7th Edition

TEACHING IN FURTHER EDUCATION

An Outline of Principles and Practice

L. B. CURZON & JONATHAN TUMMONS

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Teaching in Further Education

Seventh edition

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Preface to the Seventh Edition

The terms of reference for the production of the first edition of *Teaching in Further Education* were: '…the provision of a text which will assist in the vital task of making teaching in the colleges of FE more efficient and effective'. This has remained the overall aim of the successive editions which have appeared during the past 35 years. This seventh edition aims to provide for teachers in training and college staff a closely-structured text which outlines key theories of learning, and examines the principal modes of formal teaching currently in use in our colleges.

As in previous editions, the text is concerned primarily with the practical activities of teaching and with those learning theories which are linked closely to successful instruction. The teacher who is aware of how students acquire, retain, access and transfer their learning is likely to be at an advantage in preparing and delivering effective lessons and lectures.

This seventh edition has involved a thorough revision of the previously published text. In particular, the following changes have been made.

- New chapters have been added, dealing with: theories of learning that draw on social psychology and social practice theories; assessment theory and practice; and the evaluation of – and reflection on – teaching practice.
- A number of chapters have been extensively rewritten in order to take into account a number of significant changes to practice in the sector since the publication of the previous edition of this book, dealing with: the implications of recent curriculum reform; provision for 14–16 learners in colleges; e-learning and blended learning; and changing modes of course delivery.
- Notes and reference material have once again been updated. As with previous editions, a large group of references to important research material noted in earlier editions remains. For this seventh edition, I have used Harvard referencing, as opposed to footnotes, as this is the convention that trainee teachers are most likely to use during their programmes of study.

I have retained the general character of the text, insofar as it continues to offer a systematic exposition of the elements of instruction common to most types of courses currently available in colleges of FE in the United Kingdom. Consequently, it does not include prescriptive advice relating to specific examinations or national certificate syllabuses; it concentrates on matters of a fundamental and overall nature which concern all members of college teaching staffs, no matter what are the precise titles or syllabus content of the courses with which they are involved.

In contrast to many other general teaching texts, this work makes no reference to either the current professional standards framework (at the time of writing, the fate of these standards had only recently been settled). This omission is not intended to signify any opposition to the standards per se (although there is an argument to be made that such frameworks serve to diminish rather than enhance professionalism). I think that the teacher-training curriculum that this book – in part – reifies and contributes to is sufficiently well-established not to need reinforcing by a framework with which it has an ambiguous relationship at best (Lucas, Nasta and Rogers, 2012; Tummons, 2011b).

Italics are occasionally employed in the text in order to bring key ideas to the reader's special attention; where they occur within a quotation, the added emphasis is entirely mine.

PART 1

An Overview of the Teaching–Learning Process

1 Education, Teaching and Learning

Since life means growth, a living creature lives as truly and positively at one stage as at another, with the same intrinsic fullness and the same absolute claims. Hence education means the enterprise of supplying the conditions which ensure growth, or adequacy of life, irrespective of age **JOHN DEWEY**

What is the purpose of the work done by FE colleges, work that this textbook seeks to inform and contribute to? Should colleges, and the learning and teaching processes that we find situated within them, be described or understood solely in terms of employability, of providing young people and adult learners with transferable or generic skills (whatever they might be) so that they are prepared for the world of work? Or should we consider the ways by which the work of colleges serves to enable students to enrich their lives more broadly, thus contributing, however modestly, to self-fulfilment and human progress?

In contrast to the best efforts of neoliberal governments (and some college principals) to reduce discourses of teaching to a series of discussions about skills or techniques and to define FE solely in terms of employability, this book rests on a series of principles that can be seen as contributing to a broader philosophy of education:

- education can contribute in significant fashion to the breadth and acuity of vision and values
- colleges of FE and similar types of institution can assist in the broadening of the nature and quality of education
- the effectiveness of the colleges can be heightened by the training of staff in the theory and practice of instruction in general, and teaching techniques in particular.

Discussions about the broader purposes or aims of education (including primary, secondary and higher education) that are framed in terms such as those offered above are perhaps unfashionable in times of recession when the number of young people aged 16–24

who are not in education, employment or training (so-called NEETs) stands at almost one million, might seem to be a luxury. Successive governmental influence – or perhaps, interference – in the learning and skills sector has resulted in an at times bewildering pace of change. New initiatives and new curricula, new funding regimes and new organizing bodies, seem to come and go at a dizzying pace: Every Child Matters; the Learning and Skills Council; subject learning coaches; the Institute for Learning; and the Learning and Skills Improvement Service are just a few of the quangos and initiatives that have come and gone over the last decade or so. Nor is this process slowing down: only very recently – at the time of writing this book – has the coalition government has decided not to proceed with the deregulation of teacher-training for the lifelong learning sector. With change such a constant part of the lecturer's life (Edward et al., 2007), it might seem difficult to justify time spent considering a personal philosophy for education in the sector when there is barely time to read through the latest revisions to a curriculum.

This book occupies a contrary position: it rests on an assumption that there is more to teaching in the sector than 'just' achievement and completion rates. This is not to deny the importance of gaining qualifications for the young people – and adult learners – with whom we work. But a relentless focus on completion rates, understood as part of a broader culture that positions education, learning and teaching as managerial processes that rests on statistics, outcomes, performance criteria and the like, risks dehumanizing the practices that make up our professional lives and that invariably drove us to become teachers in the sector in the first place: a sense that the students with whom we work are entitled to as good an education as anyone, that the FE college is not and should not be seen as the 'second best' option, that the younger 14-16 learners with whom we are increasingly expected to engage are not to be treated as 'rejects' of the compulsory school system. We need to make time and space for conversations about themes such as these, and how our practices in workshops, classrooms and tutorial rooms can embody them. It is in broader themes such as this, rather than narrow technical discussions about using quizzes with our students or how well laid out our PowerPoint slides might be, that our critical reflection needs to sit.

Introductory remarks on education

The human activity which we call 'education' (derived from the Latin word 'educare', meaning 'to lead out or to bring forth') is, in western European society, largely based largely on two processes which we know as 'teaching' and 'learning', although the relationship between these two processes is not a simple one (a theme that will be developed in later chapters of this book). The formalization of these processes, resulting in their being carried out within schools, colleges and similar institutions, has emerged from society's conscious responses to fundamental problems of adaptation and survival. Education in our culture was historically concerned with the handing on of beliefs and moral standards, accumulated

knowledge and skills. In its essence it is a recognition of the fact that society's way of life must be learned – since an understanding of it is not inherited – by each individual. The process of assimilation of the experiences of earlier generations is at the basis of this task; education assists the younger generation in this process. Learning is not simply a matter of perpetuating the knowledge or skills that a society deems to be important and worthy of preservation, however. Learning also depends on the individual's experiences within, for example, her or his family, social environment and, more specifically, the educational institutions he or she is able to attend. Public examinations and certificates provide a sense of equality of educational opportunity. And yet particular sectors of educational provision are clearly perceived to be of higher status than others, in the same way as some universities are. For many years the FE sector has been referred to as the 'Cinderella sector' (Randle and Brady, 1997; Jephcote et al., 2008).

The concept of 'formal education', which features extensively in this book, should be understood clearly in a positive sense, as contrasted with the negative sense of terms such as 'formalistic' or 'formalism', which often reverberate with pejorative overtones. Lecturing in 'formalistic style', for example, is often perceived as involving rows of silent students listening to an uninterrupted address, delivered in a didactic manner. 'Formal education', in the sense in which it is used in this book, is intended to refer to an approach to teaching characterized by those recognizable structures and processes of an education system that has developed in the UK particularly since the nineteenth century, and the introduction of legislation that made schooling compulsory: colleges, examination boards, qualifications and certificates, and so forth. In particular, formal education seeks to keep in mind the significance of the history of the theory and practice of education in our community. Formal education recognizes the continuity to be perceived within the practices of teaching and its underlying principles.

Thus, when we speak of 'formal education', such as that provided in colleges of FE, we have in mind, for example, institutions, staff, curricula, programmes, community outreach classrooms and virtual learning environments: these are the means associated with the teaching–learning process. The ends with which these means are associated are a direct reflection of views of broad social aims. In these pages, the ends of education, involving its rationale, purpose and objectives, concern human growth, the signs of which include flexibility, openness to new insights, new possibilities, hospitality to novelty, to the imaginative and the creative. The educational activities appropriate to these ends also involve preparing the student to take his or her place in a changing society, a globalized, networked and increasingly local world.

At the same time, we need to be cognisant of 'non-formal' approaches to education and learning (Coffield, 2000). Research into learning in non-formal ways and contexts is of importance in its own right, opening up discussions about how, for example, apprentices learn 'on the job' when no formal intent to teach is present, or what people learn in everyday life and how this relates to what people learn in formal contexts. So, although the focus of this book remains firmly within the learning and skills sector, I wish to foreground

the increasingly diverse nature of that sector and the ways in which learning outside colleges relate to learning within them.

Our study of the theory and practice associated with FE begins with a general consideration of the processes of learning and teaching.

Definitions of learning

How should 'learning' be defined? Dictionaries provide a general, if superficial, guide. 'Knowledge acquired by study' is a typical dictionary definition. More specific definitions have come from educational researchers and writers, drawing on a range of theoretical and subject positions: psychology, social psychology, sociology and anthropology. The following are examples.

(a) Any activities that develop new knowledge and abilities in the individual who carries them out, or else cause old knowledge and abilities to acquire new qualities (Galperin, 1965).

(b) A process of reorganization of sensory-feedback patterning which shifts the learner's level of control over his own behaviour in relation to the objects and events of the environment (Smith and Smith, 1966).

(c) The process by which an activity originates or is changed through reacting to an encountered situation, provided that the characteristics of the change in activity cannot be explained on the basis of native response tendencies, maturation or temporary states of the organism (e.g. fatigue, drugs, etc.)' (Bower and Hilgard, 1981).

(d) A change in human disposition or capability, which persists over a period of time, and which is not simply ascribable to the process of growth (Gagné, 1983).

(e) Learning is becoming capable of doing some correct or suitable thing in any situations of certain general sorts. It is becoming prepared for variable calls within certain ranges (Ryle, 1983).

(f) The alteration of behaviour as a result of individual experience. When an organism can perceive and change its behaviour, it is said to learn (*Encyclopaedia Britannica*, 1989).

(g) The acquisition and retention of knowledge and habits of thought in a way that permits them to be employed in a useful way after the initial exposure has been terminated (Saunders and Walstad, 1990).

(h) Learning is an improvized practice, a necessary consequence of participation in social practices, changing not only what people know, but how they speak, act and behave within different social contexts. It leads to permanent changes in not just ability or knowledge, but also identity (Lave and Wenger, 1991).

(i) The active creation of knowledge structures from personal experience (Biehler and Snowman, 1994).
(j) An enduring change in the mechanisms of behaviour involving specific stimuli and/or responses that results from prior experience with similar stimuli and responses (Domjan, 1998).
(k) Learning is any process that in living organisms leads to permanent capacity change, but which is not due solely to ageing or maturation (Illeris, 2007).

Running through definitions of this type are the following key themes: the nature of learning is inferred from changes in behaviour; learning occurs as the result of given experiences which precede changes in behaviour; learning involves behaviour potentiality (that is, the capacity to perform some act at a future time, to be able to repeat something, as contrasted with performance which concerns the translation of potentiality into behaviour); the modification of behaviour involved in learning is of a relatively permanent nature.

For the purposes of this book, we shall consider learning as 'the apparent modification of a person's behaviour through his activities and experiences, so that her or his knowledge, skills and attitudes, including modes of adjustment, towards her or his environment are changed, more or less permanently'.

At this time, it is important to note the occasionally bewildering array of types of learning that is to be found in the literature: formal learning, informal learning, non-formal learning, implicit learning, situated learning, deliberative learning and experiential learning – to name just a few. Different terms such as these tend to rest on particular theoretical perspectives or positions: for example, the term 'experiential learning' is closely tied to the work of Kolb (1984) and Schön (1983); the term 'situated learning' relates to the work of Lave and Wenger (1991) and Wenger (1998). Some of these variations lead to more profound considerations of learning and teaching processes than others, and will be considered in detail in Parts 2 and 3 of this book.

It will be obvious that not all behaviour is learned. The so-called emotional responses that have value to the human being are basically unlearned: a baby's crying is not 'learned' in the sense noted above. Some psychologists speak of 'prepared learning' and 'unprepared learning'. The former category is based on the view that we seem to be prepared in a biological sense for certain types of learning which have a high survival value, such as learning to walk and talk. Unprepared learning involves learning about the world that we live in, such as learning to read – the type of learning which seems not immediately related to survival. Behaviour resulting from unprepared learning has historically been seen to require motivational support in the form of services provided by specialized educational institutions, organized so as to produce effective learning. But other networks of influence – the family, peer groups, snack bars and cafeterias – can also encourage learning in both

formal and non-formal ways and we shall need to consider these as we progress through this book.

Definitions of teaching

How then can we define 'teaching'? 'Teaching' tends to be defined in dictionaries as 'the profession of a teacher' (which at least is heartening news for those people who wish to continue to define teaching as a profession). The verb 'teach' is typically defined as 'give systematic information to a person or about a subject or skill'.

There are significantly fewer variants of the terms 'teaching' and 'teach' than there are of 'learning' and 'learn', reflecting the relatively uncontested nature of the practice, although several are extant in the literature (a number of definitions are provided by way of example in the next chapter). How a teacher behaves in the classroom or workshop has, self-evidently, changed over time as a result of not only changing societal, professional and political attitudes to the purpose and conduct of formal education but also the establishment of educational or pedagogic research as a serious component of the academy. It is a simple task to find images of the stereotypical Victorian schoolteacher and to contrast such images with the increasingly varied and fluid spaces that are characteristic of contemporary FE colleges, particularly 'new build' colleges. Despite such changes, definitions of 'teaching' remain constant, although the job role of the teacher has changed over time, to include issues as varied as pastoral care on the one hand, and the management of specific learning difficulties on the other.

Teaching and learning in the classroom

'Teaching' is a relatively uncontested term. 'Learning', by contrast, is problematic, refracted through any number of different theoretical perspectives. These perspectives do not render the definition of 'teaching' troublesome, but do problematize the relationship between 'teaching' and 'learning'. Put simply, how can we know that those activities that we do, or perform, in different parts of our workshops or classrooms 'make' learning happen? What is it that we do as teachers that gets our learners to learn?

Consider these four groups of students, typical of those to be found in a college of FE, engaged in the kinds of activities known as 'the teaching–learning process'.

Group 1: The motor vehicle workshop

The first group that we shall focus on consists of motor vehicle trade apprentices learning the fundamentals of vehicle servicing in preparation for an examination in Vehicle Maintenance and Repair, NVQ Level 2.

This class is being held in the college's motor vehicle workshop, which is equipped with appropriate machinery and tools, typical of the kinds of equipment found in the industry. Visual aids, in the form of charts and pictorial diagrams, are posted on the walls alongside more general college notices. The ten students are gathered round one of the demonstration vehicles and the instructor has explained the topic for the day's lesson – the removal and refitting of exhaust manifolds (these collect the fumes from engine cylinders into a single pipe). The lecturer has reminded the group of the work done in the previous lesson and is proceeding to an explanation of the sequence of practical steps which will constitute the procedure to be taught. 'First, after checking that we have taken appropriate safety measures, we have to disconnect…what? Yes, the battery negative lead. Let's do this. Josh, please disconnect the lead. Next we apply a considerable amount of this penetrating oil to the manifold and exhaust pipe flange nuts and bolts. Watch carefully how this is done… What has to be done next? Think carefully! Nas, can you tell us please… Correct! We unbolt any heat shields or shrouds from the manifold. Here are the necessary tools. Pay attention to how I set about this… Next, from the manifold flange we unbolt…what? Okay, if you are not sure, look at the diagram at the top of the chart on the wall behind you…'

A casual observer of this lesson will see a group of students listening to an instructor and watching his actions. To the trained observer (observations of teaching are a ubiquitous aspect of college life, both for trainees and for qualified staff) there is evidence of a carefully structured teaching–learning situation made up of a group of planned activities and based on an analysis of the separate tasks involved in mastering a series of practical skills. A clear objective has been defined and the sequence of skill activities to be taught has been arranged. A range of hands-on activities have been presented and correct responses have been encouraged and reinforced – the essence of effective instruction. The lesson ends in an innovative manner: the lecturer recapitulates by performing the task in its entirety; the class observes, while a designated student gives directions to the lecturer (who remains silent) and explains what is being done and why the activities have to follow in the particular sequence that has been taught.

Group 2: Law and retail students in the classroom

The second group comprises part-time students preparing for the examinations of the Chartered Institute of Legal Executives (CILEX – historically, legal executives were seen as occupying a lower professional status than solicitors, although recently they have increasingly begun to perform many of the same tasks as solicitors), plus other part-time students who are working towards the NVQ Level 3 in Retail and Management. They are examining problems relating to theft. The two sets of students have been brought together to share discussion of a topic which is of joint concern.

The students have attended two formal lectures on the meaning of 'theft' in law: the CILEX students are concerned with the legal implications of the Theft Act 1968; the other students are interested in the handling of suspected shoplifters. The group has heard a

reminder of what is meant in law by 'stealing'. The group tutor then states that the purpose of the session is to examine in greater depth what is meant by 'dishonesty' in law. 'Let's look, first, at this short video,' he begins. 'Keep in mind what we mentioned briefly last week about "dishonest conduct"'. The video, stored on the college's network drive, is shown via a data projector, and illustrates the behaviour of a customer in a supermarket: he puts two small items in his pocket and does not pay for them. On leaving the supermarket, he is stopped by a store supervisor. He is then heard telling the supervisor that the goods are of very small value and that he will pay for them there and then. The video is stopped at that point.

The tutor then speaks: 'CILEX students, please choose a spokesperson, form yourselves into a discussion group, and be ready to tell me after a quarter of an hour or so whether you think that the offence of stealing under the 1968 Theft Act can be made out. Retail and management students, please choose a spokesperson and be prepared to tell me how, as store managers, you would deal with the situation which has arisen.'

Whilst the groups are talking, the tutor moves around the classroom, listening attentively but staying silent for the most part other than to answer the occasional specific question or to clarify any point that may be confusing. But when the groups report back, it quickly becomes clear that some of the students have come to conclusions that the tutor had not anticipated. The CILEX group is clear that an offence under the 1968 Act can be made out. But the retail and management group is divided: some suggest that, based on their experience, a firm would not prosecute where items of small value are involved; others say that a firm ought to prosecute in all circumstances. One of the students points out that, in the circumstances, the police might decide not to prosecute. The tutor feels that important matters have been raised and that further discussion is essential if they are to be adequately covered in class. He decides to move away from his planned scheme of work and informs the class that the next session will be devoted to a discussion of the points raised, and, so as to prepare for the discussion, he will distribute via an email attachment and through the college virtual learning environment, a hand-out which will set out key information and provide links for further independent study on the matters which have emerged.

Here may be discerned a prepared scheme of work, based on a variety of teaching and learning strategies, and aimed at involving students in the processes of learning. As the students in both groups are part-time, they are also able to draw on their professional experience during their discussions: indeed, it was a consideration of their real-world experiences that let the retail and management students towards conclusions that their tutor had not anticipated. And in response to these, minor changes to the overall scheme of work will be made where the tutor feels that this is necessary.

Group 3: An A-level economics session

The third group for us to consider is made up of A level students engaged in studying that section of the syllabus in economics which is based on the trade cycle. The lecturer's objective for the session is to make the students aware of a quasi-rhythmical pattern and periodicity of movements in production. A data projector and smartboard is being used to display an excel spread sheet illustrating employment statistics during the second half of the twentieth century. Time has been allowed for observation of the graph, questions have been raised and answered and the teacher is developing the lesson from that point. The precise focus for this part of the lesson is for students to discuss the types of period, which make up the trade cycle. 'Look carefully at the movement of the curve between 1950 and 1990', the lecturer says. 'Note the blue arrows which I am marking in so as to show the peaks in 1959, 1971 and 1983. Note, next, the green arrows which I am using to mark troughs. Which years ought to be marked? Good! Mark them on your graphs. Now we'll watch a short extract from a BBC documentary on "Unemployment and the trade cycle". Pay attention, in particular, to the different definitions of the trade cycle from the two economists, and keep these in mind.'

In this lesson a variety of techniques is employed. Eyes, ears and the associated senses are involved in the process of receiving and interpreting information. Powers of comprehension and deduction are being exercised and the students are moving – as the result of a deliberate plan formulated by the teacher – to a level of understanding higher than that which existed when the lesson commenced. A short-answer quiz, which the lecturer will distribute towards the end of the lesson, will measure and evaluate that level, so that lecturer and students will be made aware of progress and attainment and, where necessary, the lecturer can revise or revisit themes in future sessions.

Group 4: Health and social care students

The fourth group to be considered comprises ten 14–16 students who are working through an option module, 'social influences on health and wellbeing' as a part of their BTEC First Certificate in Health and Social Care course. The specific topic for this day's session is 'social factors influencing health and wellbeing'. The students have been divided into two groups, and each group is designing a poster presentation, based on research that they have been doing online. Whilst in one of the college PC labs, their tutor has directed the students to look at a small number of websites that she has already evaluated. Now, the students are working on their posters, adding text, drawings and photographs. The class tutor moves among the students, asking questions about the contents of their posters, and evaluating their answers; the tutor also provides additional information and ideas. The group is at times quite chatty, but the tutor is happy to allow a certain level of conversation so long as the students are all continuing to work on the tasks that they have been assignment: only once, when one of the groups is being quite noisy, does she have to intervene and ensure

that a more appropriate mode of behaviour is adopted. At the end of the morning session, the posters will be displayed in the health and social care base room, and after lunch each group will talk the other group through their poster.

In this lesson, a range of resources and materials are being used, encouraging the students to develop not only their subject knowledge but also their functional skills in literacy and communication. A planned sequence of activities related to the communication of information – reception, comprehension, retention and retrieval – is the basis of this type of instruction. Classroom management has also been a conspicuous element of this session: here, the tutor has employed a 'light touch' approach, mindful of the fact that an excessively formal or disciplinarian style may well constitute a barrier to participation for a group of younger learners such as these. As long as they continue to work well, she has sensible allowed the groups to talk.

Elements of the teaching–learning process

An analysis of the teaching–learning situations described above will show the existence of the component elements of formal classroom or workshop situations (with which succeeding chapters will be largely concerned). Those elements include the following:

1. Learners or students (the two terms seem to drift in and out of fashion) whose nervous systems, senses and muscles are operating in sequences of patterned activity, which we speak of as *behaviour*.
2. A lecturer or tutor, selecting and organizing instructional methods, consciously planning and controlling a situation directed to the achievement of optimum student learning.
3. Clearly stated session topics, aims or objectives, related to the curriculum being followed and the students' anticipated and desired learning.
4. A sequence of situations affecting teacher and learner, resulting in persistent and observable changes in the learner's behaviour from which we may infer that 'learning' is taking place – differences in how the students speak, what they write, even how they look. That learning is directed by the teacher towards an enhancement of students' knowledge, skills or abilities.
5. Reinforcement of that behaviour. By 'reinforcement' we refer to an activity which increases the likelihood that some event will occur again, such as asking students to repeat elements of tasks, revise their work or explain what they have accomplished to their peers.
6. The monitoring, assessment and evaluation of the learner's changes in behaviour in relation to the aims or objectives of the learning process.

The significance of an analysis of the teaching–learning process for the teacher

The implications of what has been stated above are obviously important for the practising teacher involved in the day-to-day activities of the classroom, laboratory and workshop. Learning – often thought of as a mysterious, incomprehensible event – emerges from the definitions presented above as a very complex process, but one which, nevertheless, lends itself to analysis and which is generally amenable to rigorous and careful techniques of investigation. The activities which may be inferred as having occurred when changes in a learner's behaviour are observed have been made the subject of close and continuous enquiry. It is useful for the practising teacher to be aware of the research and conclusions of researchers in the area of the study of learning and teaching.

It is perfectly possible for teachers and trainers to come to an understanding of the learning process, to generate their own frameworks or models based on both formal study and their own experiences in the classroom or workshop. As such, learning can be planned for in considerable measure, so long as this planning process is aligned to the theories of learning (and, by extension, of teaching and of knowledge) that the teacher holds. The task of the teacher is no longer limited to the imparting of information with the hope that it will be understood in the workshop and replicated under examination conditions. Rather, her or his task has to be seen in terms of planning those conditions and activities and designing or accessing those activities, materials, tools and equipment which will result, as far as possible, in establishing an environment conducive to effective learning. The guidance of the learning process by the teacher, which comes from an analysis of its constituent elements, necessitates a range of activities based on an almost continuous cycle of planning, assessing, evaluating, adjusting and reflecting – specific tasks which are fundamental to successful teaching.

The passing on of information can no longer constitute the teacher's entire responsibility, therefore. Her or his role is understood in this book as also involving responsibility for the vital, interpersonal processes of communication which are at the very centre of the teaching–learning situation. The teacher as communicator figures prominently in some of the chapters which follow. The teacher as manager, with a direct responsibility for the planning and deployment of resources, also features significantly in these pages. And there are many other facets to the teacher's role as well. For many of us working in FE colleges (including outreach and community-based provision), the responsibilities and challenges of the role will often stretch beyond the workshop or classroom and the syllabus that is being followed. Teachers in FE colleges are invariably called up on to act as a first point of contact with any number of questions or problems, ranging from helping students to get to college using public transport, to helping a student who has a specific learning difficulty or disability (such as dyslexia) that has not been properly diagnosed in the past. These wider roles will also form part of our discussions in several of the chapters which follow.

Further reading

As might be imagined, there is a considerable amount of literature on the subject of learning. One of the very best books to explore this topic is:

Illeris, K. (2007), *How We Learn: learning and non-learning in school and beyond*. London: Routledge.

This book is recommended for its scope, its comprehensive coverage and its applicability to learning environments beyond formal schooling (which tend to be overlooked somewhat in more general literature).

Also recommended is:

Jarvis, P., Holford, J. and Griffin, C. (2003), *The Theory and Practice of Learning*. 2nd edition. London: RoutledgeFalmer.

This book lacks the theoretical ambition of the Illeris book, but is similarly broad in scope and provides the reader with a really good, and thorough, background to a variety of theoretical approaches to learning.

2 Defining and Understanding the Practice of Teaching

In this chapter we are going to consider a number of fundamental questions. Is teaching a science, an art, a combination of the two, or something else? How has what we understand 'teaching' to involve or require changed in the postmodern, networked world? What are the ethical dilemmas that surround the role of the teacher? How should we make sense of the position of theory in teaching? These are vital matters for educational theory and practice that have profound implications for not only the training of teachers (which is, of course, the central focus of this book), but also for the benchmarks or criteria that are used for the evaluation of a teacher's performance (which are, perhaps regrettably, beyond the scope of this book). We begin this chapter with a discussion about the relevance and utility of *theories*, which are understood here as suppositions that explain something, or seek to explain it, and provide us, as educators, with the ability and opportunity to explain or understand the findings of research within a conceptual framework (Tight, 2004: 399), and which in this book are positioned as a central and necessary element of professional knowledge and practice.

The relevance and utility of theories

The relevance of theories to teaching practice is not always immediately obvious to teachers. The new lecturer in a FE college, often balancing her or his new post with the demands of an in-service teaching qualification and overwhelmed by new experiences, is often unable immediately to link the reality of the classroom with the theories she or he has learned. The experienced teacher, hard-pressed to maintain standards in the face of difficult administrative decisions, may feel that there is no time for theory conceived at a far, comfortable distance from the workshop or seminar room. Such teachers epitomize those for whom difficulties in accepting theory make the reception and translation of theory into practice impossible. Yet, if teaching is accepted as even a 'partial science', theory cannot be neglected, for no valid science can be constructed without an appropriate theoretical

basis. Questions are frequently posed on this topic and we shall consider answers to some of these below:

'Principles', 'axioms', 'theorems', 'hypotheses', 'theories' … What exactly do these terms mean?

These words are often used interchangeably in both books dealing with teaching theory and academic journals reporting the results of educational research, causing understandable problems for the reader. They can be differentiated, however. A *principle* is a generalization that provides a guide to conduct or procedure, such as the principle that effective teaching demands control of the classroom situation. An *axiom* is a self-evident principle that is, apparently (although not necessarily correctly), not open to dispute, such as the axiom that lack of motivation leads to learning difficulties. A *theorem* is a proposition admitting of rational proof which is usually necessary to succeeding steps in some structure of reasoning, such as the theorem that it is possible to test and assess accurately the level of a student's intelligence. *Hypotheses* are unconfirmed assumptions, such as the suggestions that spatial arrangements in a classroom directly affect student learning. A *theory* is a system of ideas attempting to explain a group of phenomena, such as the processes of learning.

Why do teaching theoreticians employ so much jargon? Why can't they use everyday language?

People who use specialized bodies of knowledge tend to generate and use their own technical terminology and reproduce it in books and articles as well as in their speech. Consider, for example, the use of words such as 'energy' in physics, 'market' in economics, 'duty' in jurisprudence. The knowledge on which teaching theory rests is of a highly specialized nature. Psychology, neurology, sociology, history, anthropology and biology have all contributed to teaching–learning theory, and as a result, different expressions and phrases – terminologies – from these disciplines have found their way into the discourses of education researchers and practitioners. And there is good reason for this: it is not easy to substitute 'everyday language' for technical terms and yet maintain acceptable standards of precision of meaning.

Why is there so much fundamental disagreement among teaching–learning researchers and theoreticians? They don't agree even on the meaning of basic terms, such as 'education'.

Teaching is a complex activity, varying outwardly from one situation to another, so that it is not easy to explain or define its nature with precision – hence much of the disagreement. (Try, as an exercise in definition, to bring under one conceptual heading the modes of

instruction involved in showing a child how to tie his or her shoelaces, teaching a student the use of a word processor, and explaining to an adult the concept of 'idiom'. Attempt, further, to recall how you 'learned' to tell the time, to use a calculator, to drive a car.) Not all theoreticians and practicing teachers perceive events in the same way; hence, interpretations of events differ. Disagreement is not necessarily a sign of an ineffective, sterile body of knowledge: differences in the interpretation of quantum theory have not prevented great advances in physics. Terms such as 'education' overlap several disciplines, such as the 'inexact sciences' of sociology and political theory, hence the frequent arguments as to its precise meaning. Jurists continue to dispute the very meaning of the term 'law'; economists often disagree as to the meaning of the term 'economics'. Lack of agreement on definitions does not imply total uncertainty within a discipline; it may indicate, rather, the existence of a number of approaches to the areas of knowledge embraced by that discipline.

Some teaching–learning theory seems to be based on the work of writers who lived many centuries ago. Plato, Aristotle, Locke … what relevance have they in an age which they could not have envisaged?

Contemporary educational theory did not spring into existence, fully armed with principles and axioms, in the twentieth century. Today, we as teachers and theoreticians see as sharply as we do, not because of any superior acuity of vision, not because we are wiser than our ancestors, but because, in many areas of theory and practice, we 'stand on their shoulders'. What and how *they* perceived is often interwoven with *our* thought patterns, even though we may be unaware of the debt. Today's practice and theory in educational writing cannot be understood fully without being mindful of ideas rooted in the ancestry of that theory. To provide a simple example: one of the teaching–learning techniques commonly referred to in contemporary textbooks is the *Socratic Dialogue*, (named after the Greek philosopher, who employed this technique in his own teaching), a method designed to allow students to construct meanings for themselves by being led through a series of discussion points by their tutor, who will ask questions and provide feedback in order to guide the conversation in a particular direction.

Do teachers really need theory? Surely teachers simply need to focus on classroom or workshop practice?

The simple answer to the first question is: yes. Indeed, to suggest otherwise arguably demonstrates a fundamental lack of understanding regarding the role and work of the teacher. Teaching is a rich and complex practice, requiring the practitioner to possess not only a body of knowledge that relates to her or his area of subject, craft or trade expertise, but also a further body of knowledge that relates to how this subject should be taught, how it should be reworked and repackaged in order to make it easily understandable to students. Or, to put it another way, teachers need to possess both content knowledge and

pedagogical content knowledge (Shulman, 1986). In turn, if teachers are going to be able to translate what they know for their students, then they need to know something about how students learn, what motivates them to learn, and so forth. Once again, if teachers are going to know about, for example, what motivates their students, then they are going to have to understand those factors that create barriers to participation, which might be found in the home life of the student, in the student's own disposition, in the relations that the student has with her or his peers, and so on. Now, it is perfectly possible for teachers to 'pick up' some of this knowledge as they go. But an *ad hoc* approach such as this cannot satisfactorily equip the teacher with the broad bodies of knowledge that she or he needs; nor can it allow the teacher to develop the abilities to enhance their own understanding through further reading or individual classroom research, both of which it turn rest on theory. As a profession, we know what we know because of systematic research – all of which rests to a greater or lesser extent on theory.

'Teachers are born, not made, and theory can never help those who lack the innate talent to teach.' Is there any truth in this statement?

This argument has been used in its time to downgrade and devalue the work of teacher-training institutions, industrial training boards, seminars aimed at the improvement of teaching practice – and books on teaching! There is, however, much evidence to suggest that improved understanding and practice can and do stem directly from instruction in theoretical principles of teaching. The argument rests on an unwarranted belief in the existence of innate qualities of the teacher that cannot be improved through professional learning. The very concept of teaching fundamentals in any subject area as an aid to the comprehension and improvement of practical activity – the successful foundation of many generations of teaching practice – is not compatible with the idea underlying the 'born, not made' aphorism. To carry the idea to its conclusion would be to negate the very concepts of teaching and learning as activities designed to build on, and improve, our genetic inheritance.

Are the principles of teaching and learning as set out in these pages, for example, universally applicable?

This is a rather more difficult issue to unpack. At first look, it seems right to say that people learn in the same way whether they live in countries north of the equator or south of it. But the growth of a body of literature that has explored learning from anthropological and ethnographic perspectives – as distinct from psychological perspectives – has given us food for thought. Thus, if we accept that learning needs to be understood as a social and cultural practice rather than as an individual psychological phenomenon (refer to the chapters in Parts 2 and 3 of this book for more extensive discussions of such approaches), then our understanding of what learning and teaching are become more complicated.

What we mean by 'teaching', or by 'knowledge', can vary across cultural and national boundaries and these variations can be profound. Moreover, current educational research literature that draws on neuroscience, although constituting only a small percentage of research literature more generally, suggests that brain function is influenced by social and environmental factors. So, although research uses a number of conceptual tools in order to establish its wider applicability or *generalizability*, all such claims need to be approached from a critical perspective. The broader academic and intellectual context which this book, and many of the books referred to within, comes from is defined as modern, as scientific, as coming from the 'Western developed world' (whatever that might mean), and this the context in which the theories and frameworks that are explored here need to be positioned and understood.

Definitions of teaching

What do we mean when we talk about 'teaching'? Are we talking about standing and talking in front of a group of students, or helping a group of learners acquire a new sequence of practical skills? Does a one-to-one tutorial count as teaching in the same way as a whole group session does? What about other important aspects of our professional roles, such as uploading resources to a virtual learning environment for distance learners to use? When we create and upload materials to a virtual learning environment, are we teaching?

A typical dictionary definition of 'teaching' might be something like: 'causing a person to learn or acquire knowledge or skill'. The activity of teaching in this context is defined in terms of causation, with some end in view. A selection of more formal definitions drawn from pedagogical literature includes:

(a) intended behaviour for which the aim is to induce learning (Scheffler, 1960)
(b) teaching is aimed at changing the ways in which other persons can or will behave (Gage, 1963)
(c) the group of activities the teacher employs to transform intentions and curriculum materials into conditions that promote learning (Eisner, 1979)
(d) teaching involves implementing strategies that are designed to lead learners to the attainment of certain goals. In general these strategies involve communication, leadership, motivation, discipline and classroom management (Lefrancois, 1985)
(e) teaching is an interpersonal, interactive activity, typically involving verbal communication, which is undertaken for the purpose of helping one or more students learn or change the ways in which they can or will behave (Anderson and Burns, 1989)

(f) teaching is an intentional activity in which opportunities to learn are provided (Jarvis, 2002)
(g) teaching is emotional, chaotic and full of complex uncertainties (Brookfield, 2006)
(h) a teacher's work needs to be understood fundamentally as helping and supporting the learning processes of the students (Illeris, 2007).

Definitions such as these are immediately recognizable. That is to say, the activity that we refer to as 'teaching' is one that we quickly and easily find familiar, in part because we have all in some ways been through formal educational systems, and in part because popular culture is suffuse with images of teachers and teaching in feature films, television programmes and books (Fisher, Harris and Jarvis, 2008). For the purposes of this book we shall define teaching as: '*a system of activities intended to allow learning to happen, comprising the deliberate and methodical creation and control of those conditions in which learning does occur*'. But this is not to deny the potential problematization of the term, not least as debates around the differences between 'teaching', 'on-line teaching', 'training', 'facilitation', 'demonstration' and 'moderation' persist. For example: colleges may employ someone as a 'demonstrator', and therefore pay them less than they would a 'lecturer' or 'tutor', even though much of the actual work done by them in the workshop or lab is 'the same' as that done by the lecturer. Furthermore, the growth of e-learning and blended learning creates additional problems: if all of your contact with your students were to be via a virtual learning environment (VLE), would you still be 'a teacher'?

It should also be noted, therefore, that teaching needs to be understood as a *system* of activities, not a single action. Teaching assumes its distinctive character and meaning not in patterns of isolated behaviour but in sequences of interrelated activities, carefully constructed and sequenced by the teacher, and designed in such a way to afford students a series of opportunities to talk about, try out or practise using or manipulating the tools, models, concepts or equipment that the subject under discussion requires them to be able to use in order to demonstrate knowledge, competence, proficiency and understanding.

Teaching: Is it an art or a science?

Discussion with almost any group of practising teachers in a FE college or adult education centre will reveal fundamental differences of opinion on the classification of 'teaching' as an art or science. Some will insist that teaching involves a scientific application of tested theory; some will argue that it is essentially a performance on the 'classroom stage' that can be characterized as aesthetic, so that it has to be considered as a form of art (Lowman, 1984). Others will maintain that it is a hybrid, an art with a scientific basis, or a science with overtones of artistic impression; some will reject the concept of 'art' and 'science' having any

place in the purely practical, day-to-day teaching activity in the colleges. And yet others will be amazed to learn that their teaching activities can be classified as either science or art in the first place!

If you observed a series of teaching activities in a typical college of FE you would almost certainly see a variety of approaches. At one level, these differences might of course be rooted in the discipline being observed: different subjects need to be taught differently, as the subject matter demands. At another level, however, these differences might be understood as being somehow bound up in the particular approach, beliefs or philosophy of the teacher.

The distinction between teaching as art and science is typified in the approaches of Highet (1977), Eisner (1979) and Skinner (1968). Highet was vehement in his denunciation of the unthinking application of the aims and methods of science to learners as individuals. For him, this has to be seen as a dangerous tendency: a 'scientific relationship' between human beings must of necessity be inadequate. So-called 'scientific teaching' will be inadequate as long as both teachers and pupils are human beings.

Eisner (1979) enumerated four senses in which teaching could be considered an art. First, it is an art in the sense that the teacher can perform with such skill and grace that for teacher and student alike the performance provides an intrinsic form of expression – the lesson has the overtones of an aesthetic experience. Secondly, teaching is an art in the sense that teachers in their professional work must exercise qualitative judgements in the interest of achieving qualitative ends. Classroom qualities such as tempo, tone, climate, pace of discussion and forward movement require the exercise by the teacher of qualitative forms of intelligence. Thirdly, teaching, like any other art, involves a tension between routine and inventiveness. The teacher has to use his or her repertoires and routines in an innovative way so as to deal inventively and intuitively with what happens in class. Finally, teaching is an art in the sense that many of its ends are essentially emergent – they are not preconceived; they emerge in the course of interaction with students.

Such approaches adopt a perspective that contradicts behaviourist, learning-outcomes focussed approaches to teaching and learning. Skinner, a neobehaviourist theorist, argued that successful teaching can be the result only of the conscious and judicious application of scientifically validated theory to classroom situations. Successful teaching does not happen fortuitously; it emerges when the teacher has made, and interpreted, a correct analysis of student behaviour in terms of the complex interplay of elementary concepts and principles. When behaviour is understood, an appropriate instructional methodology must be sought in order that it might be modified where necessary on the basis of desired ends. On the practising teacher and the scientist investigating classroom behaviour will fall the joint tasks of observing fact, formulating theory, applying it and then reinterpreting both fact and theory. Indeed, in his novel *Walden Two*, Skinner moved beyond the classroom and theorized about how his ideas might be applied to wider social settings.

Rather like the argument that teachers are 'born, not made', the 'teaching as science or art' argument rests on a number of assumptions that are mistaken at best and false at

worst. Firstly, there is the notion that to describe something as a 'science' serves to imbue it with particular characteristics such as 'rigour' and 'neutrality', as being 'based on irrefutable evidence', which therefore renders findings or conclusions 'correct' or at least 'inarguable'. But such characteristics tend to derive from popular misconceptions of scientific practice and do not reflect the reality of scientific inquiry, which – on closer look – is much messier than popular opinion might have us believe. Secondly, there is the notion that to describe something as an 'art' renders it somehow immune to systematic and rigorous (which are not the same as 'scientific') inquiry, development or theorization. People who work in the arts – graphic designers or musicians, for example – do not simply come into the world fully formed: they have to practice, to learn their craft, to understand the history, the ideas and the traditions that underpin and inform their own work.

Fundamental to this book, therefore, is the belief that the practice of teaching ought to move to a position in which it can be seen as based openly on an application of theory reflecting the reality of the classroom and its environment; such theory and practice ought to be subjected to continuous, severe criticism. The critical, methodical appraisal of teaching principles and practice, informed by a similarly critical reading of research literature, would seem to be a prerequisite for the construction of a comprehensive theory of teaching. One thing, however, is almost certain – teaching, because of its very nature, can never be an *exact* practice, not least as the exact relationship *between* what we do in seminar rooms and workshops – teach – and what our students do – learn – is difficult to define.

Teaching styles

If we allow for the fact that teaching is an inexact practice, then it stands to reason that what we call teaching can happen in different ways. That is to say, different teachers can do different things in their workshops or seminar rooms, but it will all still count as teaching. At one level, these different kinds – or styles – of teaching practice will rest on the particular theoretical perspectives that the teacher in question subscribes to. Teachers who align themselves to a *neobehaviourist* theoretical perspective (as discussed in Chapter 4) will plan, prepare and practice in the classroom in a quite different way to those teachers who subscribe to a *communities of practice* perspective (as discussed in Chapter 10). The nature of the curriculum provides a further variable when considering the style that a teacher adopts. Some subjects or topics necessarily – and naturally – lend themselves to particular kinds or styles of learning activity, which in turn will require particular styles of teaching. A teacher's style of teaching might also be based on more nebulous factors such as personal preference or even personality.

This book is not arguing that teaching styles constitute a theory any more than learning styles can be seen as being a robust theory (which it categorically is not (Coffield et al., 2004)). But one useful way of thinking about teaching styles is from the point of view of *metaphor* (a device which is used to a significant extent in educational research and writing). Perhaps the best series of metaphors to describe the different styles that a teacher might adopt come from Apps (1991), although we have to remember that any individual teacher may combine different elements of style or move from one style to another when appropriate:

(a) lamplighters – teachers who seek to enlighten their students
(b) gardeners – teachers who grow the minds of their students by providing nourishment, controlling the climate and removing weeds; once everything has been prepared, they can sit back and watch them grow
(c) muscle builders – teachers who provide exercise for unfit minds
(d) bucket fillers – teachers who pour knowledge into empty containers
(e) challengers – teachers who question the assumptions that their students bring with them to class
(f) travel guides – teachers who help their students negotiate pathways to learning
(g) supervisors – teachers who monitor the processes of learning, both inputs and outputs
(h) artists – teachers who see learning as an artistic process
(i) applied scientists – teachers who plan their teaching through the application of educational research
(j) craftspeople – teachers who use a variety of skills.

We shall find as we proceed that the metaphors that Apps offers to us are identifiable from a theoretical perspective as well as from the perspective of everyday experience. Apps' metaphor of a teacher as a gardener, carefully tending to young green saplings that will eventually grow into strong and self-sufficient trees, is not so far removed from another metaphor used to refer to a particular theoretical perspective: the teacher providing both the scaffolding and tools that a student needs to be able, eventually, to work independently. As the student develops and learns how to use their tools, the teacher does not need to provide so much scaffolding support until, eventually, the student stands by themselves. This is – in an admittedly simplified form – an account of the teaching–learning process that rests on the theories of Lev Vygotsky (as discussed in Chapter 8).

So what is meant by 'teaching style', if indeed it means anything? Perhaps the most thorough recent account of teaching styles is provided by Jarvis (2006), who proposed a number of styles of teaching, each resting on particular theoretical perspectives:

(a) didactic teaching styles, based on formal lecturing

(b) Socratic teaching styles, based on two-way dialogues between teachers and students that are designed to reveal the knowledge and understanding of the latter
(c) facilitator-style teaching, based on creating environments in which students can have a voice in the direction and pace of their learning
(d) experiential teaching, based on giving value to and accounting for the experiences of students as resources for learning
(e) mentor-style teaching, based on nurturing processes that allow the student to grow and develop at their own pace.

Categorizations such as these certainly allow us to think more critically about what we mean when we talk about teaching, but rarely do they allow us to divorce the idea of 'teaching' from the idea of 'learning'. The five perspectives listed above (which, like Apps' metaphors, are not necessarily meant to indicate approaches to teaching that are mutually exclusive) only make sense if they are considered in tandem with a relational theory of learning. Thus, as we proceed through an exploration of several different theoretical approaches to learning, beginning in the chapter that follows this one, different implications for the role of the teacher, in relation to the theoretical approach in question, will emerge.

The ethics and problematics of teaching

A consideration of the *purpose* of education might at first glance seem to be outside the scope of this book. Such a conversation would encompass a range of philosophical and political topics and controversies. Indeed, the philosophy and politics of educational structures constitute complete academic disciplines in themselves. But to attempt to ignore the broader political issues that surround the role of the teacher is difficult if not impossible, not least as there is so much interference by politicians in the working lives of teachers and trainers in the FE sector – a pace of political change that has in the past been described as endless (Edward et al., 2007), and which in recent years has shown no sign of slowing down – a pace of change reflected by the changes made to the various government departments and other regulatory or funding bodies that are responsible for different aspects of education and training within the sector. And at the same time, wider philosophical debates are readily identifiable at a day-to-day level. For example, the ways in which colleges are influenced by free market models, in terms of funding and management, might be explored through a consideration of *neoliberal* ideologies in education.

The ethics of teaching are similarly complex, and similarly visible within the workshop or seminar room with the application of a critical perspective. Debates around the ethics

of teaching range from issues around duty of care (which includes not only more 'obvious' issues such as safeguarding but also more nuanced problems such as the extent to which teachers might challenge the existing knowledge and understanding of their students) to issues around the broader *purposes* of education. If, as teachers, we understand education to be a vehicle for meaningful and critical social emancipation, such a perspective would undoubtedly influence our attitudes towards widening participation initiatives and other similar outreach programmes. If, by contrast, we understood education to be a vehicle for social and cultural reproduction, we might instead feel that the educational structures that we work within served to restrict and diminish, rather than widen, the opportunities available to the students with whom we work.

Such debates might seem to be abstract at best, but to dismiss them as such would be a mistake. It is in fact entirely reasonable, and quite believable, to imagine the practice of adult education tutors as being informed by a broader commitment to the educational, social and economic welfare of their students rather than by a simple desire to report high levels of student retention and achievement in an annual evaluation report. Lecturers working with young offenders or with prisoners (many if not all of whom engage with formal programmes of study during their periods of incarceration) are self-evidently working within a professional and ethical framework that is rather different from that occupied by a lecturer who is working with 'mainstream' 16–19 students in a FE college. Is the critically aware, reflexive lecturer who considers that the students with whom she or he is working are not necessarily best suited to the course that they have been offered merely being cynical when suggesting that the work-related skills of a group of diploma students are not being sufficiently developed, or is she or he in fact making a legitimate point regarding the nature of the curriculum in the learning and skills sector at a time of recession?

This book is not a philosophical work; nor does it deal extensively with the ethics of teaching. But this book rests in part on the notion that the themes and problems such as those outlined above are unavoidable, and as such they need to make themselves felt in the text from time to time.

Teaching in a postmodernist world

The final theme to be considered in this chapter concerns the ways in which teaching, as a necessary component of education, might be understood from a postmodernist perspective. A critical exploration of postmodernism would require a entire book in its own right, but here can be usefully (albeit briefly) summarized as an intellectual movement that challenges dominant explanations and theories, and distrusts ideologies, drawing critical attention to conventional modes of explanation.

A challenge to the primacy of the teacher in the classroom would be symptomatic of the postmodern culture of the present (in which both institutions and individuals in authority

are almost routinely problematized). Put simply: what is the point of the teachers and on what foundations does the authority of the teacher rest? If a student was to challenge a teacher over a point of knowledge or application of skill, should such a challenge need to be considered as a behaviour management issue or as an example of a meaningful, and therefore legitimate, critique of the teacher's role more generally? To put it simply (and rather crudely), the expertise and hence authority of the teacher is only a Wikipedia search away from being overturned.

Autodidacts – people who teach themselves everything there is to know about a subject through extensive reading and private study – are not a new phenomenon, but the ease with which people are able to access considerable bodies of knowledge and scholarship through the use of appropriate technology (a laptop computer, a smartphone or a tablet) has had a profound impact on formal educational systems and structures. This is not to say that traditional modes of scholarship are now no longer valued (any reader who doubts this should try submitting a PGCE/CertEd assignment with no references other than from Wikipedia), but the body of knowledge which, in part, the historic authority of the teaching profession rested on can now be seen to be much more widely distributed.

If subject knowledge is now no longer the exclusive preserve of the teacher, then what is? Where, and on what basis, does the expertise and authority of the teacher reside? Drawing on the work of Shulman (1986), the argument presented in this book is that it is in what Shulman referred to as *pedagogical content knowledge* and *curricular knowledge*. If content knowledge is what teachers know about their subject or area of competence or expertise (for example accountancy, electrical installation or horticulture), then pedagogical context knowledge is a variation of this, and refers to the ways in which teachers translate their content knowledge into a form that can then be taught to their students. *Curricular knowledge* allows teachers to make meaningful links between the courses or programmes that they work with, and the wider curriculum that their students are exposed to as a consequence of their participation in formal education and training systems. For Shulman – and for this book – it is in pedagogical content knowledge and curricular knowledge, which therefore should be at the centre of all teacher-training curricula, that the professional expertise and authority of the teacher reside.

Summary

The role of the teacher has quite clearly changed over time, and this should not cause any surprises or upsets. In a culture where information is more readily available than ever before, the position of the teacher as the fount of all knowledge is clearly untenable. Similarly, in a culture where theories of learning, and by extension of teaching, are many and varied, it might seem that to study such theories would be a needless task. This book takes the opposing view, and argues that the study of theory is an essential element of the professional development and knowledge of the teacher. It is through a critical

and theoretical understanding of why the work of the teacher is what it is, that properly informed perspectives on learning, on assessment and on curriculum emerge. The exact relationship between teaching and learning may continue to be a point for speculation, but this is not the same as saying that such speculation should be discouraged or avoided. Teaching is sometimes a complex and difficult task, but it is also a rewarding one: it should not be a surprise to learn that the study of teaching is also sometimes complex, and sometimes rewarding as well.

Further reading

The theory and practice of teaching has been an established area of philosophical and scholarly enquiry for many centuries. Perhaps the best single book that provides an account of different modes of teaching, as well as something of the theory and philosophy that underpins them, is:

Jarvis, P. (ed.) (2006), *The Theory and Practice of Teaching*. Second edition. London: Routledge.

PART 2

Theories of Learning: Psychological Perspectives

3 Behaviourism

The chapters that are presented in this section of the book, and the section which follows, all provide different approaches to the deceptively simple question: *how do we learn?* In Part 2 of this book, we shall draw on *psychology*, defined by William James, in 1890, as the science of mental life, both of its phenomena and of their conditions; it is concerned with what James refers to as 'feelings, desires, cognitions, reasoning and the like'. Its study has produced a variety of approaches to the phenomenon of the mind, and it has given rise to several well-established schools of thought. In this section of the book, we shall explore the following schools of learning theory:

- *Neobehaviourism*. Psychologists who believe that behaviour is generally purposive in that it is directed to a goal are known as 'neobehaviourists': they seek to study how behaviour, often directed by anticipations of consequences based on past experiences, can be related to the nature of goals to be sought and the means to attain those goals.
- *Gestalt theory*. The significance of organized forms and patterns in human perception and learning constitutes the main concern of the Gestaltists. The very essence of learning is to be found in an understanding of relationships within organized entities of thought.
- *Cognitivism*. Cognitive psychology is concerned with the various mental activities which result in the acquisition and processing of information by the learner. Its theories involve a perception of the learner as a purposive individual in continuous interaction with his social and psychological environment.
- *Humanism*. Humanistic psychology calls for a quality of teaching which allows students to make conscious choices in an environment characterized by 'freedom'. Concern for human values and 'authentic relationships' among teachers and students features in the humanistic approach, which is directed to spontaneity, creativity, mental health and self-fulfilment.

And in this chapter, we shall begin with:

- *Behaviourism*. This involves a mechanistic, materialistic view of psychology, involving a close study of observable, objectively measurable behaviour. It teaches that the explanation, prediction and control of behaviour are possible without reference to concepts involving 'consciousness'.

Behaviourism

Classical behaviourism was essentially a reaction against theories based largely on data derived from introspection (that is to say, subjects' verbal reports of their reactions and perceptions). Behaviourists insisted on the necessity to discard introspection in favour of a study of *the objectively observable actions* of persons. In this way the science of psychology would become an 'objective experimental branch of natural science'.

Several interlocking concepts were common to the research writings associated with the development of behaviourism in its heyday around 1913–35.

1 Consciousness, mind, mental states were examples of ideas that were to be rejected *because they could not be verified*. The early behaviourists rejected mind–body dualism, saying that the problems of human nature could be explained in *purely mechanistic terms*.

2 The philosophy of reductionism, which suggested that human activities could be explained in terms of the *behavioural responses of the lower animals* (such as rats and dogs), was seen as offering a valuable approach to the solution of problems involving human behaviour.

3 All behaviour was to be investigated and understood solely in the context of *responses to stimuli*. Hence the behaviour known as 'learning' might be defined in terms of changes in responses made to stimuli on the basis of the learner's past experiences.

4 The circumstances in which stimuli become linked to overt responses must be a key subject for study. Hence the process of *conditioning*, whereby relationships of responses to stimuli are modified in order to change behaviour, is also an important subject for investigation.

5 Behaviour might be explained as a *function of environmental influences*.

6 The methodology of behaviourism required a *formal, quantitative basis* if scientific method (as it was understood at the time) were to characterize psychology.

7 Behaviourism in its early stages has as its objective the *prediction and control* of human behaviour.

Pavlov, Watson, Thorndike, Guthrie and Hull were writers and researchers who all made very important contributions to the behaviourist school, and the key ideas of each are considered in turn below.

Pavlov

Pavlov (1849–1936), the celebrated Russian physiologist, was primarily interested in the circulation of the blood and the processes of the gastro-intestinal system. The study of the nervous systems of animals led Pavlov to methods of investigation from which he discovered the techniques of the *conditioning of behaviour*. On the basis of these techniques was erected a new structure of the investigation of aspects of human behaviour and, in particular, the study of aspects of the learning process. For Pavlov, *all* human learning is due to conditioning. 'Conditioning' is a process whereby the behaviour of an animal becomes dependent on the presence of environmental stimuli; learning will involve, therefore, a large number of conditioned responses. His work on the process of conditioning continues to rank very high in the list of contributions made by scientists to an understanding of learning.

According to Pavlov, so-called 'mental phenomena' could be dealt with objectively and scientifically only if it were possible to reduce them to observable, measurable physiological quantities. Behaviour in all its varieties was, according to Pavlov, essentially *reflexive*; it was determined by specific events. *Unconditioned* reflexes or responses were inborn types of nervous activity, transmitted by inheritance. But *conditioned* reflexes or responses were acquired by an organism during its life; they were not normally inheritable, according to Pavlov. Human beings learn as the result of *conditioning*, and it was this hypothetical process which formed the basis of Pavlov's research.

The process of conditioning studied by Pavlov was derived from the results of his well-known investigation into salivation in dogs. Pavlov inverted the parotid salivary gland of a dog so that its secretions could be accumulated in a cannula (calibrated glass) and measured externally. The animal was placed in a harness and then presented with a stimulus such as the sound of a metronome, bell or tuning fork. Initially, the sound did not seem to elicit any observable response. Later, a powdered meat was presented to the dog after a short interval of time following the sound and its salivary fluid was collected and measured. After further trials, in which the sound of the metronome or bell was invariably followed by the presentation of food, the sound alone produced an *anticipatory salivary response*. The dog had learned that a meal followed the sound of the bell.

This conditioning process was seen by Pavlov as a possible explanation of certain aspects of the organization of behaviour. Most environmental stimuli can become conditioned stimuli with direct effects on behaviour. The techniques of conditioning, it was suggested, could be applied to the training of human beings. Human behaviour might

be amenable to the process of moulding on the basis of the controlled establishment of conditioned responses.

Pavlov's work and the teacher

The mere suggestion that Pavlov's work might have positive lessons for the practice of classroom instruction is rejected firmly by many teachers. Research derived from experiments on animals should, it is argued, have no application whatsoever to human learners. The atmosphere of the animal laboratory is, and must remain, a world away from that of the classroom and the purposes of the activities therein. Further, it is felt by many that the entire concept of conditioning, with its all-too-familiar connection with 'brain-washing' (that is, the deliberate influencing of behaviour patterns in persons so as to make them conform to the demands of a political ideology), must have no place in educational activity. The freedoms which must characterize the classroom are incompatible with the philosophy and technology associated with conditioning.

Others, however, see in Pavlov's work a possibility of evolving techniques which, when refined, can be used consciously and conscientiously to shape human intellectual development – an important objective of teaching activity. The excesses of those who have deliberately misused conditioning techniques ought not to be advanced, it is argued, as reasons for forbidding the use in all circumstances of some of those techniques. For Pavlov, learning was inseparable from association; hence, *what* teachers do, *how* they do it, in what *surrounding circumstances* and to what *ends* become significant for the study of instruction.

Environmental stimuli provided *intentionally and unintentionally* by the teacher's performance in the process of instruction may become associated with undesired responses – the authoritarian instructor who arouses a dislike for his subject area and, in so doing, conditions students to a permanent dislike for closely associated subject matter, is an example. The moral for the teacher seems clear: ensure as far as possible that stimuli provided by teaching performance become associated with appropriate and desired positive responses by students. This means considering the lesson, its planning and delivery, in all its aspects, as a totality.

Watson

Watson (1878–1958), professor of experimental and comparative psychology at Johns Hopkins University, Maryland, began his career as a researcher into animal behaviour. Psychology, according to Watson, ought to be a purely objective, experimental branch of natural science, and concepts such as 'sensations' and 'feelings' were to be cast aside. The concept of memory was also rejected by Watson; instead of using the term, a behaviourist should speak of how much skill has been retained and how much has been lost in a period of no practice. The principal method of study should be *objective observation and*

experimentation. This required a new vocabulary from which subjective terminology would be eliminated; references to 'introspectively observable phenomena', such as sensation, thought and intention, which were said to intervene between stimulus and reaction, would disappear.

According to Watson, human beings are born with some few reflexes and emotional reactions, but no 'instincts'; all other behaviour is the result of building new stimulus–response (S-R) connections. Habit formation may be analyzed in terms of constituent units of conditioned reflexes. Learning, as an aspect of human behaviour, can be studied in terms of the formation of connections in the learner's muscle groups. When stimuli and responses occur *at the same time*, their interconnections are strengthened and the eventual strength of the connection will depend largely upon the *frequency* of their occurring together. A stimulus produces activity in a part of the brain, and a response emerges as the result of activity in some other part; stimulus–response neural pathways are strengthened when the two parts of the brain are simultaneously activated. But learning produces no new connections in the brain – they exist already, as part of the learner's genetic constitution, and learning may merely make functional a connection that has been latent. Hence our behaviour, personalities and emotional dispositions are all *learned* behaviours. The human being is no more than the sum of his or her experiences.

Given this analysis, conditioning was seen as fundamental to learning. The conditioning of the learner through environment and experiences, in which the teacher may actively intervene, is the central process in the building of habits, and will determine his or her acquired patterns of behaviour. Heredity and instincts counted for little in Watson's scheme as contributions to human behaviour. Learning becomes an all-important factor in the development and modification of an individual's behaviour.

Watson embodied Pavlov's findings into his theory of learning. Watson believed that young children had no reason to fear animals. In a famous experiment involving conditioning, he showed an 11-month-old child some tame white rats, an experience which the child apparently enjoyed. Later, a rat was presented shortly after a loud noise which frightened the child. After several repetitions of the experience the child showed fear of the rat even in the absence of the distressing noise. Fear was displayed also in the presence of other furry objects. Watson showed later that, by feeding the child with his or her favourite dishes, and introducing the feared animal very gradually into the background and then into the child's direct view, the fears could be extinguished.

Watson's work and the teacher

The behaviourism propagated by Watson and others who share his views has become an object of unceasing criticism by psychologists and teachers. His work is said to have suffered from an absence of data and over-generalization. It has been condemned as reductionism which reduces the complexities of human development to mechanistic, deterministic and over-simplified formulae.

Others, however, view the behaviourists' emphasis on the significance of environment and experience as stressing the *positive role of the teacher*. The possibility of the student being conditioned to respond favourably to the circumstances in which he learns – his class environment, his instructor, the content and overtones of the lesson – reminds the teacher of *the importance of planning the learning environment and lesson content with care*. Each part of the lesson ought to be examined in the teaching-planning stage, and evaluated during class activity, as a contributory factor to the eliciting of those responses which make up desirable criterion behaviour. 'What type of response will be elicited from my students as the result of my teaching activity?' Questions of this nature ought to be posed by the teacher in the preparatory stages of a lesson, and the answers ought to affect subsequent lesson content and development.

Teachers in FE ought not to forget the possibility of students' attitudes to their lessons being formed as a result of the conditioning process of which Watson wrote: stories of students who feel dislocated or even hostile to formal learning provision as a result of earlier, negative experiences at school are all too common. Watson's work can also act as a reminder to the FE teacher in turn to take particular care to avoid creating, intentionally or unintentionally, the anxieties and hostility which may emerge later as a wide, fixed response to formal instruction of any type.

Thorndike

Thorndike (1874–1949) was one of the dominant personalities for many years in the study of learning. Almost all his professional life was spent on the staff of a teacher training college. His output was prodigious: a recently compiled list of his works showed more than 500 titles. His main interest was animal psychology and, in particular, intelligence, learning and understanding. The basis of Thorndike's approach to problems of behaviour lay in his beliefs that behaviour and, therefore, learning were explicable through an understanding of the bonds between stimulus and response. The task of the psychologist was to discover how those bonds are created.

Thorndike's theories emerged largely from experiments with cats, chicks, dogs and monkeys, but he believed that some universal laws of behaviour could be derived from that work. A human being, in his view, differed from the other animals only in degree and merely in the *number and frequency* of the associations that s/he develops between environment and her/his corresponding reaction. Human superior intelligence was little more than a reflection of the capacity to form stimulus–response bonds. Degrees of human intelligence were quantitative, not qualitative, and signified varying speeds of bond formation; the more intelligent person has more bonds at her/his disposal to enable her/him to deal with problems.

Thorndike's contribution to the theory of learning may be summarized by a statement of his major and subsidiary laws. The *law of effect* was defined thus: an act which results in

an animal experiencing satisfaction in a given situation will generally become associated with that situation, so that when it recurs the act will also be likely to recur. Thorndike defined satisfaction as a state of affairs which the animal does nothing to avoid, often doing things which maintain or renew it. The opposite state of affairs is one which the animal does nothing to preserve, often doing things which put an end to it. An act which results in discomfort tends to be dissociated from the situation, so that when the situation recurs, the act will be less likely to recur. The greater the satisfaction or discomfort experienced, the greater the degree to which the stimulus–response bond will be strengthened or loosened. Pleasurable effects, therefore, tend to stamp in associations and unpleasant effects tend to stamp them out.

According to the *law of exercise*, a response to a situation will generally be more strongly connected with that situation in proportion to the number of times it has been so connected and to the average strength and duration of the connections. Regular exercise or practice therefore strengthens the bond between situation and response (for example, in repeating times tables or formulae in order to 'learn' them 'off by heart'.) This law, too, was later modified when Thorndike announced that it was of minor importance. The *law of readiness* suggests that a learner's satisfaction is determined by the extent of their readiness of action; this refers to the dependence of the rate with which a connection is developed or the extent to which it corresponds to the learner's current state.

The *law of multiple response* states that a response which fails to produce satisfaction will trigger off another until success results and learning becomes possible. According to the *law of set*, learning is affected by the individual's total attitude or disposition; hence a student's cultural background and present environment are of importance in determining her or his responses. What the learner brings to the learning situation is significant. The *law of selectivity of response* suggests that as a person learns, so she or he becomes capable of ignoring some aspects of a problem and responding to others. The *law of response by analogy* emphasizes that a person's response to a novel situation is determined by innate tendencies to respond, and by elements in similar situations to which she or he has acquired responses in the past. The *law of associative shifting* suggested that a learner responds first to a given stimulus, then she or he may *transfer* the response by association to a different stimulus which acquires the capacity to elicit the same response.

Thorndike's work and the teacher

Thorndike's theories have been criticized as crude and over-simplified. In particular, his stimulus–response bond explanation of the basis of learning has been condemned as a mechanical and restricted interpretation of some few aspects of the complexities of human behaviour. His *law of effect* has been criticized on the grounds that it pays no attention to the internal information processing which must be going on during the learning event. The law is too vague about the temporal conditions involved. It seems to ignore the causal

relationship which must exist between actions and outcome. The role of insight in learning seems to have been rejected.

Criticism has been directed against those aspects of Thorndike's work which were derived specifically from his experimental work with monkeys. The fallacy of attributing higher cognitive functions to animals has been noted repeatedly by those who warn against interpretations of animal behaviour that attempt to transfer such findings to humans. Thorndike, it has been argued, was much given to far-ranging extrapolations of his animal studies which, in the event, vitiated the force of his theories concerning *human* responses to stimuli.

Many psychologists and teachers, however, see Thorndike's work as that of an important pioneer, mapping a route for others who followed. Thorndike's general view of the relationship of psychology to teaching is significant. He viewed psychology as part of the necessary basis of a scientific approach to the practice of teaching, and there is much in Thorndike's work which is of relevance to the day-to-day tasks of the class teacher. Its emphasis on the significance of the stimulus–response bond reminds the teacher of the importance of viewing *all* his activities (intended and otherwise) as contributions to the learning process. An orderly classroom, learning objectives based on progress from simple to complex concepts with appropriately sequenced assessments and a 'dominant' teacher using positive control, would characterize a Thorndike-type teaching-learning situation. It should resemble the real world outside the classroom as far as possible: it should accommodate the teaching of skills which will be useful outside the classroom, and which will reflect the stimuli and responses of the wider world. Lesson planning, instructing and evaluation of attainment emerge in the light of Thorndike's analysis as related directly to those responses which make up learning. Assessment and feedback must be swift, so that a student's incorrect responses to certain stimuli may be corrected in order that they will not be reinforced by practice.

Thorndike's *law of effect*, which stressed external reward as a more effective factor than punishment in the modification of a learner's behaviour, has an obvious lesson for the teacher. Further, the *law of exercise* suggests the importance of 'doing' and of repetition in the learning process, remembering that repetition without reinforcement will not enhance learning. The *law of readiness* stresses the importance of preparation for learning and serves to remind the class teacher of the vital part played in the learning process by *motivation* and of her or his responsibility for the strengthening of a student's readiness to learn. A student's interest in their work, and in improvement, can be conducive to learning; significance of subject matter to the student can affect that interest. The need for learners to be flexible in their approach and the value of learning through trial and error emerge from Thorndike's *law of multiple response*. The *law of selectivity of response* underlines the importance of arranging instruction so that students can discriminate among lesson components on the basis of selective attention.

Learning is incremental, says Thorndike. It occurs in small steps rather than in large jumps; it is direct and not mediated by reasoning in the form of ideas. The technique of