.
TLAs: keep reflective diary on critical incidents; discuss with group/learning partner.
4 *Evaluate* a situation that has gone wrong and *apply* a solution.
TLAs: use workplace resources, group/learning partner comparing perspectives on evaluating and applying.

Assessment tasks (ATs)

The assessment portfolio comprised items selected by the students that they thought addressed each ILO. The students were to decide on the evidence for their achievement of the ILOs in the form of items for their portfolio and to explain why they thought the portfolio as a whole met the ILOs. Specifically, the requirements were:

1 four pieces of evidence selected by the student, which they thought addressed most of the ILOs;
2 a reflective journal, including answers to the self-addressed questions for each plenary session;
3 a justification for selecting each portfolio item and the overall case they were supposed to make as a learning package, showing how each ILO had been addressed one way or another. This provided further evidence of students' reflective awareness of their learning.

A list of suggested item types was provided, but original items were encouraged.

Box 6.3 shows the alignment between the ILOs and the items in the portfolio.

Box 6.3 ILOs for *The Nature of Teaching and Learning* and aligned assessment tasks (ATs)

1 *Explain* why a particular course topic is important to teaching.
AT: Set yourself a 2000-word essay on one of two nominated topics.
2 *Apply* a course topic to your own teaching.
AT: Written report explaining relevant diary entries concerning the application, problems encountered, student reactions.
3 *Reflect* on your teaching in terms of a working theory you have gained from the course.
AT: Present selected parts of diary with comments: explain how your portfolio items meet ILOs and self-evaluate.
4 *Evaluate* a situation that has gone wrong and *apply* a solution.
AT: Write a case study of a critical incident in your own teaching and how you dealt with it.

One student referred to the assessment portfolio as 'a learning tool'. In fact, it was difficult to separate what was a TLA and what an AT, as is the case in an aligned system. For example, students learned how to reflect by using the journal, which was used later as evidence of reflection; the self-addressed questions (such as 'What was the most important idea?') are both learning activities that can also provide evidence for the quality of learning.

Grading

The final step is to obtain a final grade for the student from the evidence presented in the portfolio as to how well the ILOs have been achieved. There are normally two aspects to grading: assessing the student's outputs against the stated criteria and combining results from several ATs to form a final grade. This can be done quantitatively, as is usually the case, or qualitatively: these issues and the pros and cons are discussed in Chapter 10.

In the case of *The Nature of Teaching and Learning*, a qualitative approach was taken as being the most suitable for the task and the context. Each letter grade represents a qualitatively different level of thinking, as follows:

A Able to reflect, self-evaluate realistically, able to formulate and apply theory to problematic classroom situations, clear mastery of course contents.
B Can apply theory to practice, a holistic understanding of course and components, barely failed **A**.
C Can explain the more important theories, can describe other topics acceptably, barely failed **B**.
D Can only explain some theories, barely failed **C**.
F Less than **D**, plagiarism.

The grading was simple, involving no quantitative 'marking' or averaging to calculate a final grade. The portfolio items were assessed as to whether they provided 'evidence' for A qualities, B qualities and so on. If the evidence collectively did not reveal realistic self-evaluation, for example, but did show an ability to form a working theory and apply it to classroom situations, then here was a clear B.

Constructive alignment: an overview

This chapter describes how constructive alignment came about and how the course in which it was first used illustrates the important steps in implementing constructive alignment. We generalize by reference to Figure 6.1, which can be used as a general framework for teaching. Although constructive alignment arose in a professional programme, it can be implemented in virtually any course at any level of university teaching.

The intended learning outcomes are central to the whole system. Get them right and the decisions as to how they are to be taught and how they may be assessed follow. We express the ILOs in terms of what constructive activities are most likely to achieve them. Activities are *verbs*, so, practically speaking, we specify the verbs we want students to enact in the context of the content discipline being taught.

Turn back to Figure 1.1 (p. 6). We see that Susan tended spontaneously to use high level outcome verbs such as theorize, reflect, generate, apply, whereas Robert used lower level outcome verbs such as recognize, memorize,

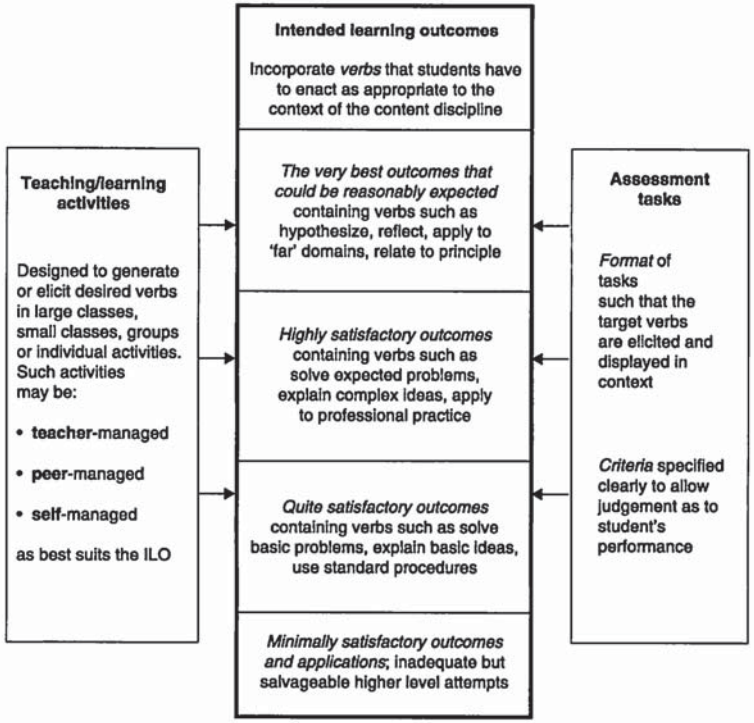

Figure 6.1 Aligning intended learning outcomes, teaching and assessment tasks

describe. Their level of engagement is expressed in the cognitive level of the verbs used: reflection is high level, memorizing low level. Note that these verbs are examples only. Precisely what is meant by 'level', and how to determine it, is a key issue addressed in Chapter 7.

Those verbs take objects, the content topic taught. We explicitly reject the one-dimensional notion of 'covering' the topics in the curriculum. Rather we need to specify the *levels* of understanding or of performance (see Chapter 5).

Once we have sorted out the ILOs, we design TLAs that are likely to encourage students to engage the verbs that are made explicit in the ILOs. By so doing, we optimize the chances that the intended outcomes will be achieved. Next, we select assessment tasks that will tell us whether and how well each student can meet the criteria expressed in the ILOs. Again, this is done by embedding the verbs in the ILOs in the assessment tasks. ILOs, teaching and assessment are now aligned, using the verbs in the ILOs as markers for alignment.

Finally, a grading scheme needs to be constructed according to how well the ILOs have been met. A grade of A denotes a quality of learning that is the best we can reasonably expect for the course. Obviously, that level will become increasingly higher from first year to more senior years. In the final year, one would expect the sorts of verbs that are in the top box of Figure 5.1 (p. 91, 'generalize', 'reflect') to define an A. B is highly satisfactory, but lacks the flair that distinguishes A. C is quite satisfactory, while D denotes what is minimally acceptable; anything less is fail (F). What that range will be for any particular course and year level is a matter of judgement by the teacher or programme committee. The criteria, or rubrics, defining the final grades will need to be much more specific than this and will need to be developed for each course. The important thing is that the categories are defined by a particular *quality* of learning and understanding, not by the accumulation of marks or percentages.

Grading on the *quality* of learning is not new. It has been used to define levels of honours and postgraduate dissertations for years. The level of honours as it has typically been used captures the idea that a student with first class honours *thinks differently* from a student with an upper second. This difference is not captured by saying that a first has to obtain more marks than an upper second. We have more to say on this in Chapter 10.

To sum up, in a constructively aligned system of teaching, the teacher's task is to see that the appropriate learning activities, conveniently expressed as verbs, are:

1 nominated in the intended learning outcome statements;
2 embedded in the chosen teaching/learning activities so that performing them brings the student closer to achieving the ILOs;
3 embedded in the assessment tasks enabling judgements as to how well a given student's level of performance meets the ILOs.

Because the TLAs and the ATs now access the same verbs as are in the ILOs, the chances are increased that most students will engage with the appropriate verbs. This is by definition a deep approach. Had Ramsden's psychology teacher (see pp. 24–5) included in the ILOs such verbs as 'theorize', 'generalize' or 'explain the contribution of particular founders of modern psychology', an assessment task that required only paraphrasing 'a bit of factual information for two pages of writing' would immediately be seen to be inadequate.

Constructive alignment is common sense. Mothers, like driving instructors, use it all the time. What is the intended outcome? That the child can tie her shoes. What is the TLA? Tying her shoes. What is the assessment? How well she ties her shoes. Why is most university teaching not so aligned? There are several reasons:

1 Traditional practices of teaching and assessment ignore alignment. A common method of determining students' grades depends on how students compare with each other (norm-referenced), rather than on

whether an individual's learning meets the intended outcomes (criterion-referenced). In the former case, there is no *inherent* relation between what is taught and what is tested. The aim is to distribute or spread students' performances so that we clearly separate the good students from the less good, not to see how well individuals have learned what they were supposed to have learned.

2 'If it ain't broke, don't fix it.' Some teachers believe there's nothing wrong with current practice. As we saw in Chapter 1, however, there are problems of teaching that are arising in the rapidly changing university scene. In any case, a situation doesn't have to be 'broke' before we try to make it work better. The difference between reflective and unreflective teachers is that the former teachers believe they can always teach better than they are doing at present. Indeed, a major feature of award-winning university teachers was that they were continually seeking feedback from students on ways in which they could improve their teaching (Dunkin and Precians 1992).

3 Resource limitations appear to dictate large classes with mass lecturing and multiple-choice testing. These make alignment more difficult, certainly, but not impossible. However, policies that require teachers to use norm referencing by grading on the curve do make alignment impossible. If constructive alignment is to be implemented such policies and practices need be changed, as we discuss in Chapter 13.

4 These issues of alignment may not have occurred to teachers.

5 Other teachers might like to use the principle but they don't know how to.

These points are addressed throughout this book. We shall see how the principle of alignment can be applied to the design of most courses. Finally, in Chapter 13, we look at the evidence for the effectiveness of constructive alignment.

Now try Task 6.1 to see how aligned your teaching and assessment are to the intended learning outcomes of a course you are currently teaching.

Task 6.1 Constructive alignment in your current teaching and assessment

Take a course that you are teaching.

A What are three of the things that you expect your students to be able to do at the end of the course?

1 _____

2 _____

3 _____

B How do you *teach* your students to do these things?

For 1 _____

For 2 _____

For 3 _____

C How do you *assess* your students on doing these three things?

For 1 _____

For 2 _____

For 3 _____

Your reflection:

What do you think of the alignment between A, B and C above?

_____

_____

Summary and conclusions

How did constructive alignment come about?

Constructive alignment was born in a psychology course for teachers. Teachers learn psychology so that they may teach better, but the evidence that they do as a result of learning psychology is not specifically collected. In this class, the student teachers were asked to provide such evidence from their own teaching and place it in a portfolio. The class's response resulted in their engaging in learning activities that could help them meet this new assessment task, which became their curriculum. They focused their learning on obtaining evidence that psychology was helping them to teach more effectively. Enter constructive alignment.

What is constructive alignment?

Constructive alignment is based on the twin principles of constructivism in learning, and alignment both of teaching and of assessment tasks to the intended learning outcomes. The intended outcomes specify the *activity* that students should engage in if they are to achieve the intended outcome, the teacher's tasks then being to set up a learning environment that encourages the student to perform those learning activities, and to assess the students' performances against those intended learning outcomes. Focusing on what

and how students are to learn, rather than on what topics the teacher is to teach, requires that an intended learning outcome, or ILO, specifies not only *what* is to be learned, the topic, but *how* it is to be learned and to what standard. The outcome statement thus specifies a verb that informs students how they are expected to change as a result of learning that topic, for example 'reflect on X', or 'apply theory to Y'. That verb, or verbs, should then be addressed in the teaching/learning activities (TLAs), and in the assessment task (AT).

Design of constructively aligned teaching and assessment

Constructive alignment requires the design of: the *intended learning outcomes* using a verb indicating a standard of performance, and the content to be learned; the *teaching/learning activities* that address that verb; *assessment tasks* that also contain that verb with rubrics that enable one to judge how well the standard of the students' performances to meet the criteria. Each of these stages is illustrated from the original course on teaching psychology, and how they were aligned to the ILOs.

Constructive alignment: an overview

In a constructively aligned system, all components – intended learning outcomes, teaching/learning activities, assessment tasks and their grading – support each other, so the learner is enveloped within a supportive learning system. In Part 2 of this book we turn to the details of designing such a system, and in Part 3 we look at its implementation.

Further reading

Biggs, J.B. (1996b) Enhancing teaching through constructive alignment, *Higher Education*, 32, 1: 1–18.

Tyler, R.W. (1949) *Basic Principles of Curriculum and Instruction.* Chicago: University of Chicago Press.

Biggs's paper outlines in detail the original course that gave rise to constructive alignment. At the time, he did not know that Ralph Tyler had said something rather similar over 50 years ago:

1 What educational purposes should the school seek to attain?
2 How can learning experiences be selected which are likely to be useful in attaining these objectives?
3 How can learning experiences be organized for effective instruction?
4 How can the effectiveness of learning experiences be evaluated?

Tyler's book was widely prescribed in US teachers' colleges and worldwide; it went to 36 editions, while Tyler himself was educational guru to Presidents Truman, Eisenhower and Johnson. But essentially nothing changed. The problem was that

educators generally at that time were obsessed with norm-referencing and there was no way they were going to give that up, so that on the issue of aligning assessment to effective learning, Tyler received respectful lip service only. His book is under one hundred pages in length and is well worth a read, for old time's sake.

Film

Teaching Teaching & Understanding Understanding, an award-winning film available on DVD from the University of Aarhus, Denmark, written and directed by Claus Brabrand. In less than 20 minutes, Claus takes the viewer through the basics of constructive alignment with Doina and Rune, Danish versions of Susan and Robert. Available from Aarhus University Press (www.unipress.dk) in English, French, Spanish, Italian, Portuguese, German and Danish.

Websites

The Engineering Subject Centre, Higher Education Academy, UK. http://www.engsc.ac.uk/er/theory/constructive_alignment.asp (accessed 2 February 2011).

An excellent overview of constructive alignment, with links to related topics such as 'Assessment', 'Approaches to learning', etc.

If you want more, Google 'constructive alignment' and browse – but be selective as there is a lot there.