

THIRD EDITION

The Lecturer's TOOLKIT

A RESOURCE FOR DEVELOPING ASSESSMENT,
LEARNING AND TEACHING

PHIL RACE



The Lecturer's Toolkit

The Lecturer's Toolkit is a wide-ranging, down-to-earth, practical resource for lecturers and teachers in higher education. Jargon-free and written with authority, clarity and candour, the *Toolkit* addresses a broad range of aspects of assessment, learning and teaching, and helps develop many facets of professional practice.

Built around a central agenda of improving the quality of student learning, the *Toolkit* is outcomes-focused. Retaining the strengths of its predecessors, this third edition includes new information on inclusive teaching practice, working with international students and evidencing reflections. Coverage includes:

- factors underpinning successful learning;
- designing assessment and feedback to enhance learning;
- refreshing and improving lecturing;
- making small-group teaching work;
- designing and using resource-based and online learning;
- looking after yourself, and managing feedback from your students;
- equal opportunities and inclusive practice.

Fully updated and expanded, this third edition of the *Toolkit* will be an essential and flexible resource for every higher education professional.

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The Lecturer's Toolkit

A resource for developing assessment,
learning and teaching

Third Edition

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Preface to the third edition

An important consideration in preparing this third edition of *The Lecturer's Toolkit* was the feedback I have received on the second edition, and colleagues' exhortations not to change things which are already working well. Therefore this new edition retains much of the content of its predecessor, but with updating where necessary, and some new sections replacing older ones, for example in some of the practical suggestions derived from relevant volumes in the '500 Tips' series, where three of the most popular books have already appeared in revised editions. To keep to the required length of the book, I have had to remove a number of these sets of suggestions, and suggest that more detail can still be found in the '500 Tips' books. I have, however, added a new final chapter, addressing various issues which have increased in prominence since the second edition was published, including some ideas about equal opportunities and inclusive teaching, working with international students, and reflecting on one's professional practice in learning, teaching and assessment.

This *Toolkit* aims to help you to underpin and develop further your professional practice as a teacher in higher education. It is essentially a practical book, but continues to be linked where appropriate to the increasingly extensive literature on the scholarship of assessment, learning and teaching. Although the contents are intended to be useful to new lecturers, I found with the earlier editions that many experienced practitioners found the book a source of practical suggestions, as well as food for thought and reflection. This *Toolkit* is intended to serve as a practical reader for programmes for new lecturers, as well as to augment continuing professional development provision for experienced staff. In the UK, most universities have now in place programmes of staff development for lecturers, which link their institutional missions to identified knowledge about learning and teaching, and underpinning professional values, all of which I have tried to address in this *Toolkit*.

There continues to be pressure on university lecturers to be not just excellent researchers, but also professionally trained and qualified at supporting students' learning, delivering teaching, giving useful feedback to students, and designing and implementing assessment. This pressure comes from all sides: from students, from colleagues, from funding agencies and from institutional managers. With students in the UK and elsewhere increasingly contributing towards the funding of their higher education, they are becoming much more aware of their role as consumers, and their right to demand high quality in the ways that their learning, teaching and assessment are delivered. In the UK, students' views are now collected through a National Student Survey each year, and the findings of this survey are regarded very seriously (and competitively) as an indicator of the teaching quality of institutions.

What does this edition cover, and why?

There are seven chapters in this third edition. Each chapter is written to be relatively complete in itself. References, and suggestions for further reading are collected at the end of the book. Most of the book links to the central agenda of the quality of student learning introduced in Chapter 1, and I hope that you will find this a useful start to whichever parts of your professional practice you decide to review and develop first. Each chapter is prefaced by some intended outcomes, which tell more about the particular purposes the chapters are intended to serve.

Chapter 1, 'Learning – a natural human process', aims to get you thinking about the fundamental processes which underpin your students' learning. In this chapter, I ask you to interrogate your own learning (past or present), and draw out five key factors which need to be catered for in making learning truly learner-centred. All of these factors are things that you can take into account in any of the learning, teaching and assessment contexts your students are likely to encounter. This chapter also now includes some suggestions on expressing and using learning outcomes, and developing students' competences.

Chapter 2, 'Designing assessment and feedback to enhance learning', is, in some ways, the most crucial part of this *Toolkit*. Of all the things that lecturers do, I believe it is assessment, and feedback from lecturers, that most profoundly influence the ways that students go about their learning. My intention in this chapter is to alert you to some of the tensions between effective learning and assessment, and to encourage you to diversify your approaches to assessment, so that as many as possible of your students will be able to use a range of assessment formats to show themselves at their best. I am also aware of the fact that lecturers in higher education are often severely overloaded with marking, and offer suggestions about ways of making this a more manageable part of your professional life, without prejudicing the quality and relevance of assessment. I have added to this chapter a discussion of the vital role of formative feedback to students, which is now seen as an area which higher education institutions need to address, as the results in the UK from the 2005 National Student Survey have already indicated that students' satisfaction was least in the areas of feedback and assessment. The chapter ends with a section on involving students in their own assessment, to deepen their learning and make them more aware of how assessment works in other contexts.

Chapter 3, 'Refreshing your lecturing', explores ways to design large-group teaching situations so that students' learning during them is optimised. Especially for those new to lecturing, the thought of standing up before a large group of students can be somewhat intimidating. The thrust of the chapter is about thinking through what your *students* will be doing during a large-group session, and planning ways that they can be involved, and making the most of the opportunities in large groups for students to get feedback on how their learning is progressing. I have added to this chapter a range of suggestions aiming to help you make large-group teaching work for your students, and tips about using technology in lecture rooms, not least the now widespread usage of Microsoft's 'PowerPoint'.

Chapter 4, 'Making small-group teaching work', explores ways of getting students to participate effectively. Small-group learning situations can be deep learning experiences for students, but need skilful facilitation to get the most out of the opportunities they provide. This chapter focuses on the processes which can be used to help all students to engage in small-group learning situations. The chapter also looks at the place of academic tutorials in higher education, at a time when it is increasingly difficult to provide the quality or quantity of such student–staff encounters.

Chapter 5, 'Resource-based and online learning', reviews briefly the field of open, distance and flexible learning, and aims to encourage you to make the most of the wide range of learning resource materials – paper-based and electronic – that are available to support learning. With larger numbers of students at university, and lecturers increasingly under higher workloads, the role of resource-based learning pathways or elements in higher education continues to grow in significance. In this chapter, I offer particular advice for those wishing to adapt existing resources to optimise their usefulness to their own students, and to those setting out to design new learning resource materials for their students. The chapter continues by helping you to interrogate how effectively students learn both from print-based resources, and from electronic resources using the widening range of communication and information technologies available.

Chapter 6 is to help *you* to survive! It includes a range of suggestions to help you take control of your time, workload, paperwork, meetings and so on, and on preparing for appraisal. There are also suggestions about how to go about gathering feedback from your students about their experience of higher education in general, and your teaching in particular. Several feedback methods are illustrated, each with their own advantages and drawbacks.

Chapter 7 is new to this edition, and brings together some ideas about the increasingly important dimension of ‘inclusive practice’, not least responding to changes in legislation regarding equal opportunities. There is also some discussion of the issues which often come to the fore when working with international and cross-cultural groups of students. Finally, the *Toolkit* now ends with some ideas on how you can set about not only reflecting on your practices of teaching and assessment, but also capturing evidence of such reflections to aid your own further development as a practitioner in higher education.

This *Toolkit* is again published in two versions. The bound version is aimed to be used by individual lecturers as their own personal copies. The ring-bound photocopiable version additionally contains at the end of each chapter various tasks and activities which can be used (or adapted) to support staff development programmes in institutions, or for private reflection by individual lecturers.

The main difference between this ring-bound edition of *The Lecturer’s Toolkit* and the bound volume is that the ring-bound version includes photocopiable resources.

Colleagues running staff development workshops on teaching, learning and assessment are invited to select the parts which are most relevant to their sessions, and produce handouts from this version of the *Toolkit*.

In the ring-bound edition only, I have included at the end of the chapters some pages of pro formas, which may also be turned into handouts for workshop sessions. Included in these pro formas are the more extended ones at the end of Chapter 3, designed for self-evaluation and peer observation of lectures.

The exercises on these pro formas can be used as they stand, or you may wish to design your own exercises adapting them to your own institutional contexts, and to your own discipline areas.

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I am grateful to thousands of lecturers at the workshops I run, in the UK and abroad, and to many colleagues who have emailed me with feedback, which continues to help me to develop the ideas and suggestions throughout this *Toolkit*. I am also indebted to large numbers of students, with whom I continue to run interactive sessions on developing their learning skills, as I continue to find that working with students is vital to help me think more deeply about teaching and assessment. I am particularly grateful to my wife Sally Brown, with whom I continue to discuss ideas in assessment, learning and teaching, and whose passion for creative and student-centred approaches is an inspiration to me in my work.

Phil Race
February 2006

Learning – a natural human process

Intended outcomes of this chapter

When you have worked through this chapter, you should be better able to:

- put into perspective some of the literature about how learning takes place;
- identify five factors, in straightforward language, which underpin student learning;
- address these factors in your day-to-day work with students;
- design or modify intended learning outcomes associated with your teaching, so that they align constructively with teaching approaches, and assessment processes and criteria.

Never mind the teaching – feel the learning!

Whatever sort of training we think about, or whatever sort of educational experience we consider, the one thing they all need to have in common is that they lead to effective learning. There is no single ideal way to teach. Learning would be very boring if all teachers used exactly the same approaches. However, whatever teaching approaches we choose to use, it's worth stopping to think about exactly how our choices impact on our students' learning.

The human species is unique in its capacity for learning – that is why our species has evolved as much as it has. The record of human beings engaging in learning goes back to the dawn of civilisation (and for quite some time before either of the words 'education' or 'training' were invented). Yet much that has been written about *how* we learn tends to have language that is unfamiliar and sometimes even alienating to most of the people who want to learn, or indeed to those who wish to cause learning to happen. In the first part of this chapter, my intention is to lead you through your own responses to four straightforward questions about learning, and to propose a simple yet powerful way of thinking about learning, in terms of five straightforward factors which underpin successful learning. These prove to be a very tangible basis upon which to build a strategy for designing lectures, tutorials and student assignments, and also for developing learning materials, including computer-based and electronically transmitted learning resources. However, before taking the practical look at learning described above, there follows a short review of some of the most significant ideas in the related literature.

Theories and models of learning

A number of models have been put forward to explain the processes of learning, or the ways that people acquire skills. There have been two main schools of thought on how learning happens. The behaviourist school takes as its starting point a view that learning happens through stimulus, response and reward, in other words a conditioning process. The stimulus is referred to as an 'input', and the learned behaviours as 'outputs'. It can be argued that the present emphasis on expressing intended learning outcomes derives from the behaviourist school of thinking, and that clearly articulated assessment criteria are an attempt to define the learning outputs.

The other main approach is the cognitive view, which focuses on perception, memory and concept formation, and on the development of people's ability to demonstrate their understanding of

what they have learned by solving problems. In the paragraphs below, some of the main contributors to both models are mentioned.

One of the most popular theories of the 'cognitive' school arises from the work of Lewin (1952) in 'Field theory in social science' which is part of *Selected Theoretical Papers* edited by Cartwright. This was extended by Kolb (1984) in his book *Experiential Learning: Experience as the source of learning and development*. Kolb's model identifies that most of what we know we learn from experience of one kind or another, and then breaks this down into four stages, turning them into a learning cycle.

However, Coffield *et al.* (2004) in a large-scale systematic review of various models of learning were very critical of the Kolb learning cycle, and said:

Kolb clearly believes that learning takes place in a cycle and that learners should use all four phases of that cycle to become effective. Popular adaptations of his theory (for which he is not, of course, responsible) claim, however, that all four phases should be tackled and in order. The manual for the third version of the LSI is explicit on this point: 'You may begin a learning process in any of the four phases of the learning cycle. Ideally, using a well-rounded learning process, you would cycle through all the four phases. However, you may find that you sometimes skip a phase in the cycle or focus primarily on just one' (Kolb 1999: 4). But if Wierstra and de Jong's (2002) analysis, which reduces Kolb's model to a one-dimensional bipolar structure of reflection versus doing, proves to be accurate, then the notion of a learning cycle may be seriously flawed.

(Coffield *et al.* 2004)

Coffield *et al.* also reviewed in detail the strengths and weaknesses of various learning styles instruments and models, some deriving from Kolb's work. Of the popular Honey and Mumford (1982) work in the area, particularly the 'Learning Styles Questionnaire' (LSQ), they said:

Perhaps the more fundamental problem is the implicit assumption that one instrument of 80 statements can capture all the complexities and the multifaceted nature of learning as well as the cycle of learning. In addition, Honey and Mumford based their LSQ on Kolb's model, but because they found its bipolar structure untenable, they designed the LSQ so that the style preferences are aligned to the stages in the learning cycle. They have not, however, produced an alternative to Kolb's bipolar theory. For all these criticisms, the LSQ remains very popular as a self-development tool with practitioners, is used extensively – for instance, by industrial trainers and FE tutors – and can now be completed online.

(Coffield *et al.* 2004)

Coffield *et al.* go so far as to ask:

Should research into learning styles be discontinued, as Reynolds has argued? In his own words: 'Even using learning style instruments as a convenient way of introducing the subject [of learning] generally is hazardous because of the superficial attractions of labelling and categorizing in a world suffused with uncertainties'.

(Reynolds 1997: 128 in Coffield *et al.* 2004)

Another important approach is that of Ausubel (1968), who in his book *Educational Psychology: A cognitive view* places particular emphasis on starting points, and asserts 'The most important single factor influencing learning is what the learner already knows. Ascertain this and teach him accordingly.' Many practices now common in training can be matched to the cognitive psychology approach of Ausubel (1968), and his ideas of the need for 'anchoring' concepts, advance organisers (such as what we now commonly refer to as learning objectives or statements of intended learning outcomes), and clearly broken down learning material. This can be regarded as bringing together useful elements of the cognitive and behaviourist ways of thinking about learning.

Cognitive psychology has also made use of clinical, experimental and survey-type researches, linking personality factors of learners to their successes or failures at learning. Such research has included the ways that learning can depend on individuals' learning skills, their approaches to learning, and their learning styles; see for example the work of Pask (1976), who in an article entitled 'Styles and strategies of learning' compares serialist (basically step-by-step) and holist (meaning whole-subject, broad) approaches, respectively using operational learning (in other words learning to do one thing at a time) and comprehension learning (in other words, gaining a deeper understanding) strategies, that tend to divide people into knowledge-seekers and understanding-seekers.

Skinner (1954), in a journal article entitled 'The science of learning and the art of teaching' presented one of the seminal papers for the behavioural school, and paid particular attention to the importance of repeated practice, and the use of rewards to help appropriate responses to be retained. Another way of looking at learning is to try to define it in terms of learning outcomes. In the 1950s and 1960s behavioural objectives ruled, and one of the most influential publications was the Bloom *et al. Taxonomy of Educational Objectives*, volume 1 *The Cognitive Domain* being published in 1956. This approach to learning outcomes has had many forms, and can be said to have led to much of the competence-based philosophy now underpinning National Vocational Qualifications in Britain.

Ramsden (2003), in his book *Learning to Teach in Higher Education* gives a broad review of some of the models of learning, and mentions, for example, some of the differences between surface approaches to learning and deep approaches. He quotes an article by Biggs (1989), entitled 'Approaches to the advancement of tertiary teaching', who explains:

'Knowing facts and how to carry out operations may well be part of the means for understanding and interpreting the world, but the quantitative conception stops at the facts and skills. A quantitative change in knowledge does not in itself change understanding. Rote-learning scientific formulae may be one of the things scientists do, but it is not the way that scientists think.'

(Biggs 1989 in Ramsden 2003)

More recently, Biggs (2003) has brought together a comprehensive survey of the links between teaching and learning in higher education in the second edition of his book *Teaching for Quality Learning at University* where he makes a powerful case for 'constructive alignment' – systematically linking intended learning outcomes, choices of teaching methods, evidence of achievement of the outcomes and assessment methods and criteria.

The profound influence of assessment design on approaches to learning is brought into sharp relief by Gibbs (1999) in his chapter in *Assessment Matters in Higher Education* edited by Brown and Glasner, and the importance of the role of formative feedback has been thoroughly addressed by Knight and Yorke (2003), and Sadler (1998, 2003).

Deep, surface or strategic learning?

Much of the discussion about learning revolves around three or four words which describe different (though overlapping) ways of going about the process of learning. In their chapter entitled 'The link between assessment and learning', Dunn *et al.* introduce the topic of approaches to learning thus:

Many researchers have distinguished between different cognitive levels of engagement between learning tasks. Perhaps most widely referred to is the distinction between a *surface approach*, in which a relatively low level of cognitive engagement occurs, and a *deep approach*, where a relatively high level of cognitive engagement with the task takes place. In a surface approach to a learning task, the student perceives that it is necessary to remember the body of knowledge. Mostly this would involve the need to rote-learn and then recall the

facts concerned. Of course there are many situations where this kind of approach to learning task is appropriate – such as perhaps learning the chemical tables. At the other end of the spectrum is a deep approach to a learning task, where the student perceives that it is necessary to make meaning of the content concerned, to be able to appraise it critically and to be able to apply the knowledge to other contexts or knowledge domains.

(Dunn *et al.* 2004: 9–10)

Deep learning generally gets a good press in the scholarly literature. ‘Deep’ learning is, we might argue, closer to developing real *understanding*. But this is difficult or even impossible to measure. So deep learning may be the wrong approach to wean our students towards when our assessment may only be measuring something rather less than deep learning. Deep learning may of course be much more appropriate for those students going on to higher levels, and is doubtless the kind of learning which leads to the most productive and inspired research. Perhaps that is why deep learning is regarded so favourably by educational researchers on the whole.

Surface learning gets a bad press on the whole in the literature. However, probably most of the learning done by most people in post-compulsory education is actually only surface learning. Students learn things ‘sufficient to the day’ – the exam day or the assessment week or whatever. When it’s been learned successfully enough to serve its purpose – pass the module, gain the certificate, whatever, it’s ditched. It’s not entirely wasted however, something that’s been surface-learned is a better starting point for re-learning, or for learning more deeply, than something which has not been learned at all. But students can all tell us tales of the countless things they have learned only well enough to give back when required to demonstrate their achievements, which have been quite deliberately ‘eased out’ of their minds as they moved on to the next stage on their learning journey. ‘You are what you learn’ may be a noble sentiment, but it can be argued that our assessment processes and instruments cause students to learn far too many things which aren’t important, diluting the quality of learning that is afforded to those things that *are* important.

Despite the criticisms of surface learning approaches, sometimes it is a fit-for-purpose choice. Where a limited amount of factual information needs to be available at will in a particular scenario, but will not be needed after that scenario is completed, surface learning can be a wise enough choice. There are things that just are not important enough to warrant a lot of time and energy being invested in learning them deeply.

What’s wrong with strategic learning?

Strategic learning has perhaps had the worst press of all. It’s not just *accidental* surface learning. It is perhaps *deliberate* surface learning, consciously engaged in at the expense of deeper learning? Strategic learning is regarded as ‘learning for the exam’. It’s associated with ‘seeking out the marks or credit’ quite consciously in essays, reports, dissertations, theses, and extends readily to preparing strategically for job interviews, promotion boards, and so on.

Strategic learners tend to be successful, or at least moderately successful. Deep learners may well *deserve* success, but quite often shoot themselves in one foot or other, by mastering *some* parts of the curriculum very very well, but leaving other parts of the curriculum under-developed, and not getting the overall credit that they might have achieved had they spread their efforts more evenly across the curriculum.

Surface learners can also fare well enough, if and when all that is really being measured in our assessment systems is surface learning. Strategic learning is often thought of in terms of doing the *minimum* to get by. But there are various ‘minima’. In the present degree classification system in the UK perhaps there’s the minimum to get by and get a degree at all, and the (different) minimum to get by and get a 2–1, and the (different again) minimum to get by and get a first-class degree, and perhaps the minimum to get by and get a first-class degree with a margin for safety?

So what *is* strategic learning? We could regard it as making informed choices about when to be a deep learner, and when to be a surface learner. It could be viewed as investing more in what is important to learn, and less in what is less important to learn. It could be regarded as setting

out towards a chosen level of achievement, and working systematically to become able to demonstrate that level of achievement in each contributing assessment element.

It can also be argued that those learners who go far are the strategic ones, rather than the deep ones. It can be argued that they know *when* to adopt a deep approach, and when it is sufficient to adopt a surface approach.

Cue-consciousness

As long ago as 1974, Miller and Parlett discussed what can now be thought about as one way of thinking about strategic learning: ‘cue-consciousness’. They proposed three approaches which learners can use in the ways that they structure their learning in systems where assessment is a significant driving force – an assessment regime which then in the UK was mainly comprised of written exams. They wrote of:

- cue-seeking learners: more likely to get first-class degrees;
- cue-conscious learners: more likely to get upper second-class degrees;
- cue-deaf learners: less likely to succeed.

Gibbs and Simpson (2002) expand on, and quote from, Miller and Parlett’s work as follows:

Miller and Parlett focussed on the extent to which students were oriented to cues about what was rewarded in the assessment system. They described different kinds of students: the cue seekers, who went out of their way to get out of the lecturer what was going to come up in the exam and what their personal preferences were; the cue conscious, who heard and paid attention to tips given out by their lecturers about what was important, and the ‘cue deaf’ for whom any such guidance passed straight over their heads. This ‘cue seeking’ student describes exam question-spotting:

‘I am positive there is an examination game. You don’t learn certain facts, for instance, you don’t take the whole course, you go and look at the examination papers and you say “looks as though there have been four questions on a certain theme this year, last year the professor said that the examination would be much the same as before”, so you excise a good bit of the course immediately...’.

(Miller and Parlett 1974: 60 in Gibbs and Simpson 2002)

In contrast these students were described as ‘cue-deaf’:

‘I don’t choose questions for revision – I don’t feel confident if I only restrict myself to certain topics.’

‘I will try to revise everything ...’.

(Miller and Parlett 1974: 63)

Miller and Parlett were able to predict with great accuracy which students would get good degree results.

... people who were cue conscious tended to get upper seconds and those who were cue deaf got lower seconds.

(Miller and Parlett 1974: 55)

Knight and Yorke (2003) put the matter of cue-consciousness in perspective as follows:

Learned dependence is present when the student relies on the teacher to say what has to be done and does not seek to go beyond the boundaries that they believe to be circumscribing the task. The construction of curricula around explicit learning outcomes risks the inadvertent

building-in of circumscriptions or, for the 'strategic' student seeking to balance study and part-time employment, a welcome 'limitation' to what they have to do. Formal and informal feedback can be interrogated for what it can tell about what is expected, and can become part of a vicious spiralling-in towards 'playing it safe', basing action on perceptions of the implicit – as well as the explicit – expectations. It is a paradox that active 'cue-seekers' (Miller and Parlett 1974) can exhibit a form of learned dependence, through 'playing it clever' (at least, superficially) by hunting for hints that will help them to maximise the grade received for their investment of effort. Over-reliance on the teacher can thus give achievements a meretricious ring: these may look worthier than they actually are ...

(Knight and Yorke 2003: 134)

Since seeking cues through assessment tasks is an established student practice, we need to ensure that the cues we give lead to meaningful and productive learning activities.

Many of the sources referred to above inform the view of learning that this chapter will now propose. However, it has been argued by Race (2005a) that much of the literature on learning is presented using language and concepts which most students and teachers find different from their everyday experience, and in this chapter (and throughout this *Toolkit*) a more pragmatic approach is sought, to inform appropriately teaching, learning and assessment practices. The approach outlined in this chapter is based on asking students (and others) questions about their own learning, and then analysing their responses (to date from many thousands of people from a wide range of disciplines, professions and vocations) to identify primary factors which influence the quality of learning. These factors, as you will see in this book, can be addressed consciously and directly both by students and teachers. Students can be helped to gain control over the factors, and teachers can plan their teaching to maximise the learning payoff associated with each factor.

Factors underpinning successful learning

One of the problems common to some, if not most, of the theories of learning referred to above is that they tend to be written using educational or psychological terminology. This does not mean that they are wrong, but it does mean that they are not particularly valuable when we try to use them to help our students to learn more effectively, or to help ourselves to teach more successfully. The remainder of this chapter is intended to provide you with a jargon-free, practical approach to enquiring into how learning happens best, which you can share with your students, and which you can use to inform all parts of your own work supporting students' learning.

Getting people to think of something they have learned successfully is a positive start to alerting them to the ways in which they learn. It does not matter what they think of as the successful learning experience of their choice – it can be work-related, or a sporting achievement, or any practical or intellectual skill. Try it for yourself – answer the pair of questions which follow now before reading on.

Question 1

- (a) Think of something you're good at – something that you know you do well. Jot it down in the space below.

- (b) Write below a few words about *how* you became good at this.

Most responses to 1(b) are along the lines of:

- practice;
- trial and error;
- repetition;
- having a go;
- experimenting.

In other words, ‘learning by doing’ is a strong factor underpinning how most people learn. There’s nothing new about this – it’s already been called experiential learning for long enough – but let’s stay with short words like *doing* for the present. ‘Trial and error’ is also important. Learning through one’s mistakes is one of the most natural and productive ways to learn almost anything. Sadly, our educational culture – and particularly our assessment culture – leaves little room for learning from mistakes. Too often, mistakes are added up and used against students!

Next, another question, to probe another dimension of successful learning.

Feeling the learning

The matter of *feelings* is something which has not been sufficiently explored by the developers of theories of learning. Feelings are as much about what it is to be human as any other aspect of humanity. There is a lot of discussion about student motivation (particularly when there is a *lack of motivation*), but perhaps too little energy has been invested in exploring the *emotions* upon which motivation depends. A relatively simple question yields a wealth of information about the connection between feelings, emotions and successful learning. Try it for yourself.

Question 2

- (a) Think of something about yourself that you feel good about – a personal attribute or quality perhaps. Jot it down in the space below.
- (b) Write below a few words about how you *know* that you can feel good about whatever it is. In other words, what is the *evidence* for your positive feeling?

Most responses to 2(b) above are along the lines of:

- feedback;
- other people’s reactions;
- praise;
- seeing the results.

Therefore (unsurprisingly) feedback is an important underpinning factor to most people’s learning.

Receiving positive feedback

It is useful to follow up our exploration of the importance of positive feelings with some thoughts about how students can be helped to *receive* positive feedback. In some cultures,

including that of the UK, there is quite a strong tendency to shrug off compliments and praise, or to resort to the defence strategy of laughter! The effects of this behaviour detract from the value of the positive feedback in the following ways:

- the positive feedback is often not really taken on board;
- the person giving the feedback may feel rejected, snubbed or embarrassed;
- the ease of giving further praise may be reduced.

Helping students (and others) to confront these possibilities can be useful in developing their skills to derive the maximum benefit from positive feedback. For example, simply replying along the lines 'I'm glad you liked that' can make all the difference between embarrassment, and feedback effectively delivered and received.

When extended to the domain of negative feedback, further dividends are available. It can be very useful to train students (and ourselves!) to thank people for negative feedback, while weighing up the validity and value of it. This is much better than resorting to defensive stances, which tend in any case to stem the flow of negative feedback, usually before the most important messages have even been said.

Doing + feedback = successful learning?

Though these two elements are essential ingredients of successful learning, there are some further factors which need to be in place. These are easier to tease out by asking a question about *unsuccessful learning*. Try it for yourself now, then read on.

Question 3

- (a) Think, this time, of something that you *don't* do well! This could have been the result of an unsatisfactory learning experience. Jot down something you're *not* good at in the space below.

- (b) Now reflect on your choice in two ways. First, write a few words indicating what went wrong when you tried to learn whatever-it-was.

- (c) Next, try to decide whose fault it was (if anyone's of course) – does any blame rest with you, or with someone else (and if so, whom?).

Typical responses to 3(b) above include:

- I did not really *want* to learn it;
- I couldn't see the point;
- I couldn't get my head round it.

As for whose fault it may have been that the learning was not successful, many people blame themselves, but a significant number of respondents blame particular teachers, trainers or instructors – and can usually remember the names of these people, along with a lot of what they did to damage motivation.

Wanting to learn

If there's something wrong with one's motivation, it's unlikely that successful learning will happen. However, motivation (despite being very close to 'emotion') is a rather cold word; *wanting* is a much more human word. Everyone knows what 'want' means. Also, *wanting* implies more than just motivation. *Wanting* goes right to the heart of human urges, emotions and feelings. When there's such a powerful factor at work helping learning to happen, little wonder that the results can be spectacular. We've all been pleasantly surprised at how well people who really *want* to do something usually manage to do it. If people want to learn, all is well. Unfortunately, the *want* is not automatically there. When subject matter gets tough, the *want* can evaporate quickly. When students don't warm to their teachers, or their learning environments, their *want* can be damaged.

Making sense of what one has learned – digesting – realising – 'making sense'

We are thinking here about making sense of what has been learned, and also the learning experience – and also making sense of feedback received from other people. *Digesting* is about sorting out what is important in what has been learned. *Digesting* is about extracting the fundamental principles from the background information. *Digesting* is also about discarding what's not important. It's about putting things into perspective. *Digesting*, above all else, is about establishing a sense of *ownership* of what has been learned. It's about *far more* than just reflection. Students often describe digesting as 'getting my head around it'. They sometimes explain it as 'realising'. When one has just *realised* something, one is then able to communicate the idea to other people – tangible evidence that learning has been successful.

Thousands of people have answered the three questions we've looked at, and even written their answers down. The people asked have covered all age ranges, occupations and professions. It is not surprising to discover that very different people still manage to learn in broadly similar ways. After all, learning is a *human* process – it matters little whether you're a human trainer, a human student, or a human manager. In face-to-face training, or large-group based education, students are already surrounded by people who can help with the *digesting* stage – most importantly, each other. When students put their heads together informally to try to make sense of a difficult idea or problem, a lot of digesting and realising occurs.

One more question!

For the final question, let's return to successful learning, but this time without that vital 'want'.

Question 4

- (a) Think of something that you did in fact learn successfully, but at the time you did not *want* to learn it. Probably it is something that you're now glad you learned. Jot something of this sort below.

- (b) Write down a few words about 'what kept you at it' – in other words the alternatives that worked even when your *want* to learn was low or absent.

A wide range of things are cited by respondents to 4(b) above, but common factors keeping different students going include:

- strong support and encouragement;
- determination not to be seen to get it wrong or fail;
- simply *needing* to learn something so that something else would be achievable.

Needing to learn – a substitute for motivation?

Responses to Question 4 often highlight that a successful driving force for learning is a necessity. There are some subjects where it can be very difficult to generate in students a strong *want* to learn, but where it may be quite possible for us to explain to them convincingly why they really do *need* to learn them. For example, for many years I taught students chemical thermodynamics. Few (normal!) students *want* to get to grips with the second Law of Thermodynamics, but many *need* to get their heads round it. When students have ownership of a *want* to learn, there is little that we need to do to help them maintain their motivation. However, helping students to gain ownership of the need to learn something is a reasonable fallback position, and can still help students to learn successfully.

Five factors underpinning successful learning

From my analysis of thousands of people's answers to the four straightforward questions we've explored so far in this chapter, the principal factors underpinning successful learning can be summarised as follows.

| | |
|------------------|---|
| Wanting | motivation, interest, enthusiasm |
| Needing | necessity, survival, saving face |
| Doing | practice, repetition, experience, trial and error |
| Feedback | other people's reactions, seeing the results |
| Digesting | making sense of what has been learned |

How do these factors interact with each other?

The human brain is not a computer that works in a linear or pre-programmed way all the time. Our brains often work at various overlapping levels when, for example, solving problems or making sense of ideas. The *wanting* stage needs to pervade throughout, so that *doing* is wanted, *feedback* is positively sought, opportunities for *digesting* are seized, and so on. Perhaps a more sensible model would have *wanting* at the heart, and *feedback* coming from the outside, and *doing* and *digesting* occurring in an overlapping way as pictured below.

In Race (2005a) I have argued that these factors all continuously affect each other, and that a way of thinking about them is to liken them to 'ripples on a pond'. Perhaps learning can be started by some *wanting*, where the bounced-back ripples from the external world constitute the *feedback* and continue to influence the *doing*. The effects of the *feedback* on the *doing* could be thought of as *digesting*. The main benefit of such a model is that it removes the need to think about learning as a unidirectional sequence. The model has about it both a simplicity and a complexity – in a way mirroring the simultaneous simplicity and complexity in the ways in which people actually learn.

Using the model

Probably the greatest strength of the *wanting/needing, doing, feedback, digesting* model of learning is that it lends itself to providing a solid foundation upon which to design educational and training programmes. If you look at any successful form of education and training, you'll find that one way or another, all of these factors underpinning effective learning are addressed. Different situations and processes attend to each of the factors in different ways.

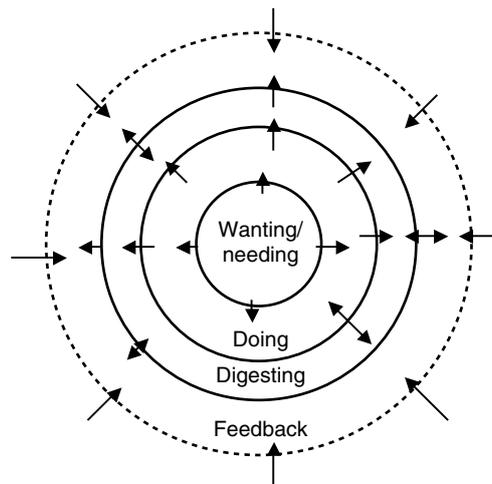


Figure 1.1 'Ripples on a pond' model of learning processes

For example, *wanting* is catered for by the effective face-to-face lecturer who generates enthusiasm. *Wanting* can be catered for by carefully worded statements showing the intended learning outcomes, which capture the students' wishes to proceed with their learning. The wanting can be enhanced by the stimulation provided by attractive colours and graphics in computer-based packages or on the Internet. What if there's no *wanting* or *needing* there in the first place? Perhaps feedback can, when coupled with learning-by-doing and digesting, cause the ripple to move back into the centre, and create some motivation.

Learning by *doing* is equally at the heart of any good course, and equally in any well-designed flexible learning package or online course.

Feedback is provided by tutors, or by the printed responses to exercises or self-assessment questions in flexible learning materials, or by feedback responses on-screen in computer assisted learning programmes, or simply by fellow-students giving feedback to each other. Feedback can be regarded as the process that prevents the whole 'ripple' simply dying away, as feedback interacts with the *digesting* and *doing* stages, and keeps the learning moving.

The one that's all-too-easy to miss out is *digesting, making sense*. However, all experienced tutors know how important it is to give students the time and space to make sense of their learning and to put it into perspective. Similarly, the best learning packages cater for the fact that students need to be given some opportunity to practise with what they've already learned, before moving on to further learning.

Learning and intelligence

Gardner (1993), in his work on 'multiple intelligences' starts by regarding intelligence as 'the capacity to solve problems or to fashion products that are valued in one or more cultural setting'. Whatever *intelligence* may be, it should not be thought of as simply being the capacity to perform well in particular assessment-related contexts or environments – for example intelligence must be much more than merely the capacity to do well in time-constrained, unseen written examinations. Gardner's work usefully subdivides *intelligence* into multiple facets:

- linguistic – use of language – words;
- mathematical-logical – patterns, deductive reasoning;
- musical – compose, perform and appreciate musical patterns;
- bodily-kinaesthetic – use of whole body or parts of the body – coordination of movements;
- spatial – recognising and using patterns of space – parking the car, crystallography;

- interpersonal – working with other people, understanding their motivations, intentions and desires;
- intrapersonal – understanding oneself, and recognising one's feelings, fears and motivations;
- spiritual – embracing aesthetic, unseen and spiritual dimensions;
- bestial – communicating effectively with animals.

Any one person's intelligence can be regarded as a fairly unique blend of several of these facets. Any learning experience is likely to involve several of these, adding to the picture of each individual student being quite unique in their overall approach to learning, but without all the difficulties discussed by Coffield *et al.* (2004) when thinking about learning styles.

How can we increase students' motivation?

In many universities, staff grumble that students' motivation is not what it used to be. There are students who simply don't seem to *want* to learn. There are students who don't seem to see why they may *need* to learn. They seem less willing to sit at our feet and imbibe of our infinite wisdom. There are some who even seem to believe that we are paid to do their learning for them!

Why is motivation often low?

There are many reasons for increased incidence of low levels of student motivation, including:

- There are many more students in our higher education system. We still have those students who are keen to learn, but they are diluted by students whose motivation is much less, and who would not have come into our system some years ago. The proportion of students who know exactly *why* they're in higher education has decreased.
- More students enter higher education to satisfy other people's expectations of them, rather than through their own motivation to succeed. Some are coaxed, cajoled or pressed by parents and others, and come in as a duty rather than as a mission.
- There is a greater culture shock on moving from school to higher education – all those distracting temptations, and scary unprecedented freedom. Many students are unprepared for the increased responsibility for their own learning that higher education places upon them.
- Students are much more 'grown up' than they used to be. Their lifestyle expectations have increased. This means that problems with finances and difficulties with relationships take a greater toll on the energies of more students than used to be the case.
- The rigours of our academic systems can mean that there may be no chance of remediation for poor assessed work, and failure can breed irrecoverably low motivation.

What are the symptoms of low motivation?

Some symptoms of failing motivation appear to us as in-class behaviours, others we see evidence of as out-of-class behaviours, with yet more symptoms reflecting students' perceptions about ourselves.

Some in-class symptoms of low motivation:

- coming to class late and/or leaving early, or indeed not turning up at all;
- talking to friends in class about other things;
- looking out of the window, scribbling, drawing, doodling, writing letters to friends, sending text messages on mobile phones;
- lack of engagement, not asking questions, not being willing to answer questions, nor volunteering responses when invited;
- diverting lecturers from the main issues;
- not coming in equipped with pens, paper, books, calculators, and so on;

- taking a longer break than is intended during long sessions, or failing to return at all;
- yawning, looking disinterested, and avoiding eye contact;
- inappropriate social interactions in class (compare back row of cinema!).

Some out-of-class symptoms of low motivation:

- consistent absence without reason;
- inadequate preparation towards class work;
- handing in scribbled last-minute work – botched, or not handing in any work;
- low quality individual and/or group work;
- damaging each other's attitude;
- work avoidance strategies – giving in too easily to doing only unimportant tasks and putting off doing important ones;
- ignoring lecturers out of class;
- being found not to have contributed to group tasks – doing only what's necessary for course-work marks, but not doing other things;
- not buying books, nor using library resources;
- maintaining poor folders and disorganised collections of handouts.

Is some of it our fault?

Some explanations of low student motivation are directed in our direction! The charges against us include:

- our seeming indifference to time-of-day factors – Friday afternoon classes, students' need for an early afternoon snooze after lunch;
- students' experiences of the unevenness of the pressure of work – e.g. weeks go by with nothing to hand in, then a deluge of hand-in dates;
- some students feeling that they've been labelled by us already as low-achievers, and taking all slightly critical feedback as reinforcement of their lowered self-esteem;
- seating plans too rigid and predictable, room quality, the overall learning environment being scruffy or unenthusiating?;
- the teachers they meet – our own looks, sounds, level of enthusiasm, perceived lack of understanding about learning styles or the effects of the learning environment;
- more-able students feeling that they are undervalued and under-challenged, and that we spend too long catering for the lower-fliers;
- insufficient acceptance on our part of a basic human need for students (like children) to win at least some of the battles.

How can we tackle low motivation?

The following suggestions are tactics, rather than solutions. However, choosing tactics can be our first steps towards building a strategy to counter the malaise of poor student motivation. You will already have your own tactics to add to (or supersede) the ones suggested below.

- 1 Accept that motivation is a real problem.** Pretending that low motivation doesn't exist does not make it disappear. Treating it as an issue to be addressed jointly with students increases the chance that they will recognise it themselves, and (as only they can) make adjustments to their rationale for being in higher education.
- 2 Recognise the boundary conditions of the problem.** Low motivation is essentially a problem with full-time students, rarely with part-timers. Low motivation is essentially a problem with younger students, rather than mature returners. When we have large mixed-ability, mixed age classes containing full-timers and part-timers

together, the range of motivation is even more of a problem to all concerned.

- 3 **Remember that students have difficult lives.** First-year students may be far from home, family, friends, familiar streets, for the first extended time so far. For some, it's like being on remand – they've been sent there by other people. Some delight in their new environment, others are homesick, but all are expending a lot of their energy adjusting their lives. The differences between school and university are more profound than perhaps they were when we were new students?
- 4 **Accept that many young people are rebels.** It's a natural enough stage of growing up. But this means that they aren't so keen to please us, and may be more willing to be sullen, uncooperative and passive. In our consumer-led society (and students are consumers) they are less likely to try to hide their dissatisfaction. None of this means that they aren't intelligent, or that they lack potential.
- 5 **Seek different kinds of feedback from students.** We already seek lots of feedback, but often with repetitive, boring devices such as tick-box questionnaires, where students don't really tell us anything other than their surface responses to too-often-asked structured questions about our teaching. Ask students how they feel about topics, rooms, assignments, and us! Ask for words, not just rankings.
- 6 **Make it OK to be demotivated.** Students sometimes feel that their low morale is yet another failure, and it becomes a self-fulfilling prophecy. All human beings (ourselves included) have peaks and troughs in motivation, and students need to see that (for example) success can breed more success.
- 7 **Don't expect students to be passionately interested in things they don't yet understand.** The passion often comes with understanding, and the understanding often comes with experience and interaction, so concentrate on the learning-by-doing, peer feedback, and in-class involvement. Don't lecture to a group that is supposed to be entirely switched on, when we know all too well that it isn't.
- 8 **Don't presuppose that our own topic is the most fascinating thing in the life of all the students we see.** A few may end up researching in this topic, but for most it is just another stepping stone to the degree that they are going to use for something quite different to our own particular field. Make it an interesting stepping stone, but don't expect all the students to take it as seriously as we perhaps do.
- 9 **Concentrate on their learning, rather than our teaching.** Think more carefully when teaching about what will be going on in their minds, rather than the information in our minds that we'd love to transfuse to our students. Knowledge is not infectious, and is much more than mere information. Enthusiasm is, however, infectious – we can try to transmit this.
- 10 **Keep assessment in perspective.** The assessment students do for us sits alongside all the other assessed tasks they do for all their other teachers. Don't let students' lives be dominated by assessed work, to the exclusion of the natural joy of learning.
- 11 **Spend more time helping all students to become better learners.** Don't regard it as someone else's business. Don't assume that students should already be skilled learners. Help students to gain more control over how they learn, so that they have a greater ownership over what they learn. Above all, continue to help them to address why they are learning.
- 12 **Spend more energy on praising.** Students (like ourselves) respond well to positive feedback. Ticks aren't enough. It's all too easy for us to spend our limited time on giving constructive critical feedback, but if there is not enough praise there, this just seems like condemnation to demotivated students.
- 13 **Continue being a student.** Perhaps a requirement for employment as a teacher in higher education should be that we too should always be enrolled on an academic programme as students, and that we should see our studies through to assessment. And we should have the opportunity to fail or succeed, just like our students. Therein lies the essence of understanding students' motivations.

Developing students' competences

Let's stand back from what we've already thought about in this chapter, and go back to the central purposes of everything we do when teaching, or designing learning resources for students. We intend to help them to become more competent. The competences we are addressing are not just those relating to skills which students will be able to demonstrate to us, nor are they all amenable to our usual assessment processes and practices. The competences include those connected with thinking, creativity, originality, problem-solving, and so on, as well as those linked to mastery of defined areas of knowledge.

What's the opposite of competence? 'Incompetence' is the word which immediately comes to mind. Unfortunately, incompetence is a word with negative associations, so some time ago I coined the word 'uncompetence' to mean not-yet-competent, less threatening than incompetence.

It is useful to add to our thinking about learning by exploring how we can help our students to gain competence, and how we can help them to be aware of what is happening as they learn. This is why I developed a model of conscious versus unconscious competence and uncompetence.

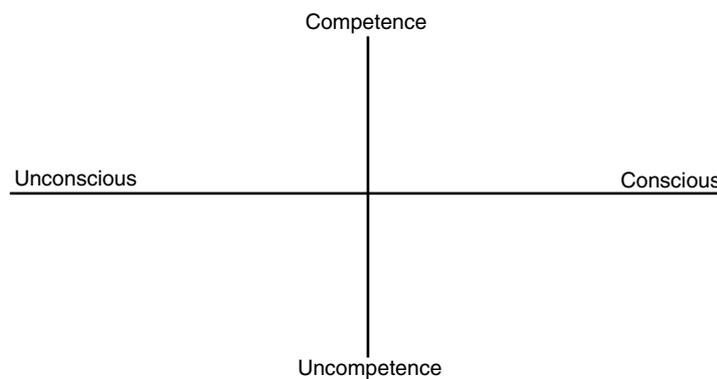


Figure 1.2 Conscious–unconscious competence–uncompetence

The 'target' box

We want to help our students to become consciously competent. This can be regarded as the target box on the competence–uncompetence matrix. The more we can help students to be *aware* of their competences, the better their motivation. In other words, conscious competence links to the *wanting* to learn factor. It breeds confidence. We can address this by expressing intended learning outcomes as clearly as we can, so that students are aware when they have reached the position of achieving these outcomes, and know that they are able to demonstrate their achievement of them to us when we assess their performance.

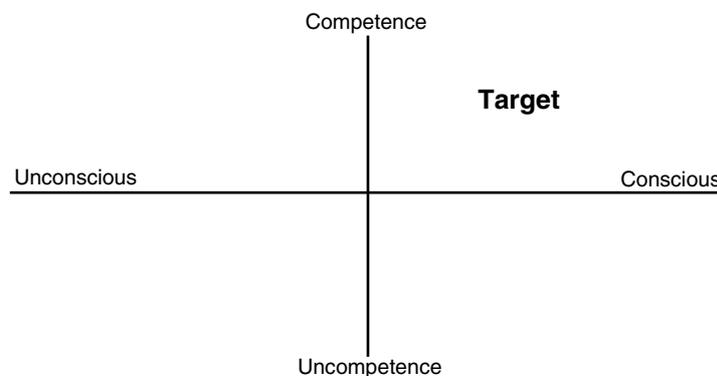


Figure 1.3 Conscious competence: the 'target' box

The 'transit' box

There's nothing wrong with 'conscious incompetence'. Indeed, knowing what one can't yet do is usually an essential step towards becoming able to do it. Of course, many unconscious incompetences don't even need to be addressed, including all the things one does not need to become able to do, and so on. It is only those conscious incompetences which relate to the topics to be learned which need to be moved towards the target box on the diagram.

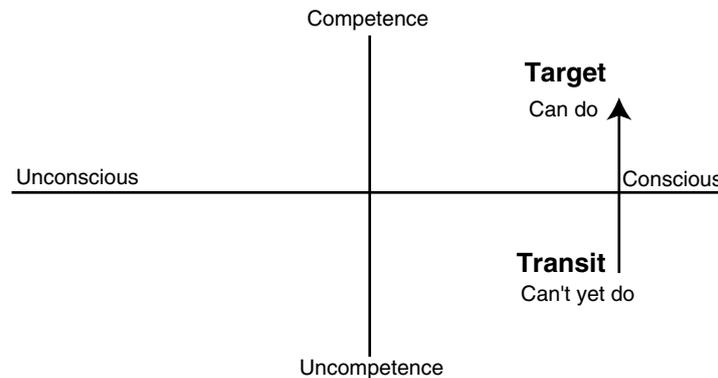


Figure 1.4 Conscious incompetence: the 'transit' box

When the intended learning outcomes are clear, it is easier for students themselves to work out what they can't yet do, and they can often turn their conscious incompetences into competences without further help. However, as teachers we can often help students to gain feedback which gives them a lot more detail of exactly how they should go about moving out of the transit position. Similarly, students can gain a great deal of feedback from each other about how best to make the move.

Unconscious incompetence – the 'danger' box

This is about not knowing what one can't yet do. For most learners (students, but also ourselves), it's the things we don't know we're not yet good at which pose the greatest threat. It could be argued that the art of teaching is about helping students to find out what lies hidden in their 'danger' boxes on this diagram! Clear expressions of intended learning outcomes can help students to see that there are things they hadn't yet identified that they needed to become able to achieve. However, even more help can be brought to bear by assessment and feedback, where we (and indeed fellow-students) contribute to giving students information about what they didn't know that they couldn't yet do.

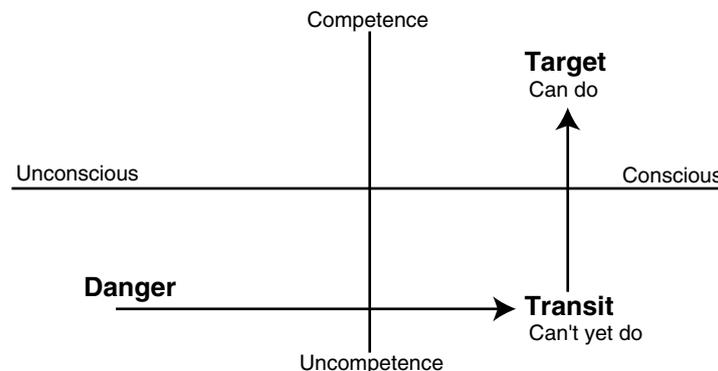


Figure 1.5 Unconscious incompetence: the 'danger' box

It is of course possible for students to jump straight from the ‘danger’ position to the ‘target’ one, but then it can be argued that their learning is not nearly so deep as it would have been if they had been alerted to the detail of exactly what it was that they didn’t know they couldn’t yet do, then tackling the situation consciously and addressing the problem.

It is increasingly recognised that an important function of higher education is to help students to develop their key transferable skills. Some of the most important of these are those connected with becoming self-sufficient, autonomous learners. Ideally, we need to be training students toward becoming able to probe for themselves what might lie in the danger box in their learning.

Unconscious competence – the ‘magic’ box?

Fortunately, we’ve all got unconscious competences as well as conscious ones. Many skilful teachers don’t actually *need* to be aware of exactly wherein lies the success of their teaching. Students who can already achieve learning outcomes don’t necessarily have to *know* that they are already in a position to do so. However, it can be argued that the transition from the ‘magic’ box to the ‘target’ one is a useful part of the learning process. For example, the excellent teacher who finds out *why* his or her teaching is successful is in a much better position to help others emulate that success. Similarly, students who find out about their unconscious competences are in a better position to build up their confidence, and to draw from that gain in self-understanding reflective processes that they can use in their conscious learning.

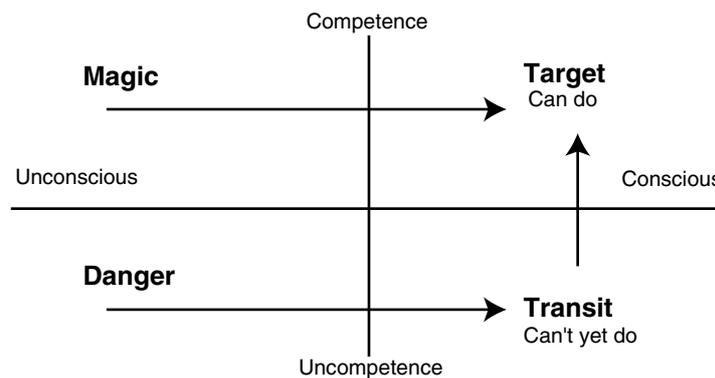


Figure 1.6 Unconscious competence: the ‘magic’ box

It can be a little unsettling to translate unconscious competences into conscious ones. It can be compared to being able to ride a bike, and wobbling when becoming aware of the processes involved. However, the learning which accompanies this sort of transition can be of value when applied to new learning scenarios.

More importantly, most students find that when they are alerted to the things they did not realise that they could already do well, they gain confidence and self-esteem. As teachers, we need to remind ourselves that our work is not just about telling students what they need to do, but equally about alerting to students to strengths they already have. Positive feedback is a powerful aid to motivation, and where better to direct our positive feedback than to the things that students may not have realised deserved our praise.

Confidence and self-concept

Students from non-traditional academic backgrounds are likely to find their confidence levels are further undermined if their beliefs in their own abilities to succeed are undermined by conceptions about themselves which have made it difficult for them to achieve academically in the past.

Clegg, in Peelo and Wareham (2002) citing Dweck, argues that there is a high correlation between self-concept and achievement and this depends on whether they see their capabilities as