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The changing scene in university teaching

In the days when university classes contained highly selected students, the lecture and tutorial seemed to work well enough. However, the increasingly drastic changes in the tertiary sector have redrawn the university scene – not entirely disadvantageously for teaching quality. With student fees now a high proportion of funding, universities have had to improve the quality of their teaching. Many are using constructive alignment – what this book is about – as the means of doing so. We see how it may do that by looking at two very different students, Susan and Robert, who we are likely to meet in today's classrooms.

The nature of the change

The university sector in most western and some eastern countries continues to change at an increasingly hectic rate. A major difference in the period separating this edition from the last, published in 2003, is that there is now an increasing recognition that teaching and learning have been neglected in favour of leaner and meaner universities – and that something needs to be done about it, particularly given that teaching now has a higher priority in most of today's universities. How this came about is rather paradoxical.

Twenty years ago, public funding paid for virtually 100% of costs of the tertiary sector, but today that is very far from being the case. Australia, for example, is now heading towards 30% of university funding from the public purse. The bulk of the missing funding comes from student fees. That is having profound effects on both students and on university teaching.

However, the reason for the enormous cuts in public funding was not only to save money and keep taxes low, although that was the rhetoric; it was ideological. It stems from the neo-conservative belief that education is a private good and therefore one should pay for it, like one does for any other

goods. That changed the nature of universities and the university mission: they became corporatized and competitive for markets.

First, let us look at what happened to teaching and learning.

Teaching and learning

Now that students have to pay higher fees, they will be likely to demand high-profile programmes that are well taught and will enhance their employment prospects. Those who can, will shop around to find the right one for them. Some, using the logic that education is a commodity to be bought, feel that having paid for a degree they are entitled to be awarded one. The pressures on staff are complex: to teach in a student-friendly manner, but that may encourage them to lower standards. Such downward pressures, in some celebrated cases, have also emanated from administration, because of the funding implications of failing students.

Universities in many Asian countries have improved their teaching considerably, so that the cost benefits of Asian students leaving their countries to complete a degree are, for Hong Kong, Singaporean, Malaysian, Korean and increasingly PRC students, not so apparent as they once were. There'll always be linguistic and cultural reasons for moving to another country to study, but the *educational* case for international students to study abroad is not nearly as strong as it once was. Universities will need to provide teaching of a quality well above that which these students would receive in their home countries, not to mention making special provision for them in providing a supportive extracurricular environment and services.

Despite the financial disincentives, a greater proportion of school leavers is now in higher education. Ten years ago the proportion was around 15%; now it is over 40% in many countries, and some politicians are signalling a target of up to 60%. The brightest and most committed students still go to university, as they have in the past, but they sit alongside students of rather different academic bent. The *range* of ability within classes is now considerable, which presents teaching-related problems to staff.

Cramming students into large lecture halls is no longer good enough. Many universities, accepting that teaching is no longer the poor cousin of research, have responded positively with an increasingly teaching-friendly environment. It is increasingly being recognized that good teaching is as much a function of an institution-wide infrastructure as it is a gift with which some lucky academics are born. Many universities are funding on a larger scale than previously staff development centres and centres for teaching and learning, giving recognition of research into teaching one's content area as legitimate research, and accepting an institution-wide responsibility for teaching-related issues, with policies and procedures that encourage good teaching and assessment.

In sum, under the new financial arrangements in universities, both teaching quality and maintenance of standards are under greater pressure

than ever. However, as argued in previous editions of this book, maintaining standards when the quality of students is so diverse is indeed possible. This is the 'Robert and Susan' problem, to which we return later in this chapter. The solution to the problem, briefly, is a matter of immersing students in a teaching environment that requires them to use learning activities that are likely to lead to the intended outcomes – and we use constructive alignment to achieve this.

If a focus on improving teaching at the classroom level is one consequence of the rigorous new financial regime on universities, it had quite a different effect on the management of institutions.

Managerial concerns

The new agenda for universities, to sell education and to provide for market needs, makes them like any other corporation that sells a product. Vice-chancellors become CEOs of a firm; the administration, top heavy with managers, dictates policy and such matters as what courses are to be taught and what are to be cut. This has enormous implications for both research and teaching, but we concentrate only on the latter here.

The managerial climate demands a new modularized credit-based curriculum, accountability and quality assurance. If a degree is a commodity to be sold, then the 'customer' will demand assurance as to the quality of the product, and that a degree commenced in one university can be completed in another. As students move between university and workforce and back to university, or start their degree at one institution and finish at another, they can trade in credit transfers. Hence the appearance of benchmarking institutions, in a more formalized attempt to standardize the outcomes of education than the previous external examiner system and of the modularization of degree programmes.

One version of outcomes-based education (OBE) made its appearance as a means of benchmarking and increasing accountability – but the outcomes are at institutional rather than the course level. This application and theory of OBE is quite different from that in outcomes-based teaching and learning, and constructive alignment in particular, which is concerned with more effective teaching and assessment at the course and programme level. We discuss these differences between different types of outcomes-based education later.

A danger of benchmarking and the credit transfer curriculum is that one of the important characteristics of the university, the pursuit of excellence, is endangered. Ideally, departments should build on their strengths so that they became renowned for their research and teaching in a specific area of the discipline. Credit transfers, however, may work on the equivalence not only of standards but of curriculum, so the net effect is likely not to differentiate but to homogenize the offerings between universities. Care must be taken that credit transfers do not 'dumb down' institutions

to the standards of the weakest. Many stakeholders are aware of this problem, claiming that market forces will force universities to continue to offer better quality, and/or different, programmes than the opposition.

Universities have attempted to meet these demands relating to quality and differentiation with 'graduate attributes'. These are outcome statements at institutional level to the effect that graduates of any of university X's degree programmes will display certain attributes that employers would find attractive, and that hopefully might distinguish them from graduates from other universities. Such attributes would include 'creativity', 'independent problem solving', 'professional skills', 'communications skills', 'teamwork', 'lifelong learning', and so on.

Graduate attributes are conceived in mainly two different ways: as *generic*, comprising context-free qualities of individuals, as if graduates are simply 'creative' whatever they do; or as *embedded*, that is, as abilities or ways of handling issues that are context dependent, so that creativity is only guaranteed, as it were, in a graduate's content area. We take the embedded view here, as developed in Chapter 5. The generic view of graduate attributes often comes close to personality change. One university we know states categorically that 'a university X graduate *is* culturally sensitive' (our emphasis) – in which case, a university X graduate arrested for inciting a race riot would seem to have an excellent case for suing university X for failing to deliver. These 'hard', context-free claims, reifying the attribute, are hard to sustain as anything else but spin, and an inappropriate use of outcomes-based education. As Hussey and Smith (2002) put it, outcomes 'have been misappropriated and adopted widely . . . to facilitate the managerial process'.

We need to carefully distinguish between outcomes-based approaches that are used managerially and those that are used to enhance teaching and learning. An anonymous review that appeared on the Amazon UK site of the last edition of this book didn't make that distinction. It read in part:

> The book (*Teaching for Quality Learning at University*) as a whole is an apology for the fraudulent way in which higher education is currently managed at an institutional level.

Either the reviewer hadn't read the book or the previous edition wasn't clear enough that the very last thing this book is meant to be is an apology for managerialism (see also Biggs and Davis 2001). It is not meant to be an attack either, except in so far as managerial concerns override educational concerns, to the detriment of the latter – which can be a danger, as we examine in Chapter 12.

So let us be absolutely clear about where we stand on outcomes-based education in the present edition. As we explain here, outcomes-based education refers to very different kinds of animal, some with bad names.

What then is outcomes-based education?

Since the previous edition of this book, the principles of constructive alignment have become widely used, under the more general label of 'outcomes-based education' (OBE) or 'outcomes-based teaching and learning' (OBTL). Outcomes-based teaching and learning is a convenient and practical way of maintaining standards and of improving teaching. Standards are stated up front and teaching is tuned to best meet them, assessment being the means of checking how well they have been met.

Outcomes-based education (OBE) has been used in quite different ways: for enhancing teaching and learning, and for furthering a managerial agenda. Outcomes-based education is sometimes identified with competency-based education. This is a mistake: competency-based education is just one example of outcomes-based education. Where it differs from other forms of OBE is in the definition of the outcomes, which in competency-based education are narrow competencies such as skills. For this reason, competency-based education is common in vocational and technical education. Constructive alignment might be called 'competency-based' if we restricted our intended learning outcomes to competencies and skills – but as we don't so restrict the level of our intended learning outcomes, but extend them to as high a cognitive level a university teacher wants, constructive alignment cannot be identified with competency-based education.

Yet another version of OBE has in the last decade become headline news, damned as 'the Nazi model' (Kjos no date), 'left wing propaganda' (Donnelly 2004), an 'infection in the Australian education system' (Brendan Nelson, one-time Australian Federal Minister of Education).

The fact that the same term, outcomes-based, has been used in these different ways has created immense confusion, not to say mischief – as indeed we have seen in the case of our anonymous Amazon reviewer. Because of the confusions, and the emotion that OBE has aroused, we must clarify what we are talking about, and forthwith.

OBE version one

William Spady (1994) proposed an individualized programme for disadvantaged school students that he called 'outcome-based education'. Instead of teaching the standard disciplines, he set up targets for each student to reach so that all could achieve some sort of success. What attracted most ire was that his targets included a values component of a general humanistic kind that Christian fundamentalists thought were not the school system's business. The Spady model, less some of the values outcomes, was picked up and adapted by several Australian state education departments. However, they made the bad mistakes, so some thought, of designing cross-disciplinary targets – no more 'basics', you see – and of using a sort of postmodern management-speak that many parents and

teachers didn't understand and that conservative politicians took for left-wing propaganda.

OBE version two

This version comes from the accountability movement in the USA (Ewell 1984; Miller and Ewell 2005). Here the 'outcomes' are at the institutional level, comprising averaged student performances and other kinds of institutional outcomes, in order to meet accreditation requirements and the requests of external stakeholders like employers and policymakers. Most US institutions now have a set of outcomes statements in place, constructed with the aid of an enormous 'template' comprising four dimensions and 12 sub-dimensions, each containing its own outcomes (Ewell 1984): knowledge outcomes (two sub-dimensions), skills outcomes (two sub-dimensions), attitude/value outcomes (four sub-dimensions), and relationships with society and with particular constituency outcomes (four sub-dimensions). The possible total of outcomes amounts to 48 in all.

Unfortunately, the term 'assessment' in the USA can mean assessing individual students, as it does in most other English-speaking countries, but it can also mean assessing at the institutional level, as in quality assurance. This double meaning causes a great deal of confusion, suggesting to teachers that they should be teaching and assessing students on all or most outcome dimensions and sub-dimensions. Benchmarking exercises require teachers to stipulate how the courses they teach meet these outcome statements, using them as a template, but in our experience many teachers see each dimension and its sub-dimensions not just for benchmarking but as mandatory in their teaching and assessment of students, creating a procrustean monster to which they are to fit their own course outcome statements. As we see in Chapter 5, programme and course outcomes alike should rarely exceed five or six in number, otherwise it is practically impossible to align teaching/learning activities and assessment tasks to them all.

OBE version three

The final version we distinguish is outcomes-based teaching and learning (OBTL), which had its seeds in the Dearing Report (1997), where outcomes are defined specifically to enhance teaching and assessment, not to serve any other purpose*.

The essential features of OBTL are that, first, we state what we intend the outcomes of our teaching a particular course or programme to be. An

* Hong Kong's University Grants Committee has just adopted the very appropriate 'Outcomes-based Approaches to Student Learning' (OBASL)

outcome statement is a statement of how we would recognize if or how well students have learned what is intended they should learn, not a prompt list of topics for teachers to 'cover' in a curriculum. Such an outcome statement tells us what, and how well, students are able to do something that they were unable, or only partially able, to do before teaching. Good teachers have always had some idea of that – that is one reason why they are good teachers. In outcomes-based teaching and learning, we are simply making that as explicit as we can – always allowing for unintended but desirable outcomes. Teachers and critics often overlook this last point; that students may also learn outcomes that hadn't been foreseen, but which are eminently desirable. Of course, we should allow for these in our assessment strategies! The issue of unexpected or unintended outcomes is discussed in Chapter 9.

The second essential feature of outcomes-based teaching and learning is that teaching should be done in such a way as to increase the likelihood of most students achieving those outcomes. Talking about the topic, as in traditional teaching, is probably not the best way of doing that. We need to engage the students in learning activities that directly link to achieving the intended outcomes. The Susan and Robert story in the next section expands on this point.

The third essential feature is that we need to assess how well the outcomes have been achieved. Usually this means using an assessment task that requires the student to perform the intended outcome itself. This, in many cases, is not best achieved by giving students questions to which they write answers in an invigilated exam room.

Constructive alignment, the theme of this book and its previous editions, differs from other forms of outcomes-based teaching and learning in that in constructive alignment we systematically align the teaching/learning activities, and the assessment tasks to the intended learning outcomes, according to the *learning activities* required in the outcomes.

All this might sound difficult, time consuming and way too idealistic. That is not what an increasingly large number of university teachers are finding. This book will explain the background and lead you through all the stages of implementing constructive alignment, but using the outcomes-based terminology that is now current.

In order to clarify the distinctions made in this section, and in the hope of standardizing usage that to date has been all over the place, we propose Box 1.1. Previously, there has been little consistency about hyphenation and the use of outcome- or outcomes-: both sometimes appear in the same article.

So, let outcome-(singular)-based education (OBE) refer to version one, the Spady model; outcomes-(plural)-based education (OBE) refer to version two, the Ewell and like managerial models; and outcomes-based teaching and learning (OBTL) refer to version three. In this book, the form of OBTL we are using is where constructive alignment is the means of enhancing teaching and learning.

Box 1.1   Outcomes-based education, outcomes based education, outcome-based education and outcome based education: Which do we use?

To hyphen or not to hyphen?

Google produces identical results with or without the hyphen. Usage suggests the hyphen so let's keep it.

Outcomes-based education or outcome-based education?

Outcomes-based education: 155,000 Google hits. These mostly refer to OBE at the tertiary level.

Outcome-based education: 51,000 Google hits. These refer to school, primary and secondary levels, and to the tertiary level. However, William Spady first used the term *outcome*-based at school level, so let's keep it at that.

Solution

Outcomes-based education for tertiary. Outcome-based education for school level.

Problem

But in that case how do we distinguish the top-down managerialist OBE, which is mainly concerned with institutional-level outcomes from our OBE, which is concerned with excellent classroom teaching?

Solution

Top-down managerialist OBE can stay as it is and welcome.

Classroom-level OBE addresses teaching and learning: hence OBTL.

Constructive alignment (22,900 Google results at time of writing) is OBTL that aligns teaching and assessment to the intended learning outcomes (see Chapter 4).

Now let us return to the changing scene in university education and its effects on teaching and learning by looking at the 'Robert and Susan' problem.

Making Robert learn like Susan

Let us look at two students attending a lecture. Susan is academically committed; she is bright, interested in her studies and wants to do well. She has clear academic or career plans and what she learns is important to

her. When she learns, she goes about it in an 'academic' way. She comes to the lecture with sound, relevant background knowledge, possibly some questions she wants answering. In the lecture, she finds an answer to a preformed question; it forms the keystone for a particular arch of knowledge she is constructing. Or it may not be the answer she is looking for and she speculates, wondering why it isn't. In either event, she reflects on the personal significance of what she is learning. Students like Susan virtually teach themselves; they typically do not need much help from us.

Now take Robert. He is at university not out of a driving curiosity about a particular subject or a burning ambition to excel in a particular profession, but to obtain a qualification for a decent job. A few years ago, he would never have considered going to university. He is less committed than Susan, possibly not as bright, academically speaking. He has little background of relevant knowledge. He comes to lectures with few questions. He wants only to put in sufficient effort to pass. Robert hears the lecturer say the same words as Susan is hearing but he doesn't see a keystone, just another brick to be recorded in his lecture notes. He believes that if he can record enough of these bricks and can remember them on cue, he'll keep out of trouble come exam time.

Students like Robert are in higher proportions in today's classes. They do need help if they are to achieve the acceptable levels of understanding. To say that Robert is 'unmotivated' may be true but it is unhelpful. All it means is that he is not responding to the methods that work for Susan, the likes of whom were sufficiently visible in most classes in the good old days to satisfy us that our teaching *did* work. But, of course, it was the students who were doing the work and getting the results, not our teaching.

The challenge we face as teachers is to teach so that Robert learns more in the manner of Susan. Figure 1.1 suggests that the present differences between Robert and Susan (point A) may be lessened by appropriate teaching (point B). Three factors are operating:

- The students' levels of engagement in relation to the level of learning activity required to achieve the intended learning outcomes in relation to a particular content and context (ranging from 'describing' to 'theorizing', as between the dashed lines in Figure 1.1, p. 10).
- The degree of learning-related activity that a teaching method is likely to stimulate.
- The academic orientation of the students.

Point A is towards the 'passive' end of the teaching method continuum, where there is a large gap between Susan's and Robert's levels of engagement. A lecture would be an example of such passive teaching and we get the picture just described. Susan is working at a high level of engagement within the target range of learning activities – relating, applying and theorizing from time to time – while Robert is taking notes and memorizing and is not within the target range of activities. If you compare this with
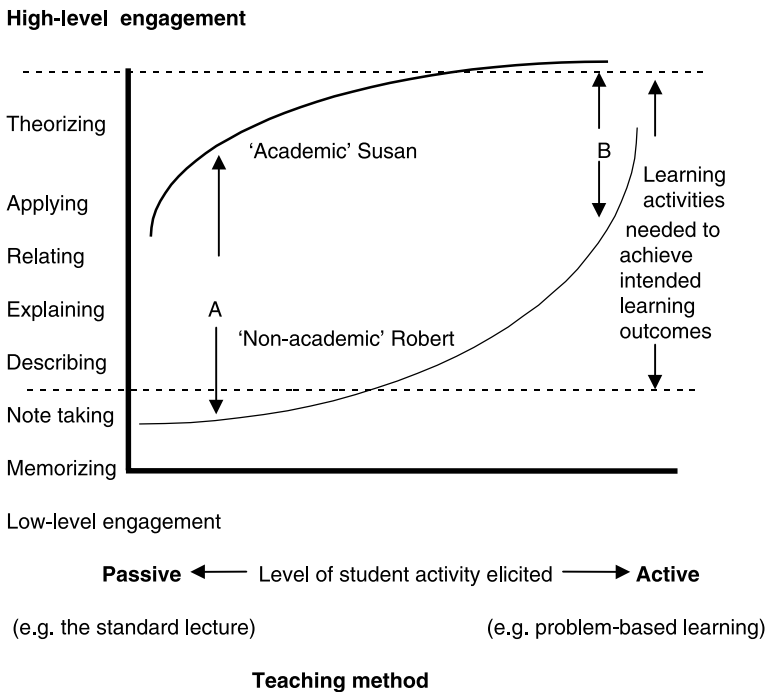
High-level engagement

Theorizing

'Academic' Susan   B

Applying   Learning
                                                                    activities
Relating   needed to
                                                                    achieve
Explaining   A   intended
                                                                    learning
                  'Non-academic' Robert   outcomes
Describing

Note taking

Memorizing

Low-level engagement

Passive ◄——— Level of student activity elicited ———► **Active**

(e.g. the standard lecture)   (e.g. problem-based learning)

Teaching method

Figure 1.1   Student orientation, teaching method and level of engagement

Figure 2.1 (on page 27), you will see that Susan is using a 'deep' approach, comprising outcomes-appropriate learning activities, while Robert is operating below what is required using a 'surface' approach.

At point B, towards the 'active' end of the teaching method continuum, the gap between Susan and Robert is not so wide; he is actually using many of the learning activities needed to achieve the intended learning outcomes. Problem-based learning would be an example of an active teaching method, because it requires students to question, to speculate, to generate solutions, so that Robert is now using the higher order cognitive activities that Susan uses spontaneously. The teaching has narrowed the gap between their levels of active engagement in learning. This is because the teaching environment requires the students to go through learning activities that are aligned to the intended outcomes. Problem-based learning is an example of such aligned teaching: the intended outcome is that the student solve professional problems and the teaching requires the student to go through solving such problems. The assessment is how well the problems are solved. This is one example of constructive alignment in teaching.

Of course, there are limits to what students can do that are beyond the teacher's control – a student's ability is one – but there are other things that are within our control and capitalizing on them is what good teaching is all

about. Although Figure 1.1 is a hypothetical graph, it helps us to define good teaching, as follows:

> *Good teaching is getting most students to use the level of cognitive processes needed to achieve the intended outcomes that the more academic students use spontaneously.*

Good teaching narrows the gap between the Susans and the Roberts of this world.

Design of this book

This book is addressed to teachers, to staff developers and to administrators. Individual teachers experience the problems, and will need to generate the solutions. Those solutions will not be found in learning a whole new bag of teaching tricks, any one of which may or may not be useful for your particular circumstances. Solutions are likely to be found in reflecting on your teaching problems, and deriving your own ways of handling them within your departmental context (see Chapters 3 and 12). But before you can do that, you need a framework with which to structure your reflections. Constructive alignment provides such a framework, anchoring teaching decisions all the time to achieving or assessing the intended learning outcomes.

Staff developers, for their part, need to continue to work with individuals, but not so much in generic standalone workshops, but within the context of their department. More generally, staff developers need to work with departments themselves on their teaching programmes and with administration to get the institutional policies and procedures right on teaching-related matters. If this book is to address quality teaching, we need to go beyond the individual and examine the institution. How the institution may be reflective is addressed in Chapter 12, together with the closely related theme of quality enhancement, not just quality assurance.

All three – teachers, staff developers and administrators – need to immerse themselves in the 'scholarship of teaching' (Boyer 1990). Academics have always been teachers, but the first priority of the majority is to keep up with developments in their content discipline and to contribute to them through research. Developing teaching expertise usually takes second place: a set of priorities dictated as much by institutional structures and reward systems as by individual choice. But there is another body of knowledge, apart from their content areas, that academics also have a responsibility to address. This is the body of knowledge that underwrites good teaching, much of which is addressed in this book.

In Chapter 2, we look at some of the research on student learning with a view to using that knowledge in designing more effective teaching. Students can use effective (deep) and ineffective (surface) approaches to

their learning and, in turn, effective teaching maximizes the former and minimizes the latter. Chapter 3 sets the stage for effective teaching by looking at what 'motivating' students might mean and what the climate for teaching might be like: this requires that teachers reflect on what they are doing and why.

The rest of the book is concerned with implementing constructive alignment in our version of outcomes-based teaching and learning, as explained in Chapter 4. Following chapters focus on crucial points in the teaching process: what constitutes a good teaching/learning environment, designing intended learning outcomes, teaching/learning activities and assessment tasks that are appropriately aligned to the outcomes and grading based on those tasks.

Chapter 12 discusses questions of how best to implement constructive alignment, both by individual teachers, and by whole departments, faculties or schools, and what lessons this has for enhancing the quality of teaching and learning in the institution as a whole. Chapter 13 presents several examples of implementing constructive alignment in one whole faculty, and in several courses drawn from different content areas. Perhaps this will convince any readers, who might have lingering doubts, that constructive alignment is not pie in the sky but eminently manageable, workable and effective.

Summary and conclusions

The nature of the change

The changing face of universities has several aspects. Financially, public funding is much decreased. The shortfall has been picked up by charging higher and higher student fees, on the neo-conservative assumption that education is a personal benefit, a commodity that should, therefore, be paid for by the individual. At the same time, proportionally more students are at university than ever before, pursuing professionally and vocationally oriented rather than the traditional academic programmes. Classrooms are thus full of a diverse range of students, all demanding the quality teaching they believe they have paid for and should be receiving. Universities are now responding to this demand for better teaching, increasingly with 'outcomes-based education'.

What is outcomes-based education?

Outcomes-based education is, however, a thoroughly confused concept. This is because there are three quite different versions, with overlapping terminology. One version arose in a scheme for disadvantaged school students, which, for various reasons, drew criticisms from the far right of politics.

Another version is used as a tool in managerialism's new role in universities for benchmarking institutions, for accountability and credit transfers, which many academics find practically and ideologically uncomfortable. The third version we refer to as outcomes-based teaching and learning (OBTL), which is solely concerned with enhancing teaching and learning. OBTL is ideally implemented using our old friend constructive alignment, introduced in the first edition of this book in 1999. Its relevance in the present context can be seen in reference to teaching Robert and Susan.

Making Robert learn like Susan

Susan is the sort of 'academic' student teachers dream about. She hardly needs teaching: she is motivated, knowledgeable and actively learning even in lectures. Robert is unsure of his goals, is doing subjects that don't really interest him and sits passively in class. There is a large gap between Susan's performance and Robert's. In a class that requires students to engage in learning activities that directly address the intended learning outcomes – where the teaching is constructively aligned, in other words – Robert is more likely to engage in the sort of learning that Susan does spontaneously. This book is designed to explain how this works and how it can be put into practice in most teaching situations.

Further reading

On trends in higher education

Beach, C., Broadway R. and McInnes, M. (eds) (2005) Higher education in Canada. www.jdi.econ.queensu.ca/

   One of the major problems in Canada is underfunding, the cost being borne by rising tuition fees. Overcrowded classes, teaching quality has declined. Students seek out good-quality academic programmes.

Dearing, R. (1997) *National Committee of Inquiry into Higher Education (Dearing Report).* Higher Education in the Learning Society, Report of the National Committee. Norwich: HMSO.

   The first major thrust towards outcomes-based education in the UK. Now most universities explicitly describe course and programme outcomes in terms of the outcomes students are intended to attain, although how far these filter through into outcomes-based teaching and learning varies between institutions.

Wittenberg, H. (2006) *Current and Future Trends in Higher Education.* Commissioned by the Austrian Federal Ministry for Education, Science and Culture.

   The shape of things to come in Europe: the Bologna process, involving standardizing modular and tiered programmes across countries with credit systems 'to make educational achievements transparent'; effects of increased participation rates, performance assessment of teaching–learning processes resulting in new forms of quality assurance.

On Susan and Robert

Buckridge, M. and Guest, R. (2007) A conversation about pedagogical responses to increased diversity in university classrooms, *Higher Education Research and Development*, 26, 133–146.

Margaret, a staff developer, and Ross, an economics teacher, hold a dialogue about dealing with the increasingly large number of Roberts sitting alongside the Susans in our classes. Is it fair to Susan to divert resources from her in order to deal with Robert? Is it fair to Robert if you don't? Is it really possible to obtain the optimum from each student in the same overcrowded class? Read, and draw your own conclusions.

2

Teaching according to how students learn

How effectively we teach depends, first, on what we think teaching is. Three levels of thinking about teaching are distinguished. The first two are 'blame' models, the first blaming the learner, the second the teacher. The third model integrates learning and teaching, seeing effective teaching as encouraging students to use the learning activities most likely to achieve the outcomes intended. To do this requires some knowledge of how students learn. Students may use inappropriate or low level activities, resulting in a *surface* approach to learning, or high-level activities appropriate to achieving the intended outcomes, resulting in a *deep* approach to learning. Good teaching supports those appropriate learning activities and discourages inappropriate ones.

Levels of thinking about teaching

All teachers have some theory of what teaching is when they are doing it, even if they are not explicitly aware of that theory and their theories deeply affect the kind of learning environment they create in their classrooms (Gow and Kember 1993). Three common theories of teaching exist, which teachers tend to hold at different points in their teaching career. In fact, these levels describe a sequence in the development of teachers' thinking and practice: a routemap towards reflective teaching, if you like, where the level at which a teacher operates depends on what is focused on as most important.

But before discussing different theories of teaching and learning, what are yours (Task 2.1 p. 16)?

Task 2.1   What are your theories of teaching and learning?

Learning is _____
_____
_____
_____

Teaching is _____
_____
_____
_____

When you have finished this chapter, come back to these statements and see how they check out against the transmission and student learning models, and the theories of teaching outlined in the chapter. Where do your own views lie? Now that you have seen these other views, have you changed your theory of teaching? _____
_____
_____

Comments _____
_____

Now let's see what others think.

Level 1. Focus: What the student is

Teachers at Level 1 focus on the differences between students, as most beginning teachers do: there are good students, like Susan, and poor students, like Robert. Level 1 teachers see their responsibility as knowing the content well, and expounding it clearly. Thereafter, it's up to the student to attend lectures, to listen carefully, to take notes, to read the recommended readings, and to make sure it's taken on board and unloaded on cue. Susan does – good student; Robert doesn't – poor student.

At Level 1, teaching is in effect held constant – it is transmitting information, usually by lecturing – so differences in learning are due to differences between students in ability, motivation, what sort of school they went to, A level results, ethnicity and so on. Ability is usually seen as the most important factor, an interesting consequence of which is that teaching becomes not so much an educative activity as a *selective* one, assessment being the instrument for sorting the good students from the bad after teaching is over. Many common but counterproductive practices spring from this belief, as we discuss when dealing with teaching and assessment methods. The curriculum is a list of items of content that, once expounded from the podium, have been 'covered'. How the students receive that content and what their depth of understanding of it might be are not specifically addressed.

Level 1 is founded on a *quantitative* way of thinking about learning and teaching (Cole 1990), which manifests itself most obviously in assessment practices, such as 'marking', that is, counting up points. We examine this model, its manifestations and its consequences, in Chapter 9.

The view of university teaching as transmitting information is so widely accepted that teaching and assessment the world over are based on it. Teaching rooms and media are specifically designed for one-way delivery. A teacher is the knowledgeable expert, the sage on the stage, who expounds the information the students are to absorb and to report back accurately. How well students do these things depends, in this view, on their ability, their motivation – even their ethnicity, Asian students frequently being unfairly and inaccurately stereotyped as 'rote-learners' (Biggs 1996).

Explaining the variability in student learning on students' characteristics is a *blame-the-student* theory of teaching. When students don't learn (that is, when teaching breaks down), it is due to something the students are lacking, as exemplified in the following comments:

> *How can I be expected to teach that lot with those A level results? They wouldn't even have been admitted 10 years ago.*

> *They lack any motivation at all.*

> *These students lack suitable study skills. But that's not my problem, they'll have to go to the counselling service.*

In themselves, these statements may well be true: school leaving results might be poor, students nowadays may be less academically oriented. That is exactly the challenge for teachers, not their excuse for poor teaching.

Blame-the-student is a comfortable theory of teaching. If students don't learn, it's not that there is anything wrong with the teaching, but that they are incapable, unmotivated, foreign or they possess some other non-academic defect, which is not the teacher's responsibility to correct. Level 1 teaching is totally unreflective. It doesn't occur to the teacher to ask the key generative question: 'What else could I be doing?' And until they do ask that, their teaching is unlikely to change.

Level 2. Focus: What the teacher does

Teachers at Level 2 focus on what teachers do. This view of teaching is still based on transmission, but transmitting concepts and understandings, not just information (Prosser and Trigwell 1998). The responsibility for 'getting it across' now rests to a significant extent on what the teacher does. The possibility is entertained that there may be more effective ways of teaching than what one is currently doing, which is a major advance. Learning is seen as more a function of what the teacher is doing, than of what sort of student one has to deal with.

The teacher who operates at Level 2 works at obtaining an armoury of

teaching skills. The material to be 'got across' includes complex under-standings, which requires much more than chalk and talk. Consider the following:

> *I'll settle them down with some music, then an introductory spiel: where we were last week, what we're going to do today. Then a video clip followed by a buzz session. The questions they're to address will be on the OH. I'll then fire six questions at them to be answered individually. Yes, four at the back row, finger pointing, that'll stir that lot up. Then I speak to the answers for about seven minutes, working in those two jokes I looked up. Wrap up, warning them there's an exam question hidden in today's session (moans of 'Now he tells us!' yuk, yuk). Mention what's coming up for next week, and meantime they're to read Chapter 10 of Bronowski.*

Plenty of variation in technique here, probably – almost certainly – a good student response, but the focus of this description is entirely teacher-centred. It's about what *I* the teacher am doing, not on what *they* the students are learning.

Traditional approaches to teaching development often work on what the teacher does, as do 'how to' courses and books that provide prescriptive advice on getting it across more effectively:

- Establish clear procedural rules at the outset, such as signals for silence.
- Ensure clarity: project the voice, use clear visual aids.
- Eye contact with students while talking.
- Don't interrupt a large lecture with handouts: chaos is likely.

This may be useful advice, but it is concerned with *management*, not with facilitating learning. Good management is important, but as a means of setting the stage on which good learning may occur, not as an end in itself.

Level 2 is also a deficit model, the 'blame' this time being on the teacher. It is a view of teaching often held by university administrators, because it provides a rationale for making personnel decisions. Good teachers are those who have lots of teaching competencies. Does Dr Jones 'have' the appropriate competencies for tertiary level teaching? If not, he had better show evidence that he has by the time his contract comes up for renewal. However, competencies may have little to do with teaching effectiveness. A competency, such as constructing a reliable multiple-choice test, is useful only if it is appropriate to one's teaching purposes to *use* a multiple-choice test. Likewise, managing educational technology, or questioning skills, or any of the other competencies tertiary teachers should 'have', should not be isolated from the context in which they are being used. Knowing what to do is important only if you know why, when and how you should do it. The focus should not be on the skill itself, but whether its deployment has the desired effect on student learning.

Which brings us to the third level of teaching.

Level 3. Focus: What the student does

Teachers at Level 3 focus on what the student does and how that relates to teaching. Level 3 is a student-centred model of teaching, with teaching supporting learning. No longer is it possible to say: 'I taught them, but they didn't learn.' Expert teaching includes mastery over a variety of teaching techniques, but unless learning takes place, they are irrelevant; the focus is on what the student does and on how well the intended outcomes are achieved.

This implies a view of teaching that is not just about facts, concepts and principles to be covered and understood, but also to be clear about:

1 What it means to 'understand' content in the way that is stipulated in the intended learning outcomes.
2 What kind of teaching/learning activities are required to achieve those stipulated levels of understanding.

The first two levels did not address these questions. The first question requires that we specify what levels of understanding we want when we teach a topic. It's just not good enough for us to talk about it or teach with an impressive array of visual aids: the whole point, how well the students have learned, has been ignored. The second question requires the teaching/learning activities to be specifically attuned to helping students achieve those levels of understanding. Then follow the key questions:

- How do you define those levels of understanding as outcome statements?
- What do students have to do to reach the level specified?
- What do you have to do to find out if the outcomes have been reached at the appropriate level or not?

Defining levels of understanding is basic to clarifying our intended outcomes, the subject of Chapter 5. Getting students to understand at the level required is a matter of getting them to undertake the appropriate learning activities, which is a matter dealt with in Chapters 6, 7 and 8. This is where a Level 3 student-centred theory of teaching departs from the other models of teaching. It's not what *we* do but what *students* do that's the important thing. Finally, we need to check that their level of understanding displayed or their performance otherwise are what we intended. This is dealt with in Chapters 9, 10 and 11, on the theory and practice of assessment.

How do students learn?

Learning has been the subject of research by psychologists for the whole of last century, but remarkably little has directly resulted in improved teaching. The reason is that until recently psychologists were more concerned with developing the One Grand Theory of Learning than in studying the contexts

in which people learned, such as schools and universities (Biggs 1993a). This focus has been rectified in the last 20 years or so, and there is now a great deal of research into the ways that students go about their learning. Appropriately, the field of study is now designated as 'student learning' research.

Student learning research originated in Sweden, with Marton and Säljö's (1976a, 1976b) studies of surface and deep approaches to learning. They gave students a text to read and told them they would be asked questions afterwards. Students responded in two different ways. The first group learned in anticipation of the questions, concentrating anxiously on the facts and details that might be asked. They 'skated along the surface of the text', as Marton and Säljö put it, using a *surface* approach to learning. What these students remembered was a list of disjointed facts; they did not comprehend the point the author was making. The second group on the other hand set out to understand the meaning of what the author was trying to say. They went below the surface of the text to interpret that meaning, using a *deep* approach. They saw the big picture and how the facts and details made the author's case.

Note that the terms 'deep' and 'surface' as used here describe ways of learning a particular task, they do *not* describe characteristics of students. We can say that Robert might typically use a surface approach, but the whole point of this book is to set up ways of getting him to go deep. We return to this important distinction shortly.

The Marton and Säljö studies struck a chord with ongoing work in other countries; in particular that of Entwistle in the United Kingdom (e.g. Entwistle and Ramsden 1983) and of Biggs in Australia (e.g. 1979, 1987a). Entwistle was working from the psychology of individual differences, Biggs from cognitive psychology, and Marton and Säljö from what they later called phenomenography. However, all had a common focus: studying learning in an institutional context.

Some strong implications for teaching could be drawn from this work, as we explore in this chapter.

Constructivism and phenomenography

Level 3 theories of teaching are based on two main theories: phenomenography and constructivism. 'Phenomenography' was a term resurrected by Marton (1981) to refer to the theory that grew out of his studies with Säljö on approaches to learning and has developed since then (Marton and Booth 1997). Originally used by Sonnemann (1954) in clinical psychology, phenomenography in the student learning context refers to the idea that the learner's perspective determines what is learned, not necessarily what the teacher intends should be learned. This is another reason why our intended learning outcomes should be stated as clearly as possible and their attainment monitored. Teaching is a matter of changing the learner's perspective, the way the

learner sees the world and on how learners represent knowledge (Prosser and Trigwell 1998).

Constructivism has a long history in cognitive psychology going back at least to Piaget (1950). Today, it takes on several forms: individual, social, cognitive, postmodern (Steffe and Gale 1995). All emphasise that the learners construct knowledge with their own activities, building on what they already know. Teaching is not a matter of transmitting but of engaging students in active learning, building their knowledge in terms of what they already understand.

In reflecting on our teaching and interpreting our teaching decisions, we need a theory. Whether you use phenomenography or constructivism as that theory may not matter too much, as long as your theory is consistent, understandable and works for you. We prefer constructivism as our framework for thinking about teaching because it emphasizes what students have to do to construct knowledge, which in turn suggests the sort of learning activities that teachers need to address in order to lead students to achieve the desired outcomes. In conceptualizing outcomes-based teaching and learning, constructivism works for us.

Both theories agree that effective learning changes the way we see the world. The acquisition of information in itself does not bring about such a change, but the way we *structure* that information and think with it does. Thus, education is about *conceptual change*, not just the acquisition of information.

Such conceptual change takes place when:

1 It is clear to both teachers and students what the intended outcomes of learning are, where all can see where they are supposed to be going. Outcomes-based teaching and learning requires this of teachers, whereas teaching in the form of 'covering a topic' does not.
2 Students experience the felt need to get there. The art of good teaching is to communicate that need where it is initially lacking. 'Motivation' is as much a product of good teaching as its prerequisite. This question is addressed in the next chapter.
3 Students feel free to focus on the task, not on watching their backs. Attempts to create a felt need to learn by the use of ill-conceived and urgent assessments are counterproductive. The game changes, becoming a matter of dealing with the test, not with engaging the task deeply.
4 Students work collaboratively and in dialogue with others, both peers and teachers. Good dialogue elicits those activities that shape, elaborate, and deepen understanding.

These four points contain a wealth of implication for the design of teaching and for personal reflection about what one is really trying to do, as we examine in the following chapter.

Surface and deep approaches to learning

The concepts of surface and deep approaches to learning are very helpful in conceiving ways of improving teaching. Sometimes it is useful to refer to an 'achieving' approach (Biggs 1987a), or 'strategic approach' (Tait et al. 1998), referring to how ambitious and how organized students are, but we do not go into this here. Our concern is with how learning tasks are handled. The surface and deep approaches usefully describe how Robert and Susan typically go about their learning and studying – up to the point when teaching begins. Our aim is to teach so that Robert learns more like the way Susan does.

Surface approach

The surface approach arises from an intention to get the task out of the way with minimum trouble, while appearing to meet course requirements. Low cognitive-level activities are used, when higher level activities are required to do the task properly. The concept of the surface approach may be applied to any area, not only to learning. The terms 'cutting corners', and 'sweeping under the carpet', convey the idea: the job appears to have been done properly when it hasn't.

Applied to academic learning, examples include rote learning selected content instead of understanding it, padding an essay, listing points instead of addressing an argument, quoting secondary references as if they were primary ones; the list is endless. A common misconception is that memorization in itself indicates a surface approach (Webb 1997). However, verbatim recall is sometimes entirely appropriate, such as learning lines for a play, acquiring vocabulary or learning formulae. Memorization becomes a surface approach when understanding is required and memorizing is used to give the impression that understanding has occurred. When Robert takes notes, and selectively quotes them back, he is under-engaging in terms of what is properly required. That is a surface approach – but the problem is that it sometimes works:

> 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.
>
> (A psychology undergraduate, quoted in Ramsden 1984: 144)

If the teacher of this student thought that an adequate understanding of psychology could be manifested by selectively memorizing, there would be no problem. But it is unlikely that the teacher did think that – we should hope not, anyway. This is rather a case where an inappropriate assessment

task *allowed* the students to get a good mark on the basis of memorizing facts. As it happened, this particular student wrote essays in a highly appropriate way and later graduated with first class honours. The problem is therefore not with the student, but with the assessment task. This teacher was not being reflective while the student was highly reflective: he'd outconned the teacher.

Thus, do not think that Robert is irredeemably cursed with a surface approach if he only lists unrelated bullet points as his understanding of an article. Let us say that *under current conditions of teaching or assessment,* he chooses to use a surface approach. Teaching and assessment methods often encourage a surface approach, because they are not aligned to the aims of teaching the subject, as in the case of the psychology teacher we just saw. The presence of a surface approach is thus a signal that something is out of kilter in our teaching or in our assessment methods. It is therefore something we can hope to address. It might in the end turn out that Robert is a student who is hopelessly addicted to surface learning, but that conclusion is way down the track yet.

In using the surface approach, students focus on what Marton calls the 'signs' of learning; the words used, isolated facts, items treated independently of each other. This prevents students from seeing what the signs signify, the meaning and structure of what is taught. Simply, they cannot see the wood for the trees. Emotionally, learning becomes a drag, a task to be got out of the way. Hence the presence of negative feelings about the learning task: anxiety, cynicism, boredom. Exhilaration or enjoyment of the task is not part of the surface approach.

Factors that encourage students to adopt such an approach include:

1 *From the student's side*:

- An intention only to achieve a minimal pass. Such may arise from a 'meal ticket' view of university or from a requirement to take a subject irrelevant to the student's programme.
- Non-academic priorities exceeding academic ones.
- Insufficient time; too high a workload.
- Misunderstanding requirements, such as thinking that factual recall is adequate.
- A cynical view of education.
- High anxiety.
- A genuine inability to understand particular content at a deep level.

2 *From the teacher's side*:

- Teaching piecemeal by bullet lists, not bringing out the intrinsic structure of the topic or subject. (We hasten to add that some bullet lists, like these two here, for instance, are OK.)
- Assessing for independent facts, inevitably the case when using short-answer and multiple-choice tests.
- Teaching, and especially assessing, in a way that encourages cynicism:

for example, 'I hate teaching this section, and you're going to hate learning it, but we've got to cover it.'
- Providing insufficient time to engage the tasks; emphasizing coverage at the expense of depth.
- Creating undue anxiety or low expectations of success: 'Anyone who can't understand this isn't fit to be at university.'

Points 1 and 2 should not be seen as entirely separate. Most of the student factors are affected by teaching. Is insufficient time to engage properly a matter of poor student planning or of poor teacher judgment? Much student cynicism is a reaction to the manner of teaching busy-work and of assessment. Even the last student factor, inability to understand at a deep level, refers to the task at hand and that may be a matter of poor teacher judgment concerning curriculum content as much as the student's abilities. But there are limits. Even under the best teaching some students will still maintain a surface approach.

It is probably less likely that under poor teaching students will maintain a deep approach. Even Susan. Unfortunately, it is easier to create a surface approach than it is to support a deep approach (Trigwell and Prosser 1991).

The first step in improving teaching, then, is to avoid those factors that encourage a surface approach.

Deep approach

The deep approach arises from a felt need to engage the task appropriately and meaningfully, so the student tries to use the most appropriate cognitive activities for handling it. To Susan, who is interested in mathematics and wants to get to the bottom of the subject, cutting corners is pointless.

When students feel this need-to-know, they automatically try to focus on underlying meanings, on main ideas, themes, principles, or successful applications. This requires a sound foundation of relevant prior knowledge, so students needing to know will naturally try to learn the details, as well as making sure they understand the big picture. In fact, the big picture is not understandable without the details. When using the deep approach in handling a task, students have positive feelings: interest, a sense of importance, challenge, exhilaration. Learning is a pleasure. Students come with questions they want answered, and when the answers are unexpected, that is even better.

Factors that encourage students to adopt such an approach include:

1 *From the student's side*:

- An intention to engage the task meaningfully and appropriately. Such an intention may arise from an intrinsic curiosity or from a determination to do well.
- Appropriate background knowledge.

- The ability to focus at a high conceptual level, working from first principles, which in turn requires a well-structured knowledge base.
- A genuine preference, and ability, for working conceptually rather than with unrelated detail.

2 *From the teacher's side*:

- Teaching in such a way as to explicitly bring out the structure of the topic or subject.
- Teaching to elicit an active response from students, e.g. by questioning, presenting problems, rather than teaching to expound information.
- Teaching by building on what students already know.
- Confronting and eradicating students' misconceptions.
- Assessing for structure rather than for independent facts.
- Teaching and assessing in a way that encourages a positive working atmosphere, so students can make mistakes and learn from them.
- Emphasizing depth of learning, rather than breadth of coverage.
- In general, and most importantly, using teaching and assessment methods that support the explicit aims and intended outcomes of the course. This is the constructive alignment model underlying this book. It is also known as 'practising what you preach'.

Again, the student factors (1) are not independent of teaching (2). Encouraging the need-to-know, instilling curiosity, building on students' prior knowledge are all things that teachers can attempt to do; and, conversely, are things that poor teaching can too easily discourage. There are many things the teacher can do to encourage deep learning. Just what will be a lot clearer by the end of this book.

Desirable student learning depends both on student-based factors – ability, appropriate prior knowledge, clearly accessible new knowledge – and on the teaching context, which includes teacher responsibility, informed decision making and good management. But the bottom line is that teachers have to work with what material they have. Whereas lectures and tutorials might have worked in the good old days when highly selected students tended to bring their deep approaches with them, they may not work so well today. We need to create a teaching context where the Roberts of this world can go deep too.

The second step in improving teaching, then, is to focus on those factors that encourage a deep approach.

What is the difference between learning approaches and learning styles?

Some people speak of students' approaches to learning as if they were learning styles students use whatever the task or the teaching (Schmeck 1988); others speak of approaches as entirely determined by context, as if students

walk into a learning situation without any preference for their way of going about learning (Marton and Säljö 1976a).

We take a middle position. Students do have predilections or preferences for this or that approach, but those predilections may or may not be realized in practice, depending on the teaching context. We are dealing with an *interaction* between personal and contextual factors, not unlike the interaction between heredity and environment. Both factors apply, but which predominates depends on particular situations. Have another look at Figure 1.1 (p. 10). At point A, under passive teaching, student factors make the difference, but at point B, active teaching predominates, lessening the differences between students. For an analysis of the differences between learning styles and learning approaches see Sternberg and Zhang (2001). Practically speaking, however, it is more helpful to see approaches to learning as something we as teachers can hope to change, rather than as styles about which we can do little.

Scores on such questionnaires as the *Approaches and Study Skills Inventory for Students* (ASSIST) (Tait et al. 1998) or the *Study Process Questionnaire* (SPQ) in either the three-factor (surface, deep and achieving) (Biggs 1987a) or two-factor versions (surface and deep only) (Biggs et al. 2001), are most usefully seen as outcomes of teaching rather than as measuring student differences. Responses to these questionnaires tell us something about the quality of the teaching environment, precisely because students' predilections tend to adapt to the expected requirements of different teaching environments.

Teaching and approaches to learning

To achieve most intended learning outcomes (ILOs), a range of verbs, from high to low cognitive level, need to be activated. The highest would refer to such activities as reflecting, theorizing and so on, the lowest to memorizing, and in between are various levels of activity. When using a deep approach, students use the full range of desired learning activities; they learn terminology, they memorize formulae, but move from there to applying these formulae to new examples, and so on. When using a surface approach, there is a shortfall; students handle all tasks, low and high, with low level verbs ('two pages of writing, etc.'). The teaching challenge is to prevent this shortfall from occurring, or to correct it where it has occurred (see Figure 2.1).

The conclusion to be drawn is simple but powerful: the surface approach is to be discouraged, the deep approach encouraged – and that is the working definition of good teaching used in this book. Preventing students from using a surface approach by discouraging the use of low level and inappropriate learning activities is the main thrust of the following chapter, while supporting the full range of appropriate learning activities, thus encouraging a deep approach, is what the remainder of the book is about.

Now try Task 2.2 (p. 28) to see how your teaching has helped shape your students' approaches to learning.
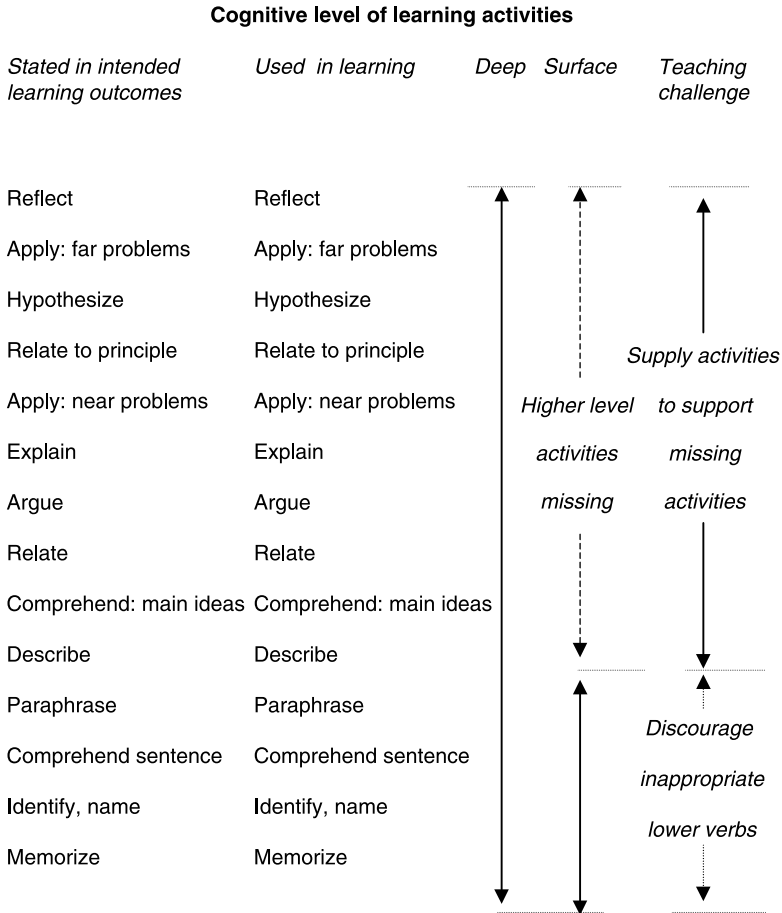
Cognitive level of learning activities

Stated in intended learning outcomes	Used in learning	Deep Surface	Teaching challenge
Reflect	Reflect		
Apply: far problems	Apply: far problems		
Hypothesize	Hypothesize		
Relate to principle	Relate to principle		Supply activities
Apply: near problems	Apply: near problems	Higher level	to support
Explain	Explain	activities	missing
Argue	Argue	missing	activities
Relate	Relate		
Comprehend: main ideas	Comprehend: main ideas		
Describe	Describe		
Paraphrase	Paraphrase		Discourage
Comprehend sentence	Comprehend sentence		inappropriate
Identify, name	Identify, name		lower verbs
Memorize	Memorize		

Figure 2.1   Desired and actual level of engagement, approaches to learning and enhancing teaching

Summary and conclusions

Levels of thinking about teaching

We distinguish three common theories of teaching, depending on what is seen as the main determinant of learning: (1) what students are, (2) what teachers do and (3) what students do. These define 'levels' of thinking about teaching. At Level 1, the teacher's role is to display information, the students' to absorb it. If students don't have the ability or motivation to do that correctly, that is their problem. At Level 2, the teacher's role is to explain concepts and principles, as well as to present information. For this they need

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Task 2.2   Does your teaching encourage surface or deep approaches to learning?

Good teaching *encourages* a deep approach, and *discourages* a surface approach, to learning.
    Reflect on your teaching so far, identify aspects of your teaching that have (maybe unintentionally)

a encouraged a surface approach to learning:

_____
_____
_____
_____

b encouraged a deep approach to learning:

_____
_____
_____
_____

What future actions would you take to encourage a deep approach to learning in your students?

_____
_____
_____
_____

---

various skills, techniques, and competencies. Here the focus is on what the teacher does, rather than on what the student is, and to that extent is more reflective and sophisticated. At Level 3, the focus is on what the student does: are they engaging those learning activities most likely to lead to the intended outcomes? If not, what sort of teaching/learning context would best help them? How can I know that they have achieved the intended outcomes satisfactorily?

How do students learn?

It is only in comparatively recent years that researchers into learning have studied learning as it takes place in institutions, by students. There is now a body of theory called 'student learning research' which directly relates to practice, constructivism and phenomenography being the two most influential. Both emphasize that meaning is created by the learner, but constructivism focuses particularly on the nature of the learning activities the student uses and on this account more readily leads to enhanced teaching.

Surface and deep approaches to learning

Learning activities that are too low a level to achieve the intended learning outcomes are referred to as comprising a 'surface' approach to learning, for example memorizing to give the impression of understanding. Activities that are appropriate to achieving the outcomes are referred to as a 'deep' approach. At university, intended outcomes would be high level, requiring students to reflect, hypothesize, apply and so on. Surface and deep approaches to learning are not personality traits, as is sometimes thought, but are most usefully thought of as reactions to the teaching environment.

Teaching and approaches to learning

Good teaching supports those activities that lead to the attainment of the intended learning outcomes, as in constructive alignment. This is the topic for the most of this book. However, there is much in what the teacher does or says that can encourage inappropriate, surface approaches to learning. These are of course to be discouraged. To do so is to set the stage for effective teaching, which is the subject of the following chapter.

Further reading

Biggs, J.B. (1993b) From theory to practice: A cognitive systems approach, *Higher Education Research and Development*, 12: 73–86.
Steffe, L. and Gale, J. (eds) (1995) *Constructivism in Education*. Hillsdale, NJ: Lawrence Erlbaum.
Sternberg, R.J. and Zhang L.F. (eds) (2001) *Perspectives on Thinking, Learning, and Cognitive Styles*. Mahwah, NJ: Lawrence Erlbaum.

   The first reading applies the systems approach to student learning, the second is a fairly recent summary of the constructivist positions generally and how they apply to education.
   Sternberg and Zhang is a useful collection of chapters on learning/cognitive styles, approaches and orientations. Most contributors argue that styles are relevant to teaching, except Biggs, who argues that styles are a distraction and of little relevance to enhancing teaching.

On applying student learning research to teaching

Dart, B. and Boulton-Lewis, G. (eds) (1998) *Teaching and Learning in Higher Education*. Camberwell, Victoria: Australian Council for Educational Research.
Prosser, M. and Trigwell, K. (1998) *Teaching for Learning in Higher Education*. Buckingham: Open University Press.

Ramsden, P. (2003) *Learning to Teach in Higher Education.* London: Routledge.
Tyler, R.W. (1949) *Basic Principles of Curriculum and Instruction.* Chicago: University of Chicago Press.

Dart and Boulton-Lewis contains a collection of papers that address teaching issues from the general student learning paradigm. Prosser and Trigwell demonstrate the implications for teaching arising from the phenomenographic framework and is in a sense a parallel to the present book, which operates from constructivism. Ramsden's approach is his own, but derives much from phenomenography, Chapters 1 to 7 giving rather more detail on the history and development of the student learning paradigm than is given here and how it may be applied to teaching. Tyler said most of it over 50 years ago, but no one paid any attention. It is under 100 pages in length and is well worth a read, for old time's sake. We hope they pay attention this time round.

3

Setting the stage for effective teaching

Effective teaching requires that we eliminate those aspects of our teaching that encourage surface approaches to learning and that we set the stage properly so that students can more readily use deep approaches to learning. This involves getting students to agree that appropriate task engagement is a good and impelling idea (otherwise known as 'motivation'), and establishing the kind of climate that will optimize appropriate interactions with our students. An important aspect to effective teaching is reflective practice, using transformative reflection, which enables teachers to create an improved teaching environment suited to their own context.

Getting students involved in learning: Motivation

There is no such thing as an unmotivated student: all students not in a coma want to do *something*. Our task is to maximize the chances that what they want to do is to achieve the intended learning outcomes. Unfortunately, there are many aspects of teaching that actually discourage them from doing that: we need to identify and minimize these as far as we can.

The best sort of motivation arises from intrinsic interest, fascination, call it what you will, but, unfortunately, that occurs well down the track, when the student already knows a lot about the topic and, like Susan, is already involved in it. Our problem as teachers is getting students engaged in learning before they have reached that stage or, worse, students like Robert who resort to surface learning strategies to avoid becoming involved. It doesn't help to say such students are 'unmotivated'. Of course they are: that's the problem.

Teachers who have a Level 1 theory of teaching see motivation as a substance that students possess in varying quantities, the Susans having lots, the

Roberts having little or none – and that's the way it is. But surely we can do *something* to encourage Robert to engage? Yes, we can. Two factors make students (or anyone, come to that) want to learn something:

1 It has to be important; it must have some *value* to the learner.
2 The learner needs to *expect success* when engaging the learning task.

Nobody wants to do something they see as worthless. Neither do they want to do something, however valued, if they believe they have no chance of succeeding. In both cases, doing the task will be seen as a waste of time.

This commonsense theory of why students do or do not want to learn is called the *expectancy-value* theory of motivation, which says that if anyone is to engage in an activity, he or she needs both to value the outcome and to expect success in achieving it (Feather 1982). The high value and the expectancy of success both need to be present; if either one is zero, then no motivated activity occurs.

Expectancy-value theory is particularly relevant in the early stages of learning before interest has developed to carry continuing engagement along with it. The following true incident illustrates this clearly:

> When we got to the Psych. I lectures, the Stats lecturer said 'Anyone who can't follow this isn't fit to be at University.' That was the first message I got. I *was* having difficulty with Stats and so I thought, maybe he's right, maybe university isn't for me. I liked the rest of Psych. but couldn't handle the Stats and had to withdraw.
>
> Next year, funny thing, I did Maths I and we came to probability theory, much the same stuff that I'd bombed out in last year. But the lecturer there said 'Probability is quite hard really. You'll need to work at it. You're welcome to come to me for help if you really need it . . .'
>
> It was like a blinding light. It wasn't *me* after all! This stuff really was *hard*, but if I tried it might just work. That year I got a Credit in that part of the subject.
>
> (A mature student, quoted in Biggs and Moore 1993: 272)

This story has important implications for understanding what motivates students.

What makes students expect to succeed or to fail?

The student just quoted had initially been led to believe she had no chance of success. Her first teacher attributed lack of success to lack of ability, she perceived she was not succeeding, so she naturally concluded she didn't have the ability needed. As this was something beyond her control, she concluded she had no chance of ever succeeding. Her second teacher attributed success instead to effort, which is something the student could control. With that came the liberating realization that what was certain failure could now

be possible success. So she engaged the task and did, in fact, succeed. The reasons for that transformation are very instructive in the matter of motivating students.

With a history of successful engagement with content that is personally meaningful, the student both builds up the knowledge base needed for deep learning and, motivationally, develops the expectations that give confidence in future success: what are known as feelings of what psychologists call self-efficacy or more simply 'ownership': 'I can do this; this is my thing.'

Expectations of success are instilled on the basis of previous success, but only if the conditions that are believed to lead to success remain unchanged. If a student believes that a particular success was due to factors that might change and that are uncontrollable, such as luck or dependence on a particular teacher, belief in future success is diminished.

For example, westerners differ significantly from the Chinese in their attributions for success and failure. Westerners tend to see success as being attributable more to ability than to effort, while ethnic Chinese see effort as more important. This is possibly one reason that Chinese students do so well in international comparisons of attainment (Watkins and Biggs 1996).

Take methods of assessing students. Norm-referenced assessment is based on grading students against each other, for example by ranking, or 'following the curve': we deal with this in detail in Chapter 9. Students see this sort of assessment as competitive; to get a high grade you have to beat other students. This puts a premium on the importance of relative ability as determining the outcome. In criterion-referenced assessment, where students are assessed on how well they meet preset criteria, they see that to get a high grade they have to know the intended outcomes and learn how to get there, with a premium on attributions involving effort, study skill and know-how. In norm-referenced assessment success depends on the abilities of other students, over which there is no control, while in criterion-referenced assessment, the ball is in the student's court.

Teacher feedback has powerful effects on students' expectations of success, as the story on learning statistics makes very clear. Ironically, the psychology statistics lecturer's comment pre-empted student control, while the mathematics teacher made students see that it was up to them. Feedback as to progress also encourages beliefs in future success, which again is easier with criterion-referenced assessment: 'This is what you did, this is what you might have done, this is how to get a better result.'

But how can norm-referenced feedback, such as 'You are below average on this', help students to learn? What does Robert do with *that* information? This is not to say that some students don't want to be told where they stand in relation to their peers, but that information has little to do with teaching and learning. It is nice to be told that you're cleverer than most other students, but not very helpful for learning how to improve your performance. To be told, directly or indirectly, that you're dumber than most others is simply destructive.

To instil expectations of failure, as did our psychology statistics lecturer

with consummate skill, is easy to do. This is classic blame-the-student stuff: attributing failure to lack of ability or to some other entity that lies fixed within the student. A valuable act of self-reflection as a teacher is to monitor what you say, how you say it, and what comments you write in students' assignments. What does the subtext say about future failure?

Task 3.1 asks you to think of the messages you send your students that might leave them feeling hopeful or hopeless about future success.

Task 3.1   What messages of success and failure do you convey to your students?

When students succeed, do you convey the hopeful message that their success will continue: 'You're good at this, aren't you?' Or the hopeless message: 'You had it lucky that time.'

When students fail, do you convey the hopeful message that they can succeed in future: 'This is hard, but with a bit more effort you'll get it right.' Or the hopeless messages: 'I guess you just don't have what it takes.'

Think back on some recent communications to students – such as comments in class, body language, handling questions, writing comments on assignments, describing what it takes to succeed, descriptions of tasks, readings and so on – do you think you convey hopeful, or hopeless, messages? Write down a couple of telling examples:

1 _____
_____
_____

2 _____
_____
_____

What makes a task worth doing?

Next, we look at the value term in the expectancy-value formula. How can we enhance the value of the task to the students? The general answer is clear enough: make their work important to them. Work can be important in various ways, each one producing a familiar category of motivation:

- what the outcome produces (*extrinsic* motivation)
- what other people value (*social* motivation)
- the opportunity for ego enhancement (*achievement* motivation)
- the process of doing it (*intrinsic* motivation).

Extrinsic motivation occurs when students perform the task because of the value or importance they attach to what the outcome brings, either something positive following success, such as a material reward, or something negative, such as a punishment, that would follow failure or non-engagement.

The quality of learning is usually low under extrinsic conditions. The student's attention is not so much on the task as on its consequences. Extrinsic motivation is a standing invitation to students to adopt a surface approach: indeed, the motive component of a surface approach is extrinsic, including a fear of failure (Biggs 1987a). Negative reinforcement is worse than positive, because if the learning is not successful, punishment is implicated, which introduces a range of side issues such as anxiety, anger, shame, desire for revenge, none of which is very helpful in getting the job done.

Social motivation occurs when students learn in order to please people whose opinions are important to them. If the processes of studying, or the fruits of a good education, are valued by other people important to the student, education may take on an intrinsic importance to the student. This is evident in some families, particularly Asian families, who have a high regard for education. Children with this family background are likely to accept that education is a good thing, to be pursued without question.

We can usually trace the beginning of our interest in something to someone who exhibited that interest to us. We want to be like them. This process is called 'modelling', where the models are admired and readily identified with. University teachers are in a good position to be seen as models, especially in the one-to-one situation of dissertation supervision. At the undergraduate level, in today's crowded universities, students are rather less likely to have the opportunity to engage closely with an academic but it can happen, especially if the academic publicly displays great enthusiasm for the subject.

Achievement motivation is about achieving in order to enhance the ego, such as competing against other students and beating them. They feel good about themselves. This can often lead to high achievement, and tends even to be associated with deep learning (Biggs 1987a), but the aims of deep learning and of achievement motivation ultimately diverge. The deep approach is concerned with handling the task as *appropriately* as possible, the achieving approach with handling it as *grade effectively* as possible.

Achievement motivation in the raw is not a pretty sight. It kills collaborative learning. Other students become competitors, not colleagues, and so steps are taken to disadvantage others: key references are hidden or mutilated, hints are not shared, misleading advice is given. Achievement motivation needs competitive conditions in which to work, and while that suits the minority of students who are positively motivated by competition, it actually damages the learning of those who perceive competition as threatening. Achievement motivation, like anxiety, changes the priorities of students, because content mastery plays second fiddle either to winning or to avoiding the appearance of losing. More students are turned off and work less well under competitive conditions than those who are turned on and work better.

Although competition is often touted as the way the 'real' world works, it does not follow that universities should make learning competitive for the general run of students, as happens when using norm-referenced assessments such as 'grading on the curve.'

Intrinsic motivation is the academic ideal but is the rarer for that. Students like Susan learn because they are interested in the task or activity itself. They do mathematics for the intellectual pleasure of problem solving and exercising their skill, independently of any rewards that might be involved. The point is to travel rather than to arrive. Intrinsic motivation drives deep learning and the best academic work.

Intrinsic motivation increases with continuing successful engagement with a specific task. Susan does not turn up at university to study mathematics without having experienced previous success in mathematics. The fact that many students may not have had much previous formal engagement in a subject does not, however, mean they will not develop intrinsic interest in it. Interest in subjects such as psychology or sociology, which may not have been studied previously, arises from curiosity and informal experience or from career plans. If the student sees the area as personally important, intrinsic interest will follow.

The question is: How do we motivate the Roberts, who have no definite career plans, no perception yet of personal importance of the area or even curiosity about related topics?

Involving students who are not yet intrinsically motivated

Rephrase the question: If a student doesn't yet see the task as important, how can we help make it so?

Let us look first at extrinsic motivation, as when the teacher sees assessment as the answer. A common cry is that students will not spend time learning a topic if they think it is not going to be assessed. Very well, some say, see that the topic *is* assessed. But this is an excellent way of devaluing it. The subtext says: 'The only value of this topic is that I have decided to test you on it!'

In an aligned system of teaching, this does not happen. The reason that the topic is being assessed is because it was important enough to be overtly included in the intended outcomes. The fact that it is there establishes its value. Assessing outside, or below, the curriculum gives irrelevant or counterproductive tasks a false value that students will resent or turn to their advantage, as did the student who wrote 'who said what on two sides of paper'.

It also depends on the kind of climate that has been created. One teacher informed his senior undergraduate class: 'You're going to hate the next couple of weeks; I know I am. I see absolutely no point in this form of linguistic analysis, but there it is, it's in the syllabus and we've got to cover it.'

Amazingly, one student reported she found the topic to be the most interesting part of the course, and was designing a dissertation proposal around it! Susan can cope with this kind of thing; she has her own reasons for valuing the topic. But Robert, who has nothing but the teacher's word for it, will indeed see the topic as valueless, hence not worth learning, except for the most cynical of reasons.

Using social motivation is a good strategy. Teachers who love their subject, and show it, can be inspirational. The fact that here is someone who does perceive great value in it will cause the students to be curious, to seek some of that value.

The key to motivation, then, is to ensure that academic activities are meaningful and worthwhile. This is made very clear in problem-based learning, where real-life problems become the context in which students learn academic content and professional skills. When faced with a patient with a suspected broken leg whom they have to help, learning all the necessary knowledge leading to the diagnosis and treatment of the patient is manifestly a worthwhile activity for a medical student. Problem-based learning is usually undertaken enthusiastically.

Teachers might worry less about motivating students and more about teaching better. That, in a nutshell, is what this section means. 'Motivation' is dealt with in two ways. The first is to avoid what not to do, such as devaluing academic tasks by encouraging cynicism and debilitating anxiety or by sending messages that the students have no chance of success. The second is to teach in such a way that students build up a good knowledge base, achieve success in problems that are significant and build up a feeling of 'ownership' over their learning; motivation follows good learning as night follows day. It is a matter of getting the causes and the effects right.

The next step in setting the stage for effective teaching is establishing a productive classroom climate.

The teaching/learning climate

Teachers create a certain learning climate through formal and informal interactions with students, which establishes how we and our students feel about learning. This naturally has strong effects on students' learning.

Theory X and Theory Y climates

Douglas McGregor (1960) was a management psychologist who distinguished between two organizational climates: Theory X and Theory Y. The 'theory' referred to assumptions about human trustworthiness. Managers operating on Theory X assume that workers cannot be trusted, those operating on Theory Y assume that they can and that you get better results when you do – an idea that has little traction in these neo-conservative times.

Nevertheless, the idea transfers readily to the classroom. Teachers operating on Theory X assume that students don't want to learn, they will cheat if given the slightest opportunity and so must not be allowed to make any significant decisions about their learning. They need to be told what to do and what to study, attendances need to be checked every lecture, invigilated examinations must make up most of the final grade, self- and peer-assessments are quite out of the question, deadlines and regulations need to be spelt out with sanctions imposed for failing to meet them.

This way of thinking leads very quickly to a learning climate based on anxiety: put the fear of God in them, *then* they'll shape up! Theory X is essentially a blame-the-student model of teaching, and with that goes all the other baggage associated with the Level 1 theory of teaching.

Teachers operating on Theory Y assume that students do their best work when given freedom and space to use their own judgment, that while bureaucratization of the classroom and of the institution may be necessary to run a tight ship, it may be counterproductive for good learning. Consequently, Theory Y driven teachers take the opposite view on such matters as take-home assessment tasks, self- and peer-assessment, class attendance, allowing students freedom to make their own decisions and so on. You give the benefit of the doubt. Sure, some students may be more likely to cheat when assessed on projects than on invigilated exams, but Theory Y teachers would argue that the educational benefits outweigh that risk. The aim of teaching is to support student learning, not to beat student deviousness.

These are pure cases. An all-Theory X environment would be intolerable for students, while all-Theory Y would be near impossible to run efficiently. Elements of both exist in the learning climates we create, but in our individual philosophies, we tend to lean more towards one theory or the other. Our leanings may be because of our personalities, our own educational history, but hopefully most of all, because of our worked-out theory of teaching. We should create the sort of learning climate that we believe strikes the right balance for optimal learning, given our conditions, our subject and our own students.

The extent to which we lean more towards Theory X or more towards Theory Y translates into action at virtually all levels of student–teacher interaction. For example, when one non-Cantonese-speaking teacher told colleagues at the University of Hong Kong, where English is the official language medium of instruction, that he allowed students to use Cantonese in group discussions, because group interaction was then much livelier, he was met with: 'But they could be discussing the Happy Valley race results for all you know!' True, they could have been. Contrariwise, they could have been engaged in fruitful learning.

It is a question of balancing trust, risk and value. Theory X operates on low trust, producing low-risk but low-value outcomes. You don't trust students so you assess them under high-security, invigilated conditions with little risk of cheating but what is produced under these conditions may not be relevant to the most important intended outcomes (pp. 198–200). Theory Y operates on

high trust, producing high-value outcomes but with the risk that some outcomes may be the result of cheating. The following quotation from a part-time student who was a teacher illustrates the balance between risk and value with great self-insight:

> The biggest point I have learned from this course is my biggest flaw as a teacher, that is, I did not trust my students to be able to behave themselves . . . (or to be) . . . capable of being responsible for their own learning . . . I made numerous rules in class for them to follow so as to make sure that they 'behaved', did all the preparations and planning for them, giving them mountains of homework and short tests to make sure that they revise for their lessons and so on – all rooted from my lack of trust in them! And I dared to blame them for being so passive and dependent when all along I helped to encourage them to be so!
>
> (part-time BEd student, University of Hong Kong)

How climate affects learning

Theory X restricts the range of potentially useful ways of learning, particularly self-directed learning, as the last quotation illustrates. Theory X also generates negative feelings, which distract from proper task engagement, directly encouraging a surface approach. Theory X generates two counter-productive emotions in particular, anxiety and cynicism.

Anxiety, produced for example by intimidation, sarcasm, threats of failure or heavy use of sanctions, simply creates an intense need to get out of the situation. The student's behaviour is therefore directed towards that end, rather than towards proper task engagement. Anxiety makes a mess of a student's priorities.

Cynicism works in a more coldly cognitive way. Perceptions that the teacher is degrading the task or belittling students encourages students to be cynical and with that, a deliberate decision not to engage the task honestly. If the teacher doesn't take the task seriously, why should the student? There are many ways in which teachers convey cynicism:

- Showing lack of interest or dislike of a topic ('You'll hate this, but we've got to cover it!').
- Playing games with students when they can't play back, such as setting facetious distracters in multiple-choice test items.
- Theory X by numbers, for example drawing a line after the 2000th word in a 2000 word-limit essay and marking only to that point. But if a student does exceed the limit, it may have been in order to make the argument more clearly. Messages conveyed by marking to the 2000th word include: students will take advantage wherever they can, nit picking is what it's all about, the delirious joy of exercising power, do not bother to make a case, just list points within the word limit.

- Discounting grades or marks for being late or some other offence. This practice conveys such messages as: meeting a deadline is more important than trying to create a product of quality. It also makes genuine criterion referencing impossible. Issues of learning should not be confused with issues of discipline (see Box 9.4, p. 183).
- Busy-work: insisting on trivia, making quality performance secondary to bureaucratic demands or to personal convenience.
- Authoritarianism: refusing to accept student criticisms or suggestions as to content or teaching method, being 'too busy' to attend to reasonable student requests.

Time stress: Coverage

A particular source of both anxiety and cynicism is time stress brought out by an obsession with coverage: too many topics, each taught with equal emphasis. Students become grossly overloaded and deep engagement with any topic is pre-empted. There are many reasons that students are subjected to time stress:

- Lack of coordination between teachers in setting assignment deadlines.
- Insisting on the prime importance of what you teach yourself rather than what colleagues teach.
- Lack of knowledge or even concern about the students' perspective on the workload.
- Shared teaching and particularly shared assessment, where each teacher thinks their own contribution the most important.
- Generally, a lack of care and forethought in designing the curriculum initially. OBTL provides the opportunity of reviewing course outcomes in the context of intended programme outcomes (pp. 68–70).

Deep engagement in a task takes time. If you don't provide the time, you won't get deep engagement:

> The greatest enemy of understanding is coverage – I can't repeat that often enough. If you're determined to cover a lot of things, you are guaranteeing that most kids will not understand, because they haven't had time enough to go into things in depth, to figure out what the requisite understanding is, and be able to perform that understanding in different situations.
>
> (Gardner 1993: 24)

Climate and direction: Summary

Let us bring the two sections on motivation and climate together. A Theory Y climate is a necessary but not a sufficient condition for the cultivation of

positive motivation. The teacher must further demonstrate that the task is intrinsically worthwhile and valued.

Expectations of success and failure depend critically on what students are most likely to attribute their success and failure to. How these attributions are built up is partly cultural, partly upbringing and partly what goes on in the classroom. Communicating the message that failure is due to factors that aren't going to go away and that aren't controllable (such as low ability), is to instil an expectation of future failure. Attributing failure to factors that can be changed, such as lack of the appropriate skills (these can be taught) or to insufficient effort (this can be increased next time), help remove the crippling incapacity that failure may induce. Likewise, attributions of success to a special interest, or competence, is likely to increase feelings of ownership and hence positive motivation. Attributing success to luck or to help from someone is likely to decrease feelings of ownership.

Finally, a Theory Y climate does not necessarily mean a disorganized teaching/learning environment. An organized setting, with clear goals and feedback on progress, is important for motivating students and to the development of deep approaches (Entwistle et al. 1989; Hattie and Watkins 1988). Knowing where you are going, and feedback telling you how well you are progressing, heightens expectations of success.

Driving in a thick fog is highly unpleasant. So is learning in one.

So what sort of classroom climate are you creating for your students? Task 3.2 is an exercise to help you identify your classroom climate. But what is more important is how you could improve it to facilitate a more desirable learning approach.

Reflective teaching

Wise and effective teaching is not, however, simply a matter of applying general principles of teaching according to rule; they need adapting to each teacher's own personal strengths and teaching context. A characteristic of award-winning university teachers is their willingness to collect student feedback on their teaching, in order to see where their teaching might be improved (Dunkin and Precians 1992). Expert teachers continually reflect on how they might teach even better.

Let us imagine that Susan and Robert graduated 20 years ago. Susan now is a teacher with 20 years' experience; Robert is a teacher with one year's experience repeated 19 times. Susan is a reflective teacher: each significant experience, particularly of failure, has been a learning experience, so she gets better and better. Robert is a reactive teacher. He goes through the same motions year after year and when things go wrong he tends to blame the students, the administration or government intervention. If it worked last year, but didn't work this year, how can it be his teaching that is the problem?

The kind of thinking displayed by Susan, but not by Robert, is known as 'reflective practice'. Donald Schon (1983) coined the term 'the reflective

Task 3.2 What sort of classroom climate are you creating for your students?

Put a cross on the continuum on a point that best represents what you currently do in your teaching regarding:

	Strict	Negotiable
Classroom management		
Meeting assignment deadlines		
Checking attendance		
Giving invigilated examination		
Trusting students to assess their own work		
Allowing students to take risk		
Your control of all teaching and assessment matters		

Now consider the positions of the crosses. If they are more skewed towards the 'Strict' end, you may be creating a more Theory X classroom climate. If the crosses are more skewed towards the 'Negotiable' end, then your classroom is more a Theory Y one.

So what sort of classroom climate are you creating for your students?

Is your classroom climate conducive to a deep approach to learning? If not, what actions would you take to change the classroom climate that would help your students achieve the intended learning outcomes through adopting a deep learning approach?

practitioner', pointing out that effective professionals, such as architects or medicos, need to reflect when faced with new problems or with difficulties for which they have not been specifically trained to cope. It is the same with university teachers (Brockbank and McGill 1998). A particularly inspiring and personal account of reflective practice in university teaching is given by Cowan (2002).

Reflective practice can be formally encouraged and directed as 'action research' (Kember and Kelly 1993). Action research, or action learning, involves changing teaching systematically, using whatever on-the-ground evidence that you can that the changes are in the right direction, that your students are now learning better than they used to. The target of action research is the teaching of the individual teacher herself or himself. The 'learning' in action learning refers not only to student learning, or even to learning about teaching, but to learning about oneself as a teacher and learning how to use reflection to become a better teacher. Learning new techniques for teaching is like the fish that provides a meal today; reflective practice is the net that provides meals for the rest of your life. We return to how action research may help you evaluate and transform your teaching in Chapter 12.

'Reflection' is, however, a misleading word. *Transformative reflection* is better. When you stand in front of a mirror what you see is your reflection, what you are at the time. Transformative reflection is rather like the mirror in Snow White: it tells you what you might become. This mirror uses theory to enable the transformation from the unsatisfactory what-is to the more effective what-might-be.

Theory makes us aware that there is a problem and it helps to generate a solution to that problem. This is where many tertiary teachers are lacking; not in theories relating to their content discipline, but in explicit and well-structured theories relating to teaching their discipline. Reflecting on your teaching, and seeing what is wrong and how it may be improved, requires you to have an explicit theory of teaching. We will return to this issue of reflective practice in Chapter 12, when readers' theories of teaching will have been elaborated with the contents of this book.

As noted earlier, all teachers have some kind of implicit theory of teaching, but we need something more upfront, a consciously worked-out theory that generates answers to teaching problems. The initial jolt that says 'there's a problem here' has to be defined in such a way that the problem becomes soluble. 'My stuff isn't getting across' doesn't define a soluble problem. 'The students are only giving me back what I said in my lectures' does. The last statement is based on the theory that when students only give back what is in the lectures, something is wrong. A good theory would suggest that the something resides in the teaching, rather than as some defect inherent in the students. It might be that the assessment procedures are letting students get away with repeating the lectures. So we need to present them with assessment tasks where this will not work.

To recognize and then to solve problems in teaching involves reflecting on

what is happening, using a framework that gives you an angle on what is going on in your teaching, and that helps you to design an improvement. Such a framework is presented in the next chapter.

Task 3.3 asks you to reflect on a critical incident of your teaching or assessment and see how your response to the situation is related to your theory of teaching and learning as identified in Task 3.1. We will repeat this task later in Chapter 12.

Task 3.3   Reflection on a critical teaching/assessment incident

Reflect on a critical incident in your teaching – a situation in which you thought that your teaching or assessment had not gone quite how you would have liked it to have gone. Consider the following questions.

a What was the problem? What went wrong? What was the evidence for the problem?

_____

_____

_____

b What was (were) the cause(s) of the problem?

_____

_____

_____

c How did you deal with the problem then?

_____

_____

_____

d How did your solution to the problem relate to your theory of teaching and learning?

_____

_____

_____

Improving your teaching

One step towards improving teaching is to find out the extent to which you might be encouraging surface approaches in your teaching. Table 3.1 summarizes the aspects of your personal teaching that might lead to surface approaches.

The list comes under the two headings: motivation and learning climate, although they do interrelate. Some of these things listed here as leading to surface learning – and therefore to be removed – you might think to be necessary, such as deducting marks for late submissions of assignments.

While this is a common solution to the problem of late submission, it can get out of hand, as Box 9.4 (p. 183) tells us.

Table 3.1   Aspects of teaching likely to lead to surface approaches

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Motivation

1   Conveying expectations of a low probability of success:

- Oral and written comments suggesting failure is due to lack of ability, success due to luck or other factors outside the student's control; not suggesting how a poor result might be remedied
- Norm- rather than criterion-referenced assessment
- Lack of clear direction, no feedback, no milestones of progress

2   Conveying low evaluations of tasks, cynicism:

- Playing games with students at a disadvantage, especially in the context of assessment ('funny' MC alternatives; busy-work)
- Displaying personal dislike of content being taught
- Assessing in a trivial way: low-level tasks requiring memorizing only, marking only to the literal word limit, discounting grades for non-academic or disciplinary reasons, assessments not based on content taught
- Emphasizing rules and regulations beyond their functional utility. *Subtext*: Rules are more important than learning
- Not practising what is preached. *Subtext*: You lot can do it, but it's not worth me doing it

The learning climate

3   Aspects suggesting Theory X:

- Negative reinforcement, use of anxiety to 'motivate'
- Blame-the-student explanations of student behaviour
- Time stress: failure to consider or appreciate student workload, no time available to students for reflection
- Students given little input in decisions that affect them
- Anxiety: engendered by harsh sanctions, bullying, sarcasm, lack of consideration of students' perspective, work/time pressure
- Cynicism: engendered by students feeling that you are not playing straight with them, that you don't actually believe in what you are telling them

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If you are committed to Level 3, you need to structure a predominantly Theory Y learning climate, with student learning as the top priority. This means using such features as time for reflection, trying to eliminate anxiety and cynicism and adopting the principles and practices of constructive alignment. We are dealing with a package: individual components that don't fit our constructively aligned package have to go. Late submissions will have to be handled another way.

The first set of decisions, then, is to remove those aspects of your teaching that are actually encouraging surface approaches in students. Information

on this or on other aspects of your teaching may be obtained from four possible sources:

1 Your own reflections on your teaching.
2 Your students.
3 A colleague in the role of 'critical friend'.
4 A staff developer who can offer informed advice.

Much can be achieved by transformative reflection. We can reflect on the suitability of our intended learning outcomes and on what alternative teaching/learning activities and assessment tasks we might best use. The constructive alignment framework is intended to encourage exactly that sort of reflection. The *Approaches to Teaching Inventory* (Prosser and Trigwell 1998; see also Chapter 12) is a very useful instrument for clarifying your conceptions (views) of teaching and how consistent your practices are with those conceptions.

Task 3.1 (p. 34) is a reflective task based on this chapter, the messages you convey to your students. Think about it and see what you conclude about the feedback you give your students.

It is hard for us to see what is wrong with some aspects of our teaching. We are likely to be blind to the more personal aspects. What we intend as humour might come across as sarcasm; attempts at being friendly as patronizing. Both are fertile breeding grounds for anxiety and cynicism. We need somebody to tell us such things.

Our students are the most direct source of this kind of information: it is, after all, their perceptions that structure the intention to use a surface approach. This is quite a different issue to the usual student feedback questionnaire, which is about how you teach particular courses. Obtaining student feedback in this context is best done anonymously, providing you are capable of putting up with the jibes of the facetious or the negativism of the disgruntled. You can use an open question: 'What aspects of my teaching do you like most? What would you like to see changed?' A positive note is better than: 'What do you see wrong with my teaching?' You might as well walk around with a 'Kick me' sign on your backside.

Another perspective on teaching may be provided by our colleagues. A 'buddy system' or peer review (pp. 269–71) is useful, in which two teachers in the same department – and who trust each other – visit each other's classes as critical friends. They will need a common framework and a common set of assumptions about what is good teaching to do this well.

Yet another perspective is provided by the teaching and learning development centre, if your university has one. Staff developers have the expertise to act as critical friend and to provide important insights on all stages of teaching where your own perspective might be limited.

Some problems may be located in your own personal style of teaching, which is what we are concerned with here. Task 3.4 asks you to list what at this stage you see to be major problems in your teaching that you'd like to solve.

You'll have a chance to revisit this task in Chapter 12.

Task 3.4   What are the major problems in your own teaching that you would like to solve?

Take a semester- or year-long unit that you are currently teaching and that presents you with particular difficulties or problems that you want to solve (e.g. teaching large classes, motivating students, lecturing successfully, dissatisfied with current assessment methods, covering the syllabus, getting students to understand etc.). What are the *three most worrying* problems in teaching that unit, which you would realistically hope to minimize by reading this book?

1 _____
_____
_____

2 _____
_____
_____

3 _____
_____
_____

Comment _____
_____

In the following chapters, bear this unit in mind, even if the material being addressed is not particularly problematic. At the end, you have the chance to revisit these problems.

Summary and conclusions

Getting students involved in learning: Motivation

Motivation has two meanings: it refers to initiating learning, and to maintaining engagement during learning. To initiate learning, students need to see the cost-benefits: that engaging in learning has evident value and that engagement is likely to realize that value. Value accrues to a task for a variety of reasons: *extrinsic*, where the consequences either bring something we want, or avoid something we don't want; *social*, where the value comes from what other important people think; *achievement*, where the value is ego enhancement; *intrinsic*, where we don't even think to ask where the value comes from: it's the journey, not the destination. Teachers can make use of these values to bring about positive results. Extrinsic reinforcement in the form of rewards and punishments needs to be used carefully, punishment

can be quite counterproductive. Likewise, competition may turn on some of the Susans but none of the Roberts. Teachers can act as enthusiastic role models – and if they want to motivate their students intrinsically, they should teach constructively.

The teaching/learning climate

The quality of the relationship set up between teacher and students, or within an institution, is referred to as its 'climate', the way the students feel about it. A Theory X climate is based on the assumption that students cannot be trusted, a Theory Y climate on the assumption that they can. If Level 1 and Level 3 theories of teaching describe two cognitive views of teaching, Theory X and Theory Y climates are their affective counterparts. The tight formal structures of a Theory X climate, with sanctions for non-compliance, result in anxiety and cynicism; both lead to surface learning. A Theory Y climate allows students freedom to make their own learning-related choices, which, as we shall see, is important if students are to become independent lifelong learners.

Reflective teaching

Improving teaching under these conditions is not a matter of simply learning a swag of teaching competencies. Teaching is personal and the context in which each teacher works is different. What is effective for this teacher, for that subject, at this level, for those students, may not apply to other teachers, working under their own conditions. Individuals have to work out their own solutions. This requires *transformative reflection*, a theory of teaching to reflect with and a context of experiences as the object of reflection. This process may be structured in action research, in which possible solutions are carefully monitored to gauge their success.

Improving your teaching

The two big questions for any individual teacher are: What do I believe in, a Theory X or a Theory Y climate? What am I doing, unwittingly, that might be creating the opposite climate to what I want? Teachers trying to implement aligned teaching must answer the first question with Theory Y. Information on the second question may come from one's own transformative reflections, from the students, from informed advice such as that of a colleague or of a staff developer. Each source provides a different perspective, but reliance on your own reflections isn't likely to be a productive source of information on those aspects of your teaching of which you are unaware. These can be supplemented with questionnaires, observations, and interviews,

their focus on aspects of teaching discussed in this chapter. The factors that are likely to lead to poor motivation and surface learning are summarized in Table 3.1.

Further reading

Biggs, J. and Moore, P. (1993) *The Process of Learning.* Sydney: Prentice-Hall Australia.
McGregor, D. (1960) *The Human Side of Enterprise.* New York: McGraw-Hill.

Further reading for this chapter is a tough one. There is plenty of theoretical material on motivation, but readers who don't know this literature already will have no time to read it now and transform it into functioning know-how. Most of the work on climate is either directed at school classroom level or at big business. The recent literature addressed to business persons is hairy-chested achievement motivation stuff, not Level 3 oriented at all. The exception is McGregor's original work on Theory X and Theory Y, which is well worth reading, but it needs translating into the tertiary context. The general principles of both foci of this chapter are given a more in-depth treatment in Biggs and Moore.

4

Using constructive alignment in outcomes-based teaching and learning

Constructive alignment arose out of an experiment with portfolio assessment. Students were faced with the intended outcomes of a course – mainly that their professional decision making had been improved by taught theory – and asked to provide evidence from their own professional experience as to if and how it had. The results provoked a rethink of the design of teaching: the students couldn't be 'taught' the evidence, they had to reflect on their experience and provide it themselves. The 'teaching method' became a series of negotiations as to how that evidence might be obtained, the assessment the quality of the evidence provided. The course was a success, and in reflecting on it later, it seemed that two principles were involved: a constructivist theory of learning, and alignment between the intended learning outcomes, the teaching/learning activities and the assessment tasks.

What is constructive alignment?

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. It followed the then usual model: topics drawn from the psychology of learning and development that were considered relevant to the improved practice of teaching were taught and assignments given that would assess how well the theory and the relationship between psychology and education were understood: a typical academic assignment.

Then the penny dropped. This was not the major intended outcome of the course at all. The assignment was also 'academic' in a less worthy sense: it had nothing to do with the experience and working space of the students. The ultimate aim of any professional education course, by the same token, has everything to do with the direct experience of the students: it is to

improve their professional competence. What evidence was there that it was indeed having that effect? The assignments didn't address that question. What caused the penny to drop and events that happened thereafter are contained in Box 4.1.

Box 4.1   How constructive alignment came into being

In 1994, one of the authors, John, returned from study leave in Canada to teach *The Nature of Teaching and Learning*, an evening course in the third year of an in-service, part-time BEd programme. He had been very impressed with the use of 'authentic' assessment and assessment portfolios in Canadian elementary schools. He thought portfolio assessment would be ideal for this course, which was about how knowledge of psychology might improve teaching. As the students were teachers during the day, they had plenty of opportunity to see how psychology might be working for them. However, when told that the assessment would comprise a portfolio of items, selected by them, demonstrating how psychology had improved their teaching, the students felt threatened:

> 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 the best he'd ever received. Here are a couple excerpts from their diaries:

> 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 . . . How brilliant! 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!

> Instead of bombing us with lengthy lectures and lecture notes, we have to reflect on our own learning experiences and to respond critically . . . I feel quite excited as this course is gradually leading me to do something positive to my teaching career and to experience real growth.

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 (1996)

Reflecting on why the experiment with portfolio assessment worked so well, John decided that it was because the learning activities addressed in the intended outcomes were mirrored both in the teaching/learning activities the students undertook and in the assessment tasks. This design of teaching was called 'constructive alignment' (CA), as it was based on the twin principles of constructivism in learning and alignment in the design of teaching and assessment.

It is 'constructive' because it is based on the constructivist theory that learners use their own activity to construct their knowledge or other outcome. It 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 task being to set up a learning environment that encourages the student to perform those learning activities, and then assess the outcomes to see that they match those intended.

The 'alignment' in constructive alignment reflects the fact that the learning activity in the intended outcomes, expressed as a verb, needs to be activated in the teaching if the outcome is to be achieved and in the assessment task to verify that the outcome has in fact been achieved. Take 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. Car driving is the verb that is common to all components of instruction: to the intended outcome of learning, to the learner's activity during teaching and to the assessment. 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.

By focusing on what and how students are to learn, rather than on what topics the teacher is to teach, we need to phrase the learning outcomes that are intended by teaching those topics not only in terms of the topic itself but also in terms of the learning activity the student needs to engage to achieve those outcomes: we specify not only what students are to learn, as we always have, but what they are supposed to do with it and how they are to learn it. The outcome statement also informs students how they are expected to change as a result of learning that topic. The *intended learning outcome*, or ILO, contains a helpful verb such as 'reflect on X' or 'apply theory to Y' to achieve the outcome. Once those verbs are specified, it is clear what the teaching/learning activities (TLAs) that should engage the student might be, and what the student needs to perform in the assessment task (AT).

The idea of aligning assessment tasks with what it is intended that students should learn is very old – and very obvious. It's called 'criterion-referenced assessment' in the jargon and it's what anyone outside an educational institution does when teaching anyone else anything. Yet as we see in Chapter 9,

educational institutions became enamoured of 'norm-referenced assessment', where assessment tasks performed quite a different role: to see who learned 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 university places or scholarships. However, when the aim of teaching is that students learn specified content to acceptable standards, aligning the test of learning to what is to be learned is not only logical, it is more effective in getting students to learn, as Cohen (1987) concluded after reviewing a raft of studies on the matter. Cohen was so impressed that he called such 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 4.1, p. 51) illustrates that it can.

The theory in any course 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. It isn't only in professional courses that this applies, although it is more obvious in these cases. 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. That view, and instances of the empowerment that learning gives the student, are the outcomes of learning.

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

Another difference between constructive alignment and other outcomes-based approaches is that in constructive alignment, the connections between intended learning outcomes (ILOs), teaching/learning activities (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 only between the ILOs and the assessment tasks, 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.

While the curriculum initially contains lists of content topics that are judged desirable for students to learn, those topics are translated into outcome statements that both the teaching/learning activities and the assessments tasks directly address. All components in the system address the same agenda and support each other. 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.

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 that become a surface approach to learning. Constructive alignment is a marriage between a constructivist understanding of the nature of learning and an aligned design for teaching that is designed to lock students into deep learning.

A critic of the first edition of this book described constructive alignment as 'spoon feeding'. 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 stranglehold 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 assessments tasks should be open enough to allow for that: an issue we address in Chapters 9 and 11.

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 judgments 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 of *The Nature of Teaching and Learning* were, in order of cognitive level, with the learning activities or verbs italicized:

1 *Explain in depth* why a particular course topic is important to teaching.
2 *Explain* how the component course topics interrelate.
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 is inadequate. In the following chapter we shall elaborate on this important question of the level of the outcomes by presenting two taxonomies of verbs that are classified in terms of their cognitive level. For the moment, let us stay with explain, reflect, evaluate and apply.

The first ILO, 'explain in depth', requires that the students choose a topic, say expectancy-value theory, and in their own words relate it to the practice of teaching. The second, 'explain', requires students to view the whole course and explain how the various topics interrelate to form a workable conceptual framework. '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 next question is how students were helped to activate 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, who quickly saw that the usual situation of 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 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 thought you'd want that. 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 when that's suitable. There's a topic for each session, I'll give you some pre-reading, just a few pages, before each session with some written answers needed. I'll then meet half the class at a time, while the other half is having a discussion group. We can clarify each topic in the lecture, as necessary.

And so on.

In short, instead of the teacher doing the work of teaching, the students were helped to do what *they* needed to do in order to meet the intended learning outcomes of the course.

The first two ILOs are about 'explaining', which require first that the theories in the course needed to be learned and understood at a sufficient level to allow the two kinds of explanation: in depth, and to integrate the different topics of the course. The TLAs are italicized, as follows.

The content was presented in notes and readings to be *read* before each class. The readings contained self-addressed questions to be *answered*: before the class: 'What do I most want to find out in the next class?' and after the class: 'What is the main point I learned today?' and 'What was the main point left unanswered in today's session?' The questions were *reflected on* and the answers *written* in note form in a journal. Class time, including mass lecture, was used for *questioning*, *clarifying* and *elaborating*. Each student chose a learning partner to help in *clarifying* and *elaborating* and *interacting* in whatever ways they thought might be helpful.

'Reflection' was encouraged by the journal, which contained the self-addressed questions for each day. Students were asked to *record* learning-related incidents, particularly critical incidents, and to *reflect* on them.

'Evaluation' and 'application' were addressed also with the learning partners (who were also teachers) and to extend the range of exposure to different views and professional experiences, they *discussed* in groups of

around 10 students, teaching in the same general content area. The groups had a question to address, but were basically self-directed and students had to *draw their own conclusions.*

Thus, all the learning activities mentioned in the ILOs were embedded in the TLAs in one way or another. Table 4.1 summarizes the alignment between ILOs and the TLAs.

Table 4.1   Intended learning outcomes (ILOs) for *The Nature of Teaching and Learning* and aligned teaching/learning activities (TLAs)

1 *Explain in depth* why a particular course topic is important to teaching
TLAs: Plenary sessions with pre-readings and notes used for learning information, clarification and elaboration. Application to teaching by partners and small groups

2 *Explain* how the component course topics interrelate
TLAs: As for (1)

3 *Reflect* on your teaching in terms of a working theory you have gained from the course
TLAs: Keep reflective diary; 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 portfolio required items that addressed each ILO, the highest level having to do with how students' teaching had changed as a result of being informed by theory. 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 items 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.

Table 4.2 shows the alignment between the ILOs and the items in the portfolio.

Table 4.2   ILOs for *The Nature of Teaching and Learning* and aligned assessment tasks (ATs)

---

1 *Explain in depth* why a particular course topic is important to teaching
AT: Set yourself a 2000-word essay on one of two nominated topics

2 *Explain* how the component course topics interrelate
AT: Concept map of course; letter-to-a-friend

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 ('What was the most important idea') are both learning activities and evidence for the quality of learning. Grappling with the task you want students to learn is automatically both a learning process and a learning outcome.

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 9.

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.

Summary and conclusions

This chapter described how constructive alignment came about and how the unit in which it was first used illustrates the important stages. By way of summary let us generalize by reference to Figure 4.1, which can be used as a general framework for teaching. Although it arose in a professional programme, it can be implemented in virtually any course at any level of university teaching.
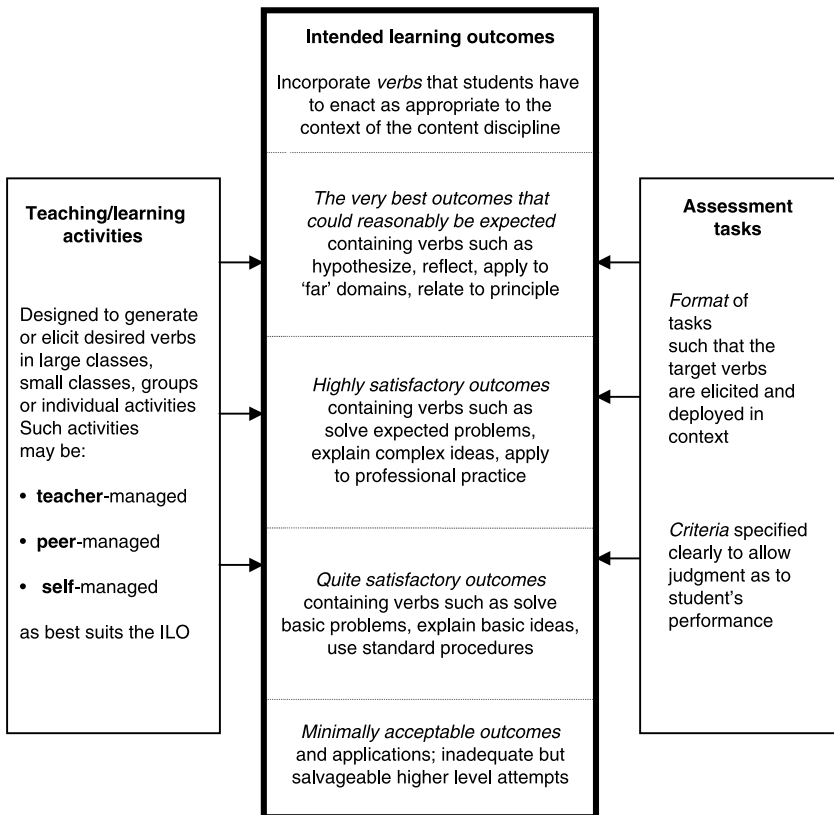
Intended learning outcomes

Incorporate *verbs* that students have to enact as appropriate to the context of the content discipline

Teaching/learning activities

Designed to generate or elicit desired verbs in large classes, small classes, groups or individual activities Such activities may be:

- **teacher**-managed

- **peer**-managed

- **self**-managed

as best suits the ILO

The very best outcomes that could reasonably be expected containing verbs such as hypothesize, reflect, apply to 'far' domains, relate to principle

Highly satisfactory outcomes containing verbs such as solve expected problems, explain complex ideas, apply to professional practice

Quite satisfactory outcomes containing verbs such as solve basic problems, explain basic ideas, use standard procedures

Minimally acceptable outcomes and applications; inadequate but salvageable higher level attempts

Assessment tasks

Format of tasks such that the target verbs are elicited and deployed in context

Criteria specified clearly to allow judgment as to student's performance

Figure 4.1 Aligning intended learning outcomes, teaching and assessment tasks

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. 10). 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 and so on. 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 5.

Those verbs take objects, the content being taught. We explicitly reject the one-dimensional notion of 'covering' the topics in the curriculum, by specifying the *levels* of understanding or of performance that should be manifested in the learning outcomes intended for the particular content discipline.

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, thus optimizing 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 and understanding that is the best one 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 in the top box ('generalize', 'reflect'), 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 is a matter of judgment. 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. The term 'first class honours' has been used for a long time to capture 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 *x* more marks than an upper second. We have more to say on this in Chapter 9.

To sum up, in an outcomes-based 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 judgments about 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, in fact, engage with the appropriate verbs, which is by definition a deep approach. Had Ramsden's psychology teacher (see pp. 22–3) 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. It is so obvious, yet most university teaching is not aligned. There are several reasons for this:

1 Traditional transmission theories of teaching ignore alignment. A common method of determining students' grades depends on how students compare to 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 get a spread between students, 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 genuinely do 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 may profitably start improving matters. The difference between reflective and unreflective teachers is that the former teachers believe they can always teach better than they are 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 Some administrative factors, such as resource limitations, appear to dictate large classes with mass lecturing and multiple-choice testing. These make alignment difficult, but not impossible. Some administrative requirements, however, such as requiring 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 12.
4 People hadn't thought of it before. Many of these matters may not have occurred to teachers.
5 Others 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 units.

Further reading

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

This paper outlines in detail the original course that gave rise to constructive alignment.

DVD

Teaching Teaching & Understanding Understanding, an award-winning 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

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

University of Wales at Bangor, North Wales: http://riel.bangor.ac.uk/the/Testing%20a%20Model%20of%20Constructive%20Alignment%20-%20planning_files/frame.htm/

A nice easy PowerPoint presentation by Romy Lawson.

National Council of Open and Distance Education and the Teaching and Learning Centre, Southern Cross University: http://www.scu.edu.au/services/tl/sd_online/consalign.html

A version of constructive alignment in an online course on course design, with examples.

What is the evidence on constructive alignment?

http://www.ed.ac.uk/etl/project.html

This is the website for the ETL project led by Noel Entwistle and Dai Hounsell of the University of Edinburgh. The project, which has been running since 2001, seeks to develop subject-specific conceptual frameworks to guide institutional and faculty or departmental development of teaching–learning environments. Constructive alignment is one of the key concepts underlining the thinking of the project.

Other

The home page of the Higher Education Academy http://www.heacademy.ac.uk/ is well worth visiting for a browse. The recently established HEA is just so resource rich: click 'Supporting learning'.

Outcomes-based learning in general

http://merlin.capcollege.bc.ca/mbatters/whatsalearningoutcome.htm

A very good discussion of outcomes-based learning, as these authors call it. The difference between this and constructive alignment is that the *means* of tuning teaching and assessment to achieving the outcomes is left open, whereas in constructive alignment we progress using the verbs.

If you want more, Google 'constructive alignment' and browse.

5

Designing intended learning outcomes

Intended learning outcomes (ILOs) apply at the *institutional* level as graduate attributes, and at the *programme* and *course* levels.* Graduate attributes can provide useful guidelines for designing programme outcomes, which, in turn, are addressed by the outcomes of specific courses. Most of this chapter is taken up with the design and writing of course ILOs, as these are the ones with which teachers are specifically concerned and to which teaching and assessment are aligned. It is important to stipulate the kind of knowledge to be learned, declarative or functioning, and to use a verb and a context that indicates clearly the level at which it is to be learned and how the performance is to be displayed. The SOLO taxonomy is a useful tool for selecting verbs of an appropriate level of complexity.

Intended learning outcomes at different levels

As we saw in the previous chapter, an intended learning outcome (ILO) is a statement describing what and how a student is expected to learn after exposure to teaching. Such an outcome statement can be made at three levels:

- the *institutional* level, as a statement of what the graduates of the university are supposed to be able to do
- the degree *programme* level, as a statement of what graduates from particular degree programmes should be able to do
- the *course* level, as a statement of what students should be able to do at the completion of a given course.

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* We use 'programme' to refer to the whole degree pattern. Some universities refer to this as a 'course', as in a course of study. We use 'course' to refer to the units of study making up a programme, whereas others refer to this as a 'unit', 'module' or 'subject'.

Let us now look at each in turn.

Graduate attributes

It has long been believed that university study has an effect on the way graduates think and act, over and above the knowledge and skills that have been learned in the official curriculum of the degree programme. For example, graduates are thought not to accept 'spin' as readily as non-graduates, to feel a need to seek and evaluate evidence before coming to a conclusion, to question the status quo, to show intellectual curiosity about the physical or social world. Public opinion used to expect certain moral behaviour from graduates ('He ought to know better with his education!'). The public service, too, used to recruit graduates, without stipulating any particular area of study, on the grounds that they would be employing a certain sort of person. This sort of thinking has the following view of education: 'When you have forgotten everything you were ever taught, what is left is education' (Anon.).

The Higher Education Council (HEC) of Australia defines the attributes a graduate should possess as:

> The skills, personal attributes and values which should be acquired by all graduates regardless of their discipline or field of study. In other words, generic skills should represent the central achievements of higher education as a process.
>
> (HEC 1992: 20)

The Dearing Report for its part referred to a culture that demanded similar attributes, but also that students should 'become part of the conscience of a democratic society' (Dearing 1997: 1). Both reports are looking to employability at a time when students are more than ever seeing a university degree as a lifelong meal ticket and, more broadly, to qualities that responsible citizens in a global society should have. Such attributes include 'critical thinking', 'ethical practice', 'creativity', 'independent problem solving', 'professional skills', 'communications skills', 'teamwork', 'lifelong learning' and the like. But what are these qualities really and, more to the point, how are they supposed to be acquired in such varied fields as accountancy, veterinary science or social work? Or are they simple generic abilities that apply across the board to any subject?

And this is the problem. We are clearly dealing with more specific residues than what is left after you've forgotten everything you were ever taught. There are several different conceptions of graduate attributes, which makes it difficult for universities to agree on an institution-wide policy in fostering them (Barrie 2004). Barrie, after a phenomenographic analysis of teachers' conceptions of graduate attributes, arrived at a hierarchy of conceptions. The lowest sees attributes as *generic* foundation skills that are unrelated to any particular discipline area, such as numeracy and communication skills that

can be taught in standalone courses. At the other extreme are attributes as abilities that are deeply *embedded* in particular disciplines: for example, problem solving strategies that involve thinking like a physicist won't be of much help in solving problems of medical diagnosis. Teachers who hold the latter view are not going to be very concerned about fostering a generic problem solving ability, only that they make sure that their students are required to show evidence of the appropriate problem solving strategies in their academic performances, especially in the higher years. Otherwise, they do not see developing graduate attributes as their responsibility.

A major issue is that if these attributes are to be taught, then how: in standalone courses or as embedded in normal courses? Or perhaps some attributes can be taught as standalone, others as embedded – and if so, which should be handled in what mode of delivery? Some attributes can reasonably be seen as generic and standalone, literacy skills for example, but rather more are seen as standalone when they are best not seen that way, creativity being an example. Should there be a course in Creativity 101 that all students must pass? We hope not, because you can't teach creativity that way, not in any significant sense, because genuine creativity requires significant substantive knowledge in a given area. Others are not quite so clear cut, such as critical thinking and possibly independent problem solving. There are two separate issues here that are often confused:

1 Are there such things as general problem-solving or critical-thinking abilities that work across the board? There almost certainly are. In fact, one of our aims is that graduates can transfer skills learned in one domain to another.
2 If that is the case, then can they be taught out of context, in standalone or foundation courses? The research on this question is discouraging: some minor skills probably can be directly taught, but it is far better to teach them in one context, learning any generic problem-solving or critical-thinking skills in that context, then encouraging transfer to another context. This is much preferable to teaching all-purpose problem-solving and critical-thinking skills in a vacuum, out of context. In fact, 'far transfer', from one domain to another, should be in the ILOs of many higher level courses. It may be helpful to provide some generic courses in study skills and metacognitive study strategies (pp. 149, 150–1), but these are better regarded as 'top-ups', not as substitutes for teaching problem solving in embedded contexts.

Most universities want both kinds of attributes to be addressed, as do quality assurance agencies, not to mention employers who want to be assured that graduates have the attributes claimed. However, if attributes such as creativity or critical thinking are embedded in general teaching, they are less visible; they may not even be directly assessed. Attributes in standalone courses (e.g. Critical Thinking 101) can be seen to have been addressed and assessed, so the quality assurance committee is duly impressed at the next institutional audit or process review. The fact that the critical thinking may not necessarily

apply in depth to the content area in which the graduate has studied, but only to across-the-board exercises in the standalone class, may easily be overlooked.

A rather ruthless approach to attribute assessment is given by Yuen-Heung et al. (2005) in a US university. The attributes, or 'university learning goals', are not an atypical list: 'leadership', 'independent lifelong learning', 'values-based decision making', 'develop service potential', 'critical thinking' 'logical reasoning', 'written communication' and 'oral communication'. Students are rated by teachers on goals and each goal's sub-goals. Independent lifelong learning has 14 sub-goals, critical thinking 13, and so on, making 74 goals and sub-goals in all. Students not meeting a satisfactory level on any goal or sub-goal are 'lifted' until they do. One must be forgiven for thinking that the time and effort going into this might be better spent in simply teaching.

Knight (2006), by way of contrast, takes a strong embedded view. He says that attributes such as reasoning, creativity, ethical practice, teamworking and collaboration and so on are complex 'achievements' or 'wicked competences' that develop rather than are taught. They have no single cause, are slow growing and need a complex environment, an *ethos* – a particular climate, a sequence of role models – in which to develop. They are unlikely to be achieved if they are only addressed in one or a few courses. Their assessment cannot be measured with what Knight calls 'high-stakes assessment' instruments of high reliability, such as tests. Self- and peer-assessment, and particularly portfolios, in which students make claims that they themselves try to substantiate are more suitable. In this view, graduate attributes are desirable outcomes that need continually looking to, such that they are fostered in teaching over a range of subjects and interactions with students.

How do we resolve these contradictory positions and derive an internally consistent policy for any given institution? Barrie (2004) proposes an interactive model that sees two levels of attributes. The first are holistic and overarching 'attitudes or stances', as he refers to them:

1 *Scholarship*, relating to academic knowledge, competence and openness to inquiry.
2 *Global citizenship*, relating to societal responsibilities and obligations.
3 *Lifelong learning*, relating to the self as committed to continuous learning and reflection and dealing with new problems and issues as they arise.

The next level has five attributes:

1 Research and inquiry.
2 Information literacy.
3 Personal and intellectual autonomy.
4 Ethical commitment, socially and professionally.
5 Communication skills and commitment.
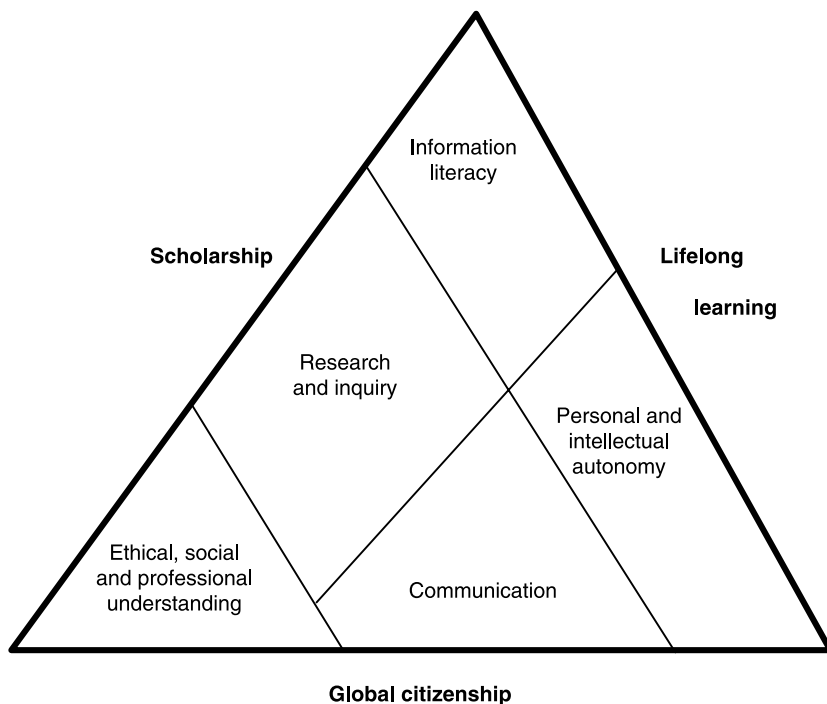
The interrelations are given in Figure 5.1.

Figure 5.1   Interrelations between two levels of graduate attributes

Source: Adapted from Barrie (2004)

We return to this structure in Chapter 8 with respect to designing teaching/learning activities for lifelong learning. But before we start thinking about how to teach lifelong learning, programme committees need first to deal with these levels and interrelations in order to derive programme, then course, ILOs. This is a complex question that will differ from university to university according to their mix of attributes and their policies on addressing them.

Even before the problem is relegated to the programme level, we might return to Knight's point that the institutional climate itself has a formative effect on some attributes. Ethical behaviour, lifelong learning, creativity and so on are more likely to thrive in a Theory Y institutional climate that itself values such attributes in the very real sense that it enacts them in its own policies and procedures. Constructively aligned courses, where both teaching and assessment address the ILOs, some at least of which are specifically tuned to these attributes, are important too. A consistent message can then be maintained across courses with respect to the overall programme design.

We turn to that level next.

Intended learning outcomes at the programme level

In translating graduate attributes to programme outcomes, two aspects need to be reconciled. The first is mapping the graduate attributes onto the programme. The second is designing the programme ILOs from the aims of the particular degree programme itself. Any degree programme is established in order to achieve a definite aim that will itself generate course ILOs – that many academics will see as more important than ILOs generated to serve graduate attributes. The claims of these two determinants of ILOs, graduate attributes and specific programme aims, need to be reconciled.

Let us start with the aims of the programme itself: what is it meant to achieve, and what is its focus and its context? For example, take a bachelor of business management, BBM (accountancy). The focus, let us say, is on accounting and the programme graduates are to serve the professional, commercial and industrial sector. This aim is served if graduates can achieve the following outcomes:

1 Describe and explain the conceptual framework and practical skills of the accounting profession.
2 Analyse this framework of accounting and apply the practical skills to real-life accounting situations.
3 Communicate effectively as a professional with clients and colleagues in real-life accounting situations.
4 Operate effectively and ethically as a team member in real-life accounting situations.

These programme ILOs are in effect the reasons for establishing the programme. There would usually be only a few such reasons; rarely would they exceed, say, six. However, when graduate attributes address a whole range of outcomes classified under knowledge, skill, values and social concerns (e.g. Ewell 1984), it is very difficult to use these to drive programme, then course, ILOs because it is not possible to align teaching/learning activities and assessment tasks to all these possible outcomes.

Having derived these programme-specific ILOs, the next question is how to reconcile these with general graduate attributes. A simple solution is to see that programme committees and course teachers check that where *possible and appropriate* the intended learning outcomes address the listed graduate attributes, grounded in the content and context of the degree programme. Thus degrees in education, social work, fine arts, computing science or business and management would address different mixes of graduate attributes. The meaning of 'creativity', say, is then confined to the particular areas the student has studied – with hopefully some overflow to a way of thinking, but no promises – but most or all degree programmes would address 'creativity' in some way or another. Here, the focus is on the programme and course outcomes, the graduate attributes being used only to jog the memory