H850 Postgraduate Certificate in Teaching and Learning in Higher Education

Pack 1

Teachers Learning and their Professional Development

Prepared for the Course Team by Jo Tait and revised by Chris Pegler
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Introduction

Adapted by Jo Tait from the original introduction to the materials by Graham Gibbs, the late Alistair Morgan and Andy Northedge

This pack of materials is designed to make the theories of teaching and learning in higher education accessible and relevant, and to summarise the evidence for those theories. We hope that you will be able to draw on your reading and the activities associated with these materials to recognise and diagnose the challenges you encounter and develop an informed rationale for making one choice rather than another.

Teaching and learning are multi-faceted, weakly defined and highly idiosyncratic processes that have presented a great challenge to educational researchers over many decades. To grapple with the issues, a wide range of research methods have been developed – some highly technical and sophisticated in their assumptions. Few methods are universally accepted. There has been much disagreement and some changes in fashion, making the history of educational research quite difficult to ‘dip into’. The original authors of these materials felt that learning about the cut and thrust of the controversies that have raged would not be directly helpful to you as a teacher. Their pragmatic selections do not pretend to provide a critical review of the literature in its entirety, but do offer a flavour of what a deeper reading of the research might offer. We hope that you find the selection sufficiently interesting and relevant to your needs that you are tempted to follow up some of the sources for yourself and pursue questions that interest you by going back to the writing of the original authors. Links and references will give you many possible leads. The study guide and the website will help you plan your reading in very active ways so that, by the time you complete your work with this course, you should feel equipped to make your own contribution to ‘the literature’.

Each chapter begins with an overview and brief summary of its aims and contents to help hard-pressed practitioners and academics decide whether (and in what ways) they might wish to engage with that chapter. Many chapters begin with quotations from students and teachers designed to bring to life the ideas in that chapter. These quotations are simplified and summarised examples of the kinds of things we have heard teachers say. Within each chapter, you are likely to find extracts from research or other writing; these are introduced and contextualised to highlight the key ideas. Sometimes, the introductions and explanations are as long as the extracts they refer to. In a few cases, the original sources are so technical, obscure, complicated or disparate that the authors have written summaries of the areas themselves, instead of using extracts. The extracts are taken from diverse sources and disciplines, and from a range of different sorts of research evidence or theory. They include the types of extract listed below, and aim to serve the purpose described in the following text.

Individual research studies provide vivid illustrations of teaching and learning in a way that overviews of literature cannot do. They provide examples of the way such studies are undertaken. Some of the individual research studies are quantitative, using data such as student marks or rating scales on questionnaires. Statistical analysis of the data can lead us to decide whether, for example, Method A works better than Method B in a particular context, or whether students speak less than the teacher during seminars. Other studies are qualitative – based on interviews with students or on observations. These tend to be more interpretive about
what their findings mean; qualitative studies often try to illuminate what is going on by providing models of processes.

*Overviews of a field of study* summarise a number of studies. Here you can expect that the author will have read most of the available research studies on a particular issue and provided a concise analysis of what these studies add up to. This saves us from reading or attempting to interpret all the original research studies, but it may distance us from the methods being studied, leaving us reliant on the perspective of the reviewer.

*Practical guidance based on literature* often draws on applied research: the implications for teachers will be spelled out, but the nature of the evidence on which they are based is not elaborated. Sometimes we have used extracts like this because there simply is insufficient richness of either theory or evidence in the area to draw on. Demonstrating and supervision, for example, have been researched far less than, say, lecturing.

*Theoretical analyses of issues* are included because they present powerful ideas that can have practical utility in making teaching decisions. One clear example of this sort of extract is seen in the way Schön's ideas run through our text; he draws on experiential learning for explanations, rather than 'scientific evidence'.

*Practical guidance* also comes from the accumulated knowledge embedded in academic practices. We have drawn on several guides written for teachers (and students) that seem to be based on codified 'accepted good practice'. You will also find brief reference to and extracts from others' work used to illustrate points or to give glimpses of interesting and valuable literature that we do not have space to explore in more detail.

All the extracts have been selected to show how theory can be used and developed by teachers in different disciplines. Research into teaching in higher education has a relatively long history, and some of the earlier work provides powerful explanatory concepts still useful today. Some kinds of research have largely stopped, though their findings are still widely referred to.

**Using theory and evidence**

**Traditions and professional practice**

Teachers in higher education have not traditionally made choices about teaching, learning and assessment methods on the basis of explicit knowledge of research evidence or educational theory. Departments and whole institutions have traditions and well established practices, handed down and reproduced in each new generation of teachers. Some of these traditions are based on accumulated wisdom and have a sound rationale – even if that rationale is no longer much discussed. Some choices are constrained – by timetables, resources, class sizes or external requirements imposed by professional bodies, for example, or even by institutional policies and rules – and some common practices are based on beliefs that are contradicted by research evidence. Terenzini and Pascarella in 'Living with myths' (1994), for example, list eight research-based challenges to commonly held beliefs and practices in American undergraduate education.
Even where research in teaching seems to suggest that change is needed, the impact of theory and evidence can be very slow. Criticism of the ineffectiveness of medical training started nearly a hundred years ago, but has only recently led to changes towards more problem-solving and practice-focused approaches from its previously knowledge-focused approach. Evidence of the relative ineffectiveness of lectures was first published in 1970, but lectures may still be the primary teaching method in many universities today.

It is also the case that such research evidence does not, and cannot, answer all the questions we have as teachers, or provide clear guidance for many of the everyday teaching decisions we need to make. Research often addresses issues of peripheral interest to teachers or studies important issues in ways that throw little light on them. And many of the teaching situations we are faced with are so complex and idiosyncratic that even relevant and sound research findings can be hard to apply. Findings from one context may well not apply to a different context. Donald Schön, the author of Extract 1.3, describes professional practice as a ‘swamp’ in which there is no certainty and no firm ground – a very different perspective from that offered by some researchers.

Even where a chapter focuses on theory, you will find activities and reflections that turn your attention back to your own practice and the immediate teaching challenges that you may be facing. We suggest that you engage with these activities and reflections as you meet them. There may be considerable work or thinking required. Take notes of your responses to these activities. Using these notes will help you to carry your structured ideas forward to appraisal or accreditation, or for professional conversations with colleagues in a variety of contexts.

**Personal views of using theory and evidence to help teaching**

We are authors of theoretical materials, but that does not mean that all our teaching is underpinned by theory and evidence, or that we could justify everything we do without reference to traditions. In our own development as teachers we have been influenced by only a limited range of all the research and theory we have encountered in books, articles, conferences and seminars. While we can talk about quite a wide range of ideas, we find it difficult to hold many concepts or principles in mind at any one time, as we are planning our teaching. And while we are actually teaching, only one or two very simple and robust ideas enter our consciousness, even if others have become embedded in our practice. We are each of us guided and influenced by different theories and ideas.

**Graham Gibbs**

Kolb’s experiential learning cycle (Kolb, 1984) is explained in Chapter 1 of this pack: I can picture the diagram involved, which is simple and easy to remember. It seems intuitively right and wonderfully easy to apply, and I have used this diagram often in planning sequences in workshops where I want participants to learn by doing.

Marton and colleagues (Marton et al., 1994) make a distinction between a ‘deep approach’ and a ‘surface approach’ to learning (explained in
Extract 2.2, in Pack 2). I first really understood the significance of this concept when marking student work that had initially seemed perverse in its misunderstanding of the purpose of the assignment. It has since stood me in good stead whenever I have looked closely at what students are doing when they are studying, and at what they say about their studying. I have found it applicable to an extraordinary range of subject areas and learning contexts.

**Keith Trigwell**

Twenty years ago, before there were formal courses for university teachers, I was highly sceptical about the ability of non-subject experts to help me with my teaching. Surely the development of clear speech, legible writing, organisational skills and related activities did not require the services of an academic department. My own research, as an educational developer, has helped me to understand such scepticism, which still persists among some colleagues. My insight (and my research) originates with the work of Marton and Säljö (1976), who described the qualitatively different ways that students approach their learning, and of Säljö (1979), who showed that students have qualitatively different conceptions of learning that are related to the ways they approach their learning (see Pack 2 for a more detailed explanation). Their research explains why students who see learning as being essentially about memorising will see little value in study skills units that do not develop their skills in memorisation. Those who see learning as about understanding will value opportunities to support their development.

My own research (see Extract 1.2) involved working with university teachers whose conceptions of teaching can be equally different in qualitative terms and, similarly, will be related to their approach to teaching. In one of these conceptions, teachers describe teaching as being essentially about transmission of information. In another, the focus is on what the student does, and while transmission might sometimes be involved, it is not what teaching is about. A teacher working with the first of these conceptions is unlikely to see the value of an academic development unit, or what it is that accredited teaching programmes can offer beyond the development of teaching techniques. They are also more likely to be looking for advice on the best way to assess, lecture or to conduct tutorials. A teacher working with the second of these conceptions of teaching will be aware that what is ‘best’ comes from a professional judgement they make, based on how students experience their teaching.

**Andy Northedge**

Because I have been teaching and reading about teaching over many years, the valuable ideas I have absorbed have become so fundamental to the way I look at the world that I can no longer point to the boundaries between my own observations and thoughts and those I once read. However, I have certainly gone back to Erving Goffman (1956) many times. The social challenges of the classroom, and indeed of the teaching institution as a whole, are brilliantly illuminated by his analysis of the collective process of constructing social reality.
Donald Schön's account of the 'reflective practitioner' encapsulates a set of assumptions about the way we learn to teach that seems to have been in the back of my mind forever. Oddly, I know I was greatly helped years back by Carl Rogers' (1969; 1983) insights into the importance of making learning personally meaningful. Yet subsequent experience of seeing his ideas taken to extremes has turned me into a critic of them. So in this case the influence was powerful both in taking me forward initially and then in pressing me to look beyond for the counter arguments.

**Jo Tait**

You will see the influence of these authors' preferences throughout this pack and the other materials for the programme. I think that the influences cited by these authors have almost become a commonplace in the sector over the past ten years. For this reason, the digest of sources provided by this resource can form a valuable introduction to a whole context: a grounded understanding on which we encourage you to build. I certainly would not denigrate the power of psychologists such as Kolb (and the learning cycle), Goffman (and his influence on how we think about groups) and Rogers (with his person-centred approaches). Who could deny how Schön's 'reflective practice' has totally changed the way we think about professional development?

You will find that my influence on these materials encourages you to move beyond psychological ideas based on individual cognition to think about the social context in which your professional learning takes place. I am anxious that the Kolb cycle and even reflective practice are sometimes used in quite mechanical ways as step-by-step processes that you must follow in order to learn. I know that current participants in the H850 conferences are sceptical of the easy answers that such models seem to offer (and I am sure that such procedural approaches were not what Kolb or Schön intended). So, although these materials are still based on that important groundwork, I would invite readers to maintain a degree of scepticism.

Ideas that challenge the rather individualist approaches you will find here include Engestrom's work in activity theory (2001) and Eraut's (2000) exploration of how tacit knowledge becomes explicit and shared, given the right social conditions.

The different views taken by the authors here (and the arguments that will continue) suggest that we all need to work out for ourselves a set of explanations that makes sense in our context to deal with the situations that currently confront us, in the knowledge that even this should be a provisional way to make sense of teaching. We hope that you will become fascinated by this challenge and that these materials will provide some new insights.

In using these materials to help them to produce portfolios for accreditation and scholarly writing for other purposes, participants in the certificate programme have always made eclectic use of the content. We expect you to be similarly selective with the ideas in these materials: to be sceptical and discriminating, taking what helps you and putting aside, at least for the time being, those ideas or frameworks that do not seem to fit
or work for you. But we also hope that there is some restructuring of your thoughts as well as some assimilation of the ideas you encounter. We hope that the way you understand teaching will be shaken up by the ideas in these materials as well as the ideas simply providing some convenient explanations for your existing understanding.

**Activity** Before you begin

Before you begin to delve into the wealth of ideas in this pack, take a moment to draft a short document listing and exploring the influences on your teaching. This may look like a ‘philosophy of teaching’, with references and clearly structured theories, or it may be a relatively fuzzy attempt to consider your own preferred learning strategies and how this affects your approach to teaching. As a starting point for the next steps in your learning and as a point of reference for your continued reflection, you will find such a position statement invaluable.

**References**


Chapter 1 How teachers learn and develop
Alistair Morgan

Overview

When I started as a teacher, my main concern in lectures and seminars was to be seen by students as the absolute authority in the subject – so I used the time to transmit everything I knew. I had to maintain power and authority over the students.

When I started, I prepared detailed plans for every teaching session, but things still seemed to go wrong. So I tried to prepare with even more detail, but this didn’t seem to work either. Then gradually I saw my work differently and gained the confidence to respond to unexpected situations.

As I gained confidence, I became more concerned with students’ learning and their conceptual development, rather than giving expert presentations.

The aim of this chapter is to discuss how teachers change and develop as teachers. In what ways are really experienced teachers different from those at the beginning of their careers? What is the nature of the expertise of good teachers? How have they developed this expertise in their careers, and what is the process of this development?

What are the possible ways of explaining what distinguishes excellent teachers from poor ones? What are the characteristics of good teachers? Some of the possible defining characteristics of ‘good’ teachers might be as follows.

• They have an expert knowledge of the subject area.
• They can transmit their subject material clearly.
• They use particular teaching techniques, such as examples and analogies.
• They can adapt their teaching to students’ unanticipated problems.
• They help students to build their conceptual understandings.
• They have developed an empathy with students’ difficulties with learning.
• They adopt a student-centred approach to teaching, so students can develop their own understandings.
• They have a learning theory to inform their teaching.

These characteristics may all seem to be equally important and such a list to be unproblematic and uncontroversial. However, as we look in more detail at teachers’ development and their ‘conceptions of teaching’, we shall see how certain of these characteristics are much more important as teachers progress and develop. In looking at how teachers learn and develop, we need to look at the processes of how they can develop and analyse the characteristics of what constitutes a ‘good’ teacher.

Good teachers are likely to have developed these particular characteristics over time, by trying out different approaches to their teaching. It is the process of reflection on teaching experiences that leads to the development of a skilled professional teacher with these characteristics.
The extracts in this chapter look at both empirical and theoretical research into the professional practice of being a teacher. They look at:

- the stages of teachers' development and what the characteristics of good teachers consist of;
- the processes of how teachers' development takes place.

As a start to this chapter, we want you to engage with your experiences of being a learner – by bringing your own experiences into the foreground, this should provide the basis for thinking about 'good' and 'bad' teachers and the issues to address for your own development as a teacher.

What is the role of reflection in learning to teach and the development from novice to expert teacher? What is the basis of our knowledge about learning and teaching in higher education? In what ways will this knowledge serve to inform what we do as teachers? Can research and theory about learning and teaching provide an input into the complex process of developing into an experienced university teacher? These are the key questions that we shall address in this chapter as we consider how they contribute to developing the characteristics of 'good' teachers.

It is probably impossible to get teaching right first time. Good teachers notice what is working well for their students and what is not. They experiment a little and try out different things. They are thoughtful about what is going on and try to figure out explanations that make sense to them. Most of the good teachers you have encountered probably didn't read a book like this one – they worked it out for themselves. They developed characteristics of an expert teacher through making the connections between their approaches and action as teachers and the quality of their students' learning outcomes. They have engaged in reflection on their own teaching in the process of their own professional development.

Are there phases or stages new teachers go through as they change from novice to expert teachers? The first extract, by Nyquist and Wulff (1996), suggests phases of development for graduate teaching assistants as they gain confidence and competence, and develop to being junior colleagues in a department or faculty. New teachers have concerns and worries about their teaching and so do experienced teachers. However, they have very different sets of concerns and worries. As teachers become more experienced, they focus their attention on different things. This progression and change in focus has been studied by Nyquist and Wulff at the University of Washington. Their framework presents four indicators of development that relate to how these changes occur. Although the article is written for faculty staff with responsibility for staff development of new teachers, the stages provide a useful basis for new teachers to explore their own development and progression.

At the beginning of this chapter, we looked at some possible characteristics of 'good' teachers and how an analysis of these characteristics is required. Trigwell, Prosser and Taylor (1994), the authors of the second extract, have explored what teachers understand by teaching. If you asked some of your colleagues what they thought teaching consists of, what sorts of answer might you get? And if you asked them how they prepared for their teaching and what they do in their teaching sessions, what types of response would you get? The second extract presents research that has set out to investigate teachers' conceptions of teaching, by asking questions of
this type in individual interviews with a wide range of staff with responsibility for teaching first-year undergraduate science.

The third extract is from *The Reflective Practitioner* by Donald Schön (1983), which is probably one of the most influential publications on the nature of professional expertise. He is concerned with how professionals operate in a range of fields, and particularly with the knowledge base that is claimed to inform their practice. Schön contrasts what he calls ‘technical rationality’ with ‘reflection-in-action’. He argues, through a discussion of a number of professions, that the model of technical rationality (which originates from a positivist perspective on the relationship between scientific knowledge and professional practice) provides an inadequate model for understanding professional practice. He suggests that reflection-in-action offers a more realistic model for understanding how professionals act in practice and how a knowledge base informs their actions.

What is ‘reflection in learning’? In the third extract, we see how Schön regards reflection-in-action as a crucial ingredient for understanding professional practice. At another level, ‘reflection’ can be regarded as central to the processes of learning in many contexts, both for us as we develop as professionals in higher education, and also for our students as they grapple with new material and develop their own understandings in an area. The final extract, by Boud, Keogh and Walker (1985), explores what we mean by ‘reflection in learning’ and develops a detailed model for understanding the process of reflection.

1.1 How do teachers develop professional capability?

In the process of acquiring expertise as teachers, are there any stages of development associated with gaining professional expertise and become a reflective practitioner?

Nyquist and Wulff (1996), from their work in staff development with graduate student teachers, have suggested a framework for how teachers’ professional expertise builds up. They identify a developmental sequence of ‘senior learner’, ‘colleague-in-training’ and ‘junior colleague’, and four dimensions for where new teachers may be in their development at a particular time: (i) their concerns, (ii) their discourse, (iii) their attitude towards authority, and (iv) their approach to students. Development within this framework is not usually linear; it is more likely to be spiral, with teachers being more developed in one dimension than another. The potential value of this framework is that it can help us to become more aware of ourselves and our development as teachers.

**New teachers’ experiences**

Here are two examples of how new teachers have described their concerns and anxieties; they bring alive the some of the ideas in the Nyquist and Wulff developmental scheme.

I was totally preoccupied with what I should wear. I was the only woman in the department and all but two of the students were male. I ended up ‘power dressing’ in order to distance myself and to try to gain some power. I was terrified that if I wore jeans I would lose control in lectures.

I’d got over my terrors about not knowing what I was talking about; I knew enough to be helpful. But then I got
completely into methods and equipment – I tried using the overhead projector, then using PowerPoint in a data projector and then putting handouts on the web. The students could have been fast asleep and I wouldn’t have noticed because I was trying so hard and was totally wrapped up in my performance.
EXTRACT 1.1
STAGES OF DEVELOPMENT IN BEGINNING TEACHERS

J. D. Nyquist and D. H. Wulff

<table>
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<tr>
<th>Experience(s)</th>
<th>Reflective processes</th>
<th>Outcomes</th>
</tr>
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*Figure 1.1 Indicators of TA [teaching assistant] development*
Beginning teachers' ... approaches to authority

A third dimension for assessing the development of your TAs ... is their approach to authority. Once again, we believe that novice teachers ... go through definite stages. Usually, graduate students choose their graduate school based on reading the work of scholars at that institution or on the basis of the recommendations of their prior professors. Very enamored with the scholars with whom they have come to work, beginning graduate students depend heavily on their supervisors. You are held in high esteem, often emulated, and quite frequently quoted and imitated. As maturity comes, however, so does a time of dissociating from authority figures. To develop a sense of self and confidence in their own ability, graduate students must break away from supervisors to establish separateness and, eventually, independence. This period of counterdependency is sometimes very difficult for you as a graduate student supervisor. It is the people to whom you have been giving substantial amounts of time and energy who suddenly no longer seek or even adhere to your recommendations or advice. As a supervisor, you must identify this stage as a maturing one – a signal that the graduate student is outgrowing his or her dependence on you and moving to the final stage of professional development that is not autonomy at all, but rather is the joining of a community of professionals that will establish mature, collegial relationships where all viewpoints are prized and sought after.

Managing the ebbs and flows of professional connection, gracefully abandoning the flattery of a young scholar’s hero-worship, taking differences of opinion seriously but not personally – these are some of the most challenging demands placed on senior colleagues who work with TAs ...

Sprague and Nyquist, 1991, p. 308

Beginning teachers’ ... approaches to students

TAs [Teaching Assistants or Postgraduate tutors] must be able to establish effective teaching relationships with others. Their ability to do so reflects similar developmental changes that occur in graduate students’ attitudes toward authority. Likewise, they think differently about students as they themselves develop. Beginning TAs are often

<table>
<thead>
<tr>
<th>Senior Learner</th>
<th>Colleague-in-Training</th>
<th>Junior Colleague</th>
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<tbody>
<tr>
<td><strong>Concerns</strong></td>
<td><strong>Skills</strong></td>
<td><strong>Outcomes</strong></td>
</tr>
<tr>
<td>Self-survival</td>
<td>How do I lecture, discuss?</td>
<td>Are students getting it?</td>
</tr>
<tr>
<td>Will students like me?</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Discourse level</strong></td>
<td><strong>Socialized</strong></td>
<td><strong>Postsocialized</strong></td>
</tr>
<tr>
<td>Presocialized</td>
<td>Talk like insiders, use technical language</td>
<td>Make complex ideas clear without the use of jargon</td>
</tr>
<tr>
<td>Give simplistic explanations</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Approach to authority</strong></td>
<td><strong>Independent or counterdependent</strong></td>
<td><strong>Interdependent/collegial</strong></td>
</tr>
<tr>
<td>Dependent</td>
<td>Stand on own ideas – defiant at times</td>
<td>Relate to faculty as junior colleagues</td>
</tr>
<tr>
<td>Rely on supervisor, supervisory committee</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Approach to students</strong></td>
<td><strong>Detached/student as experimental subject</strong></td>
<td><strong>Engaged/professional student as client</strong></td>
</tr>
<tr>
<td>Engaged/vulnerable, student as friend, victim or enemy</td>
<td>Disengage or distance themselves from students – becoming analytical about learning relationships</td>
<td>Understand student/instructor relationships and the collaborative effort required for student learning to occur</td>
</tr>
<tr>
<td>‘Love’ students, want to be friends, expect admiration or are hurt, angry in response, personalized interactions</td>
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likely to be very engaged with their students. The TAs will assess, almost on a daily basis, their feelings toward their students. Sometimes, they desire to become close friends with their students; they definitely want to feel needed by their students. Often becoming advocates for undergraduates who are experiencing what they feel to be unjust practices by faculty members, TAs may involve themselves very personally in the welfare of their students. Conversely, even with all their efforts, they may soon find that students miss class, fail to hand in homework, do not score as high on examinations as the TA was expecting, and thus are a source of disappointment and frustration. TAs may feel betrayed. At this stage, they will often advise new TAs that they ‘should not smile until after Thanksgiving’ and that they should be on their guard at all times in their interactions with students. The students sometimes become the ‘enemy’. Again, the actions of students become very intense and personalized in the mind of the TA, whether the actions are positive or negative.

Following this phase, TAs often withdraw from students to avoid being hurt or feeling vulnerable. They become quite detached and see students as much less exciting and/or much less demanding. The TA often becomes very legalistic during this phase, directing all student inquiries to the syllabus and developing numerical schemes to avoid making subjective judgements.

Finally, the TA develops a way of being very engaged with students while not taking all student behaviour personally. To reach this stage, the TA will have developed skills for assessing students’ needs and will treat them as highly valued clients, creating a relationship that benefits them both.

1.2 What do teachers understand by teaching?

Teachers not only differ in their skills or methods, but are also trying to achieve different things in their teaching; the methods they choose reflect these different intentions. In Pack 2, we show how students’ conceptions of learning crucially affect how they tackle their studies. Students’ development as learners influences, for better or worse, their approaches to learning. In a similar way, we can see how teachers’ conceptions of teaching will have a direct influence on how they develop as professional teachers. What are the different ways in which teachers understand their teaching function? This is an important question for our own understanding of how we develop and learn as teachers.

Trigwell, Prosser and Taylor (1994) (the authors of Extract 1.2 below) have explored conceptions of teaching held by physical-science teachers about their experiences of first-year science courses. Teachers in physics and chemistry departments were interviewed individually about their first-year teaching; the staff covered a range of introductory courses to engineers, physicists, chemists and nurses, and included staff with positions from lecturer to professor. In individual interviews, staff were asked to describe their first-year courses, how they prepared for their teaching, and how they actually went about the teaching. Five distinct approaches to teaching were identified, ranging from ‘teacher-centred information transmission’ through to ‘student-focused approaches aimed at conceptual change’.
EXTRACT 1.2
QUALITATIVE DIFFERENCES IN APPROACHES TO TEACHING FIRST-YEAR UNIVERSITY SCIENCE

K. Trigwell, M. Prosser and P. Taylor
Table 1.2 Detailed descriptions of intentions and strategies

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Approach D

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Are the approaches to teaching described by Trigwell, Prosser and Taylor (1994) confined to first-year physical science? The authors of Extract 1.2 stress that their findings are context-specific and they make no claim for generalisability. However, related research with teachers in business studies, using both individual interviews and questionnaires, has identified similar variations in approaches to teaching (Murray and Macdonald, 1997). The main conceptions of teaching held by lecturers in this study were: imparting knowledge; providing student support; enthusing and motivating students; facilitating student learning; or some mixed combination of these approaches. So the concept of ‘approaches to teaching’, derived from research with faculty staff, seems to be a valuable concept worthy of our consideration in professional development as teachers in higher education.

A recent conversation with Keith Trigwell, one of the researchers involved in the project described in Extract 1.2, led to his contribution to the Introduction for this pack and the following summary of updated findings from the phenomenographical inquiry into teachers’ conceptions of teaching.
EXTRACT 1.2 (CONTINUED)
RECENT STUDIES OF APPROACHES TO TEACHING
Keith Trigwell

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Murray and Macdonald (1997) also highlighted the mismatch between teachers' approaches to teaching and what they reported they were actually doing in their teaching sessions, and related their work to that of Argyris and Schön for a possible explanation.

1.3 What is the role of 'reflection' in learning to teach?

Excellent teachers seem to differ widely in their methods and approaches. Learning to use particular methods by themselves is unlikely to guarantee success. Contexts, students and teaching aims vary so much that it is difficult or even impossible to specify an algorithm for teaching that would inevitably work. What good teachers seem to be able to do is to select methods and adapt them to context so that they are effective. This complex process of being a skilled teacher with a wealth of 'practical wisdom' is probably best understood through the work of Schön on the 'reflective practitioner'.

Professional development as a reflective practitioner is probably the most important overall aim for studying this chapter. In this section, we want to discuss the meaning of a 'reflective practitioner', and how teachers can develop in this manner. The Introduction to this pack suggests some of the difficulties of establishing a knowledge base to underpin the professional practice of teaching in higher education. However, this knowledge base developed from empirical and theoretical research and is a vital starting point for debating how to go about our teaching, but, given the context and the complexity of learning and teaching, this knowledge will not provide 'all the answers' about how to proceed. So how does scientific knowledge inform the practice of teaching? Schön uses the term 'technical rationality' to describe the traditional and conventional view that a formal knowledge base exists to inform how professionals operate in their practice. In this model of technical rationality, decisions about how to teach are grounded within this knowledge base.

Are excellent teachers scientists or artists?

Teaching in higher education is in a sense a profession like medicine. What doctors do in their practice appears at first glance to be based on science. Because medical research has established a vast knowledge base, doctors can use this knowledge to make certain rational decisions that have predictable outcomes. This is known in the literature as 'technical
rationality’. Learning how to become a better doctor within this paradigm involves learning more scientific knowledge and learning how to apply it in a technically correct manner.

To what extent should we, as teachers in higher education, adopt a ‘technical rationality’ approach to learning how to teach? There is a considerable scientific basis to teaching, and many of the extracts in this book provide a basis for rational solutions to teaching problems. But is learning to teach – or indeed learning any profession – really like this? Studies of the way doctors actually make diagnoses have revealed distinctly unscientific, intuitive and irrational processes, even when the doctor is able to give a convincing scientific and rational justification afterwards. On the basis of their experience, they are able to spot patterns in patients’ symptoms, ask the right questions and arrive at diagnoses in subtle and flexible ways that are hard to explain. There seems to be a gap between technical rationality and the lived realities of being a professional. Argyris and Schön (1978) have referred to this as a mismatch between ‘espoused theory’ and ‘theory-in-use’. For example, a lecturer’s espoused theory might be stated views about how a knowledge base informs teaching, whereas a theory-in-use refers to the unstated assumptions and values that inform the actual teaching in action.

Extract 1.3 below is by Donald Schön, who is probably the most influential writer and researcher into professional practice. He has challenged the model of ‘technical rationality’ and instead argues that professional activity has many features of an art or a craft. What excellent teachers do in their practice, he would argue, cannot be easily articulated by the teachers themselves. They almost certainly do not refer to scientific knowledge of principles before making teaching decisions. In fact, the act of teaching often does not appear to involve separate stages of thinking and acting at all – they seem to happen all together. The knowledge of how to teach is somehow demonstrated in the teaching itself, rather than in separate explanation of the teaching. Excellent teachers may give convincing, rational, even scientific explanations after the event, but these may have little to do with why they actually acted in the way they did.

What enables us to get access to the tacit or unconscious knowledge of how to be effective, and to the experience and expertise we use when we do things effectively? Schön argues that it is reflection on our actions and becoming conscious of what is normally unconscious, namely ‘reflection-in-action’. This process enables professionals to undertake small-scale informal ‘experiments’ as they practise, noticing what happens as they change what they do. It is this kind of experimentation in practice, Schön argues, which is how professionals really learn and improve their practice. Schön’s ideas have been enormously influential and have transformed ideas about professional training, especially in education. In the extract Schön is talking not specifically about teaching, but about any form of skilled professional performance.
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In the extract above, Schön presents powerful arguments about how reflection-in-action is central to successful professional practice. He also points out the different time available for this reflection-in-action, from a rapid response of the musician or baseball pitcher through to months for a lawyer in a protracted legal case. These arguments are directly relevant to teaching in higher education.

In a lecture or tutorial group, you may have to adapt to unforeseen situations. For example, if students have not completed a prerequisite course that you had assumed as a starting point for your teaching, then you will have to redesign your teaching rapidly as you go along, so as to maintain a ‘flow’ in your teaching. Or when the glazed looks from your students suggest that they cannot follow what is going on, what do you do? You may have assumed something about their learning that you shouldn’t have done. We can recognise that although students may be able to pass exams and use set procedures for solving problems, they can often still hold misconceptions of key concepts in a subject area. So if your questions and discussions with students reveal major misconceptions in their understandings, you will have to adapt your teaching to engage with these conceptions of the subject material held by your students, if you want your teaching to contribute to their learning and building up new understandings.

Reflection-in-action can also contribute to a change of awareness for making sense of problems that students encounter. Students’ learning difficulties can become understood as problems with the teaching, rather than as ‘deficit models’ of characteristics of the learners. The final part of the extract from Schön provides a vivid example of how teaching may not lead to the learning outcomes that had been expected. Reflection-in-action can lead us to new ways of understanding the teaching-learning process, rather than taken-for-granted explanations. The example shows the importance of needing to understand the learner’s perspective on learning, as we develop skill in teaching.
EXTRACT 1.3 (CONTINUED)

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Schön's arguments for the reflective practitioner cover a wide range of professions and areas of expertise besides education, but his main thesis is that responding to uncertain situations and maintaining a 'flow' as a practitioner is the hallmark of professional practice. Of course there will be different timescales for the process of 'reflection-in-action', depending on the situation and the profession under scrutiny, but the essence is that practice is best understood by reflection-in-action and not by technical rationality.

In his later book, *Educating the Reflective Practitioner*, Schön (1987) stresses how skillful professional practice depends on reflection before taking action and rather less on a body of scientific knowledge, as follows.

These indeterminate zones of practice – uncertainty, uniqueness and value conflict – escape the canons of technical rationality. When a problematic situation is uncertain, technical problem-solving depends on the prior construction of a well formed problem – which is not itself a technical task. When a practitioner recognizes a situation as unique, she cannot handle it solely by applying theories or techniques derived from her store of professional knowledge. And in situations of value conflict, there are no clear and self-consistent ends to guide the technical selection of means.

It is just these indeterminate zones of practice, however, that practitioners and critical observers of the professions have come to see with increasing clarity over the past two decades as central to professional practice. And the growing awareness of them has figured prominently in recent controversies about the performance of the professions and their proper place in our society.

Schön, 1987, pp. 6–7

Before reading further, pause for a moment to note any questions about (or familiar resistances to) Schön's ideas in your own practice or professional context.

1.4 What is 'reflection in learning' for teachers' development?

What is reflection and how does it contribute to learning? Do we need to know anything more about it, as surely we all do it all the time? The relevance of the next extract for new teachers is that it sets out a detailed model of 'reflection', which includes feelings as well as thoughts. This quite fine-grained look at reflection consolidates the issues we have looked at in the earlier sections.

In this chapter so far, we have made many references to terms such as 'reflection', 'reflection-in-action' and the 'reflective practitioner', but perhaps we have not been sufficiently clear about what we actually mean by 'reflection'. Is it some special process? Or is it a sort of applied 'daydreaming' about how things ought to be? Or is it some form of focused thinking about how things are the way they are and envisaging change? David Boud, Rosemary Keogh and David Walker are some of the leading theorists on 'reflection' and more particularly 'reflection in learning'. The extract for this section presents their model of reflection.

You may have come across the Kolb 'experiential learning cycle', illustrated in Figure 1.2.
Figure 1.2 The Kolb experiential learning cycle

The essence of this approach for professional teachers is about going back to ‘experience’ (such as a recent teaching session, for example) and visualising new ideas about the activity, and then trying out these ideas about how the activity could be in a different setting.

Boud, Keogh and Walker (1985) have developed a detailed model for understanding reflection and how it is crucial to the process of learning. In fact, the model is valid both for understanding learning and professional development as a teacher, and for understanding learning for the students we are teaching. The model sets out various components of reflection – returning to experience, attending to feelings, re-evaluating experience – as a cycle for developing new outcomes. So, for our concern with professional development as teachers, we are focusing on the experience of our own teaching sessions and how reflection can lead to the improvement of our practice. One of the important points stressed by Boud et al. is how ‘attending to feelings’ is part of the process of reflection. If this affective dimension is not attended to, it seems likely that barriers, frustration and anger will build up, which will act as constraints on the outcomes of reflection.

We conclude this chapter on how teachers learn and develop with the work of Boud et al. on ‘reflection’ as it seems to be central to the process of change and professional development for teachers. It seems to take Kolb’s experiential learning cycle a few steps further.
Conclusion

As a conclusion to this chapter, we want to return to the overall aims of exploring theory and evidence in teaching in higher education. What does improving teaching, and learning about professional practice, consist of? Learning to become a skilled teacher is not merely about gaining more information about teaching methods. In Sections 1.1 and 1.2 in this chapter, we have considered some principles or characteristics of a 'good' teacher.

The learning you will have engaged in throughout this chapter could be considered more as 'subtracting' from existing knowledge. The learning and the professional knowledge is about taking away the sense that you are right – challenging the taken-for-granted assumptions about teaching and learning. We need to step back from our routine practices and risk challenging what might be seen as a common-sense knowledge about teaching.

We looked at teachers' conceptions of teaching in the extract by Trigwell, Prosser and Taylor. Here we saw that teaching as transmitting experts' views of subject material was unlikely to be successful, in contrast to an approach to teaching which focused on students' conceptual development and helped them to 'construct' their own understandings in a subject area. We also looked critically at ourselves and our own values and philosophies about teaching. Understanding the factors that influence our own and other people's conceptions of teaching may help us to see how we can work to change and develop our thinking and practice.

The framework of Nyquist and Wulff provides another way into this self-evaluation and reflection. Where would you 'locate' yourself in the stages of development in their scheme? And where would you identify yourself on the various indicators of development? Taking a reflective approach to these indicators can assist in identifying our strengths and relative weaknesses as we grapple with the complex process of becoming a skilled teacher.

We have explored the processes of how development towards becoming an expert teacher occurs. The work of Donald Schön points to the limitations of 'technical rationality' and how the 'reflective practitioner' provides a more realistic model for understanding professional practice. The process of asking questions about yourself and how and why you do things in certain ways, and envisaging alternative action, is central to developing as a reflective practitioner. Consider how far this can support your development as a teacher.
References


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Figure 1.1: adapted from Nyquist, Abbott, Wulff and Sprague, Preparing the Professoriate of Tomorrow to Teach: selected readings in TA training, copyright © 1991 Kendall/Hunt Publishing Company, reprinted with permission.