THE LECTURER'S TOOLKIT

A practical guide to 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 universities and colleges. Jargon-free and written with authority, clarity and candour, the *Toolkit* addresses a broad range of aspects of assessment, feedback, 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. Building on the strengths of its predecessors, this fourth edition includes strengthened emphasis on assessment and feedback, and designing large-group teaching for the digital age, when students can get easy access to a vast range of learning resource materials online. Coverage includes:

- how students *really* learn;
- designing assessment and feedback to enhance learning;
- lectures in the digital age;
- making small-group teaching work;
- resource-based learning in the digital age;
- looking after yourself;
- challenges and reflections.

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

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Fourth edition

Phil Race

Contents

Figures

Tables

Preface to the fourth edition

Things have changed very significantly since I prepared the third edition of this *Toolkit*. Developments have included the creation of massive open online courses (MOOCs), a huge increase in what's available on the internet, the widespread use of social media for communication (not least between students), and with students in many parts of the world paying for their own higher education, increased expectations regarding the student experience in universities and colleges.

The roles of the lecturer have moved far beyond just preparing and giving lectures. Disintermediation is happening – students are no longer dependent on lecturers providing them with information – they can find it themselves on the internet. The ethos of the lecture room has changed beyond recognition – it is no longer the place for students to go to get all the material they need to study successfully. Most information nowadays is gathered by students online rather than from handouts or even textbooks and journal articles – many of these are now available electronically. The lecture is now to help students see the big picture – but particularly to inspire and motivate them to go away and get down to learning with all the resources now available to them – not least each other.

We now live in an age dominated by league tables, with institutions vying for positions in world-ranking tables, competing to attract and retain students, competing for funding, and with the quality of the student experience regarded more seriously than ever before. Disintermediation, however, has not led to the demise of the human teacher in higher education, even if it has dramatically reduced the information-giving part of the job – the process that used to be described as 'transmit–receive'. The lecturer's job has become more complex, and student expectations continue to increase. There is now a vast evidence-base of literature on all aspects of learning, assessment, feedback and teaching, and increased pressure to emulate best practice as researched in the literature.

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, and 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. There continues to be pressure on university lecturers not just to be excellent researchers, but also to be professionally trained and qualified at supporting students' learning, motivating students and giving them useful feedback on their learning, 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 many countries increasingly contributing towards the funding of their higher education, they are becoming much more aware of their status as consumers, and their right to demand high quality in the ways that their learning, teaching and assessment are implemented. In many countries including the UK, students' views are now collected systematically through a National Student Survey (or similar process) each year, and the findings of such surveys are regarded very

seriously (and competitively) as indicators of the learning experience of students and the teaching quality of institutions.

What does this edition cover, and why?

There are seven chapters in this fourth edition. Each chapter is written to be relatively complete in itself. References are collected at the end of the book. Most of the book links to the central agenda of the factors underpinning successful 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. Each chapter is also prefaced by one or more 'pre-quotes' to set the scene for what is to follow. I have also added 'pause for thought' episodes at various points of the book, to give you the opportunity to stop and reflect on various key aspects of teaching, learning and assessment.

Chapter 1, 'How students *really* learn', aims to get you thinking about the fundamental processes which underpin your students' learning. After reviewing just some of the ways learning is addressed in the literature at large, in this chapter I ask you to interrogate your own learning (past or present), and draw out seven straightforward 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 includes some suggestions on expressing and using learning outcomes, and developing students' competences.

Chapter 2, 'Designing assessment and feedback to enhance learning', is the most extensive – and probably the most important – 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. Yet I continue to meet many lecturers for whom the burden of marking students work and giving them feedback has spiralled right out of control, so the thrust of this chapter is to explore ways of maintaining or increasing the *quality* of assessment and feedback at the same time as streamlining the *amount* of these important aspects of the job of the lecturer. 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.

In this chapter, I offer critical comments about two of the main assessment devices still around – traditional exams and essays – and offer you 'pause for thought' exercises to reflect on the extent to which they are fit for purpose. I have added to this chapter discussion of the pros and cons of a variety of ways of getting feedback to students. 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, 'Lectures in the digital age', has been developed to address the changed nature of the large-group teaching session, at a time when students get the vast majority of the information they use for their studies outside the lecture room. Nowadays, with massive open online courses (MOOCs) available to all, and some of the best lecturers in the world accessible online, for example in TED-talks, the 'everyday' lecture faces strong competition. The chapter 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. The chapter includes

a range of suggestions aiming to help you make large-group teaching work for your students, and suggestions about using technology in lecture rooms.

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 for a variety of reasons it is increasingly difficult to provide the quality or quantity of such student–staff encounters.

Chapter 5, 'Resource-based learning in the digital age', starts by reviewing how present day online learning has developed from the roots of open and flexible learning processes, and aims to encourage you to make the most of the wide range of learning resources that are available to support learning, including MOOCs, and online lectures and podcasts. 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 for 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 ever-widening range of communication and information technologies available.

Chapter 6, 'Looking after yourself', is to help *you* to survive! It includes a range of suggestions to help you take control of your time, workload, stresses 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 on 'Challenges and reflections' continues the theme of your own survival, and starts by addressing seven challenges now facing teachers in higher education, including the increased importance of helping students to avoid plagiarism, the importance of considering the student experience across whole programmes rather than just within modules, the increasing expectation for experienced teachers in higher education to demonstrate their excellence in competitive awards frameworks, and the expectations regarding getting work published, not least relating to pedagogic development. Finally, the *Toolkit* ends with a range of ideas (and templates) 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.

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Chapter 1

How students really learn

The tertiary education sector is an area of current very rapid and unpredictable change, with universities and colleges reviewing and often implementing radical alterations in the ways they design, deliver and assess the curriculum, taking into account not just innovations in how content is being delivered and supported, particularly through technological means, but also the changing relationships between academics and their students. The role of the teacher in higher education needs to be reconsidered, when students can freely access content worldwide, and seek accreditation and recognition of learning by local, national or international providers.

(Sally Brown, 2013)

Intended outcomes of this chapter

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

- equip yourself for the rapidly developing role of the lecturer, by focusing clearly on how learning really happens;
- avoid unnecessary jargon and old thinking, when helping your students to learn effectively;
- identify seven factors, in straightforward language, which underpin student learning;
- address these factors in your day-to-day work with students;
- help your students to gain control over these factors;
- design or modify intended learning outcomes associated with your teaching, so that they align constructively with evidence of achievement, teaching approaches, assessment criteria, and feedback mechanisms.

This chapter underpins just about everything else in this *Toolkit* – whatever else we do, our job as lecturers is to do everything we can to make learning happen. The chapter is in four main sections:

- *Never mind the teaching – feel the learning!* This section ranges briefly around some of the ideas in the vast literature about how human beings are thought to learn – some ideas are better than others!
- *Factors underpinning successful learning:* this is an account of an evidence-based approach I have used over some decades now, working out how learning happens using the language of learners themselves and their teachers.
- *Developing students' competences:* some thoughts about competence – and the opposite?
- *Positioning the goalposts – designing and using learning outcomes:* making learning outcomes work for students – it's *their* targets we're talking about.

The model of learning developed in this chapter comes from hundreds of thousands of people's responses to some straightforward questions about their own learning. I stress that this is a *model* and not a theory. It's become known as the 'ripples on a pond' way of thinking about learning, because the factors all affect each other – it's not a cycle – a mere cycle does no justice to how complex the human brain actually is.

Never mind the teaching – feel the learning!

There is no single ideal way to teach – it would be very boring for learners if we all did exactly the same things! 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, otherwise everyone's time is being wasted. However, whatever teaching approaches we choose to use, it's worth stopping to think about exactly how students learn, so we can help them succeed to learn from our actions – and perhaps more important – from each other.

As will be seen throughout this book, the job of the lecturer is far more complex than just 'lecturing'. It's essentially about facilitating learning – causing learning to happen – often then leading to measuring evidence of achievement of learning thereby accrediting learning. Carl Rogers was one of the early advocates of the facilitation of learning, and wrote of essential qualities of teachers thus:

> Perhaps the most basic of these essential attitudes is realness or genuineness. When the facilitator is a real person being what he is, entering into a relationship with the learner without presenting a front or facade, he is much more likely to be effective. This means that the feelings which he is experiencing are available to him, available to his awareness, that he is able to live these feelings, be them, and able to communicate them if appropriate. It means that he comes into a direct personal encounter with the learner, meeting him on a person-to-person basis. It means that he is being himself, not denying himself. Seen from this point of view it is suggested that the teacher can be a real person in his relationship with his students. He can be enthusiastic, he can be bored, he can be interested in students, he can be angry, he can be sensitive and sympathetic. … Thus, he is a person to his students, not a faceless embodiment of a curricular requirement, nor a sterile tube through which knowledge is passed from one generation to another.
>
> (Rogers, 1983, p. 106)

(Sorry about the male pronoun – shows how long ago this was written – but the point Rogers makes stands well the test of time here.)

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 need to learn, or indeed to those who wish to cause learning to happen.

In the main part of this chapter, my intention is to share with you the results of my work over the last three decades, working with hundreds of thousands of lecturers, trainers, teachers and learners, probing them about how their learning *really* happens. There emerge seven factors which seem to underpin successful learning at any age, in any part of the world, in any discipline, and by just about any human being! That's a bold claim, but those of you who have followed my journey thus far, in previous editions of this *Toolkit* or in Race (2005a, 2010, 2014) will know how this way of thinking about learning has developed and consolidated over the years.

The seven factors I will explain in this chapter 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 online learning resources, and indeed massive open online courses (MOOCs) much discussed at present.

However, before taking the practical look at learning mentioned above, there follows a short review of just a few of the recent ideas in the wide literature now available about learning, and to put these into perspective one or two thoughts from much longer ago.

Recent thoughts on theories and models of learning

Introducing his collection *Contemporary theories of learning,* Knud Illeris (2009) suggests:

> During the last 10–15 years, learning has become a key topic, not only for professionals and students in the areas of psychology, pedagogy and education, but also in political and economic contexts. One reason for this is that the level of education and skills of nations, companies and individuals is considered a crucial parameter of competition in the present globalised market and knowledge society. It is, however, important to emphasise that the competitive functions of learning are merely a secondary, late-modern addition to the much more fundamental primary function of learning as one of the most basic abilities and manifestations of human life.
>
> (Illeris, 2009, p. 1)

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 now widespread emphasis on expressing the curriculum in terms of 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. One of the most popular approaches of the 'cognitive' school arose from the work of Lewin (1952) and 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.

Bruner et al. (1956), however, criticised some of the cognitive approaches as follows, reminding me of the views of Carl Rogers which started this chapter:

> A final point relates to the place of emotion and feeling. It is often said that all 'cognitive psychology', even its cultural version, neglects or even ignores the place of these in the life of mind. But it is neither necessary that this be so, nor at least in my view, is it so… Surely emotions and feelings are represented in the process of meaning making and in our constructions of reality.
>
> (Bruner et al., 1956, in Illeris, 2009, p. 167)

Wenger (1998), following up the social dimensions of learning in his book *Communities of practice: learning, meaning and identity,* suggests that:

Learning has traditionally been the province of *psychological* theories.

Behaviourist theories focus on behaviour modification via stimulus–response pairs and selective reinforcement. … Because they completely ignore issues of meaning, their usefulness lies in cases where addressing issues of social meaning is made impossible or is not relevant.

Cognitive theories focus on internal cognitive structures and view learning as transformations in these cognitive structures. Their pedagogical focus is on explanation, recombination, contrast, inference, and problem-solving.

Constructivist theories focus on the processes by which learners build their own mental structures when interacting with an environment. Their pedagogical focus is task-oriented. They favour hands-on self-directed activities oriented towards design and discovery.

Social learning theories take social interactions into account, but still from a primarily psychological perspective. They place the emphasis on interpersonal relations involving imitation and modelling, and thus focus on the study of cognitive processes by which observation can be a source of learning.

(quoted in Illeris, pp. 216–17)

Then Wenger goes on to suggest the advantages of *activity* theories, *socialisation* theories and *organisational* theories over these traditional ways of thinking about learning.

Meanwhile, Coffield et al. (2004) in a large-scale systematic review of various models of learning were very critical of the Kolb learning cycle (which is still widely cited) 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, and were very critical of the 'learning styles' approach, going as far as to ask 'Should research into learning styles be discontinued, as Reynolds (1997) has argued?', quoting Reynolds: '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, p. 128 in Coffield et al., 2004).

A further criticism of many of the approaches to thinking about learning was neatly made by Peter Jarvis in his chapter 'Learning to be a person in society':

As a sociologist, I recognised that all the psychological models of learning were flawed, including Kolb's well-known learning cycle, in as much as they omitted the social and the interaction.

(in Illeris, 2009, p. 23)

Going much further back in time, another important approach was that of Ausubel (1968), who in his book *Educational Psychology: A cognitive view,* placed particular emphasis on starting points, and asserted:

> The most important single factor influencing learning is what the learner already knows. Ascertain this and teach him accordingly.
>
> (Ausubel, 1968, p. 235)

I like nowadays to think of 'learning incomes' as well as learning outcomes. The more we know about what our students can already do, where they've already been, their hopes, fears and hang-ups, the better we can help them to learn. Many practices now common in training can be matched to the cognitive psychology approach of Ausubel, 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 structured learning material. This can be regarded as bringing together useful elements of the cognitive and behaviourist ways of thinking about learning. 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. The present way of designing curriculum around intended learning outcomes grew from the 1950s and 1960s when behavioural objectives ruled, and one of the most influential publications was the Bloom et al. *Taxonomy of Educational Objectives,* volume 1 *The Cognitive Domain,* published in 1956.

Yrjo Engestrom, known for his discussion of 'expansive learning' suggests:

> Any theory of learning must answer at least four central questions: (1) Who are the subjects of learning – how are they defined and located? (2) Why do they learn – what makes them make the effort? (3) What do they learn – what are the contents and outcomes of learning? (4) How do they learn – what are the key actions and processes of learning?
>
> (quoted in Illeris, (2009, p. 53) at the start of a chapter summing up Engestrom's discussion of 'expansive learning' as an activity-theoretical re-conceptualisation)

More recently, Biggs and Tang (2011) in successive editions of *Teaching for Quality Learning at University* have brought together a comprehensive survey of the links between teaching and learning in higher education making 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. 'Joined-up thinking' could be another term for constructive alignment, perhaps.

The profound influence of assessment design on approaches to learning was brought into sharp relief by Gibbs (1999) in his chapter in *Assessment Matters in Higher Education* edited by Brown and Glasner, and developed further in Gibbs (2010). Meanwhile the importance of the role of formative feedback, has been addressed by Knight and Yorke (2003), and developed in great detail by Sadler, who also delves deep into the real problems which exist in trying to quantify learning in terms of marks and grades, in a wide-ranging series of contributions to the literature from 1998 to the present time.

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, pp. 9–10)

So what sorts of learning are we as lecturers aiming to encourage? The most frequent response is 'deep learning'. But what *is* deep learning? Possibly really making sense of the topic concerned, and linking it well to all the other things around? This is more likely to be the case when *researching* a topic, and when lots of time is spent focusing on it, and when there is plenty of time to get one's head around it bit by bit. But a problem comes to light if we ask ourselves 'what are we really *measuring* with most of our forms of assessment?', and the answer is much more likely to be 'surface learning', or indeed 'strategic learning'.

'Surface learning' is looked down upon. It is regarded as the poor relation of deep learning. But in this age where information is so easy to download, store, file and carry around with us, we're hardly likely to 'learn' that information in ways which used to be necessary in the past. In most avenues of life, we can depend on having the information we need readily available, so we don't see the need to carry it around in our heads any more. It is indeed useful to be quick and accurate at *finding* and *re-finding* information however. There is a tendency to keep in our heads only what we need fairly immediately, and we all tend to use our memories for information which is 'sufficient to the day' – and in students' case 'sufficient to the exam day' perhaps. It can be argued that much of modern life only requires 'surface learning', as we can so easily get back to important or relevant information as and when we may need it. As always, however, there can be unintended consequences of progress.

Pause for thought

Nowadays, most people rarely pick up a hard-copy dictionary, unless learning a language and translating. We can enter a word (even spelled incorrectly) into our laptop, tablet or phone using Google, or many available online dictionaries, and quickly get a range of explanations, illustrations, examples – everything we might need. But not quite. What do we miss out?

One thing we can miss is the *other* words which are close in an alphabetical list to the word or phrase we are looking for. In the days of traditional dictionaries, a not-insignificant amount of learning tended to happen when our eyes strayed beyond our original search. With today's focused online dictionaries, that is unlikely to occur any more.

But another term creeps in: 'strategic learning'. This is about making conscious choices about what to learn relatively 'deep', and what only merits deliberate 'surface' learning. It is probably a sign of how intelligent our students are, that they seem to get increasingly keener to ration the time and energy they put into learning things according to the need to do so. When learning is to be assessed in some way, they

are looking for how best to get as many as possible of the available marks. This applies to just about every form of assessment, exams, essays, reports, presentations, dissertations, theses, interviews, and so on.

It should come as no surprise to us that there is now a lot of evidence showing that 'strategic learners' tend to be not only more successful than surface learners, but also do better in many aspects of life than deep learners too. So what exactly *is* strategic learning? I have argued in recent years (e.g. Race, 2014) that:

> 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.
>
> (Race, 2014, p. 79)

Many of the sources referred to above inform the view of learning that this chapter will now propose. However, I continue to argue 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 hundreds of 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.

Learning and intelligence

If the word 'learning' has caused countless different attempts to describe human behaviour and mental functioning, the word 'intelligence' can be argued to be equally problematic. There are numerous so-called 'intelligence tests', but what exactly do they measure? Most likely, skill at performing within the limits which define the tests, and under the conditions in which these tests are being used. A breath of fresh air was introduced by Howard Gardner, in his book *Frames of Mind: The theory of multiple intelligences* (2011), summing up his idea that there are several different kinds of intelligence. From his earlier work, 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, or even to use 3,000 words or so to construct a written argument or review. Gardner's work usefully subdivides *intelligence* into multiple facets:

- linguistic – use of language – words;
- mathematical-logical – patterns, deductive reasoning, logic and numbers;
- musical – compose, perform and appreciate musical patterns, sound and rhythm;
- bodily – kinaesthetic – use of whole body or parts of the body – coordination of movements;
- spatial – recognising and using patterns of space – images – parking the car, crystallography;
- interpersonal – working with other people, understanding their motivations, intentions and desires;

- intrapersonal – self-awareness, understanding oneself, and recognising one's feelings, fears and motivations;
- naturalist – awareness of the natural environment, sustainability;
- spiritual/existential – embracing aesthetic, unseen and spiritual dimensions; faith and religion;
- moral – ethics, humanity, value of life;
- bestial – communicating effectively with animals.

There's a lot more to the human species than just words. That's why I worry whenever I see the phrase 'neuro-linguistic programming', and it's not just the 'programming' that feels somewhat sinister in discussion of human thinking! Any one person's intelligence can be regarded as a fairly unique blend of several of Gardner's 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. At last, perhaps, we're working towards a map upon which just about every aspect of human learning can be placed, and which spans the cognitive, behavioural, social and emotional aspects of human thinking and behaviour.

Factors underpinning successful learning – an evidence-based approach, using the language of learners themselves

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 – jargon. 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 question 1(b) are along the lines of:

- practice (by far the most common answer);
- trial and error;

- just doing it;
- repetition;
- having a go;
- experimenting;
- playing.

We all learn an immense amount in early childhood, seemingly effortlessly, by playing. Then all too soon, learning seems to be relegated to 'work'. This is tragic and unnecessary! All answers to question 1(b) boil down to 'learning-by-doing' in one way or another, 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,* as noted by many writers from Rogers to Jarvis, 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 question 2(b) 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 critical feedback, further dividends are available. It can be very useful to train students (and ourselves!) to thank people for critical 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 several further factors which need to be in place. Some of 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 question 3(b) include:

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

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, lecturers, 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 – 'getting my head around it'

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* can be thought of as sorting out what is important in what has been learned, and 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 start to *communicate* the idea to other people – tangible evidence that learning has been successful. And looking ahead to assessment, we can only ever try to measure what *comes out* of learners, what they *communicate.* We can never really find out what they 'know' or what they 'understand' other than through what they *show.*

Thousands of people have answered the three questions we've looked at so far, 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, and that people's answers have remained very similar across all the years I've now been posing these questions, even when the learning environments have changed dramatically. 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 *making sense* stage – most importantly, each other. This remains the case when learning online, as with the ease of communication using social media, learners rarely feel alone. When students put their heads together informally to try to make sense of a difficult idea or problem, a lot of making sense and realising occurs.

Now another question!

For the next 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 question 4(b), 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 the thing concerned, 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 *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 of the 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, five of the principal factors underpinning successful learning can be summarised as follows.

1 *Wanting*   motivation, interest, enthusiasm
2 *Needing*   necessity, survival, saving face
3 *Doing*   practice, repetition, experience, trial and error
4 *Feedback*   other people's reactions, seeing the results
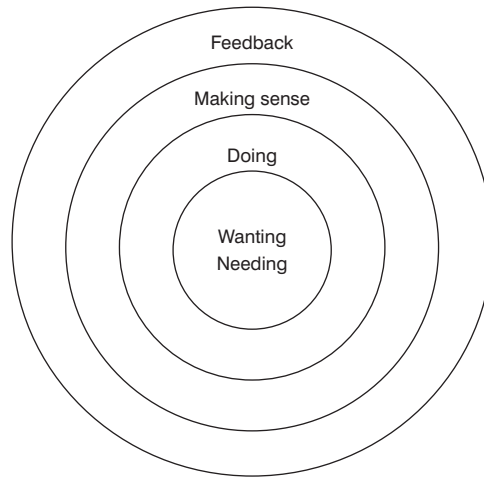5 *Making sense* getting one's head round what has been learned.

Figure 1.1 'Ripples on a pond': the first five factors underpinning successful learning

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. Nor do we just go round in circles. 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 *making sense* 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 *making sense* occurring in an overlapping way as pictured in Figure 1.1.

In various publications over recent years, including the previous editions of this book, 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 enabling *making sense* to happen. 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, making-sense* 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 in 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.

For example, *wanting* is catered for by the effective face-to-face lecturer who generates enthusiasm. Enthusiasm is very infectious. Have you ever learned anything really well from someone who was clearly bored with it? *Wanting* can also be invoked 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 online or computer-based

learning materials. What if there's no *wanting* or *needing* there in the first place? Perhaps feedback can, when coupled with learning-by-doing and making sense, cause the ripple to move back into the centre, and create some motivation. Learning-by-*doing* is at the heart of any good learning programme, and equally in any well-designed flexible learning package or online course.

Feedback is provided by tutors, or by the responses to exercises or self-assessment questions in flexible learning materials, or on-screen in online learning environments, 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 *making sense* and *doing* stages, and keeps the learning moving.

The one that's all too easy to miss out is *making sense*. This is something we can't do to our students, only they can make sense of things. 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.

How can we increase students' motivation?

In many educational institutions, 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. And nowadays in many parts of the world, students are often paying a lot to be at a university (or their parents or grandparents are paying!). There are some students who even seem to believe that we are paid to do their learning for them – and it can certainly be argued that we're paid to do everything we reasonably can to make sure that their learning is successful.

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 seems to have 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 great culture shock on moving from school to higher education – all those distracting temptations, and the 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. For online learning, the symptom is drop-out or non-completion – usually less than 10 per cent of starters on a MOOC are likely to complete.

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, texting, and generally fiddling with mobiles, laptops and tablets;
- not being engaged in classrooms or lecture theatres, not asking questions, not being willing to answer questions, nor volunteering responses when invited;
- diverting lecturers from the main issues;
- coming in without 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 explanation or reason;
- inadequate preparation towards class work;
- handing in hasty last-minute work – botched, or not handing in any work;
- drifting for hours online, without achieving any real learning;
- 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 coursework marks, but not doing other things;
- not buying books, nor using library resources;
- not downloading essential resources from the module web-pages – or (even more often) downloading them, but never opening the files.

IS SOME OF IT OUR FAULT?

Some explanations of low student motivation point 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 un-enthusing;
- the teachers they meet – our own looks, sounds, level of enthusiasm, perceived lack of understanding about how learning really happens and 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, rather than 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 can 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, online work, 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 haven't yet got their heads around.** The passion often comes with making sense of subject matter, and this 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 as if every member of it is entirely switched on, when we know all too well that this isn't the case.