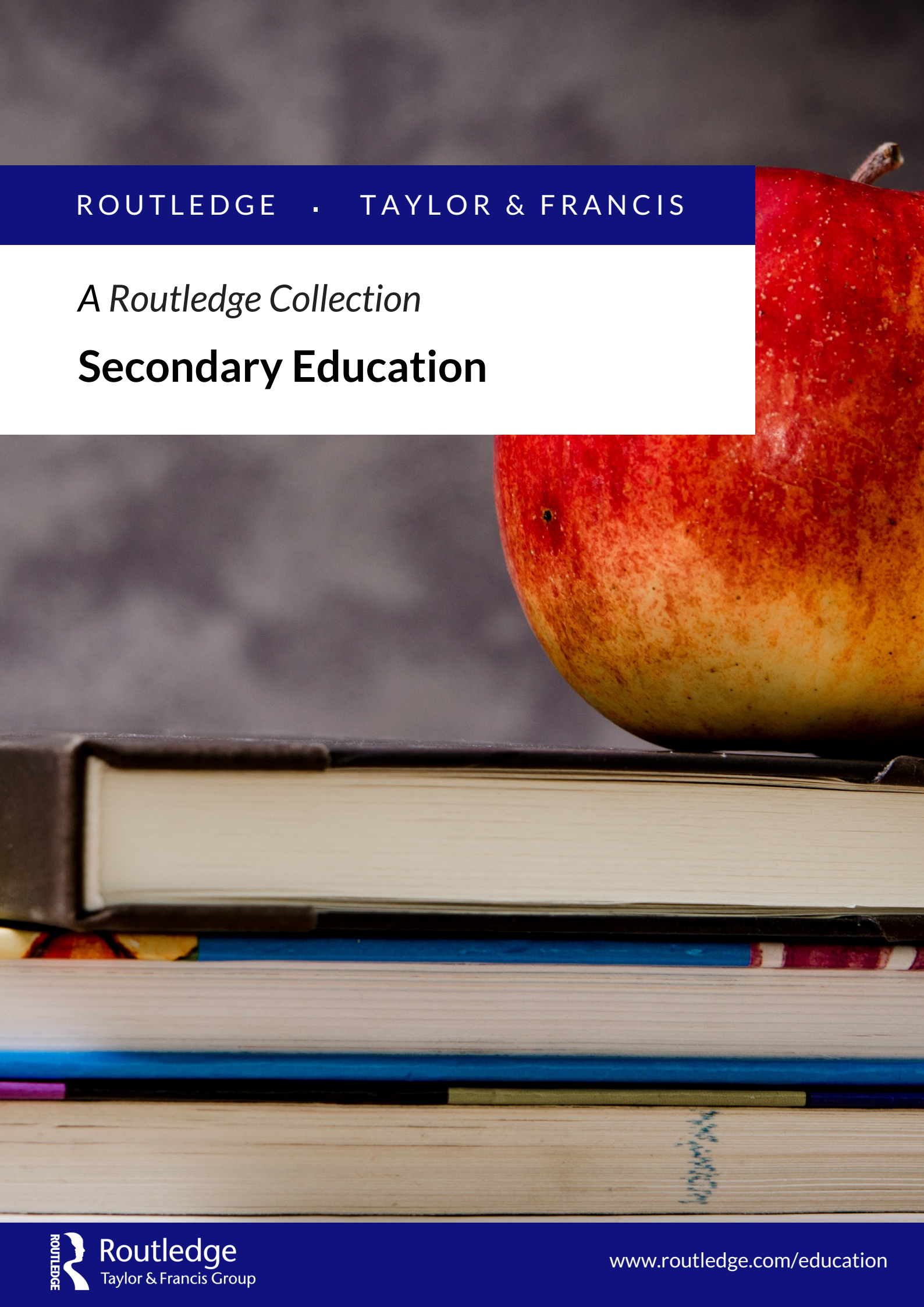

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Contents

Becoming a teacher

The four units in this chapter explore the complexity and breadth of the teacher's role and the nature of teaching. Some of the expectations of you in becoming a teacher include (but are not limited to):

- Dress appropriately (different schools have different dress codes).
- Act in a professional manner; for example, be punctual and reliable; act with courtesy and tact; and respect confidentiality of information.
- Take active steps to ensure that your pupils learn.
- Discuss pupil progress with parents.
- Become familiar with and work within school procedures and policies. These include record-keeping, rewards and sanctions, uniform and relationships between teachers and pupils.
- Be open to new learning: seek and act on advice.
- Be flexible; for example, if there is a change in the timetable on a particular day.
- Accept a leadership role. You may find imposing your will on pupils uncomfortable, but unless you establish your right to direct the work of the class, you are not able to teach effectively.
- Recognise and understand the roles and relationships of staff responsible for your development.
- Keep up to date with your subject.
- Have health and safety of your pupils (and yourself) (including safety) as a priority.

To become an effective teacher, you need to supplement your *subject content knowledge* with *pedagogical knowledge* (about teaching and learning) and to develop your professional knowledge, skills and judgement. Ways of developing these provide themes running throughout the book. Evidence about effective practice is becoming increasingly easy to access to support your development. In the UK, you can find a wealth of material on websites, including government-supported and subject association websites, to support you as a teacher.

Each unit in this chapter examines different facets of the work of student (and experienced) teachers. You are posed questions about your values and attitudes because these influence the type of teacher you become, the ethos of your school and the values and attitudes of pupils in your care.

Unit 1.1 is designed to give you an introduction to what teachers do. We look at teachers as individuals, then your role as a teacher, teacher language, and your work in the classroom. We then consider professional knowledge for teaching generally, followed by specific consideration of one aspect of general pedagogic knowledge – aspects of managing the learning environment. We then introduce classroom rights and responsibilities. Finally, we consider your digital profile.

In Unit 1.2 we discuss your roles and responsibilities as student teachers. This is designed to support you in preparing for school experience and on school experience itself. Your professional relationships with those with whom you work are very important; hence, we look at working with staff and pupils on school experience (including your professional and subject tutors, the class teacher and the pupils themselves). We then consider the expectations, roles and responsibilities of you on school experiences. Finally, phases which mark your development as a teacher are identified. We suggest that, as your own confidence and competence in managing the classroom grow, you can expect the focus of your work to move from your self-image and the mechanics of managing a lesson, to whole class learning and, as you become more experienced, to the learning for the individual pupil.

Unit 1.3 focuses on developing your resilience as a teacher, which is what sustains and enables teachers to thrive rather than just survive in the profession. It helps you to identify when you are stressed and looks at potential causes of stress. It then provides advice on coping with and managing stress proactively. Major causes of stress are workload and time constraints. The unit considers these, focusing on developing ways to manage your time and workload effectively, both inside and outside the classroom. Although approaches to managing your stress, workload and time are individual, being successful in managing these gives you time to enjoy your work and have time for leisure.

Unit 1.4 focuses on helping you to understand the relevance of digital technologies for you and your pupils. It then introduces a framework for auditing your knowledge and understanding of digital technologies, which is important self-knowledge for enhancing your competence in using digital technologies in your lessons to enhance pupils learning. The unit also considers your role and responsibility in promoting online safety for both yourself and the pupils you teach.

What do teachers do?

Linda la Velle and Marilyn Leask

> *Now, what I want is, Facts. Teach these boys and girls nothing but Facts. Facts alone are wanted in life. Plant nothing else, and root out everything else. You can only form the minds of reasoning animals upon Facts: nothing else will ever be of any service to them. This is the principle on which I bring up my own children, and this is the principle on which I bring up these children. Stick to Facts, sir!*
>
> (Thomas Gradgrind – Dickens, *Hard Times*)

> *Tell me, I will forget. Show me, I may remember. Involve me, and I will understand.*
>
> (Chinese proverb)

Introduction

Education is probably the most powerful influence on the development of our society. The education that young people receive through schooling goes beyond knowledge about a body of academic subjects: it is built upon and shapes the values, rights and responsibilities that make our society distinctive. That is why the form and content of education are so often the focus of scrutiny and are so keenly contested, and why you need to be able to articulate and develop your personal philosophy of education. Your personal views of the purposes of education and of the role of the teacher are major influences on your development in the profession. To enhance your understanding, you may wish to join debates about the form and content of education, which are often held through subject association networks, conferences and, to some extent, social media.

Nobody entering the teaching profession does so as a blank canvas; everyone has experienced education and this shapes their sense of what teachers are and do. Everyone has an opinion of what teachers do. Often these views are formed by personal experiences of school, and they are often idealised by the passage of time. The media, television, cinemas and literature also provide people with many and varied representations of teachers. What examples spring to your mind? However, not all of these views are either valid or useful and it is important to understand these in the context of the current school system, national education policies and the demands they place on teachers. In Units 5.3 and 7.1 you are invited to consider your personal stance on the aims, purposes and practices in education.

The two epigraphs at the beginning of the unit illustrate how different views of education and its functions can be; how differently societies and cultures construct the relationship between teachers and pupils.

Teachers, pupils, parents, carers, politicians, local authorities (LAs)/councils, teachers' unions, professional subject associations and educational researchers may have very divergent views of what teachers should do and how they should do it. Each of these perspectives needs to be considered. What a parent/carer may expect from you as a teacher, what their child may expect and what you as a teacher believe you should provide may differ significantly.

What teachers do, therefore, is complex. How to manage this without compromising the needs either of the individual pupil, the requirements of parents and carers or your own professional integrity is the focus of this unit.

OBJECTIVES

At the end of this unit you should be able to:

- describe your developing vision of yourself as a teacher and the values and ethical code/code of conduct that guide your work;
- describe various aspects of a teacher's academic, pastoral and administrative roles;
- consider effective use of language as a teacher;
- understand the multifaceted nature of the knowledge required for effective teaching;
- explain how teachers can manage proactively the learning environment;
- explain the rights and responsibilities of teachers and pupils within classrooms;
- demonstrate that your digital profile reflects the values and behaviours you aspire to as a teacher.

Check the requirements of your initial teacher education (ITE) programme to see which relate to this unit.

Teachers as individuals: your values and ethics

Teaching is a deeply personal activity. Pupils respond strongly to individual teachers. Think back to your own schooldays and the teachers you had. What do you remember about them? What did they do? Who are the teachers you most liked, and why? Which teachers did you least like, and why? Almost certainly the issues you identify are to do with personality (enthusiasm; intelligence; humour; eccentricity; conformity; efficiency; incompetence, etc.), because in a very real sense, the act of teaching is an extension of the teacher's personality. Similarly, some of the first things *your* pupils notice are your personality and your qualities. Parents and carers look at you as a person, but are also interested in a different set of issues: are you likely to form supportive relationships with their child? Do you communicate with them regularly and clearly? Do they believe you're competent?

Your head of department and senior staff may apply another set of criteria: what skills and interests do you have that could be of benefit to the department or wider school curriculum?

What you do as a teacher, therefore, has to meet a complex set of demands, and your ITE programme should provide you with opportunities both to explore individually the kind of teacher you wish to be, and also to understand the context in which you are working and the demands this places upon you as a teacher to be both professional and collegial (see, for example, the Organisation for Economic Cooperation and Development (OECD) Teaching and Learning International Survey (TALIS), 2015; Wragg, 2004; and the Masterclass series of texts (edited by Brindley)). Unit 8.4 looks at developing a teacher identity in more detail.

Your values and your ethical code

What ethical code guides your practice as a teacher? Adhering to an ethical code of practice is a condition of registration. In the United Kingdom (UK), Teachers' Councils provide ethical codes to which teachers are required to adhere and ethics/professionalism are included in the Teachers' Standards. For example, the General Teaching Council for Scotland (GTCS) has a code of conduct for student teachers that touches on: professionalism, responsibilities, competence, collegiality and working with stakeholders, equality and diversity. Task 1.1.1 asks you to consider this and other codes of conduct to draw up your own ethical code/code of conduct to guide you during your ITE programme and beyond into your teaching career.

Task 1.1.1 Your code of professional conduct and ethics

Consider some of the professional codes of conduct and ethics on subject association, Teaching Council and Teacher Standards websites (see websites listed in Appendix 3). Review some of the ethical codes to which teachers are required to adhere in different countries. The GTCS (2012a) code of conduct for student teachers provides a starting point (http://www.gtcs.org.uk/web/FILES/teacher-regulation/student-teacher-code-0412.pdf).

Discuss the codes with other student teachers and record your code of conduct in your professional development portfolio (PDP) or equivalent.

Your role as a teacher

Teaching is an intellectual activity. Therefore, a teacher's job is primarily to ensure that pupils learn. Largely, *what* pupils should learn is determined through a published curriculum. The term 'the Hidden Curriculum' refers to what is learned outside the formal curriculum (see Unit 7.2). In England, there is a 'National Curriculum', although many schools, e.g. free schools, independent schools and academies, are not subject to this. Unit 7.2 looks at the curriculum and the companion website for this book (www.routledge.com/cw/capel) has units about the curricula for the different countries making up the UK. *How* you teach, however (i.e. the methods and materials used), is left to your professional judgement (see also Unit 8.4).

Task 1.1.2 focuses on what you personally need to do to become a qualified teacher.

Task 1.1.2 Focusing on the teachers' standards

You need to be familiar with the Teachers' Standards for the country relevant to your ITE programme. These should be in your ITE programme handbook and other documentation provided by your ITE provider. Look at them now. What do they tell you about your role as a teacher? What do they mean to you at the beginning of your ITE programme? Do you feel they capture what you want to be as a teacher? Talk to your tutor about what achieving the standards might look like at the end of your programme.

Which aspects of these Teachers' Standards do you feel most prepared to meet? Which do you believe you need more help to meet? How do you see yourself developing your capability over your ITE and career as a teacher? You may find it useful to discuss these areas with an experienced teacher, thinking about how you can record evidence of your achievements and any areas where you may require additional support.

Store the information in your PDP.

You need to spend time observing experienced teachers. You will not see two teachers the same (see Unit 2.1). Even in the highly unlikely event of you observing the same lesson taught to different classes by a pair of identical twins who are both teachers, they would have their unique take on the preparation for, delivery and evaluation of that lesson. Some of the teaching styles and strategies that you see you will like and relate to; others may not seem as appropriate and comfortable. These preferences and responses are important as you think about your own developing practice. Do not dismiss anything too quickly, however. Just because you do not like a particular approach or because a particular class does not respond well does not necessarily make the approach inappropriate. There is no single correct way to teach. Provided effective teaching and, thus, learning take place, a range of approaches from didactic (formal, instructional, heavy on content) to experiential (learning by discovery and doing) is appropriate – often in the same lesson (see Unit 5.3 on teaching styles and Unit 4.1 on ways to group pupils for learning). You can use video to record your practice so that you can analyse and improve your style as you develop as a teacher, but make sure you gain the necessary permission for video recording lessons in school. An alternative approach is 'micro-teaching'. This is a common practice in many ITE programmes and involves the filming of a short episode of teaching by a student teacher to the rest of the group. The film is then analysed by the student teacher, often with the support and input of the tutor and/or other student teachers.

Teaching is a responsible activity. As well as their academic development, you are also accountable for pupils' pastoral and personal development. In approaching this, you have an important role to play in supporting the school ethos by reinforcing school values, rules and routines, e.g. behaviour, dress, mutual respect, the right to learn and in encouraging pupils to develop self-discipline so that the school can function effectively and pupils can make the most of opportunities that the school and their schooling offers.

Finally, teaching is an administrative activity. You need to develop efficient ways of dealing with educational organisation and management (see Unit 1.3). Developing your information and communications (ICT)/digital technology skills is essential in helping you prepare teaching materials,

in supporting pupils learning, in recording and monitoring progress and in keeping up to date with daily administrative tasks. Many teachers keep their pupil records electronically using spreadsheets, and schools normally have Management Information Systems holding data used to monitor pupil performance and assessment. This is essential, not only for accountability, but also for data analysis to support performance improvement (see Unit 6.1). For advice in your subject area, see the subject-specific and practical texts in this *Learning to Teach in the Secondary School* series (see p.ii of this text) and subject association websites (see Appendix 2).

So, your role as a teacher falls into distinct categories. You have responsibility for both the academic and the pastoral development of your pupils. Table 1.1.1 lists the main activities in each of these areas that you are expected to undertake.

Your role in raising attainment and improving life chances

Raising attainment is a collective endeavour involving all in the school working together. The connection between educational attainment and life chances is significant. Pupils obtaining the best grades have more choices, are able to access the top-ranking universities and employment, and so on. It is thus clearly desirable that pupils attain to the very best of their ability through their schooling. It is incumbent on you as a teacher to ensure that every pupil is given the very best opportunity to fulfil his or her potential, and great pressure is often applied to teachers to demonstrate this. Pupil attainment

Table 1.1.1 Some of the activities that teachers undertake in their academic and pastoral roles

The academic role	*The pastoral role and spiritual and moral welfare*
This encompasses a variety of activities including: ■ subject teaching ■ lesson preparation ■ setting and marking of homework ■ monitoring pupil progress over time ■ assessing pupil progress in a variety of ways, including marking tests and exams ■ writing reports ■ recording achievement ■ working as part of a subject team ■ curriculum development and planning ■ undertaking visits, field courses ■ reporting to parents/carers ■ planning and implementing school policies ■ extra-curricular activities ■ keeping up to date (often through work with your subject association See www.subjectassociation.org.uk/members_links) ■ being an examiner for public examination boards, e.g. General Certificate of Secondary Education (GCSE)/General Certificate of Education (GCE) Advanced (A) Level boards	These roles vary from school to school. They often include: ■ getting to know the pupils as individuals ■ helping pupils with problems ■ being responsible for a form/tutor group ■ registering the class, following up absences ■ monitoring sanctions and rewards given to form members ■ reinforcing school rules and routines, e.g. on behaviour ■ writing reports, ensuring records of achievement and/or profiles are up to date ■ working collegially as part of a pastoral team ■ teaching personal, social and health education (PSHE) and citizenship ■ house/year group activities (plays/sports) ■ liaising with parents and carers ■ ensuring school information is conveyed to parents via pupils ■ extra-curricular activities, e.g. educational trips ■ giving careers and subject guidance ■ taking part in a daily act of worship required by legislation ■ liaising with primary schools

Table 1.1.2 'The Average Child'

I don't cause teachers trouble, my grades have been okay.
I listen in my classes and I'm in school every day.
My parents think I'm average, my teachers think so too.
I wish I didn't know that cause there's lots I'd like to do.
I'd like to build a space rocket, I've a book that shows you how.
Or start a stamp collection, well no use trying now.
Cause since I've found I'm average, I'm just not smart enough you see
I know there's nothing special that I should expect of me.
I'm part of that majority that hump part of the bell*,
Who'll just spend all his life in an average kind of hell.

*This refers to the bell shape of a 'normal distribution' curve.

Source: Buscemi (date unknown) in P. Reeve (1992).

is compared internationally, and the results are of great interest and concern for governments (see Unit 7.4). However, where too much attention is paid to raising attainment without corresponding consideration being given to developing pupils' inquisitiveness and autonomy, instrumental practice can easily emerge. 'Spoon-feeding' and 'teaching to the test' may lead to improved attainment in headline examinations, but they do little genuinely to enhance pupils' transferrable abilities as lifelong learners (see, for example, Volante, 2004). For the teacher, the drive to ensure that pupils achieve the best possible results in their assessments must be tempered by the need to provide pupils with the resources they need to be independently functional members of society. This is where educational politics come face to face with educational ethics. The pupils who emerge with the most robust independent abilities are those best placed to meet the increasingly challenging and uncertain demands of employability in the world of the 21st century. Therefore, you need to think very carefully about how you respond to the needs of your pupils and the demands of your employers as you consider issues of raising attainment. Pupils' self-belief and motivation to learn is essential in providing foundations for successful learning, and there is no foundation for the commonly held belief that intelligence is fixed (see Unit 5.6). Your responsibility is to ensure that the pupils themselves realise that they do have considerable capacity and can set high expectations of themselves. The poem 'The Average Child' highlights the damaging effect on pupils of views that intelligence is fixed (see Table 1.1.2). Then complete Task 1.1.3.

Task 1.1.3 Motivating pupils

Reflect on the poem 'The Average Child' (Table 1.1.2). Think about its implications for your own teaching. In your classroom observations and evaluations, focus on an 'average child' for a number of sessions. Plan your interactions with a small group of these pupils so that you leave them feeling positive about learning and their capacities. Discuss your perceptions with other student teachers and record these in your PDP.

Teacher language

Recognising the social and linguistic disadvantage of a large section of UK society, the Newsom Report recommended to the then Ministry of Education that all secondary subject teachers should also be teachers of English (Newsom, 1963). This still holds true, because language is clearly central to the process of teaching and learning. Whether you are communicating with pupils in the spoken or the written medium, it is essential that you think very carefully about your use of language. It is important to remember that language is used in the classroom for a variety of purposes:

- to provide direction through the lesson;
- to question;
- to impart information;
- to develop relationships;
- to give instructions, etc.

An important issue to consider in relation to teacher language is the use of technical subject terminology. Every subject has its own vocabulary, and it is the subject teacher's responsibility to think about this. If science teachers wish their pupils to know how to spell and use the word 'photosynthesis' accurately, it is their job to teach this. Similarly, if you are a business studies teacher and wish your pupils to write reports, you need to equip them with the language tools to do so. Think very carefully about the language and the written forms of your subject. Are these in themselves useful and meaningful, or is it the concepts behind the words and forms that are more important? Think in detail about how and when to introduce subject-specific terminology and develop concise and accurate definitions with which pupils are able to work. Remember that when you introduce a new word, pupils need to be able not only to pronounce, but also to spell it. They need to hear it and see it. Importantly, be aware that terms have different meanings in different subject contexts. Take, for instance, the word 'depression':

- in geography, a depression is an area of low air pressure;
- in history, the Depression was a specific era of United States history in the late 1920s and the 1930s;
- in medicine, depression is a mental state;
- in English, it may be all of the above, or a hollow in the ground.

As a teacher, it is very important to think about how and when these different language modes are required, and how pupils differentiate between them, whether encountered in the written or the spoken form. It is well worthwhile spending time exploring the range of your voice so that you can develop appropriate varieties of tone and register for these different types of talk. Which tone of voice will you adopt so that pupils know when you are giving instructions? How about when you are disciplining an individual or a class? Your tone of voice reinforces the purposes of language. An important general principle of voice projection is that as you get louder, you should aim to lower the pitch of your voice if possible. This helps to prevent shrillness and strain. (Using your voice is covered in Unit 3.1.)

Additionally, time is well spent in thinking carefully about language formulas that might be useful, recording those used by experienced teachers whom you are observing and practicing using them so as to build your professional toolkit. Such formulas include:

- I am not happy with...;
- I want you to think carefully about...;

- Either... or...;
- I want you to make sure that....

These examples illustrate another important general principle in using language to give instructions and manage behaviour; i.e. owning the issue, as in, 'I am not happy about the noise level...' rather than, 'You are getting too noisy...'.

Thinking through both what you want to say and how you want to say it increases your confidence in the use of teacher language. Questions should be planned (see Units 3.1; 5.2), to avoid what might be thought of as 'what's in my head' questions, where the pupils have to guess what you are thinking about. Transactional language (e.g. instructions about how to move into groups) can be prepared ahead. Explanations are usually much clearer if you have thought them through in advance rather than trying to develop them on the spot in the classroom. Much of the language you need to use is firmly within your control and needs to be thought through in detail.

There are, of course, occasions when language needs to be spontaneous, such as when answering unexpected questions, or when dealing with behaviour that doesn't meet the standard you require. This is an aspect of the teacher's job about which student teachers tend to worry most. When managing such behaviours, it is very important to ensure that your language is clear, controlled and respectful – regardless of the language pupils may be using themselves and regardless of your own emotions. Behaviour management situations tend to arise unexpectedly but many of these issues can be prevented by planning ahead and preparing possible responses (see Unit 3.3). The following questions will help you consider use of language in these situations. We also suggest recording the techniques used by experienced teachers whom you are observing and practicing using them. Such formulas include:

- Is a verbal response necessary at all? Would silence or some non-verbal form of communication be more effective? Note stance, facial gestures and arm and hand movements of experienced teachers.
- Which tone of voice is best? A raised voice? A quiet voice? A sympathetic voice?
- Should you speak in front of the whole class so that all can hear, but which may inflame a situation? Would it be more effective to speak to the individual or group of perpetrators quietly, saying perhaps, 'We can discuss this after the lesson'?
- Should a response be immediate or would taking a moment to consider before speaking be more appropriate?

Think through and plan some language formulas that could be used in different situations. This will help you to behave in a calm, controlled and measured way. How and when, for example, might you use the following:

- Either... or...;
- If you cannot calm down, then...;
- You know I do not like it when...;
- Are you refusing to...;
- Would it help if...;
- I think it would be better if....

Teacher language in all its forms needs to be very carefully considered, and is further explored in Unit 3.1 'Communicating with pupils' and Unit 5.8 'Creating a language rich classroom'.

Finally, be clear; your voice is very important to you as a teacher, so you need to look after it. See if your ITE provider puts on sessions on voice projection and voice protection. Voice projection equipment designed for use in classrooms is also available should you need it.

Your work in the classroom – the tip of the iceberg

On the surface, teaching may appear to be a relatively simple process – the view that teachers stand and talk to their classes and that the pupils automatically learn appears to be all too prevalent. (Ask friends and family what they think a teacher does.) The reality is somewhat different.

Classroom teaching is only the most visible part of teachers' work. It may help to consider the cycle of pedagogic reasoning and action set out in Figure 1.1.1 (Shulman, 1987), its elements and the underlying knowledge and skills that drive it.

The cycle begins and ends with an act of **comprehension**. The teacher knows about something to be taught. S/he then has to 'transform' that knowledge into a form that is learnable by the pupils. This **transformation** requires the deployment of several stages and skill sets. In Figure 1.1.1 the sub-cycle to the right shows the process of transformation with the teacher serially *preparing* (critical scrutiny and choice of materials of instruction); *representing* (consideration of the key ideas and how they might best be represented in the form of analogies, examples, etc); *selecting* (choice of teaching strategies) and *adapting*, sometimes called differentiating: tailoring input to pupils' capabilities and characteristics. The teacher sequences a series of teaching/learning episodes to create a logical yet varied lesson. The teacher then provides that lesson (**instruction**), during which there are checks for pupil understanding as well as more formal assessments and feedback (which themselves require all the processes above): **evaluation**. Following the lesson, an effective teacher sets aside time for reconstruction, re-enactment or recapturing of events and accomplishments: **reflection**, which is the critically important process of analysis through which the individual teacher learns from experience. This brings the teacher to a new, more informed and nuanced level of comprehension about the topic of the lesson. The pedagogic cycle should therefore not be thought of as a flat cyclic diagram, but rather as an upward, three-dimensional spiral in which professional knowledge and expertise are continually built.

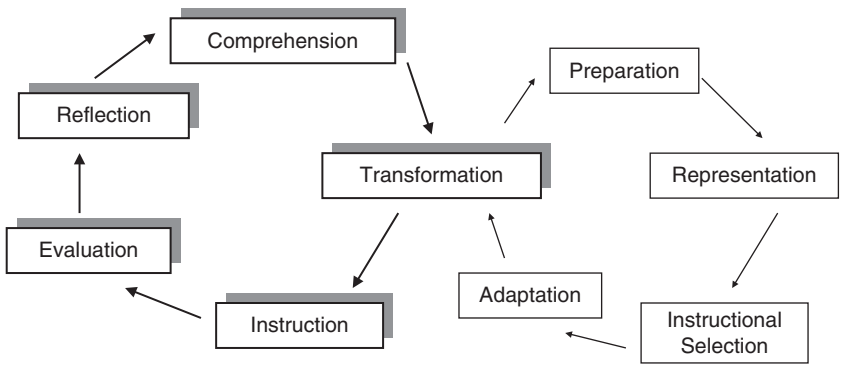


Figure 1.1.1 Shulman's Pedagogic Cycle (after Baggott la Velle, 2001)

The following analogy may help you understand what underpins your work in the classroom. Think of a lesson as being like an iceberg. The work in the classroom represents the tip of an iceberg (20–30 per cent). Supporting this tip, but hidden in the base (70–80 per cent), are the elements of teachers' professional expertise (see Figure 1.1.2). These elements include:

- *planning* a sequence of lessons to ensure learning progresses;
- *evaluation* of previous lessons;
- *planning and preparation* for individual lessons;
- *established routines and procedures* that ensure that the work of the class proceeds as planned;
- *personality*, including the teacher's ability to capture and hold the interest of the class, to establish their authority;
- *professional knowledge*, such as subject content knowledge (SCK); pedagogic knowledge about effective teaching and learning; knowledge of learners; knowledge about the educational context in which you work – local and national;
- *professional judgement* built up over time through reflection on experience.

The contents of this book introduce you to what we see as the invisible foundation of the teacher's work: *professional knowledge* (see Table 1.1.3) about teaching and learning and *professional judgement* about the routines, skills and strategies that support strong teaching (see Unit 8.4). Effective teachers draw on these elements in their planning and preparation to ensure that there is *continuity* and *progression* in pupils' learning. Each lesson is planned as part of a sequence of learning experiences designed to build pupils' engagement with and understanding of the topics they are studying (see Unit 2.2).

Throughout your ITE programme, you should expect to develop confidence and new levels of competence in all the areas in Figure 1.1.2.

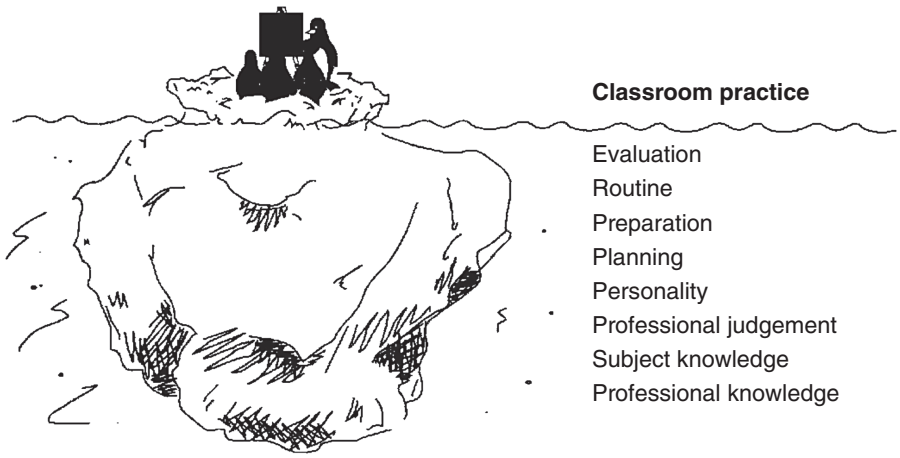


Figure 1.1.2 The work in the classroom – the tip of the iceberg
Source: With kind permission of Simon Beer

Professional knowledge for teaching

This section gives an overview of the forms of knowledge you need for teaching.

Teaching requires you to transform the knowledge you possess into suitable tasks that lead to learning (sometimes called pedagogic knowledge). Knowing a lot about your subject does not automatically make you an effective teacher. Your professional knowledge comprises a number of different components.

The forms of knowledge teachers need has been described in different ways. Shulman (1986; 1987) identifies seven knowledge bases that form what he regards as the minimum knowledge for teaching. These are summarised in Table 1.1.3. This is a starting point for thinking about the forms of professional knowledge you may need to acquire.

Subject content knowledge (SCK)

This is a declared body of knowledge about your subject. Within the curriculum for that subject it comprises the concepts and skills pupils are expected to acquire. You amass this knowledge from a variety of sources: your education at home, at school and at university, as well as through personal study and reading. Together, these shape the quantity and quality of your SCK. Your explicit awareness of and engagement with these different sources of SCK vary, but as you begin your career as a teacher, this is likely to be the area in which you are most confident. You should actively seek to extend the

Table 1.1.3 Forms of professional knowledge for teaching (adapted from Shulman, 1986; 1987)

1	*(Subject) Content knowledge*: the content that is to be taught. Schwab (1964) identifies two components of content knowledge:
	■ substantive: core concepts and skills in the subject ■ syntactic: the way these concepts and skills are structured and organised within the subject
2	*General pedagogic knowledge*: broad principles and strategies of classroom management and organisation that apply irrespective of the subject
3	*Pedagogical content knowledge (PCK)*: knowledge of what makes for effective teaching and deep learning, providing the basis for teachers' selection, organisation and presentation of lesson content; i.e. the integration of subject content and its related pedagogy. Grossman et al. (1989) break PCK into four components:
	■ knowledge and beliefs about the *purposes* of teaching a subject at different levels ■ knowledge of pupils' understanding, *conceptions and misconceptions* of subject matter ■ knowledge of *curriculum* materials available for teaching a subject and knowledge of horizontal and vertical curricula for the subject ■ knowledge of *instructional strategies* and representations for teaching particular topics
4	*Curriculum knowledge*: materials and programmes that serve as 'tools of the trade' for teachers
5	*Knowledge of learners and their characteristics*: this comprises a variety of issues – child development; how children develop with age (empirical or social knowledge); cognitive development; knowledge of the needs of particular individuals or groups of pupils
6	*Knowledge of educational contexts*: political, curricular, sociological, cultural, geographical, historical and psychological factors may all be important here
7	*Knowledge of educational ends (aims), purposes, values and philosophical and historical influences*: both short- and long-term goals of education in general and of particular subjects

range of your SCK. This process supports your confidence for teaching and engages you with your subject on a personal level. A word of caution, however: you may see this body of knowledge as the key measure of your likely effectiveness as a teacher, but it is the way you transform that knowledge into effective teaching that is most important. Task 1.1.4 asks you to audit your SCK.

Task 1.1.4 Auditing your subject content knowledge

Analyse a copy of the curriculum for your subject, identifying areas where your SCK is good now, areas in which you require some additional knowledge and areas in which totally new learning is required. Set yourself targets for developing your knowledge in the areas for development you identify. Discuss these areas for development with your tutor. Plan a course of action for this development. Keep a record of your progress in your PDP.

General pedagogic knowledge (GPK)

This body of knowledge and understanding relates to the effective transformation of your SCK into meaningful learning for pupils, as described above. This knowledge includes the broad principles and strategies that are designed to guide class instruction, organisation and management (e.g. settling a class, managing the learning environment for effective learning, managing resources and other equipment, gaining and sustaining the attention and interest of the whole class, encouraging the disaffected, supporting the less able, extending the most able and motivating each member of the class). By developing your general pedagogic knowledge, your classroom becomes a more varied, stimulating and rewarding place both for yourself and your pupils.

Pedagogical content knowledge (PCK)

This is a combination of SCK and pedagogy that provides the specific knowledge you need for effective teaching and learning in your subject area(s). For example, the ways in which Music teachers shape teaching and learning differs in some ways to the way Design and Technology teachers shape teaching and learning.

Teaching requires you to adapt your PCK to the classroom demands of teaching. It also requires you to consider the processes of your subject and how you can teach these to your pupils. What, for example, are the language and writing demands of your subject, and how are you going to teach them? What research skills and processes should pupils adopt? What forms does assessment (both formative and summative) take in your subject area(s), and how does this relate to content and process? PCK is effectively what pedagogy looks like in your subject area(s). Shulman (1986, p.9) sums it up as follows. PCK is:

> the most useful form of representation of…[the most regularly taught topics in one's subject area]…the most powerful analogies, illustrations, examples, explanations, and demonstrations – in a word, the ways of representing and formulating the subject that makes it comprehensible to others.

You should also think about the historical development of your subject, and think about how it came to be as it is. This dimension enhances your sense of what your subject is about and why it is studied. For further information see the subject-specific textbooks in the Routledge *Learning to Teach* series.

Curriculum knowledge

This is your knowledge of the requirements and range of programmes for teaching your subject(s) across the age ranges that you are preparing to teach. Crucially, this knowledge base includes an understanding of the sequence in which the facts and concepts of a discipline should be taught and learned for greatest understanding. It also encompasses knowledge of the variety of instructional materials available to support the programmes of work. It includes knowledge of the curriculum required in your country and in your school(s), the public examinations they serve and the requirements of those examinations.

Knowledge of learners' and their characteristics

Pupils come with different kinds of knowledge. Shulman (1986; 1987) and Grossman et al. (1989) define this as including empirical and social knowledge, i.e. what children of a particular age range are like, how they behave in classrooms and school, their interests and preoccupations, their social nature, how contextual factors such as weather or exciting events can affect their work and behaviour and the nature of the pupil–teacher relationship, as well as cognitive knowledge.

You need to think about how children develop and what they know, which consists of two elements: knowledge of child development that informs practice; and knowledge of a particular group of pupils, the kind of knowledge that grows from regular contact with these pupils, of what they can and cannot know, do or understand.

Knowledge of educational contexts

Shulman (1986; 1987) and Grossman et al. (1989) define an educational context as any setting where learning takes place. This includes formal settings (schools, nurseries, universities and colleges), informal settings (home, museums, concert halls, art galleries, etc.) and broader educational contexts (social, cultural and communal). The context often has a significant effect on teaching and learning and the work of teachers. In the multicultural classrooms of today, you can expect to be teaching pupils from a wide range of different educational and cultural systems where the expectations of teachers and pupils may be quite different than those you have personally experienced. It is important to think about issues such as:

- the type and size of schools;
- their catchment areas;
- class size;
- the extent and quality of support for teachers;
- the amount of feedback that teachers receive on their performance;
- quality of relationships in schools;
- expectations, philosophies and attitudes of the head teacher;
- schools' policies, curriculum, assessment processes, monitoring and reporting, safety, school rules and expectations;

- 'hidden' and 'informal' curriculum, which includes the values demonstrated to pupils through the way the school is run (see also Unit 7.2, 'The school curriculum').

The units in Chapter 7 in this book and on the web provide an overview of educational contexts in the four countries of the United Kingdom (England, Northern Ireland, Scotland, Wales).

Knowledge of educational ends (aims), purposes, values and philosophical and historical influences

This includes the values and priorities that shape the education that pupils receive. Teaching is a purposeful activity, both in the short-term (goals for individual lessons or series of lessons) and the long-term (broader purposes, philosophies and functions of education). Views as to the purposes of education vary widely. Some would argue that its long-term goal is to produce efficient workers to serve the needs of society. Others see education as being of intrinsic worth in itself. Aims and purposes tend to be implicit rather than obvious and openly enacted.

Your personal subject construct

All of the above aspects of professional knowledge for teaching are brought together in your *personal subject construct* (Banks et al., 1999), which is the version of the subject that encapsulates your values and assumptions about your subject. This construct provides the basis of your work as a teacher, your understanding of the nature of your subject and how to teach it. Think, for example, about how your political, philosophical, theoretical and religious views shape the version of your subject you wish to teach? Within subject areas specific questions may arise. What, for instance, is the role of sport in physical education? Should creationism be taught alongside evolution and the Big Bang in science lessons? And what about your wider role as a teacher, beyond your subject boundaries? What is your view of supporting language development or teaching mathematical skills as the need arises in your lessons? Such questions have a significant impact on the choices that you make as a teacher. You should ensure that the personal beliefs and subject constructs you use in the classroom do not exclude colleagues and pupils with different views.

Some of the units in this book aim to develop your *general pedagogic knowledge:* your understanding of classroom management and organisation and what makes for effective teaching and deep learning, your *knowledge of learners and their characteristics* and your *knowledge of educational contexts*. Subject-specific pedagogic issues are covered in the subject texts in the *Learning to Teach in the Secondary School* series. Task 1.1.5 asks you to consider PCK.

Task 1.1.5 Pedagogical Content Knowledge

Look closely at the forms of PCK in Table 1.1.3. Consider carefully how you could apply your knowledge in each of the categories identified by Grossman et al. (1989) to your work with pupils to make them more reflective learners and to personalise their learning experience. Record your notes in your PDP.

Managing the learning environment: a key part of your general pedagogic knowledge

An important aspect of your job is managing the learning environment of your classrooms. *Learning to manage the classroom* is similar in many ways to learning to drive. At the outset there seems so much to remember (using the clutch, brake, changing gear, watching other traffic, looking in the mirror, indicating, obeying the speed limit and so on), but after a short time such skills become part of subconscious, internalised patterns of behaviour.

Much of what experienced teachers do to manage their classes has become part of their unconscious classroom behaviour. So much so that often teachers find it hard to articulate exactly what it is they are doing or why it is successful. This situation, of course, does not help you as a student teacher. It also gives weight to the spurious notion that teachers are born rather than made and that nobody can tell you how to teach.

Some teachers may well begin teaching with certain advantages such as a 'good' voice or organisational skills. Nevertheless, there are common skills and techniques to be learned that, when combined with an awareness of and sensitivity towards the contexts within which you are teaching, enable you to manage your classes effectively. Part of the joy of teaching is that *it is a continuously creative and problem-solving activity*. Pupils and groups of pupils each have their own characteristics and group dynamics, which experienced teachers take into account when planning for teaching and learning. For example, if there has been recent controversy over environmental issues in the local area teachers could adapt their teaching to incorporate this issue, thus allowing pupils to draw on their own contextualised experiences. Although lessons with different groups may have similar content, the same lesson is virtually never delivered in the same way twice because of the variety in relationships between individuals, the whole class and the teacher.

Rogers (2002, p.5) comments:

> Day-to-day school teaching normally takes place in a rather unusual setting: a small room (for what is asked of it), often inadequate furniture and space to move, a 50-minute time slot (or less) to cover set curriculum objectives, and 25 to 30 distinct and unique personalities, some of whom may not even want to be there. Why should there not be some natural stresses and strains associated with a teacher's day-to-day role?

One of your most important roles is to bring together the various personalities of your classroom (including your own) to create from these the best possible context for learning. This requires careful thought, planning and preparation. The key to success is to minimise the element of surprise. Of course, at some point, matters always arise to which you have to react. The majority of events and issues occurring in the classroom are, however, foreseeable and can, therefore, be planned for. It is always better to be proactive than reactive.

When you plan, you should think not only of what you are going to teach and how you are going to teach it, but also of the implications of these choices. If, for example, you want your class to watch (part of) a DVD, have you checked that the equipment works and that you have located the relevant section of the DVD? If you want the class to move into groups halfway through the lesson, have you thought about the rationale for your groups, who is going to work with whom and how you are going to manage their movement? How are you going to manage the distribution of books or worksheets? Are all pupils working from books with the same page numbering? Such questions

may seem small, but failure to think about such issues can cause significant interruption and disruption to learning. Effective teachers run efficient classrooms, and efficiency maximises the potential for learning and cooperation.

Some of the important things for you to consider are:

- timing;
- seating plans;
- organisation of desks/materials/texts/etc.;
- how you plan to use Teaching Assistants (TAs) – meeting with them prior to the lesson is always advisable;
- pitch/differentiation/extension of work;
- range of activity;
- likely trouble spots (e.g. using technology, writing on the board, distributing papers, setting homework, moving pupils into groups, etc.).

Units 4.3, 5.1 and 5.3 introduce you to theories underpinning educational practice and ideas that can provide a foundation for your development as an effective teacher, whatever your subject. But what do we mean by effective teaching?

Effective teaching

Effective teaching occurs when the learning experience structured by the teacher matches the needs of each pupil and when tasks effectively build on pupils' knowledge, skills and attitudes. A key feature of effective teaching is balancing pupils' chances of success against the level of difficulty required to challenge them. The units in Chapter 5 provide further information about pupil learning. Understanding the varied ways in which learning takes place and the ways in which pupils' learning styles and preferences can be used is essential.

Classroom rights and responsibilities

It is also important to think about rights and responsibilities in the classroom, including your own. Everyone should understand clearly that rights are counterbalanced by responsibility in terms of behaviour and participation and that in the best interests of everybody, clear and appropriate sanctions will be applied to those who do not comply.

The following are useful areas to consider in relation to the rights and responsibilities of your classroom:

- *Respect*: all pupils and teachers deserve personal respect; everyone should employ respectful language; it is important to respect the views and beliefs of others.
- *Attention*: every pupil has the right to receive a fair share of teachers' attention; when invited to address the class, pupils have the right to be heard; everyone must pay full attention to the requirements of the lesson; when the teacher speaks, all must pay attention.
- *Learning/teaching*: all pupils have the right to learn; teachers have the right to teach; everyone has the responsibility of cooperating so that effective teaching and learning can take place.

- *Safety*: everyone should expect to be safe; everyone must ensure that safety is not compromised. Remember that teachers are responsible for the wellbeing and safeguarding of their pupils. Think carefully about the activities with which pupils engage; consider their risks and take appropriate steps to ensure safe practice. Some subject areas, such as science, technology or physical education carry more inherent risks, but all teachers need to take personal responsibility for ensuring safety and well-being in their lessons. Pupils should be made aware of the risks and take responsibility for acting safely.
- *Safeguarding* of children is an increasingly high-profile issue. Some of the major areas that all teachers must consider are the following:
  - child protection issues;
  - physical abuse and neglect (including female genital mutilation);
  - mental abuse (including forced marriage);
  - sexual abuse and exploitation;
  - emotional well-being;
  - e-safety;
  - accident protection and prevention;
  - drug and alcohol misuse;
  - mental health.

National Institute for Health and Care Excellence (NICE) Pathways provide useful evidence-informed information (http://pathways.nice.org.uk) on many of these topics.

Teachers must be familiar with such issues, the common signs of problems and procedures and channels for dealing with them. Each school is obliged to develop policies to support practice in these areas, and charities exist in some specialist areas.

There may well be other rights and responsibilities that you wish to establish for your classroom. Task 1.1.6 asks you to think now about what these might be and how you are going to establish and maintain them. See Unit 8.3 on your legal responsibilities.

Task 1.1.6 Classroom rights and responsibilities

Working with fellow student teachers, if possible, consider the rights and responsibilities operating in classrooms that you have observed. Draw up a list for your classes and store it in your PDP to refer to and develop as you progress through your ITE programme.

Your digital profile: what image do you want to project?

Lastly, in developing your professional code of conduct and ethical stance, we suggest you consider what your digital footprint says about you. It is important that you review how you are presented on social media to check that you are portraying the values and behaviours that will earn you the respect of your pupils, parents and carers and your peers and employers.

SUMMARY AND KEY POINTS

So, let us return to the question that is the title of this unit. Becoming a teacher: what do teachers do?

- In some countries, teachers are free to choose what they teach and how they teach.
- In others the curriculum is set centrally and teachers' choices about how to teach may be more constrained.
- Your own philosophy of teaching affects the way you approach your work and develops over time as you acquire further professional knowledge and judgement.
- As a student teacher, you test out and develop a repertoire of teaching styles and strategies. It may take you considerable time before you can apply the principles of effective teaching to your classroom practice, but you can monitor your development through regular evaluation of lessons. In this book, we aim to provide a basic introduction to what are complex areas, and it is up to you to develop systematically your professional knowledge and judgement by analysing and reflecting on your experience and wider reading.
- As a teacher you have responsibilities to your pupils, their parents and carers, your head of department, your school, your head teacher and others.
- Whatever your own subject discipline, all teachers are teachers of literacy, numeracy and ICT/digital skills.
- Being an effective teacher does not mean simply knowing your subject. It also means:
    - knowing how to teach lessons that are intellectually robust, challenging and stimulating;
    - managing the classroom effectively and fairly; assessing and monitoring pupils' progress promptly and accurately;
    - modelling in your own behaviour and practice what you expect pupils to do; planning for inclusion and the needs of individual pupils;
    - managing the rights and responsibilities of the classroom;
    - upholding school policies and procedures;
    - responding to the pastoral and personal needs of your pupils;
    - completing administrative duties;
    - contributing to the wider life of the school;
    - knowing your legal responsibilities.

As you progress through your ITE programme you develop knowledge, understanding and skills that enable you to fulfil your roles and responsibilities in all of these areas. Through your experiences in school, you should move from knowing about skills to a position where you can use them flexibly and appropriately in a range of situations. In other words, you learn to do what teachers do – the school equivalent of plate-spinning – as you balance the many demands of the wonderful job that is teaching.

Check which requirements for your ITE programme you have addressed through this unit.

Further resources

Association of American Educators (2015) *Code of Ethics for Educators*, viewed 1 July 2018, from http://www.aaeteachers.org/index.php/about-us/aae-code-of-ethics
This is an example of a code of ethics for educators. However, this site for professional educators also has a range of other resources.

GTCS (General Teaching Council for Scotland) (2015) *Code of Professionalism and Conduct*, viewed 8 June 2018, from http://www.gtcs.org.uk/standards/copac.aspx
This site has a range of resources relevant to educators as well as an ethical code for teachers and student teachers.

Mercer, N. (2015) *Thinking Together Project Materials*. University of Cambridge Faculty of Education, viewed 8 June 2018, from https://thinkingtogether.educ.cam.ac.uk/
These materials support a dialogue-based approach to the development of pupil's thinking and learning and include spoken language.

MESHGuide Research Summaries for Teachers, viewed 8 June 2018, from www.meshguides.org

Subject associations, viewed 8 June 2018, from http://www.subjectassociations.org.uk

Teachers Support Network, viewed 8 June 2018, from www.teachersupport.info
Teacher Support Network is a 24-hour confidential counselling, support and advice service. It also offers support lines in England (tel: 08000 562 561), Wales (tel: 08000 855 088) and Scotland (tel: 0800 564 2270).

Appendix 2 lists subject associations and teacher councils and Appendix 3 provides a list of websites.

Capel, S., Leask, M. and Turner, T. (eds.) (2010) *Readings for Learning to Teach in the Secondary School: A Companion to M Level Study*, Abingdon: Routledge.
This book brings together essential readings to support you in your critical engagement with key issues raised in this textbook.

Capel, S., Lawrence, J. Leask, M. and Younie, S. (eds.) (2019) *Surviving and Thriving in the Secondary School: The NQT's Essential Companion*, Abingdon: Routledge.
This book is designed to support newly qualified teachers in the next phase of development as a teacher. However, you may find it useful as it covers aspects of teaching not included in this bookwhich, nonetheless, you experience on your ITE programme.

The subject specific books in the *Learning to Teach (Subject)* series, the *Practical (Subject) Guides*, *Debates in (Subject)* and *Mentoring (Subject) Teachers* are also very useful.

Any additional resources and an editable version of any relevant tasks/tables in this unit are available on the companion website: www.routledge.com/cw/capel

Student teachers' roles and responsibilities

Susan Capel

Introduction

Schools are busy places and teachers are often required to juggle many tasks at once. Unit 1.1 provides some insight into what it is to be a teacher. This unit looks at what it is to be a student teacher in a secondary school and considers the school experience itself. We look at your relationships with both staff and pupils that form part of the busy life of schools, discuss some specific expectations of student teachers in school and offer some guidance about your roles and responsibilities. The unit then considers how your development as a professional is likely to pass through significant changes over your initial teacher education (ITE) programme.

OBJECTIVES

At the end of this unit, you should be able to:

- prepare for school experience;
- work with other staff and pupils on school experience;
- identify expectations, roles and responsibilities of student teachers in school;
- chart aspects of your development as a teacher over your ITE programme and into your future learning and development.

Check the requirements of your ITE programme to see which relate to this unit.

Preparing for school experience

Before you start any school experience, it is important to know the key players in the school and your ITE programme. Although nomenclature may differ from school to school, the terms given in the first column of Table 1.2.1 are those most used in this unit.

Table 1.2.1 The key players in your ITE programme

Key player	*Alternative names*	*Role*
Head teacher	Headmaster; headmistress; head	Carries overall responsibility for the care of pupils, the quality of teaching and learning, and many other aspects of school life.
Professional tutor	Professional coordinating tutor; professional coordinating mentor	Responsible for all student teachers in the school. Organises regular school-wide training sessions. Usually a senior member of staff.
Subject tutor	School-based mentor; class mentor; school tutor; mentor	Your first point of contact within the school. Organises your day-to-day learning in the department, timetabling, weekly meetings and so on.
Class teachers	Teachers; teaching staff	Members of staff whose classes you are given responsibility for during your time in school. Your school mentor may also be one of your class teachers.
Head of department	Head of subject; head of faculty; subject coordinator; subject lead	Responsible for running the subject department where you are placed.
University tutor	Link tutor; tutor	Responsible for your ITE programme both in school and the university. Delegates to school staff during the school experience.
Student teacher	Student; trainee teacher; trainee; beginning teacher	Yourself

It is also important to find out as much as you can about the school and its organisation, as well as the specific department you will be working with.

You can gather information about schools from inspection reports (information about how to access inspection reports and other online information about schools for England, Northern Ireland, Scotland and Wales is in the further resources; alternatively, the school may be able to lend you a copy of the school's last inspection report). Inspection reports provide you with a wealth of information about all aspects of the school as it was assessed at the time of the inspection.

Ideally, you will visit a school at least once before you start any school experience. On any visit, it is helpful to have a list of things you want to find out about the school, department and the activities in which you are going to be engaged. If you are on a university-based ITE programme, you will be given a list of information to gather and questions to ask to help you with this. Further, the inspection report should help you identify questions to discuss with staff and areas to follow up as you learn more about the school. Task 1.2.1 is an orientation activity to help you learn more about your placement school.

Task 1.2.1 Preparing for school experience

As you work through this unit, and as you read other relevant units in the book, make notes about what you need to do to prepare for, and make the most of, your school experience. Compare your notes with those of other student teachers. Store your notes in your professional development portfolio (PDP) or equivalent.

During your first visit(s), you may be introduced to the head teacher. However, you can expect to talk to the professional tutor and staff with specific areas of responsibility in the school. Every school has many policy and procedure documents, covering a wide range of subjects, for example: school uniform, equal opportunities, behaviour management, marking policy, risk management, safeguarding and e-safety and health and safety information such as the fire assembly points and how to record accidents. Commonly these are included in a staff handbook. You may be issued with a copy of this, or there may be a copy in the staffroom or school office. Your subject tutor may discuss the most relevant sections in the handbook, which you can then read in your own time after the visit. This discussion and reading of the handbook provide you with useful practical information about how the school operates and what you need to do to comply with its policies and procedures and routines. The staff handbook may also include a diagram showing the school's management structure and lines of accountability.

You can also expect to talk to the head of department or faculty, your subject tutor and others in your subject department about the curriculum, schemes of work and your teaching timetable. These discussions are likely to include specific aspects of teaching in the department, for example: safety issues, organisation of equipment and pupils, lesson plans, homework routines, and access to texts and resources, including information and communications technology (ICT)/digital technology. Some of this information may be in a departmental handbook.

On your visits (and later when you start in school), it is important to be aware of staffroom protocols. Some staffrooms are like lounges where teachers can relax and chat safely away from work and pupils during break and lunchtimes. Others have an additional function as a workroom (with or without allocated workspaces) where teachers can do marking and lesson preparation during their free periods. There are still some schools where the same staff have sat in the same chairs for 10, 20 or even 30 years! Colleagues may have brought in their own mugs for tea/coffee. There may or may not be a 'tea/coffee club'. Likewise, if you are planning to drive to school, check out the parking facilities and conventions; there may be reserved spots for some staff. If you check these things, you avoid upsetting the permanent members of staff.

Such visits also enable you to familiarise yourself with the geography of the building. This is particularly important if you are going to teach in a large school, perhaps with several different blocks or operating on more than one site. Secondary schools vary immensely not just in size, but also in physical features, ranging from the small rural or special school with under 100 pupils to the very large school with 1,000–2,000 pupils. Some schools are modern, or comparatively modern, while others are old, dating back to the 1880s, or even earlier. Each type of building has advantages and disadvantages. Whichever type of school you are in, it is important that you locate important facilities, such as the office, lavatories and the staffroom, before you start. The last thing you need to do on your first day is to get lost! Now complete Task 1.2.2.

Task 1.2.2 Visiting a school prior to school experience

Make a list of information you want to gather about a school and school experience and any observations you would like to undertake on a visit to the school prior to starting a school experience. Compare your list with that of another student teacher and, if you are given a list by your ITE provider, check it against that. Keep the list in your PDP and refer to it when you undertake a visit prior to school experience or as a starting guide for a visit prior to starting a job.

During school experience: work with other staff and pupils in school

Despite the fact that teaching involves spending large amounts of time away from colleagues and working autonomously or just with a teaching assistant, you need to be a team player as you still work closely with other staff. Taking on the role of a teacher as a student teacher means forging and managing professional relationships with adults, as well as pupils. During your initial days in school, you introduce yourself to staff you did not meet on visits prior to school experience, including teaching and support staff in your subject department and key personnel outside the department such as the head teacher, deputies/assistant heads, heads of Key Stage, heads of year and the special educational needs coordinator (SENCO). In addition, you start to build a working relationship with school staff who are supporting you and observing your teaching. Try to make a good first impression on all these people. Figure 1.2.1 suggests some perceived attributes that help convey a positive image of a professional and well-prepared student teacher.

In the next section, advice is presented with regard to developing and managing relationships with specific members of staff who play significant roles in your school experience. Relationships with pupils are also considered.

Relationship with your professional tutor

It is worth remembering that the professional tutor is a key element in your ITE programme, with oversight and management of all student teachers within the school and liaison with your university tutor, if appropriate. You may see the professional tutor in a formal context only once or twice a week, but they are normally a senior member of school staff. They may organise sessions on general school issues. Likewise, you should be able to seek their advice on general school issues, if needed. They expect you to learn school routines, practices and procedures, including rewards/sanctions, and to follow these. They also expect you to engage actively with the school-based programme they have put in place for student teachers.

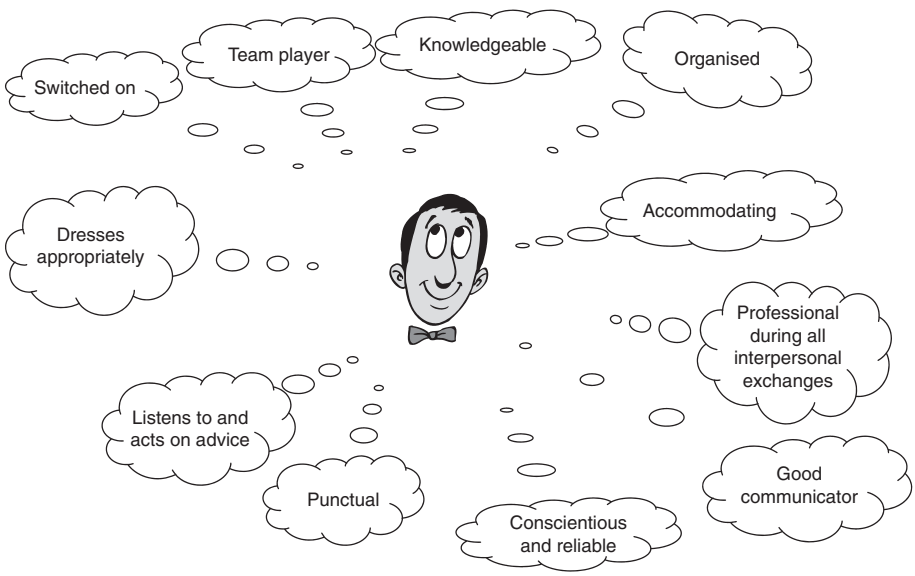


Figure 1.2.1 Setting out to create a positive image

Relationship with your subject tutor

In the early stages of learning to teach, your subject tutor is an important person (they are often called a mentor). See Unit 8.4 for more about working with your mentor (both as a student teacher and a newly qualified teacher). Your tutor supports your developing practice. As part of this, they observe you teaching and write reports on these observations. Your tutor is responsible for giving you a pass/fail or quantitative grade for your school experience, using these observations and the observations of other staff who have observed you teaching. There are a number of aspects of the relationship that you should consider.

There are likely to be agreed structures for your tutor to give you support, advice and guidance, for example written feedback on one or more lessons each week and a weekly tutorial meeting. For other activities (for example, jointly preparing lessons or approval of lesson plans by your tutor, seeking advice on planning and preparation for lessons or on aspects of teaching with which you are less familiar, completing the required paperwork for your ITE programme, and keeping records of pupil attendance, classwork and homework), you should be clear about what your tutor expects of you and then do what is expected.

You should arrange regular meetings and clarify the purpose of those meetings, so that you are fully prepared for them. Your tutor is an experienced teacher from whom you can learn a lot. Do not think you know it all already and either do not seek advice or ignore your tutor's advice. Do not be afraid to ask for advice if you are not sure about anything, but check when is a convenient time – so that you know when to ask and when is inconvenient.

Also check with your tutor about your status with support staff, such as technical staff and office staff. In some schools, you approach them yourself; in others, you do so via your tutor. Likewise, discuss with your tutor your attendance at school and departmental staff meetings.

Your attendance and punctuality at school (and at lessons when in school) is important. Schools have specific procedures if you find that you are too ill to attend school on any day. Follow that procedure and try to contact your tutor directly by phone/text message; otherwise, speak with the school office staff. Likewise, there are procedures if you are not going to be in school for an important reason (for example, an interview). Let your tutor know of any foreseen absences well in advance. If your ITE programme is in conjunction with a university, you are also required to contact them on the day of absence.

The tutor–student teacher relationship is vital to your success and it is worthwhile taking steps to ensure this remains cordial. However, from time to time, problems do occur. This is often associated with friction generated when a student teacher fails to seek or to act on a tutor's advice. If your relationship with your subject tutor breaks down, you need to contact your university tutor, professional tutor or senior staff member immediately and seek further advice. It is important to be aware that any breakdown in the relationship that ends in a student teacher leaving a placement may subsequently result in failure of the ITE programme.

Relationships with class teachers

You spend the bulk of your time in school in the company of the teachers whose classes you are teaching, so it is important to establish good working relations with them. Remember that they are going to have to teach the class again after you leave, so discuss with them what they want you to do. Some teachers want you to follow their routines, practices and procedures; others allow you to

experiment with what is best for you. Plan your lessons well in advance of when they are going to be taught to allow time for any planning meetings with, or checking by, the class teacher and any further planning or adjustment to take place. Collate resources well in advance, especially photocopying, be flexible and prepared to change lesson plans at short notice in the light of unexpected events. Avoid a situation where you are chasing a class teacher 10 minutes before the start of a lesson for an important resource or piece of information. Arrive early before a lesson. Keep teachers fully informed of any new approaches you are taking in your teaching and events that take place with their classes, particularly behavioural issues that need following up.

Relationships with pupils and avoiding difficult association

Your main task as a student teacher is to ensure the pupils in your classes learn. This is most effective when you are able to treat each pupil as an individual. Learning pupils' names is a good first step, as is getting to know something about their interests (learning pupils' names is covered in Unit 2.3). It is important to greet pupils at the beginning of the lesson; this is most easily achieved by standing by the door as the pupils enter.

You also need to gain the respect of the pupils you are teaching. This is not usually automatic; it requires a proactive approach. A general guideline is that if you treat pupils with respect, the feeling is reciprocated (although some pupils may not necessarily respond in this way). For instance, you should be polite when dealing with pupils, and ensure they are polite back to you. At the same time, you should clearly define the boundaries of behaviour. Pupils are sensitive to actions they perceive as being unfair; for example, if one person has been talking, it is unfair to keep the whole class in for a detention.

Make sure you understand the material you are teaching and have planned and prepared your lesson and your resources. Do not be afraid to admit it if you are asked a question to which you do not know the answer, provided you follow it up in a later lesson.

Planning and preparation are essential for learning and to motivate pupils to learn (see planning in Unit 2.2 and motivation in Unit 3.2). During a lesson, you need to keep pupils on task. Encouragement is one effective means of keeping pupils on task in your lesson. To be effective, your approach needs to be tailored to each individual. However, this is difficult early in your school experience when you have little knowledge of individual pupils.

Well-planned lessons support your approach to behaviour for learning (see Unit 3.3). Despite this, you may encounter some behavioural issues in the class; therefore, you should also be clear about how you are going to deal with any poor behaviour, in line with school behaviour policies. In order to deal with poor behaviour, never be drawn into a public confrontation with a pupil because you may lose your authority, which is difficult to recoup later. In any case, you do need to think of the effect on the rest of the class, and also on what the rest of the class is doing when a confrontation is going on. Simply saying 'I will see you later' allows you to choose the time and place to follow up. This enables you to maintain a working relationship with the particular pupil after the event.

Physical contact with pupils should be avoided unless there is an immediate health and safety concern, or is a requirement in a practical lesson, for example supporting a pupil in physical education (see also Unit 8.3). It is unlikely that you will be called on to make decisions in contexts where physical restraint is necessary because the supervising class teacher should be available on the very rare occasion when restraint is the pertinent action. Likewise, any contact with parents/carers in reaction to classroom events, both positive as well as negative, should be undertaken in conjunction with the class teacher. Further, more specific advice on encouraging behaviour to maximise learning is found in Unit 3.3.

A particularly important point to remember is to keep a professional distance in your relationships with pupils. It is easy with some classes to become over-friendly; this is especially the case during the first phase of development (see student teacher development below). To be the target of an adolescent 'crush' is not unusual for young student teachers, and, if this is the case, maintaining an appropriate professional distance is imperative while nurturing mutual respect and good working relationships. In a similar vein, if you are alone in a room with any pupil (or parent), it is good practice to seek the presence of another member of staff or to leave the door wide open. Similarly, you should avoid texting or emailing pupils, or communicating with them via social networking websites (Unit 8.1 looks at your online professional identity). False allegations are uncommon but remain a threat. Task 1.2.3 presents some scenarios you might have to deal with.

Task 1.2.3 Relationships with pupils

Consider your responses to the following events:

- there is a struggle between two pupils in the corridor;
- you observe a pupil going through another pupil's bag/locker.

Discuss your responses with your tutor or another student teacher and record your reflections in your PDP. Identify other scenarios to discuss (these may be real events that have taken place in school).

Expectations, roles and responsibilities on school experience

The main expectation of you as a student teacher is that you promote pupils' learning. To achieve this, there is a range of *structured teaching activities* you are likely to engage in. These include:

- microteaching: a short teaching episode where you teach peers or small groups of pupils. It might be video recorded to enable analysis of different aspects of teaching;
- observation of experienced teachers: where you look at specific aspects of teaching in a lesson; for example, how teachers use questions to promote learning (see Unit 3.1);
- team-teaching: where you share the lesson with others; planning, teaching the lesson and evaluating together;
- whole-class teaching with the class teacher present;
- whole-class teaching on your own (as a student teacher, you should always have an experienced teacher nearby).

You should be given feedback on your planning and teaching in each of these situations to enhance your own learning. In practice, there are likely to be agreed conventions governing this aspect of your work. These take into account how you are to achieve the requirements to complete your ITE programme successfully. Further, the amount of feedback you get from teachers observing your lessons varies. However, student teachers also have preferences. If you wish to have feedback on every lesson, ask if this can be done. Some student teachers prefer a small amount of very

focused feedback; others can cope with more – a page or more of written comments. Written feedback is essential because it provides a record of your progress and ideas for your development.

Comments on your teaching divide into those relating to tangible technical issues that you can work on relatively easily and those relating to less tangible issues relating to pupils' learning. Technical problems, such as the quality and clarity of your voice, how you position yourself in the classroom, managing transitions from one activity to another, your use of digital technologies and/or audio-visual aids, are easy to spot, so you may receive considerable advice on these issues. Problems with these aspects of your work are usually resolved early in your ITE programme. On the other hand, less tangible issues that are directly related to the quality of pupil learning require ongoing reflection, attention and discussion; these might include your approach to the explanation of lesson content, your style of questioning and your evaluation of pupil learning. You may have access to videos of yourself teaching, in which case you are advised to spend some time in the detailed analysis of your performance in these different aspects of teaching. More detailed advice related to the teaching of your specific subject is given in the subject-specific texts in the *Learning to Teach [Subjects] in the Secondary School* series that accompany this generic text (see list on page ii).

Expectations relating to your social skills in developing relationships with staff and pupils and of your teaching are summarised in Table 1.2.2. Next, complete Task 1.2.4.

Task 1.2.4 Meeting expectations, roles and responsibilities on school experience

Using Table 1.2.2 as a checklist (to which you can also add any other information on expectations, roles and responsibilities on school experience), identify areas for development. Then identify activities you are going to undertake to develop in the identified areas. Discuss with your tutor the support they can provide. Store the list in your PDP and update as you work on different areas for development.

Thus, your main roles and responsibilities relate to teaching particular classes. Teachers have other roles and responsibilities such as planning the curriculum and liaising with outside agencies, but these are not usually undertaken by student teachers. You become involved in the wider roles and responsibilities of teachers after completing your ITE programme. This is part of your development as a professional (see also Units 8.2; 8.4).

Becoming a member of the teaching profession

The roles and responsibilities of teachers, including student teachers, are underpinned by the concept of *professionalism* (see Unit 8.4). Becoming *a member of the teaching profession* means that you:

- *reach an acceptable level of competence and skill* in your teaching by the end of your ITE programme. This includes acquiring knowledge and skills that enable you to become an effective teacher and that enable you to understand the body of knowledge about how young people learn and how teachers can teach most effectively;

Table 1.2.2 Schools expectations of student teachers

(i) Social skills

You are expected to:

- develop a good relationship with staff and pupils;
- be able to communicate with adults as well as pupils;
- work well in teams;
- learn to defuse difficult situations;
- keep a sense of humour.

(ii) Planning, teaching and evaluating lessons

You are expected to:

- be well organised;
- know your subject;
- plan and prepare thoroughly. Be conscientious in finding out what lesson content is appropriate to the class you are teaching. For some classes you may be teaching material that is new to you or that you last thought about many years ago. You must know the subject matter you are teaching and you are expected to improve your own subject content knowledge. However, you are also expected to ask if you are unsure about the content for a particular lesson;
- share your plans with the class teacher, explaining why you want to do things the way you plan. Discuss any new/different teaching strategies or innovations in your teaching. Evaluate these carefully afterwards;
- before the day on which you are teaching the lesson check: the availability of books and equipment; test out equipment new to you; talk to staff about the work and pupils' progress; and clarify any safety issues;
- arrive in plenty of time for a lesson in order to arrange the classroom and lay out any equipment or books needed;
- during the lesson learn names of pupils, focus on and assess any learning that is taking place and ensure that good behaviour is maintained during your teaching;
- evaluate the lesson;
- keep good records: have your file of schemes/units of work and lesson plans, pupil attendance and homework up to date. Your evaluations of your lessons are best completed on the same day as the lesson, although sometimes you might want to add to this after you have marked pupils' work.

- *continuously develop your professional knowledge and professional judgement* through experience, further learning and reflection on your work;
- *are publicly accountable for your work*. Various members of the community have the right to inspect and/or question your work: the head teacher, governors, parents and inspectors. You have a professional duty to plan and keep records of your work and that of the pupils. This accountability includes implementation of school policies such as on behaviour and equal opportunities;
- *set personal standards and conform to external standards* for monitoring and improving your work.

Professionalism and developing your professional judgement are considered in Unit 8.4.

It is important to consider the process you go through to become a qualified member of the teaching profession. We do this next.

A model of student teacher development

The aim of your ITE programme is to facilitate your transformation from a student teacher to a competent professional. Plainly, this change is not instantaneous; instead, it proceeds in increments, with each little piece of experience contributing to your development. Your perception of yourself as a teacher alters as different aspects become the focus of concern at different points during your ITE programme (teacher identity is considered in Unit 8.4). A major change for you might be assuming the role of the teacher after being a learner such as in a university course. You become one of them (teachers) instead of being one of us (learners). This role reversal requires significant behaviour modifications by you. Observing other teachers to see how they act in and out of the classroom helps you through these phases of development.

Various models of student teacher development have been identified. For example, Fuller and Brown (1975) described three phases of development: self-concerns, tasks concerns and impact concerns. The three phases identified by Leask and Moorehouse (2005), based on the body of previous work, are in Table 1.2.3.

Thus, your self-perceived role shifts from focusing on yourself to focusing on the whole class, then finally to teaching individual pupils. The model (see Table 1.2.4) does *not* assume that everyone passes through a predetermined, invariable linear process during their ITE programme because individual and contextual aspects (such as the school environment) differ in many respects.

That said, research (for example, Fuller and Brown, 1975; Calderhead and Shorrock, 1997) has suggested that student teachers have common foci for their concerns at different times during their development. Remember, your primary role as expected by a prospective employer is to *teach the curriculum*, with the aspiration being that every pupil in the class achieves the learning outcomes for each of your lessons, over and above any informal pastoral role you may envisage for yourself. Attainment of the final mature stage in Table 1.2.4, with its emphasis on individual pupil learning and the successful achievement of learning outcomes by all pupils, is the aim. You need to start focusing on this third phase right at the start of your school experience; however, you may not reach this completely until after you complete your ITE programme.

Other units in this book cover specific issues described in the model in Table 1.2.4. Timing of the phases is difficult to predict because some student teachers progress more quickly than others during their ITE programme, and because of individual and contextual differences (see above). The three phases may span a single school experience or the whole ITE programme; in some cases,

Table 1.2.3 Phases of student teacher development

Self	*Class*	*Pupil*
Self-image and class management	Whole-class learning	Individual pupils' learning
How do I come across?	Are the pupils learning?	What are the different needs of my pupils?
Will they do what I want?	What are the learning outcomes?	How effective are my strategies for ensuring all pupils learn?
Can I plan enough material to last a lesson?	Am I achieving my objectives?	How can I find out?
	How do I know?	

Table 1.2.4 A model of student teacher progression

Phase 1: idealism and insecurity	*Phase 2: getting on top*	*Phase 3: stability and further progression*
■ Desire to portray a caring image ■ Disorientation ■ Feelings of being unable to cope	■ Anxiety about failing ■ Realisation of personal areas for development ■ Drive to impress others brings steady improvements in performance	■ Limited success brings a period of stability and satisfaction ■ Desire to improve wanes ■ External intervention often required to develop further ■ Mature stage involves ensuring learning outcomes have been achieved by *all* pupils

phase 1 occurs at the start of the first school experience, with phase 2 being experienced after a couple of weeks, and with some aspects of phase 3 appearing right at the end. At the start of the second school experience, there may then be a repeat of this process, only the first two phases are shorter. It is important to note that some student teachers who have had difficult and problematic school experiences emerge, after a number of years of qualified experience, as among the best teachers in their schools. Each of these phases is described below.

Phase 1: idealism and insecurity – focusing on yourself/self-development

You may begin your first school experience holding certain idealistic views about your role as teacher, partly based on your own memories of school when you were a pupil. Some student teachers first adopt an empathetic self-image, wanting to create a caring persona, being 'there' for the pupils and hence identifying with the pupils more than the class teacher did, and being popular. You may want to avoid becoming too strict or scary, not wanting pin-drop silence in your classroom, but instead a good-humoured, industrious buzz, so avoiding an atmosphere that negatively affects pupils' emotions. The most important factor determining success is your relationships with pupils. If this can be arranged satisfactorily, you may feel accomplishment in other areas will follow naturally, without a great deal of further effort.

Once you begin your first school experience, these idealistic views may begin to evaporate in the face of immediate issues presented to you. You switch to a more pragmatic stance based on survival, triggered particularly by an urgent need to establish classroom control. You have not yet constructed adequate concepts regarding the boundaries of important features of the modern classroom environment. For instance, when first left alone with a class, you are unclear about whether a particular pupil behaviour such as chatting during written work needs challenging. On top of this, because of the directly challenging nature of some pupils' behaviour, your self-image suffers a blow and there may be insecurity about whether, if you were to challenge behaviours, the pupils would merely ignore you and carry on. Both of these feelings conspire to make you feel reluctant to assert your authority, and student teachers sometimes attempt to justify a failure to challenge poor behaviour by saying they would rather not interrupt the flow of the lesson, or insisting they must keep rigorously to the lesson plan. Pupils actively test your knowledge of these boundaries, as well as your willingness to act on them, and you begin to realise that to be seen as a caring friend and equal by the pupils is not appropriate to a working relationship, and unworkable in practice. Planning issues can also be a cause of anxiety, such as do you have enough work to last the whole lesson, or what if they ask difficult questions?

Thus, the first couple of weeks of school are likely to be a time of insecurity with respect to self-image and readjustment of some prior idealistic notions, and you will at times feel out of your depth and run off your feet. You may have previously felt comfortable handling small groups or one-to-one situations, but whole-class teaching brings fresh and sometimes seemingly insurmountable problems; fortunately, for most student teachers, these feelings are transient.

Phase 2: getting on top – focusing on whole-class learning

An inability to appreciate the limits of certain classroom elements during the first couple of weeks starts to give way in light of your experiences to clearly delineated boundaries of what is judged 'acceptable'. You begin to realise exactly what constitutes, for example, a tolerable level of noise, pupil movement around the classroom and what level to pitch your lessons at. Having said that, realising the boundaries does not mean you can yet find strategies that successfully address every one of these issues. You feel pressure to put on a 'good show' for the significant players in your own assessment as a student teacher, your class teacher, school subject tutor and professional and university tutors, and work hard on your creative planning, delivery and especially your behaviour management, in order to foster these relationships. You are concerned about 'passing your ITE programme', and so do not wish to upset others by, for instance, having a teacher come into your class and complain about the noise. In order to appear to be a competent teacher, you may begin to mimic the behaviours of competent teachers around you or those who taught you in school (for example, their class management routines, personal mannerisms and stock phrases), sometimes unconsciously; although, you may not necessarily fully understand the reasons behind those behaviours.

As a consequence of your hard work in addressing these issues, you begin to experience some successes. The pupils behave better (although perhaps not consistently so), which increases your confidence. Getting to grips with managing behaviour allows you to think more about whether the pupils are achieving learning outcomes, and you begin to adjust your lesson content in the light of this knowledge, although you may avoid differentiating work for individuals. For most student teachers, these successes are inconsistent and largely unpredictable, and some blame may be displaced onto factors beyond your control, such as room arrangement, a lack of resources or a need to fit in with the school's established procedures.

This phase is typified by steady improvements in classroom performance as a result of realising the nature of issues at hand, as well as determining successful strategies to address them. You start to think more about your autonomy as a teacher, about things you would like to do differently, although these desires are tempered by the need to fit in with the clear expectations of your school and tutors.

During the last weeks of your final school experience, there is usually a period of stability. Tried and-tested methods have brought with them hard-won success for you, albeit not consistently, and so your feeling is why fix what isn't broken? Because of this, you may relax or 'cruise' and spend less time on planning and evaluations; you may feel you have 'got there', and will comfortably pass your ITE programme. You are less anxious about managing behaviour, and let slide pupil misbehaviours that you previously might have challenged. However, teaching remains largely at a shallow level. In fact, many student teachers share a common idea that if pupils have enjoyed a lesson, this shows it was successful. Likewise, they might think that because they taught something, pupils have learned it. There is no real effort to ensure *all* pupils are achieving the learning outcomes and there is little differentiation of work for individual pupils. These learning outcomes reflect an epistemology of

the transmission of concrete knowledge, with an avoidance of the more abstract ideas, because you judge simple facts to be the material that pupils understand most easily and so can be taught without difficulty. You begin to feel more like a teacher, and believe you outwardly display attributes of a competent professional, although some of these behaviours are merely mimicry, with no real understanding of the professional knowledge that lies behind them.

In order to move on from this phase and progress towards becoming a more effective professional, concerted efforts are necessary, often requiring the intervention of others, such as class teachers or tutors. First, as a student teacher at this phase of your development you may not be aware that further improvements are indeed necessary or even possible, so the first step involves attention being brought to the specific areas where competence could be further advanced. For some, the realisation that there is more to learn about teaching comes as a disappointment after gaining a modicum of proficiency. Critical self-analysis of your own teaching informs these areas for development, and it is vital that *you* recognise the need to make the effort to move on.

You may also realise already that certain aspects of your teaching could be further developed, but your ability to progress is hampered by classroom management issues; for instance, you avoid practical activities, or you do not feel confident enough to experiment with innovative pedagogies. If this is the case, advice from other members of staff will prove invaluable in moving you on to higher levels of achievement.

Phase 3: stability and further progression – focusing on individual pupils' learning

The greatest challenge in order to move on lies in ensuring that each and every member of the class has accessed the learning outcomes. Currently, in English state-maintained schools, the view is one of inclusion of all pupils in the learning process. The purpose of lessons needs to swing towards the needs of individual pupils (away from your early focus on you as a student teacher or even the whole class), with content focused on learning. The first step is determining the extent to which pupils have learned during your lessons. This may be indicated by an effective plenary, end-of-topic test, or more formative types of assessment, all of which need to be referenced in your lesson evaluations. Further steps are covered in the units in Chapter 6.

Task 1.2.5 is designed for you to reflect on the phases of development as a teacher.

Task 1.2.5 Phases of student teacher development

Consider the three phases of student teacher development above: self, class and individual pupil. Reflect on your strengths and areas for development on each of these. Describe possible strategies for making progress in each of these three phases in the context of the following three areas:

- classroom management and focusing on individuals;
- assessment;
- subject content knowledge.

Discuss your views with another student teacher. As you progress through your ITE programme, record in your PDP what strategies you have used and how they have worked, as well as your progress on the three phases of development.

SUMMARY AND KEY POINTS

This unit has touched on your multiple, changing roles and responsibilities as a student teacher. We hope that it has given you a better understanding of:

- the preparation you need to do prior to school experience;
- what you need to do during school experience, focusing particularly on developing positive working relationships with other staff, including your tutors and class teachers, and with pupils;
- the expectations of you, your roles and responsibilities in school.

The unit has also looked at a model of student teacher development over your ITE programme and beyond. As a result, we hope this has given you a better understanding of your development as a teacher.

Check which requirements for your ITE programme you have addressed through this unit.

Further resources

Brindley, S. (series editor) ***Masterclass Series*****, published by Bloomsbury, viewed 1 July 2018, from https://www.bloomsbury.com/uk/series/masterclass/**

This series takes a practical approach to teaching and learning in different subjects to extend your understanding to enable you to develop effective classroom practice.

Cohen, L., Manion, L., Morrison, K. and Wyse, D. (2010) ***A Guide to Teaching Practice*****, 5th Edition, Abingdon: Routledge.**

This text covers the important basic skills and issues you need to consider during your school experience, such as planning, classroom organisation, behaviour management and assessment.

Further information about education in the four countries of the UK can be obtained from the websites below. Also see Units 7.3 to 7.6 on the companion website www.routledge.com/cw/capel

England: Department for Education: www.education.gov.uk/

Northern Ireland: the Department of Education Northern Ireland: www.deni.gov.uk/

Scotland: the Scottish Government: http://www.gov.scot/Topics/Statistics/Browse/School-Education

Wales: the Welsh Government: http://wales.gov.uk/topics/educationandskills/?lang=en

School inspection reports in the four countries in the UK can be obtained from:

England: The Office for Standards in Education, Children's Services and Skills (Ofsted): https://www.gov.uk/government/organisations/ofsted

Northern Ireland: The Education and Training Inspectorate Northern Ireland: https://www.etini.gov.uk

Scotland: Education Scotland: https://education.gov.scot

Wales: Estyn (the Office of Her Majesty's Inspectorate for Education and Training in Wales): https://www.estyn.gov.wales/language

To keep up to date, we recommend you join your subject association. A list can be found on the website of the Council for Subject Associations: http://www.subjectassociation.org.uk/members_links.aspx.

Appendix 2 lists subject associations and teacher councils and Appendix 3 provides a list of websites.

Capel, S., Leask, M. and Turner, T. (eds.) (2010) ***Readings for Learning to Teach in the Secondary School: A Companion to M Level Study*****, Abingdon: Routledge.**

This book brings together essential readings to support you in your critical engagement with key issues raised in this textbook.

Capel, S., Lawrence, J. Leask, M. and Younie, S. (eds.) (2019) *Surviving and Thriving in the Secondary School: The NQT's Essential Companion*, Abingdon: Routledge.
This book is designed to support newly qualified teachers in the next phase of development as a teacher. However, you may find it useful as it covers aspects of teaching not included in this book which, nonetheless, you experience on your ITE programme.

The subject specific books in the *Learning to Teach (Subject)* series, the *Practical (Subject) Guides, Debates in (Subject)* and *Mentoring (Subject) Teachers* are also very useful.

Any additional resources and an editable version of any relevant tasks/tables in this unit are available on the companion website: www.routledge.com/cw/capel

Developing your resilience

Managing stress, workload and time

Madeleine Findon and Sue Johnston-Wilder

Introduction

Teaching is rewarding, exciting, challenging, demanding and pressured. The latest results from the Teaching and Learning International Survey (The Organisation for Economic Co-operation and Development (OECD), 2013a) showed that over 90% of teachers around the world were satisfied with their job and their performance. Studies over time have also consistently reported that between one-quarter and one-third of teachers report being very or extremely stressed as a result of factors intrinsic to their work (e.g. Mills, 1995; Chaplain, 2008). Proponents of positive psychology suggest when you meet pressure with resilience, you thrive (e.g. Seligman, 2003). However, when the pressure increases beyond your current level of resilience, life becomes stressful, and stress not managed well can cause mental and physical harm. More recently, the Big Question survey carried out by NASUWT (2016) gathered data from over 12,000 teachers in England and found that 85% of respondents experienced their work having negative impacts upon their well-being. In becoming a teacher, you face one of the biggest challenges of your life, perhaps exceeding your existing levels of resilience. The good news is that resilience can be developed; in this unit, we start by considering how to develop personal resilience and how to help you ensure your school promotes resilience.

Throughout the unit, we use analogies of physical endurance activities. While such activities may not be something you would ordinarily choose to do, the motivation, preparation and pacing required to achieve the ultimate goal have many parallels with the teaching challenge. What is needed are: stages of preparation; self-knowledge; taking on fuel before/during the activity; connecting with the community for expertise, assistance and motivation; taking rests, and diligently watching for any warning signs that trouble is building so you can take action: longer breaks or seeking support. You may not be ready to complete an endurance activity yet. However, with the right coaching, training, preparation, support and safeguarding from injury, most people are capable of improving performance and are able to convey themselves further than they might currently imagine.

Like running marathons, teaching can use up inordinate amounts of time and energy, inside and outside the classroom and outside the school day. School days are usually very busy with no time to breathe deeply or eat and drink properly. In order to manage personal well-being, and to preserve time for yourself and your supportive friends or family, you need to use your time and energy

effectively. We advise you plan to have at least one day and one evening a week free from school work even during term time, for proper rest.

We encourage you to reflect regularly upon your practice and become aware of available resources, for example, existing lesson plans, homework instructions and resources on the school's intranet or virtual learning environment. Your subject association also provides access to quality assured resources and opportunities for networking. Likewise, you are advised to see yourself as part of a team. The concept of teacher leadership is growing in popularity, a role which can seem quite daunting to a newly qualified teacher: being a teacher leader includes practices such as sharing resources and expertise, being a catalyst for change and committing to life-long learning (Harrison and Killion, 2007). Such actions are well within your capability; being proactive in these areas can help you to develop your skills and promote a healthy work environment.

The unit looks at how you can build your resilience as a teacher, how you can manage stress, workload and time proactively to preserve your well-being, optimise your effectiveness, avoid harm associated with stress or overdoing things, and contribute to an environment that benefits all participants in the school community. In this unit, we distinguish between 'pressure' as a source of motivation, as in 'I work well under pressure', and 'stress' as in 'I feel stressed and not coping so well', indicating pressure is potentially building and becoming harmful over time. Our bodies and minds generally function well under pressure and short bursts of stress, but they are not able to sustain long periods of stress without harm (Siegel, 2010) – much as physical exertion can build our strength and fitness, but too much physical exertion can cause us illness and injury.

OBJECTIVES

At the end of this unit you should know how to develop your resilience as a teacher by:

- identifying when you are stressed;
- identifying factors that may cause you stress;
- developing methods of managing stress proactively;
- developing ways to manage your time and workload effectively.

Check the requirements of your initial teacher education (ITE) programme to see which relate to this unit.

What is resilience?

Resilience can be thought of as positive adaptation in the face of adversity, not a personality trait, but a phenomenon that can be encouraged or restricted by a range of internal and external factors (Luthar, 2006). Resilience is often associated with children – in fact, you are probably already familiar with schemes that aim to promote 'growth mindset' or 'grit' in the pupils you teach. However, more recent research has begun to look at resilience in adults, crossing over with newer fields such as positive psychology that are concerned with adult well-being (Luthar, 2006).

Seligman (2003) described resilience as a combination of: confidence (to start a task), persistence (to keep going when things get tough) and perseverance (to recognise when to recruit support and seek alternative approaches). It is important that you build up your resilience, as more resilient teachers are better able to manage the pressures of teaching. Such teachers see periods of when pressure builds up too high as times to proactively manage stress rather than simply having to passively cope with it. The next section looks at building your resilience.

Building your resilience

Resilience is what sustains and enables teachers to thrive rather than just survive under challenge and pressure (see, for example, Kitching et al., 2009). It might be thought of as mental 'fitness'. Resilience can be developed in times of challenge or adversity, where there is appropriate autonomy and support (Masten, 2014). In considering how resilience is built, it is helpful to consider the connection between existing experiences and the ways we deal with new ones, just as prior involvement in sporting activity can equip us with the strength and co-ordination for new challenges. It is helpful to use a framework known as the growth zone model (Johnston-Wilder and Lee, 2008) (see Figure 1.3.1), initially developed by exploring the research around growth mindset, agency, support and inclusion in the context of maths anxiety and avoidance, but found useful in managing other stressful situations.

This model depicts three 'zones' or ways in which an individual experiences and deals with situations, using a psychosocial model of perceived risk. The comfort zone is characterised by feeling safe and confident, being able to use existing knowledge to good effect and not experiencing stress – like an easy run that is well within an individual's capabilities. Conversely, the danger zone is experienced as a place of danger, stress and lack of security. In this zone a 'fight, flight or freeze' reaction may be experienced: perhaps battling against (rather than engaging with) the scenario, fleeing or experiencing an inability to react cogently. Danger zone reactions occur because the primitive part of the brain reacts to physical and social threat (such as being embarrassed or excluded); the amygdala ('the alarm system') triggers the release of chemicals such as adrenaline and cortisol; this is useful for reacting to physical danger but not amenable to pre-frontal cortex activity (Siegel, 2010) such as thinking clearly.

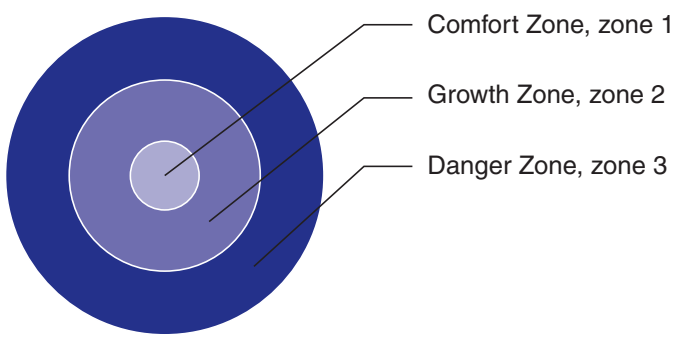


Figure 1.3.1 Growth Zone Model: Johnston-Wilder and Lee (2008)

The zone that lies between these two areas is where optimal growth can be experienced (see also Zaretskii, 2009). There is enough challenge to learn and develop one's skills, including managed risks, meaning mistakes can be learned from. For the would-be athlete, this is where physical limits are stretched under the watchful eye of the coach and team-mates. In becoming a resilient teacher, being in the growth zone is optimised by the support of being part of a learning community, encouraging questioning and exploring strategies, thus helping to mitigate feelings of threat that can prevent healthy engagement. Being in a new school and unsure of the people around you can mean accessing such support is difficult; however, taking the initiative to develop co-operative networks, such as with Harrison and Killion's (2007) teacher leaders, will help you and others to thrive and be resilient under pressure, rather than be harmed by stress.

The most helpful attributes and skills to promote resilience include: altruistic motives, strong intrinsic motivation for teaching, high self-efficacy, feeling confident and competent, having coping strategies, taking credit for and drawing sustenance from accomplishments, collegial support, and learning from mistakes (Ryan and Deci, 2000a; Bandura, 2006; Hinds et al., 2015; Johnson et al., 2016). It is important to note that none of these are present in finite quantities; all can be acquired and developed to an extent, whether through specific strategies or positive environmental conditions. On the other hand, there are certain personal risk factors that include: inability to ask for help (Fantilli and McDougall, 2009; Jenkins et al., 2009), a perceived conflict between personal beliefs and practices being used in school (McCormack and Gore, 2008) and personal challenges or difficulties such as negative self-beliefs or confidence (Kitching et al., 2009), emotional avoidance (Hinds et al., 2015), difficult interpersonal interactions (Burke et al., 1996) and not noticing you have moved into your danger zone.

Day et al. (2011), among others, identified ways to build resilience both in ITE and early in a teaching career, and to stay in your growth zone, which include:

- a formal mentoring programme and collegial support provided in the workplace;
- establishing a mutually respectful, supportive relationship with your tutor, with open, honest, yet sensitive communication that challenges you;
- understanding your role and responsibilities and establishing realistic expectations of your tutor;
- working together with your tutor to improve teaching and learning;
- devising challenging targets for development that also recognise success;
- recognising the challenges in learning to teach and the reasons for these, and establishing a collaborative rather than individualistic approach to seeking solutions;
- developing a reciprocal, mutually supportive, trusting network of peers and colleagues;
- improving self-evaluation of your teaching, e.g. through use of video analysis of teaching or feedback from pupils;
- critiquing your own beliefs, values and practice;
- developing social skills, assertiveness, self-regulation and empathy (Tait, 2008);
- having autonomy and control over key aspects of your work;
- valuing your own well-being.

Naturally, not all of these are necessarily within the control of a student teacher; in terms of building resilience, it is important to attend to aspects of your situation that are within your control, those you can work on at an individual level. In order to achieve this, it is helpful to consider the principles and techniques of reflective practice. The points raised above have much in common with

Schön's (1983) view that good professional practice requires rather more than the application of technical knowledge: it requires you to make sense of complicated matters and engage in careful inquiry about what has happened and what needs to happen next. Such reflection may take place in the moment, or some time afterwards: reflection-in-action and reflection-on-action (Schön, 1983) (see also Unit 5.4).

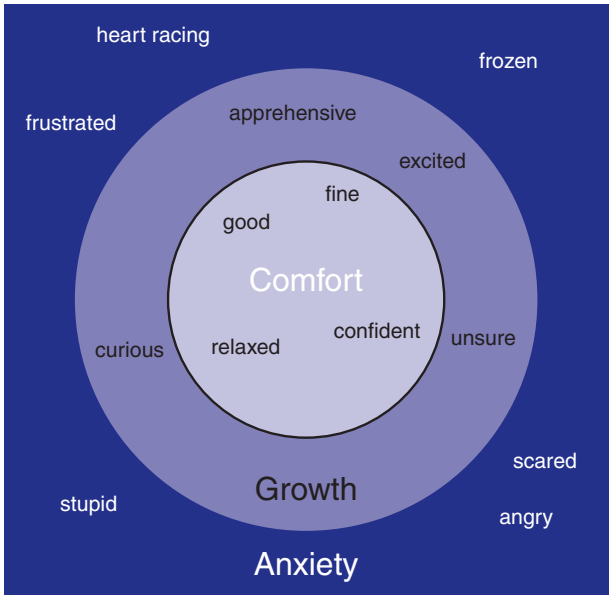
Now complete Task 1.3.1.

Task 1.3.1 Building your resilience

Watch neurologist Dr. Daniel Siegel presenting the hand model of the brain on YouTube: https://www.youtube.com/watch?v=gm9CIJ74Oxw

Reflect on how the hand model may explain why you or a pupil may feel stupid or unable to think when confronted with something that relates to a prior bad experience.

Identify times you have been in your comfort, growth and danger zones. Create your own growth zone diagram. Add in key words that help you notice what you are experiencing when you are in each zone. See example below.



Select some ways to build your resilience from the list from Day et al. (2011) (above). For each, reflect on your own current situation and how you might improve the current situation. For example, you might select devising challenging targets. What are your current targets for development? Are they challenging or are there aspects of your teaching that would be more challenging for you to develop?

Store your reflections in your professional development portfolio (PDP) or equivalent, work on them and review your progress in a month.

Signs that current levels of resilience are not up to current demands

Our bodies and minds cope well with short periods in the danger zone; in fact, being occasionally in the danger zone is a good sign that you are undertaking challenge. However, you need to be able to identify when you are in the danger zone and address the situation by taking a break, breathing (5/7 – the breath out/exhale being slightly longer than the breath in/inhale, e.g. breathe in for 5 counts and out for 7) (a more complete description is available to download free from the international stress management association (ISMA, nd), https://isma.org.uk/nsad-free-downloads, under 'The 60 Second Tranquiliser') or doing some strenuous exercise (Pittman and Karl, 2015).

Prolonged exposure to the danger zone may result in: not thinking clearly, not sleeping well, irritability, tearfulness and stomach pain. These are indicators of problem stress; you are unwell and you need to visit a doctor, just as you would if you had recurring headaches. It is important to note that stress may not be obvious to your employer and maintaining your well-being is, in part, your own responsibility. Historically, teachers we have spoken to have felt shame at this stage, but there should be parity between mental and physical well-being (see Royal College of Psychiatrists, 2013).

Preventing, managing and coping with stress

Whilst teaching can be challenging and rewarding, teaching in the United Kingdom and in many other countries is also ranked as a high stress occupation (see, for example, McCarthy et al., 2012). According to the Health and Safety Executive (HSE, 2016), work-related psychological/emotional ill-health, particularly anxiety and depression, which was caused or made worse by their job, was reported by more people working in the education sector than people working in many other sectors, with only social workers and health professionals reporting higher stress levels.

The percentage of teachers still in post five and ten years after qualifying and entering service was 69 and 60 per cent, respectively (Department for Education (DfE), 2017g). This is not necessarily stress-related; there is no benchmark for 'normal' attrition rates and certainly career change or hiatus may occur for all kinds of reasons. However, in the UK, the mental well-being of teaching staff has historically not been treated as equivalent to physical well-being, and indeed teacher stress is a global phenomenon (McCarthy et al., 2012). The high levels of stress could be related to the teacher concerns that were picked up by the NASUWT (2016) survey, e.g. workload, pupil behaviour, pay, school inspection and curriculum and qualifications changes. Furthermore, stress is 'contagious' 'because [if] the other person seems anxious about something we may conclude that this something may threaten us too (or that the other person's reaction itself is a threat to our well-being)' (Parkinson and Simons, 2012, p.464); thus, student teachers working with teachers who are already stressed may find the stress impacts on their experiences in school.

Things are changing. You and your employer now have joint responsibility to safeguard you; consequently, there has been an increasing focus by employers to take more care, especially in regard to the mental well-being of staff and pupils. However, in law, it is not self-evident that you are overloaded unless you have raised concerns in writing or returned to work after an absence documented as caused by work-based stress (one of the significant cases in this regard is *Walker v. Northumberland County Council*, 1994). Thus, it is important that you identify unnecessary causes of stress for you and develop strategies to be proactive. You might go on a Mental Health First Aid course and certainly should inform yourself about when to seek help and/or medical advice.

Causes of stress

Causes of stress may vary from teacher to teacher or even for the same teacher at different times, depending upon their current level of resilience and the calls upon it. Personal experiences external to school, including physical health, life events or personal finances can all affect your level of resilience. The most frequently reported school-based factors contributing to teacher stress include dealing with pupils' disruptive behaviour, coping with a heavy workload, school ethos and lack of support from colleagues or managers (see, for example, Hinds et al., 2015). A large-scale survey of teacher workload published in February 2017 (DfE, 2017g) reported that teachers in England worked an average of 54.4 hours a week, suggesting that this significantly contributed to increased stress levels. However, over time, there have been many other causes of pressure on teachers identified (see, for example, Akhlaq et al., 2010; Klaasen, 2010; Klaasen and Chui, 2010), including:

- delivering unfamiliar material under pressure of time;
- motivating pupils and maintaining their interest;
- coping with the attainment range of pupils within a class;
- managing the class;
- dealing with conflict and confrontation;
- relationships with parents/guardians;
- maintaining a work–life balance.

In addition to factors that cause stress in all teachers, there may be additional causes of stress for student teachers, for example:

- practical skills of teaching, techniques of lesson preparation and getting the teaching and/or planning right;
- having unrealistic expectations of the profession;
- having high expectations of one's own teaching performance;
- not being regarded as a real teacher;
- disagreement with the tutor;
- observation, evaluation and assessment of teaching by the tutor, particularly receiving the tutor's or class teacher's opinion of classroom competence;
- role ambiguity, role conflict and role overload;
- lack of support in the growth zone.

Some student teachers feel they should know everything, be strong, not make mistakes and, in other words, be constantly in their comfort zone. However, some of the time you should expect to be in your growth zone; you can model being an adult learner to your pupils, sometimes vulnerable, sometimes making mistakes, being resilient. The role of student teacher may thus feel ambiguous, but as a developing teacher you are required to function as both learner and educator. When you are in your growth zone, some of the support that you need will be unambiguous, non-judgemental (unconditional), positive regard (Rogers, 2007), which everyone needs at times, and that may not come from a teacher-tutor with an assessment brief, but is more likely to come from a member of the pastoral team, for example.

In Task 1.3.2, you are asked to look at causes of stress for you.

Task 1.3.2 Identifying causes of stress for student teachers

What causes you to go into your own danger zone at present?

Write a list of factors that cause you stress – both stressors as a student teacher and stressors outside your ITE programme. Compare these with causes of stress identified by another student teacher. Discuss similarities and differences. Store the list in your PDP and use this list for Task 1.3.3.

Reflect on what works for getting you from the danger (stress) to growth (learning) zone.

Reflect on the possibility that sometimes it may be better to take one day off with stress symptoms than be ill for more days later in the year, and consider why teachers might not do this in practice.

How can you cope with the pressures on you?

Long-term stress may result in you being less effective, having more issues with pupils' behaviour, taking time off work or becoming burned out (experiencing emotional exhaustion, or depersonalisation (see, for example, Fernet et al., 2012)). Different ways of coping with stress are appropriate for different people and for the same person at different times.

Ways of coping have been classified differently by different people. For example, Clunies-Ross et al. (2008) referred to proactive and reactive strategies. Lee and Johnston-Wilder (2015) used the term agency and Benson (2001) used the term autonomy. Personal strategies for coping with pressure may be classified as follows: cognitive; physical; behavioural/organisational; emotional. Some examples of specific coping strategies are identified in Table 1.3.1, drawn from a number of sources, e.g. Crothers et al. (2010); Leung et al. (2011); Titchmarsh (2012). Some of these strategies will help you to become more resilient but also help you to promote learning and resilience in your pupils. This list is by no means exhaustive.

It is important to pay attention to your aspirations and hopes as a teacher rather than focusing only on your concerns and fears. Conway and Clark (2003, p.470) suggested that focusing on resolving immediate concerns can result in 'an unduly pessimistic understanding of teachers and teaching'. This is a pertinent observation for many areas of life, including our analogy of endurance activities: it is good to make regular checks on yourself, but to try to keep your focus mostly outwards and enjoy yourself (Latta, 2003). You might find it difficult as a student teacher to focus on your development as a teacher, on the positive aspects of learning to teach and on your long-term goals and aspirations as a teacher. However, if you can do this you are likely to have a more balanced view and be able to put things into perspective and therefore reduce your stress (Unit 8.2 is designed to help you think about your continuing professional development). Task 1.3.3 is designed to help you to cope with your stress.

Task 1.3.3 Coping with your stress

In Task 1.3.2 you listed causes of stress for you. Now identify ways that you can cope with this stress. Try out different coping methods, and reflect on and evaluate whether these are effective for you. Store your methods and evaluations in your PDP and adapt or try new methods until you find those that work for you to cope with different stressful situations.

Table 1.3.1 Stress coping strategies

Cognitive	■ *Have a good knowledge of what you are teaching*. Read around a topic for which you do not have good knowledge prior to the lesson. ■ *Also have a good knowledge of the structures, organisation and culture of the school*. Understanding how your environment operates can help you to navigate sources of pressure with a little more ease. ■ *Identify where you can get help when needed*. You should get regular feedback on your teaching, but also identify other people who may be able to help. ■ *Take account of the amount and variety of work you are doing to reduce both role overload and conflict*. You might try to take work home less often or take on fewer extra-curricular activities, over a period of time. ■ *Develop attention to now (mindfulness*). ■ *Recognise and try to develop your strengths as well as your weaknesses* so that you can rely on your strengths as you work on improving any weaknesses.
Physical	■ *Take regular exercise*. Exercise releases endorphins in the body, natural pain-relievers and a natural high that making us feel better about ourselves. ■ *Eat regularly and well*. Stress is a drain on the immune system. Look after your immune system by eating well. ■ *Do some proactive relaxation*.
Behavioural/ organisational	■ *Proactively prepare for stressful situations when you are not under pressure*, e.g. prepare lessons days ahead. ■ *Actively prepare for a situation*, e.g. if you are anxious about a particular lesson prepare it more thoroughly than normal. Plan thoroughly how you can reduce the likelihood of a problem occurring or deal with a particular problem. ■ *Role play a situation that is causing you anxiety and/or visualise what you can do to overcome the problem*. This helps you to rehearse how you are going to cope. ■ If you are asked a question which you cannot answer, you can praise the question, encourage pupils to look it up and find the answer before the next lesson. You should then do the same: modelling being a growing learner. ■ *Plan how to work with a teaching assistant (TA) effectively*. Just like anyone else, TAs appreciate knowing what they are doing before they walk into the classroom; otherwise you are putting them on the spot. Depending on the TA, and your relationship with them, they might be happy to team teach, etc. It is important to communicate with them so that you work as a team in the classroom. ■ *Teach pupils to take responsibility for their own learning so that you are facilitating their learning*. Provide them with the resources they need to learn so you do not have to orchestrate everything. This takes the pressure off you and is also effective pedagogically. ■ *Address any behavioural issues as early as possible* because this creates stress and puts pressure on time (see also Unit 3.3). Be ready to investigate why a particular pupil appears not 'ready to learn', e.g. someone at home may be unwell. Remember that aggression often signifies fear. ■ *It is good to consider pupils outside the classroom*. It can help to support their learning if you know something about what pupils do outside the classroom. ■ *Develop effective self-management techniques*. Establish routines so that you can do things automatically, particularly when tired.

Table 1.3.1 continued

Emotional	■ *Develop social support systems that provide a network of people with whom you could talk through problems*, e.g. other student teachers, your tutor, other teachers, a partner or friend. You may talk to different people for help with different problems. You may form a group with other student teachers to provide mutual support, talk about your anxieties/concerns, develop a shared understanding of a problem and provide possible alternative solutions and practical help to address a problem, e.g. a lesson being observed then discussed with another student teacher. ■ *If you worry about incidents that have happened in school, try to keep problems in proportion*. Try not to take problems home. ■ *Try to differentiate between feelings and facts*. You may feel that something has gone dreadfully wrong. If there is no evidence, no need to worry; if there is evidence, then you find out how to improve things. ■ *Try not to worry about things that you cannot change*. Don't worry about things that are not your responsibility. If it is within your gift to act, you should do so, but don't worry about things over the weekend that cannot be dealt with until Monday and dwell only on what can be done, not what has already happened.

Managing your time and workload

As Amos (1998) emphasised, everyone has the same amount of time. However, experience of time is relative, as described in this well-known story of unknown provenance.

> Imagine a teacher of time management standing in front of her class. She picks up a large empty glass jar and fills it with rocks roughly 5cm cubed. She asks the pupils if the jar is full. The pupils say yes.
> Then the teacher picks up a box of small pebbles and pours them into the jar, shaking the jar slightly so the pebbles roll into the spaces between the rocks. Again, she asks the pupils if the jar is full. The pupils say yes, more cautiously this time.
> The teacher picks up box of sand and pours it into the jar. The sand fills the spaces between the pebbles.

The teacher's message is that the jar represents available time. The rocks represent the most important things, whatever they are to you, perhaps family, health and relationships or sense of purpose, the things that make your life meaningful or are critical to your well-being. The pebbles are other things that matter in your life, such as work. The sand signifies the less important things, including possessions that can be replaced. If you put sand into the jar first, there is no room for the rocks or the pebbles. Similarly, if you put the small stuff into your life first, you will have insufficient time for the things that are important to you. Set your priorities. It is important to take control of your workload where you can. Some people always seem to work long hours but achieve little, whereas others achieve a great deal but still appear to have plenty of time to do things other than work. One of the key strategies for reducing stress and increasing productivity is to develop good time management, so in the following sections we discuss strategies for managing time in the classroom, across a half-term, and then across a whole year.

Managing your time in the classroom

Mo Farah: 'As a distance runner, you learn that it is important to rest more and do less. That may sound counterproductive, but it's all about quality over quantity' (Farah with Andrews, 2013, p.173). By cutting out unnecessary tasks and relinquishing some responsibility to others, including the pupils, you can improve the quality of what you do whilst contributing to the holistic development of the pupils in the classroom. As well as managing time more effectively, good time management should enable pupils to:

- spend a high proportion of time engaged on learning tasks;
- experience being part of a challenging, supportive learning community;
- develop self-efficacy and resilience through becoming more autonomous;
- experience a high degree of success during this engaged time;
- demonstrate less adverse behaviour, which is a major stressor for teachers.

You can think of strategies to use classroom time effectively and economically under five headings: pre-emptive, culture setting strategies; supervisory strategies that increase pupil autonomy and responsibility; in-the-moment strategies; balance of time strategies; and reflective strategies. Table 1.3.2 gives examples of ways of using classroom time effectively and economically in these five categories.

There are many other ways of managing time effectively in classrooms, which you develop as you gain experience. Task 1.3.4 is designed to help you look at how you spend your time in lessons.

Task 1.3.4 How you spend your time in lessons

Observe how several experienced, effective teachers use their time in lessons, how they divide their time between teaching, supervisory, organisational and management activities; how much time is spent listening, observing, providing feedback, explaining and questioning, on routine events such as managing pupils' behaviour, collecting homework or giving back books; what procedures there are for doing this, and what is delegated to TAs or pupils.

Ask another student teacher or tutor to observe how you use your time in the classroom in one lesson or over a series of lessons. Discuss with the observer the findings and possible ways of increasing the pupils' resilience more or using your or the pupils' lesson time more effectively and economically.

Invite feedback from pupils, such as undertaking a brief survey.

Store your findings in your PDP and try these ideas out systematically in your teaching.

Table 1.3.2 Examples of ways of using classroom time effectively and economically

Pre-emptive, culture-setting strategies ■ Spend time, especially at the start of the first lesson with the pupils, collecting their ideas and establishing shared ground rules, routines and a safe, inclusive learning environment, which promotes physical and mental well-being in your subject. This saves time on organisation and management, and on addressing affective barriers as you proceed through the year, scheme or unit of work. See Units 1.2 and 2.2 for further information about organisation, rules and routines in the classroom and Unit 3.3 for further information about behaviour for learning. ■ Create an expectation that pupils seek answers themselves and amongst peers rather than putting their hand up as soon as they get stuck. ■ Keep a section of your mark book for coded comments about progress. As you see pupils' work in class or when you are marking, make brief notes that are then immediately at hand for discussions with parents, head of year, report writing, etc. ■ Create an expectation and an environment such that pupils settle down and pack up promptly and manage their behaviour and attention in the lesson. ■ Offer transition tasks and productive tasks for pupils to work on outside lessons. ■ Devise simple, fast procedures for routine events and dealing with recurring problems.
Supervisory strategies, including delegation and increasing pupil autonomy and responsibility ■ Use TAs or pupils to help give out and collect textbooks, pupils' books or equipment, to mark straightforward homework tests in class, to tidy the classroom ready for the next class, all of which also develops pupils' autonomy and ownership of their learning environment. ■ Get pupils to do anything they can do to help you, e.g. stick their own worksheets into their books, make wall-posters and videos, make helpful look-up tables or revision guides, copy their notes for absent friends. ■ Use peer-, self- or group-marking, e.g. for class tests or homework; it is effective as pupils can be very perceptive when marking work and it saves time; once pupils have learned to do this, with appropriate support, they will get on and do it and learn from the process. ■ Ask pupils to ensure that work is dated, each lesson's work is ruled off, and that homework is clearly identified so that it is easy to check what work has been done and what is missing.
In-the-moment strategies ■ Carry a marking pen with you as you move around the class checking work. This enables you to make brief notes on the work at that time, after negotiating with the pupil. This provides formative feedback to pupils to promote learning, and it saves you wasting time going back to the work at a later stage. ■ Collect in books that are open at the page where you should start marking or where the pupil would particularly like comments.
Balance of time strategies ■ Maintain a good balance of time on teaching, supervisory and organisational activities, allocating a high proportion of available time for academic work (sometimes called academic learning time). ■ Spend a high proportion of time in 'substantive interaction' with pupils (i.e. listening, observing, providing feedback, explaining, questioning, describing, illustrating).
Reflective strategies ■ Regularly review the conduct of lessons in terms of effective use of your own and pupils' time. ■ Work to eliminate unnecessary routines and activities from your own teaching.

Managing time outside the classroom effectively across a term

There are so many things for you to do as a teacher in term time that your workload is high. Indeed, 90% of teachers felt that workload was their greatest challenge in their professional role (NASUWT, 2016). A high workload can result in not doing a good job, working very long hours to get the task done and not having enough time mentally and physically to relax for work the following day. All elite athletes recognise the importance of rest time to recuperate and so should you. Thus, it is important to focus on doing 'a good enough' job with excellent elements: not heroic, but providing the necessary conditions for learning (Britzman, 1998).

In order to use your time outside the classroom effectively, you need to plan your use of time and prioritise your work. Preparing as far in advance as you sensibly can and keeping everything up to date means that you do not have to chase around at the last minute, e.g. before a tutor visits. Keeping records of activities can help, for example, keeping a file of activities for the week (e.g. lessons to plan, marking to do, assignments for your ITE programme, specific records of your work, including how you have met certain standards). Also plan time for reflection on your teaching overall and your development as a teacher (what have you learned and how are you going to develop further?).

One person might waste time through, for example, being unsystematic in managing time, handling paperwork or responding to emails, putting off work rather than getting on and doing it, trying to do it all rather than delegating appropriately or not being able to say no to tasks, whereas another person might use time well by, for example, having clear objectives for work to be done, prioritising work, completing urgent and important tasks first and writing lists of tasks to achieve during the day. Which of these descriptions fits you? To check this, you need to analyse the way you work and, if necessary, try to make changes. Task 1.3.5 is designed to help with this.

Task 1.3.5 Reviewing your use of time in term time

Record for one week in term time the time you spend on school work outside the classroom, both at school and at home, e.g. planning, preparation, marking, record keeping, extracurricular activities, meetings. You might want to use a grid such as the one below, which has been set up with three sessions per day (morning, afternoon, evening).

Day	*Work undertaken (along with time for each activity)*	*Total time*
Monday		
Tuesday		
Wednesday		

Day	*Work undertaken (along with time for each activity)*	*Total time*
Thursday		
Friday		
Saturday		
Sunday		
Total time for one week		

Then answer the following questions:

- Did you take one day off?
- Did you take one evening off?
- Is the time spent outside the classroom and total hours worked during the week sustainable for you?
- Are you using this time effectively, i.e. is the balance of time spent on the activities appropriate, e.g. are you spending more time on record keeping or planning and preparation?
- Do you need to spend more time on some activities?
- Could you reduce time on some activities, e.g. can some more of the work be delegated to pupils (e.g. mounting and displaying work)?

Compare with other student teachers the time you spent and how you spent it. If time spent is unsustainable, plan what action you will take to reduce the time spent on school-related work each week. Store this in your PDP and recheck the use of time outside the classroom by repeating the log for one week to see whether this has worked and, in light of the results, what further action you will take, for example, might you put up an out-of-office message on your email to say that you will only respond on Saturdays? If all else fails, might you request fewer classes, possibly with the support of a union representative. This would be better than becoming unwell with stress.

Using your time effectively helps you to be more efficient and more productive, better able to plan long term, more satisfied with your work and your job as well as less stressed. In addition, you will have more time for yourself and more opportunity to switch off out of work.

Some specific examples of ways of using your time effectively include:

- Make a list of activities you are going to complete each day. If there are activities left on the list at the end of the day or the week, ask why this is, e.g. are you spending too much time on each activity? Are you unrealistic in how much you can achieve in a day? Spend five minutes at the end of a day identifying how you will save time the next day.
- Utilise your non-contact periods effectively (plan what you are going to do in these in advance).

- Plan to complete your work at time(s) best for you. Some people stay late at school, then do not work during the weekend; other people set aside one day of the weekend and do all their work on that day. Whichever best suits you, remember the glass jar of time, and be strict with yourself; otherwise you will be working all the time. Set yourself things to look forward to, e.g. attending a sports event during the weekend. This helps with time management as it prevents you from working through the weekend.
- Get to know yourself, your strengths and your weaknesses. Seek advice and suggestions from a range of different people and adopt what works for you.
- Seek to organise your files and other work so that you can easily locate them (it is as important to organise electronic files and delete those you do not need again as it is to organise paper files and throw away paper you do not need again). This may need dedicated vacation days.
- You may find that doing more than one job at a time or moving from one thing to another can be disruptive, partly because you may not be concentrating fully on one task, which may result in inefficient use of time. We suggest you switch off your phone or messenger for a time so that you can focus on the task in hand and set aside a time each day to respond to emails, rather than trying to respond as soon as they come into your mail box.
- Some teachers are now using iPads, Facebook and Twitter to keep up with colleagues, share resources and save time. You need to be careful not to waste time using too many different technologies.

Managing time effectively across a whole year

Teaching is a profession with an uneven profile across the year. This allows for life-style choices in that you can choose to work longer hours in term-time, or you can set aside 'holiday' time for some of the tasks, such as updating subject knowledge and long-term planning for a term. European Union advice suggests that you work no more than 48 hours a week on average– normally averaged over 17 weeks term-time and school vacation. Holidays can be used for an effective balance of recuperation, reflection and preparation, as well as for some larger tasks such as home decorating or learning a new skill that may get put on one side during term time. You might notice a task that could wait and would be helpful to complete longer term, and you might diarise that task to do in a 'holiday'. Task 1.3.6 asks you to look at your work–life balance.

Task 1.3.6 Coping with your stress through work–life balance

Think about your year as a whole.

What are your own rocks, pebbles and sand? How would you classify:

- personal administration;
- family commitments;
- domestic duties – regular/major;
- social life/hobbies;
- holiday;
- reviewing lifestyle – moving, employment, etc.;
- upskilling.

How might you decide to spend your year in such a way as to promote your longer-term well-being and achieve an overall balance of your choice between work and leisure time (a work–life balance)?

It may be when you have done all you can, with all the advice you can muster, that your workload or stress level is still unsustainable. Your well-being is important not just to you but to your colleagues, your pupils and the profession you seek to join. Your well-being is a joint responsibility between you and your employer. If you do not do your part in keeping yourself out of harm's way, you cannot be the asset you wish to be to the teaching profession. 'Do not put yourself at risk' (Barraclough, 1996, p.20) is the motto of the first-aider and should equally apply to any individual whose work consists of helping and supporting others. The more teachers who assert their need for well-being, the better it is for all concerned. The employer is not expected to notice if you develop stress symptoms such as not sleeping. Talk to your union representative or a more experienced colleague, read union or HSE guidance on stress management, go and see your GP, and get signed off before you become seriously unwell.

SUMMARY AND KEY POINTS

- As a student teacher on school experience, at times you will be tired, feel as though you do not have enough time to do everything, feel anxious when someone comes in to watch your lessons, particularly if that person has a say in whether you become a qualified teacher, and feel worried about other aspects of your teaching and/or school experience.
- You are not alone in this and many of the causes are the same for other student teachers.
- You can develop effective techniques that work for you to manage your time and cope with stress. Other people can help and support you with this, but nobody else can do it for you because what works for someone else may not work for you. Work at managing your time and stress.
- Build your resilience to enable you to thrive as a teacher. Collegial support in the workplace; a mutually respectful, supportive relationship with your tutor, with open, honest yet sensitive communication which challenges you; and a reciprocal, mutually supportive, trusting network of peers and colleagues are important in doing this. Also, focus on the positive aspects of teaching, your motivation to become a teacher, developing your self-efficacy, confidence and competence, which we hope this book will help you with.
- Stress is contagious, and your pupils and colleagues are vulnerable to stress. Consider how the 'stressed you' responds in everyday classroom occurrences and the impact such responses are likely to have upon the people around you.

Teaching is challenging, rewarding and exhausting. It is a long game, but the skills you gain along the way will help you and your pupils towards fulfilling futures. If insufficient support is in place, there is the potential for aspects of the role to become harmful or injurious, meaning that experienced teachers are lost or the high standards of the profession suffer. Fortunately, it is possible to mitigate these effects by developing your resilience and safeguarding your physical and mental well-being. This will enable you to perform at your best, cultivating, safeguarding and inspiring generations of young people to do the same.

Check which requirements for your ITE programme you have addressed through this unit.

Further resources

Beltman, S., Mansfield, C. and Price, A. (2011) 'Thriving not just surviving: A review of research on teacher resilience', *Educational Research Review*, 6(3), 185-207.
This paper reviews recent empirical studies related to the resilience of early career teachers. These show resilience to be the outcome of a dynamic relationship between individual risk and protective factors and contextual challenges or risk factors and contextual supports or protective factors – an understanding of which can help to reduce risk factors and enhance protective factors, and so enable new teachers to thrive, not just survive.

Capel, S. and Al-Mohannadi, A. (2004) 'Managing yourself and your workload', in S. Capel, R. Heilbronn, M. Leask and T. Turner (eds.) *Starting to Teach in the Secondary School: A Companion for the Newly Qualified Teacher*, 2nd Edition, London: RoutledgeFalmer, pp.16-29.
Although this book is written for newly qualified teachers, this chapter provides guidance on managing stress and time, which is also appropriate for student teachers.

Day, C., Edwards, A., Griffiths, A. and Gu, Q. (2011) *Beyond Survival: Teachers and Resilience*, Nottingham: University of Nottingham.
This booklet reports on findings from a series of research seminars focused on addressing the question, 'How does resilience in teaching arise and how is it sustained?' The findings reported should help you to better understand how to build your resilience as a teacher.

Hayes, C. (2006) *Stress Relief for Teachers: The 'Coping Triangle'*, London: Routledge.
This book looks at the nature of stress in the classroom in a clear, practical way. It focuses on how teachers can help themselves to cope. It focuses on a 'coping triangle'.

Holmes, E. (2009) *The Newly Qualified Teacher's Handbook*, 2nd Edition, Abingdon: Routledge.
This book covers all aspects of the first few months of teaching. The book is written in light of induction regulations introduced in 2008 for newly qualified teachers in England. Chapter 7 looks at work–life balance. Other chapters are likely to be of use in helping you with aspects of your work that may be stressful.

Johnson, B., Down, B., Le Cornu, R., Peters, J., Sullivan, A., Pearce, J., Hunter, J., Day, C. and Lieberman A. (2016) *Promoting Early Career Teacher Resilience: A Socio-Cultural and Critical Guide to Action*, Abingdon: Routledge.
The writers have spent five years exploring conditions that support early career teacher resilience and considering what goes well, intending to help the reader learn from positive experiences and to foster positive environments for early career teachers. They tell the stories of 60 graduate teachers – the struggles and the exhilaration of being an early career teacher. These stories and the associated critical approach will help the reader develop more powerful forms of critical resilience.

McCarthy, C., Lambert, R. and Ulrich, A. (eds.) (2012) *International Perspectives on Teacher Stress (Research on Stress and Coping in Education)*, Kindle Edition.
This book puts teacher stress into a global context. It includes original research about the ways in which teachers cope and thrive in different cultural contexts.

The Education Support Partnership (https://www.educationsupportpartnership.org.uk/)
Provides information, research evidence and a range of services, including counselling, to help all teachers.

Appendix 2 lists subject associations and teacher councils and Appendix 3 provides a list of websites.

Capel, S., Leask, M. and Turner, T. (eds.) (2010) *Readings for Learning to Teach in the Secondary School: A Companion to M Level Study*, Abingdon: Routledge.
This book brings together essential readings to support you in your critical engagement with key issues raised in this textbook.

Capel, S., Lawrence, J. Leask, M. and Younie, S. (eds.) (2019) *Surviving and Thriving in the Secondary School: The NQT's Essential Companion,* Abingdon: Routledge.
This book is designed to support newly qualified teachers in the next phase of development as a teacher. However, you may find it useful as it covers aspects of teaching not included in this book which, nonetheless, you experience on your ITE programme.

The subject specific books in the *Learning to Teach (Subject)* series, the *Practical (Subject) Guides, Debates in (Subject)* and *Mentoring (Subject) Teachers* are also very useful.

Any additional resources and an editable version of any relevant tasks/tables in this unit are available on the companion website: www.routledge.com/cw/capel

Using digital technologies for professional purposes

Andrew Csizmadia and Sarah Younie

Introduction

Teachers are expected to integrate various forms of information and communications technology (ICT)/digital technologies into their work in the classroom and promote online safety. The statutory framework of the 2014 National Curriculum Computing Programmes of Study in England states that: 'Pupils should be taught to develop their capability, creativity and knowledge in computer science, digital media and information technology' (Department for Education (DfE), 2013c, p.64). In Wales, a Digital Competence Framework (Welsh Government, 2018) has been developed to enable pupils to thrive in an increasingly digital world. The Welsh Government regard digital competence as one of the three cross-curricular responsibilities for schools, alongside literacy and numeracy. Internationally, European Schoolnet, on behalf of the European Union, advocates digital citizenship as a right for all, and that digital skills enable people to exercise this right. Further, the United Nations Education, Scientific and Cultural Organisation (UNESCO) has developed an ICT Competency Framework for Teachers (ICT-CFT).

The focus for this unit is the use of ICT to facilitate and enhance learning and the learning experience rather than the subject of computing. This aspect of ICT, hereafter referred to as digital technologies, is re-enforced across the curriculum. Digital technologies used innovatively within your subject teaching enhance learning for your pupils. Good subject teachers are already making good use of digital technology and are always looking out for new ways of using digital technologies to stimulate pupils and extend their learning. These teachers understand that digital technologies are a tool to be applied selectively but are not the complete solution to meeting their pupils' needs. They are also able to learn from pupils. Talking with your computing colleagues also helps you identify valuable learning experiences that help your pupils.

One concern for you may be that the pupils know more about digital technologies than you do. If this is a concern, or if you are uncertain about the use of digital technology in your subject area or have not fully embedded it into your teaching, you are not alone, as was noted by the inspectorate in England in their ICT subject report 2008–11 (the Office for Standards in Education, Children's Services and Skills (Ofsted), 2011a, p.42). (There is guidance on using ICT/digital technologies in your subject in the subject books that accompany this generic text, i.e. *Learning to Teach (Subject) in the Secondary School* and *A Practical Guide to Teaching (Subject) in the Secondary School* (both published by Routledge). Subject associations (see Appendix 2) are also a good source of guidance.)

The purpose of this unit is not to turn you into a computing teacher, but to show how you can become a teacher who uses digital technologies creatively in your teaching to enhance pupils' learning. One key objective is to erase some of your fears and present some clear signposts for you to use digital technologies to support your subject teaching. After all, in reality, 'the only thing we have to fear is fear itself' (Roosevelt, 1933, p.1).

OBJECTIVES

At the end of this unit you should be able to:

- understand the relevance of digital technologies for you and your pupils;
- use an appropriate framework for auditing your knowledge and understanding of digital technologies;
- plan to teach using digital technology resources to enhance the pupil learning experience;
- understand your role and responsibility in promoting online safety for both yourself and the pupils you teach.

Check the requirements of your initial teacher education (ITE) programme to see which relate to this unit.

The relevance of digital technologies for you and your pupils

You need to be clear about why you might use digital technologies in teaching your subject lessons. Is it to entertain pupils, is it to engage their curiosity in your subject, is it to enthuse them about your subject, is it to enlighten them about a difficult topic or concept or is it to empower their learning? Hopefully, it is the last four.

Subject associations, Ofsted and technology companies (such as Apple, Google and Microsoft), provide excellent examples of how existing and emerging technologies can be used to support teaching and learning within and outside the classroom. For example, Ofsted (2011a, pp.34–35) reported that for a Key Stage 4 geography coastal study, a pupil used digital technologies to help them both organise a sequence of investigations and also to organise their work. Their use of digital technologies helped deepen their analysis and understanding. This also helped to demonstrate initiative and originality in their work.

Google has developed Google Expeditions (https://edu.google.com/expeditions), which enables a class to be taken on an immersive virtual reality field trip without the need to leave the classroom! For example, in geography, your pupils can explore coral reefs; in RE, pupils can experience festivals from around the world; and, in science, pupils can explore human anatomy.

The key points of the above examples of good practice are that:

- the best use of digital technologies as a resource is context-driven;
- if a pupil sees the benefit, then they are more likely to use the same technologies again elsewhere and more importantly within a different subject.

What is common about the "good practice" cited is that digital technologies were applied in both a contextual and in a practical manner. If you are going to develop your digital confidence,

digital capability and digital competence to mirror the good practice presented, understanding the theoretical work that underpins these approaches should help you use them effectively in your teaching. In these cases, the approaches are underpinned by the work of Vygotsky (1978) and, in particular, his theory of the Zone of Proximal Development (ZPD) (see Unit 5.1), and Bruner's (1961) theory of discovery learning. Now complete tasks 1.4.1, 1.4.2 and 1.4.3.

Task 1.4.1 Using digital technologies to support teaching and learning in your subject

Identify how digital technologies can be used to support teaching and learning in your subject.

Ask other teachers of your subject area and also check out what your subject association identifies as digital resources to support teaching and learning.

Discuss with another student teacher how digital technologies can be used to engage, enthuse and empower pupils in the subject you teach.

Record your findings in your professional development portfolio (PDP) or equivalent for later reference.

Task 1.4.2 How are digital technologies used in your subject?

Look at one of the examination specifications for your subject and identify where digital technologies can be used to enhance both the teaching and learning experiences within your subject. Remember, not all topics lend themselves equally to the use of digital technologies.

Record your findings in your PDP.

Task 1.4.3 Planning to teach using digital technology resources

Plan an activity using digital technologies for your subject. Discuss and critique your planned activity with another student teacher. What amendments did you agree should be made? Why?

Record your discussions in your PDP.

In order to use digital technologies effectively to enhance pupils' learning, it is important that you are clear about your own level of knowledge, skills and understanding; the next section of this unit is designed to help you achieve this.

Frameworks for auditing your digital competence

There have been a number of initiatives to support teachers to develop their digital literacy competences, including the DigiLit Leicester project (see Fraser et al., 2013). This was a collaboration

between schools, the local authority and De Montfort University to create a framework for assessing teachers' digital literacy skills. This is a helpful evaluation tool that enables you to self-assess your own knowledge and understanding, and also identify which competences you may need to develop further. The framework consists of six strands (Fraser et al., 2013, pp.10-12).

Finding, Evaluating and Organising: Teachers know that the internet has a significant range of information, resources and research that can be used to support and develop learning and teaching. The ***Finding, Evaluating and Organising*** strand of the framework includes the skills required to successfully search for information and resources online, the know-how needed to identify reliable sources of information and the ability to apply a range of approaches for organising online content.

Creating and Sharing: As a teacher you need to be able to manage a wide range of digital information and resources, including those you create yourself. The ***Creating and Sharing*** strand covers using online tools to create original materials, and building on or repurposing existing resources, for the classroom. You should know how to identify resources you have permission to use and remix, and also how to openly share your own materials. You should be able to support pupils in creating their own resources and portfolios of work. You also need to be aware of the legal requirements relating to the use of online and digital resources, for example, copyright law, and the range of open licenses available, for example, Creative Commons licensing.

Assessment and Feedback: Web-based and mobile technologies provide a range of opportunities for teachers and pupils to assess attainment and track progress, to identify where learners are having difficulties and to provide feedback, including peer assessment. The ***Assessment and Feedback*** strand includes how teachers make use of technologies to support learners in monitoring and managing their own learning and to ensure teaching approaches are effective, and adjusting these to suit learners' pace and needs.

Communication, Collaboration and Participation: Digital tools and environments offer teachers and pupils a range of collaborative opportunities, supporting the co-design and co-production of resources, providing new approaches to participation and supporting learner voice. Teachers and learners can use technologies to connect and learn both with and from other learners and experts from around the world. The ***Communication, Collaboration and Participation*** strand involves the use of communication technologies, for example types of social media including wikis, blogs and social networking sites, to support learning activities and enhance school communications, planning and management.

E-Safety and Online Identity: The use of technology is increasingly integrated into everyday life, and the value of using both private and public digital environments to support learning, teaching and communication is well recognised. Schools and teachers support learners in understanding the negative effects of inappropriate online behaviour, and in ensuring learners understand what responsibilities they have as members and representatives of a school community. The ***E-Safety and Online Identity*** strand underpins teachers' and learners' use of digital environments for formal and informal learning, including understanding how to keep both yourself and your learners safe online, and how appropriate and positive online behaviours can be modelled in classroom practice.

Technology-supported Professional Development. For teachers, the challenge with continuous professional development is keeping up to date with subject knowledge and with emerging pedagogic approaches. Web- and mobile-based technologies have changed the landscape in terms of how we can connect to other teachers both locally and globally. Personal Learning Networks (PLN), developed and managed by educators, allow teachers to discover, discuss and share

relevant ideas, resources and pedagogic approaches. The ***Technology-supported Professional Development*** strand focuses on how educators can and are making use of technology to take their practice forward.

Please see the companion website for the full Digital Literacy Framework, which you can use as part of a self-assessment audit. Part of this framework is reproduced below in the 'Online safety' section in Task 1.4.6.

There are other frameworks that are worth considering also, for example, see the 'European Framework – Digital Competence for Educators' at:

- https://ec.europa.eu/jrc/en/publication/eur-scientific-and-technical-research-reports/european-framework-digital-competence-educators-digcompedu
- https://ec.europa.eu/jrc/en/digcompedu<https://ec.europa.eu/jrc/en/digcompedu>

There is also 'Learning Wales Digital Competence Framework' at:

- http://learning.gov.wales/resources/browse-all/digital-competence-framework/?lang=en
- Task 1.4.4 is designed to help you develop your digital competence.

Task 1.4.4 Identify and develop your digital competence

As part of your own professional development and strengthening your subject knowledge, you will be undertaking subject knowledge audits at regular intervals. Periodically, you might wish to review your digital competence and reflect on how your digital competence can impact the teaching and learning that occurs in your classroom.

1 Using one of the digital literacy frameworks above, identify your current digital competences.
2 Create an action plan to develop your digital competences.

Store your table in in your PDP, revisit it, review it and update your knowledge at regular intervals during your ITE programme.

As a teacher, what do I need to know regarding digital technologies?

We live in a world that is influenced by our engagement with digital technologies for the way in which we live, play and work. How would you react to the challenge of 'not using digital technology, including your mobile phone, for a day?' The following section outlines what secondary school teachers will need to know regarding the implications of and guidance for using digital technologies for teaching and learning in the classroom, monitoring pupils' progress and their own professional development:

Data Protection: Be aware of the General Data Protection Regulation (GDPR), which was implemented in May 2018, and its implications for secure storage of and usage of both electronic and manual

data related to pupils, as it has superseded the Data Protection Act. You also need to understand how your placement schools meet the requirements of GDPR and the impact of GDPR upon the teaching that you will deliver and usage of any online digital tools that you might use.

Digital Champions: Know who the digital champions are in your subject area; also, subscribe to their blogs and follow them on Twitter. This can keep you up-to-date with developments regarding how digital technologies are being used in your subject.

Digital Resources: Check out what your subject association identifies as digital resources to support teaching and learning.

Digital Tools: Be aware of and able to use digital tools to support teaching and learning inside and outside the classroom. Examples include digital tools for formative assessment, such as Kahoot or Yacapaca, and digital resources such as TED-ED (https://ed.ted.com/) to enhance and enrich both teaching and learning.

Digital Literacy: Ensure you are able to use and promote digital literacy in your subject, just as you would with literacy and numeracy. You are expected to model good practice. This includes the use of office applications for teaching, learning and administrative tasks, i.e. creating resources, planning or tracking pupils' progress.

Digital Footprint: Ensure that you are aware of your digital footprints, especially their imprints across the social media that you use.

Some of these topics are explored in the following sections.

Online safety

In 2015, online safety, previously 'e-safety', was included in Ofsted's common inspection framework (Ofsted, 2015a). Prior to this, in most secondary schools, it was taught predominantly by the computing teacher and occasionally by form tutors as part of an organised personal, social and health education (PSHE) programme. However, it is now recognised as a safeguarding issue due to pupils being at risk of bullying, online grooming, sexual exploitation, changes to sexual behaviour due to sexting, being misled by fake news and radicalisation. As a teacher, it is important to make your pupils aware of not only the benefits of digital technologies but also their potential risks. You should speak openly and honestly about the negative impact of digital technology and peer pressure amongst secondary-school-aged pupils.

You may feel uncomfortable dealing with these issues. Your school may also have its own resources, and we can highly recommend classroom resources produced by Child Exploitation and Online Protection Centre (CEOP), BBC and Safer Internet Day to help you with this. These range from animations to short films. Usually, pupils take these seriously. Pupils can be asked to reflect on what their thoughts are about a video they have seen. Informing pupils that there no right or wrong answers provides an environment in which a mature debate and discussion can take place. You can then ask pupils to devise some general rules or advice based on the videos that other pupils should follow regarding online safety.

Online safety cannot simply be addressed by either one lesson or one form period each year; it should be revisited at regular intervals or when an online safety incident has occurred. If an online safety incident does occur and you are aware of it, then it should be dealt with seriously and you should follow your school's safeguarding procedures as online safety is a whole school issue. As soon as it is practically possible, inform the teacher whose class you are taking what has been

disclosed to you. Also, ensure that your subject tutor, the designated school safeguarding lead(s) and, if you are on an ITE programme in partnership with a university, your university tutor are made aware of your discovery so that they can advise and support you. The pupils involved should be asked to reflect on what has occurred and think about the real-life consequences should they be employed as an adult and this incident happened. Now complete Task 1.4.5.

Task 1.4.5 Safeguarding procedures in your placement school

Ensure you are familiar with the safeguarding procedures specific to each placement school. Summarise this procedure as a flowchart and record who are the designated school safeguarding lead(s). Store this in your PDP.

As schools take preventative measures to ensure pupils' online safety, for example asking pupils to read, sign and abide by an Acceptable User Policy (AUP), adhering to guidance for behaving responsibly online and asking them to select a secure password for their login to the school's network, so should you. You will be required to sign the staff version of your school's AUP at the start of a school placement, prior to being allowed to access the school's network. In addition, you might want to consider what your own digital footprint is by typing your name into a search engine and seeing what information, images and videos are available to be read or viewed. The reason for this is that pupils may well search the web to discover what they can about you. Review your privacy settings on any social media platform (e.g. Facebook) you belong to and any social media apps (e.g. Instagram) you either use or have subscribed to. You should amend your settings on these so that only trusted friends can see what has been posted. Now complete Task 1.4.6.

Task 1.4.6 Reviewing your digital footprint

We live in an age where we exist simultaneously in two worlds, the physical world and the virtual world. Within the virtual world we exist as a collection of data (i.e. audio, numerical, text, images, videos) and within interdependent, interwoven and interlinked networks which connect us to others within this virtual world. It is not uncommon for employers, pupils and parents to look at what there is about you on social media. It is important, therefore, before you start your ITE programme (and school placement), to ensure photographs and references to you on the internet represent you as the professional you want to be. In order to discover and review your online presence, take the following steps:

1 Google your name and see how many search results relate to you.
2 Which search results would you want the pupils you teach to see? (If there are any you would not want them to see, take them down.)
3 Review your privacy settings on any social media platform that you belong to and any social media apps.

In 2018, the UK Council for Child Safety (UKCCIS) Education Working Group produced *Education in a Connected World*, a framework for online safety. This framework details the knowledge and skills pupils need in order to navigate the internet safely.

As part of your safeguarding training during your ITE, you may undertake online safeguarding training, e.g. CEOP. This training can be submitted as evidence for your Standards. You may also wish to undertake your own self-assessment regarding your digital literacy skills in relation to e-safety and online identity. The self-assessment of E-Safety and Online Identity in Task 1.4.7 is taken from the Digital Literacy Competency Framework (Fraser et al., 2013), which is reproduced in full on the companion website.

COMPANION @ WEBSITE

Task 1.4.7 E-Safety and online identity: a self-assessment tool

Assess your own level of competency by completing the self-assessment of E-Safety and Online Identity below. This evaluation tool enables you to self-assess your own knowledge and understanding, and identify which competences you may need to develop further.

E-Safety and Online Identity

Entry

- I have a basic understanding of the definitions of e-safety and cyberbullying.
- I understand basic prevention strategies and safety tips.
- I understand my school's e-safety policies and how these relate to and support safeguarding, and the implications this has for my practice.

Core

- I understand the difference between personal and professional use of online sites and communications technologies.
- I am aware of the importance of looking after my online professional reputation; using privacy settings and 'friending' or connecting to others appropriately.
- I understand my responsibilities under the Data Protection Act with regard to the electronic management and protection of students' information.
- I am able to provide my learners with basic tips about how to stay safe online, including how to deal with online bullying, and how to save evidence.
- I can address cyberbullying disclosures and key e-safety issues (for example, bringing the school's name into disrepute online, accessing inappropriate content in school and sexting) and understand how to report these appropriately.

Developer

- I am aware of what current research tells us about young people's use of technology and the opportunities and risks relating to this.
- I can manage security and privacy settings in a range of platforms and services.

- I understand issues relating to the management of learner data and information and take responsibility for ensuring it is used appropriately, responsibly and with proper permission.
- I support my learners in understanding their rights and responsibilities in online environments, and in developing a positive online presence.

Pioneer

- I understand the importance of modelling the positive use of technologies for young people and I do this in a range of ways.
- I understand how to identify, manage and address the risks associated with learning and teaching in a range of online environments.
- I keep up to date with the wide range of online, mobile and gaming technologies young people use and the key ways in which they use them.
- I ensure the whole school community (learners, staff, parents and carers, governors) are actively involved in understanding and addressing e-safety issues.

Store this in your PDP. Work on any aspects in which you self-assess you need further development and update the self-assessment as appropriate.

SUMMARY AND KEY POINTS

This unit has focused on:

- reflecting on how to use digital technologies to enhance teaching and learning in your subject area;
- how digital technology refers to many of the things you may see and use every day, without thinking about it and reflecting on ideas about how you may use them in your teaching;
- a digital literacy competency audit. This should be encouraging, as it probably showed you knew more than you thought;
- encouraging you to use digital technologies, including ways in which you are able to control the direction, pace and learning that will keep pupils engaged;
- the importance of online safety.

Check which requirements for your ITE programme you have addressed through this unit.

Task 1.4.8 is designed to help you reflect on your learning in this unit.

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Task 1.4.8 Reflecting on the use of digital technologies in your subject

Reading this unit and completing the tasks help prepare you for using different IT applications and digital technologies and associated pedagogies to enhance your teaching and your pupils' learning. The following questions are designed to help you reflect on the use of digital technologies in your subject and to critically analyse the potential benefits of doing so.

- Discuss the proposition that using digital technologies to encourage pupils to develop transferable skills is only effective if an application of digital technology is used in different contexts and differing learning environments.
- Critically analyse the statement, 'Understanding what you can do with digital technologies to enhance teaching and learning is more important than knowing how the technologies work'. Support and justify your conclusions.
- Using relevant sources to support your answer, evaluate how the use of different types of digital technologies can be used to enrich the learning experience for pupils with English as an additional language (EAL).
- Pupils who have been diagnosed with autistic disorders typically have limited social interaction, communication or interests and can exhibit repetitive behaviour. Examine, supported by relevant sources, a strategy using forms of digital technologies that you believe will benefit such a pupil's learning experience. Evaluate how you would determine the effectiveness of your strategy.

Record your findings in your PDP.

Further resources

The suggested further resources have been selected to encourage you to think about opportunities for using all types of digital technologies in both an innovative and effective manner to enhance teaching and learning in your subject. They also seek to demonstrate that inspiration can come from an unexpected range of sources, and so pose the question: 'That looks interesting: could I adopt that to enhance my subject teaching?'

Bradshaw, P. and Younie, S. (2018) 'Understanding online ethics and digital identity', in S. Younie and P. Bradshaw (eds.) *Debates in Computing and ICT Education*, Abingdon: Routledge.
This provides an understanding for both pupils and teachers of ethical issues concerning digital technologies and an awareness of our online identities.

Burden, K. and Younie, S. (2014) *Using iPads Effectively to Enhance Learning in Schools MESHGuide*, available at http://www.meshguides.org
This MESHGuide gives a research-informed introduction to the use of iPads for learning.

Cych, L., Williams, L. and Younie, S. (2018) 'Using web 2.0 technologies to enhance learning and teaching', in S. Younie and P. Bradshaw (eds.) *Debates in Computing and ICT Education*, Abingdon: Routledge.
This chapter outlines the use of digital technologies for enhancing teaching and learning across subjects, specifically how Web 2.0 tools can be used to create a social constructivist learning environment. The authors discuss how digital technologies can be used to stimulate pupil engagement and how to deploy Web 2.0 technologies effectively in the classroom.

Fraser, J., Atkins, L. and Hall, R. (2013) DigiLit Leicester: *Initial Project Report*, Leicester: Leicester City Council (CC BY-NC 3.0) (see http://lucyjca.co.uk/publications)
This report contains a digital literacy competency framework with all of its descriptors and statements, which allow you to assess your own digital literacy skills. This also enables you to identify which competences you may need to develop further.

Shea, J. and Stockford, A. (2014) *Inspiring the Secondary Curriculum with Technology: Let the Students Do the Work!* Abingdon: Routledge.
This book explores ways of using everyday technology to enhance pupil learning. The authors illustrate, with examples, a range of activities that pupils become involved in and environments that might be used. The flipped classroom, Interactive White Boards, using mobile devices and social networking are explained in the context of their use to further enhance pupil learning experiences.

Younie, S. and Leask, M. (2013) *Teaching with Technologies: The Essential Guide,* Maidenhead: Open University Press.

This book brings together research findings to provide an evidence-based approach to using digital technologies in the classroom and highlights effective practice.

You may find the following resources and websites sources of inspiration as you seek to develop your own digital competence, discover how to embed ICT into your planning and teaching activities and your role and responsibility in promoting e-safety in your classroom and with the pupils you teach.

Child Exploitation and Online Protection (CEOP): https://www.ceop.police.uk/safety-centre

CEOP is a command of the United Kingdom's National Crime Agency (NCA) tasked to bring online sex offenders to the UK courts. One of CEOP's roles is that of public awareness campaigns and educational programmes, including the ThinkUKnow education programme (https://www.thinkuknow.co.uk/), which is currently used in UK schools.

Edutopia: www.eduopia.org

Edutopia is a website published by the George Lucas Educational Foundation, which celebrates and encourages innovation in schools by sharing evidence and practitioner-based learning strategies.

Educational Origami: http://edorigami.wikispaces.com

Educational Origami is a wiki and blog about 21st Century Teaching and Learning, which includes Bloom's Digital Taxonomy.

European Schoolnet (EUN): www.eun.org

EUN is a network of 31 Ministries of Education in Europe, which runs subject-specific projects and online CPD courses for teachers, conducts and publishes research into innovative teaching and supports teachers and pupils working on collaborative projects across Europe (i.e. e-twinning).

Safer Internet Day https://www.saferinternetday.org

This website curates teaching and classroom resources that can be used on Safer Internet Day, which is used to promote more responsible use of online technology and mobile phones.

TED-Ed Lessons Worth Sharing: http://ed.ted.com/

This website provides digital resources to enhance and enrich teaching and learning.

There are also resources to help you with online safety.

UK Council for Child Safety (UKCCIS): https://www.gov.uk/government/groups/uk-council-for-child-internet-safety-ukccis

UKCCIS (2018) wrote *Education in a Connected World,* a framework for online safety, which details the knowledge and skills that a pupil will need in order to navigate the internet safely.

Appendix 2 lists subject associations and teacher councils, and Appendix 3 provides a list of websites.

Capel, S., Leask, M. and Turner, T. (eds.) (2010) *Readings for Learning to Teach in the Secondary School: A Companion to M Level Study*, Abingdon: Routledge.

This book brings together essential readings to support you in your critical engagement with key issues raised in this textbook.

Capel, S., Lawrence, J. Leask, M. and Younie, S. (eds.) (2019) *Surviving and Thriving in the Secondary School: The NQT's Essential Companion,* Abingdon: Routledge.

This book is designed to support newly qualified teachers in the next phase of development as a teacher. However, you may find it useful as it covers aspects of teaching not included in this book which, nonetheless, you experience on your ITE programme.

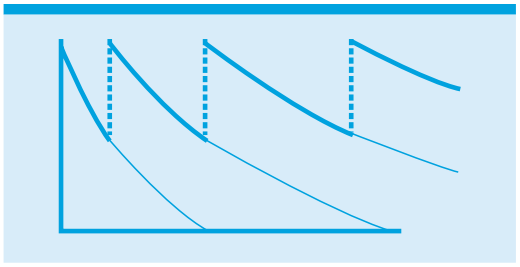
The subject specific books in the *Learning to Teach (Subject)* series, the *Practical (Subject) Guides, Debates in (Subject)* and *Mentoring (Subject) Teachers* are also very useful.

Any additional resources and an editable version of any relevant tasks/tables in this unit are available on the companion website: www.routledge.com/cw/capel

PLANNING LEARNING

Spaced practice and interleaving

Students often cram before exams; this "works" in a sense that they can remember the information required for the exam – but not for long. Spaced practice and interleaving are harder and less intuitive than cramming, but produce better long-term results.



Investigations into spaced practice date back to the late 1800s, with Ebbinghaus studying a list of syllables.

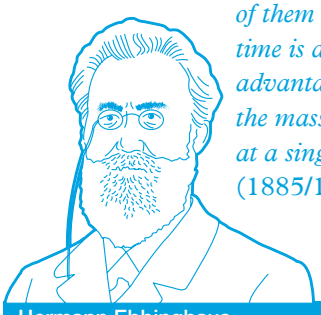
SPACED PRACTICE

At the core of it, spaced practice is a very simple idea. Let's think about how students tend to get ready for exams. Many students do what we call "cramming" – that is, they might stay up all night before the exam, or maybe spend a day or two before the exam looking over their notes and trying to cram them all into memory so that they can regurgitate them in the exam. Spaced practice is the opposite of that. Instead of reading and re-reading right before the exam, spaced practice builds in opportunities to look over the material and practice it for *weeks* before the exam.

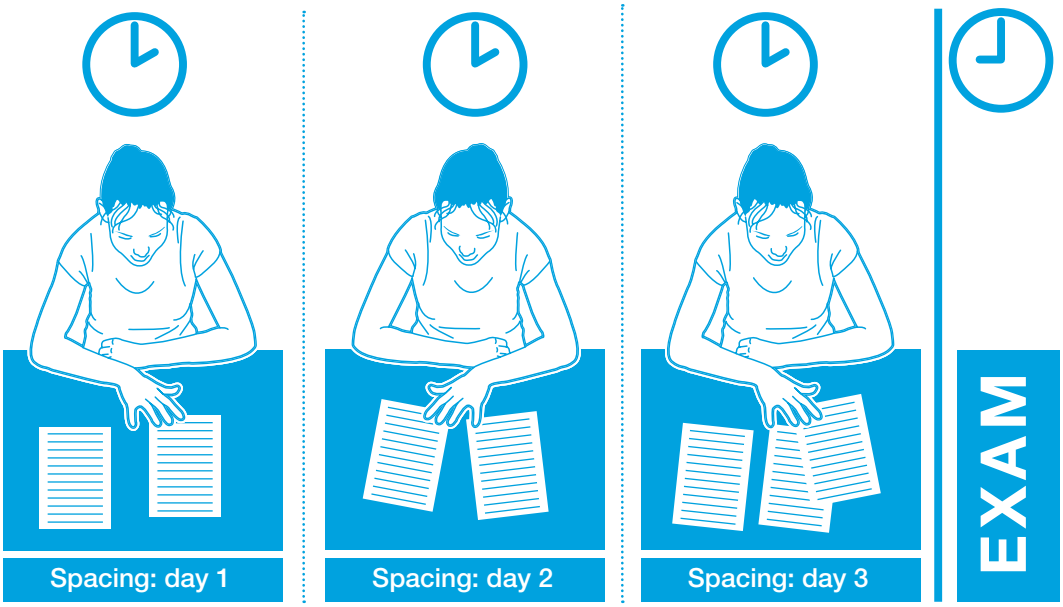
Investigations of spaced practice date back to the late 1800s, when the German researcher Hermann Ebbinghaus examined his own ability to learn and retain nonsense syllables such as TPR, RYI, and NIQ over time.

Here's how he did it: He first read a list of nonsense syllables, then tried to recite it perfectly. Of course, he couldn't get it right every time. To determine how long it took him to learn the list, Ebbinghaus counted the number of attempts it took for him to get a perfect recitation. He then tested himself again after various delays, and counted how many more attempts it took him to relearn the information after each break, and how that differed depending on his practice schedule. After a number of years testing himself on different study schedules, Ebbinghaus concluded the following:

> *"With any considerable number of repetitions a suitable distribution of them over a space of time is decidedly more advantageous than the massing of them at a single time.* (1885/1964)



Hermann Ebbinghaus



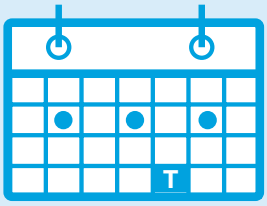
Spacing out studying over time is more effective for long-term learning than cramming study right before the exam.

Since then, the field has replicated the effect of spacing originally demonstrated in this case study in many different controlled studies, both in the laboratory and in the classroom and with children of many different ages (see Carpenter, Cepeda, Rohrer, Kang, & Pashler [2012] and Kang [2016] for reviews).

The benefits of spaced practice to learning are an important contribution of cognitive psychology to education.

But the important thing about spaced practice is that its effectiveness depends on the delay between the study session(s) and the final test or exam. If the exam is happening immediately after studying, then by all means students can read and re-read really quickly, cramming as much as they can into memory. In this case, they'll probably be able to remember some of the information in the exam, but as soon as the exam is over, that information is going to fly out of the brain as quickly as it flew in. With spaced practice, on the other hand, information is going to stick around for longer. We typically see the benefits of spaced practice after a bit of a delay, such as one or two days – rather than on an immediate test.

In one set of laboratory studies, Rawson and Kintsch (2005) had students read lengthy scientific texts. Students either read the text one time, or they read it twice in a row, or twice with a week delay in between. Then, half of the students in the experiment took an immediate test, and the other half came back two days later to take a test. The test in this study simply asked the students to write out everything they could remember from one particular section of the lengthy text (see opposite).

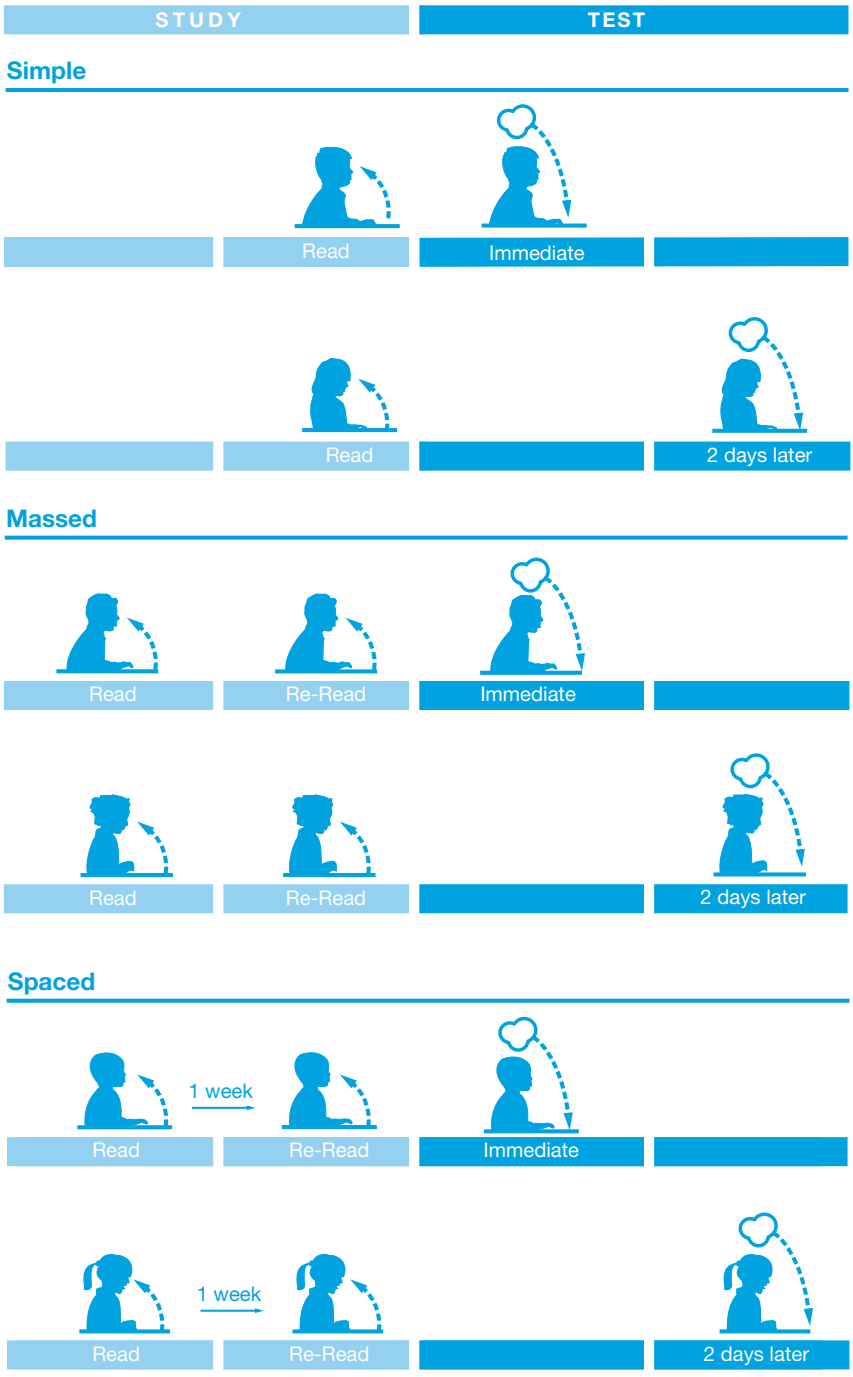


The effectiveness of spaced practice depends on the delay to the final test.

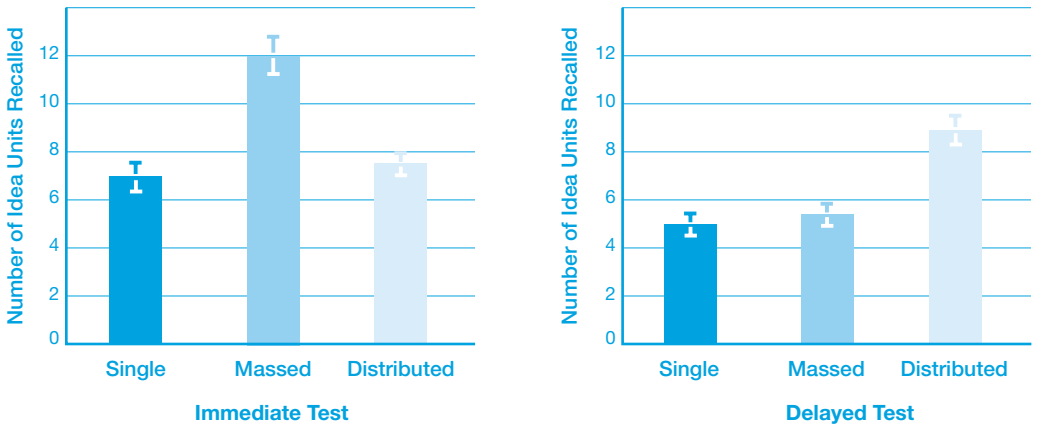
The results were strikingly different depending on whether students took an immediate test, or came back after two days (see over).

"The advantage for memory is much greater if you spread that time out across days rather than doing it all in one fell swoop right before an exam. (KentStateTV, 2009)

Katherine Rawson



The six learning conditions in Rawson and Kintsch (2005).

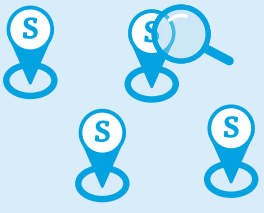


Graphs showing the effect of massing and spacing reading on immediate versus delayed tests. Data from Rawson and Kintsch (2005).

On the immediate test, it looked as though massing studying (that is, reading the text twice in a row) was the most effective strategy – better than reading just once, and better than reading twice one week apart, which looked the same as reading only once. But on the test two days later, this pattern was reversed: now, reading twice one week apart was much more effective than just reading once, or reading twice in a row. Importantly, on a delayed test, reading twice in a row was not significantly better than reading just once. So, a student studying for an exam that is in a couple of days is wasting time by reading and re-reading a chapter.

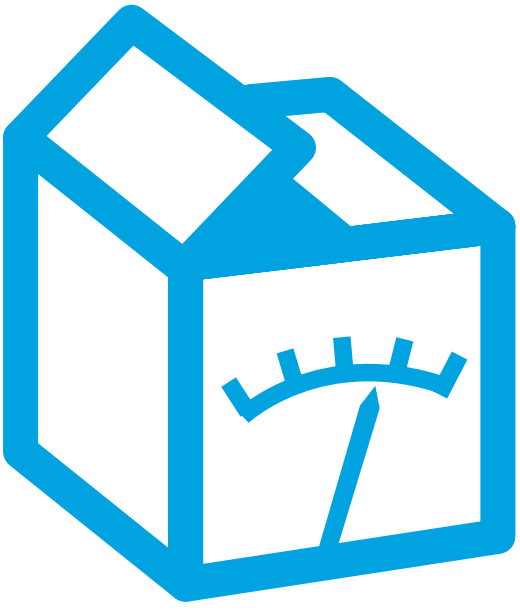
There is one caveat to the finding above. Of course, if a student is not fully attending to the material during the first reading (see Chapter 6 on Attention) then they may get something extra out of reading a second time right away. Not all initial readings are the same. However, all other things being equal, continuing to read and re-read ultimately is not going to produce as much long-term durable learning as is spacing these reading opportunities over time.

Spaced practice has been investigated in many different subjects and learning contexts, from simple vocabulary learning (Bahrick, Bahrick, Bahrick, & Bahrick, 1993), fact learning (DeRemer & D'Agostino, 1974), and learning from text passages (Rawson & Kintsch, 2005), to problem solving (Cook, 1934), motor skills (Baddeley & Longman, 1978), and learning to play a musical instrument (Simmons, 2012).



Spaced practice has been investigated in many different subjects and learning contexts.

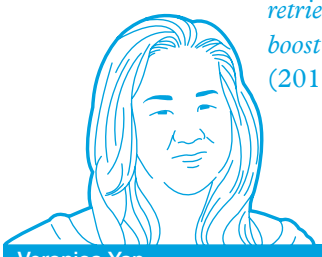
Spacing may be effective in part because it increases what some researchers call "storage strength" – a measure of deep learning – rather than our current ability to produce information (known as "retrieval strength"; Bjork & Bjork, 1992).



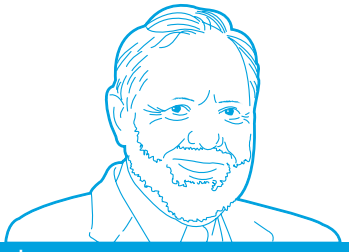
Storage strength indexes learning and, once accumulated, is never lost. (Bjork, 2013)

If we forget a little before we restudy information, this allows us to boost that storage strength when we re-encounter the information. To learn more about retrieval and storage strength, read the excellent guest blog post by Veronica Yan (Yan, 2016).

> *Spacing, or distributing learning (as opposed to cramming or massing) is one way to reduce retrieval strength and boost storage strength.* (2016)



Veronica Yan



Bob Bjork

INTERLEAVING: ANOTHER PLANNING TECHNIQUE

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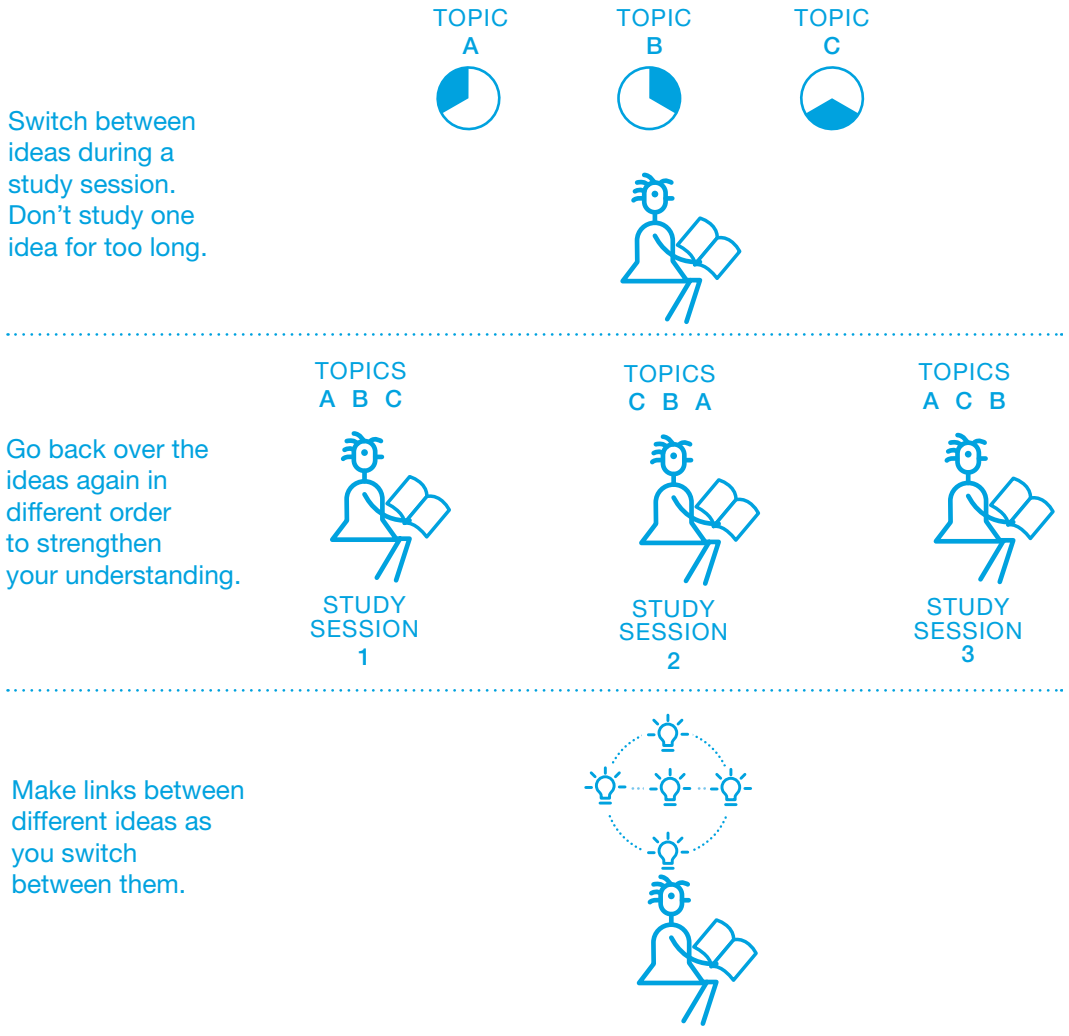
Interleaving is another strategy that can help with planning when and what to study.

Another strategy that can help with planning when and what to study is called interleaving. For a student, that would involve taking the ideas you are trying to learn, and mixing them up – or, switching between ideas and varying the order in which they are practiced. Rather than studying very similar information in one study session, you might take things that are somewhat related but not too similar, and mix things up by studying those ideas in various orders (see over).

To what extent is this technique effective? The research on interleaving spans many domains – some more relevant to everyday learning than others: motor learning, musical instrument practice, and mathematics, to name a few. Motor learning studies typically involve having participants learn different keystroke patterns either by practicing the same pattern over and over (blocked practice), or by switching between different patterns (interleaved practice).



Typically, interleaved practice produces poorer accuracy and speed during learning, but improved accuracy and speed on a later testing session compared to blocked practice (Shea & Morgan, 1979). This extends to motor learning outside of the lab, too: for example, golf coaches familiar with the cognitive literature recommend interleaved practice of different golf swings (Lee & Schmidt, 2014), and of course this would apply to any other sport. For example, in one study, children were shown to improve their beanbag-tossing skills after interleaved practice compared to blocked practice (Carson & Wiegand, 1979).

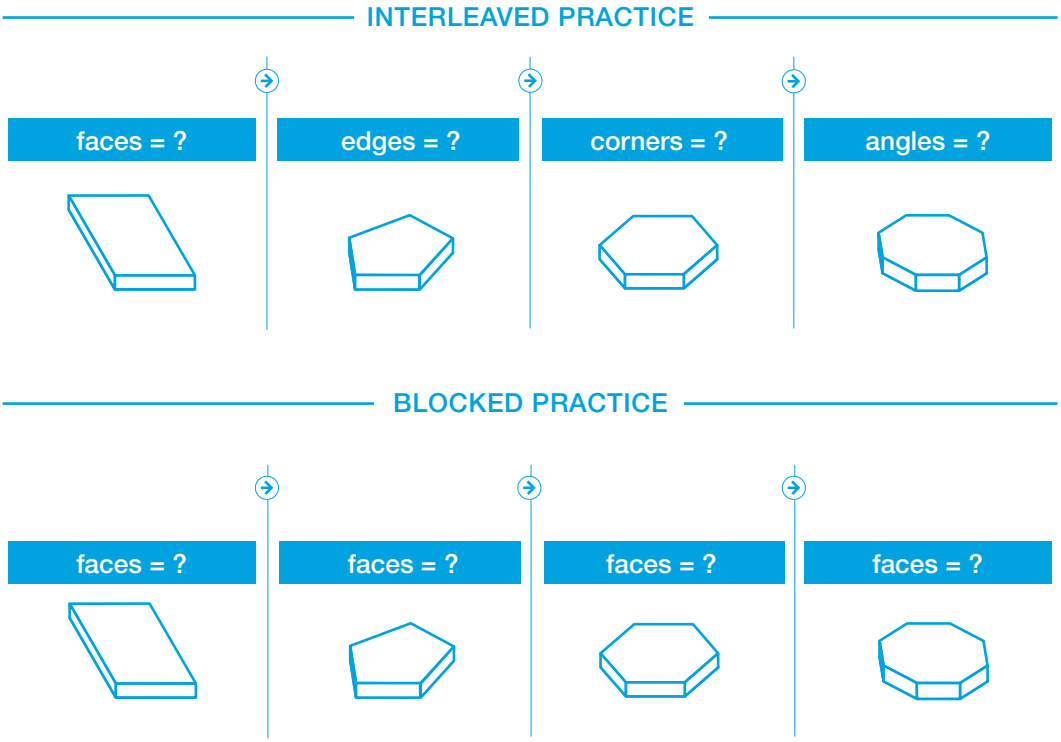
More relevant to academic learning, there has recently been a lot of interest in interleaving for mathematics.

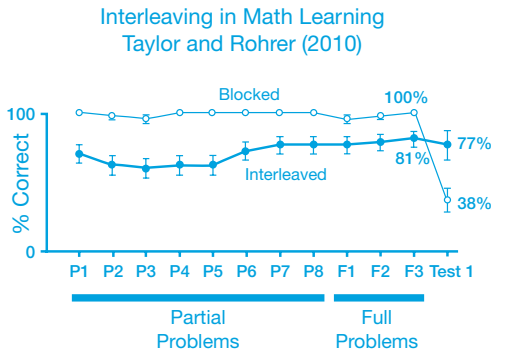
In studies looking at interleaving in math, typically students are given a variety of math skills to learn, and are given practice on these skills either blocked by skill, or interleaved so

There has recently been a lot of interest in interleaving for mathematics.

that various different skills are practiced in one session. This design has been implemented with students in elementary school (Taylor & Rohrer, 2010), middle school (Rohrer, Dedrick, & Burgess, 2014), and college (Rohrer & Taylor, 2007) – all with the same results: while students perform better on the blocked task during learning, the opposite is true on a later test, and dramatically so. For example, in a study with 4th graders, students were taught how to use different formulas to calculate different features of three-dimensional objects: faces, edges, etc. They then practiced either doing many of the same type of problem in a row, or switching between those different formulas (see below).

In the blocked condition, students' performance dropped from 100 percent to 38 percent in just one day, whereas those in the interleaved condition maintained their performance from 81 percent during learning to 78 percent a day later (Taylor & Rohrer, 2010) (see over).





This figure shows performance during practice (P1 through F3) and on the test the next day. P1 through P8 refers to practice trials where the formula was provided for students who had to apply it to solving each problem. F1 to F3 refers to practice trials where the formula was no longer provided and students had to recall it to solve each problem. This was also the case on the test.

WHY DOES INTERLEAVING WORK?

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The cognitive processes behind the effectiveness of interleaving are still under debate.

The cognitive processes behind the effectiveness of interleaving are still under debate. Some have argued that interleaving allows the learner to better distinguish between different concepts; additional evidence for this comes from inductive learning experiments in which students had to extract learning from a series of pieces of information about a concept (Rohrer, 2012). When this information was intermixed for different concepts, students were better able to extract the gist, presumably because they were able to compare examples and counterexamples (Kornell & Bjork, 2008).

Another reason why interleaving might be helpful – particularly for problem-solving subjects – is that it forces the learner to retrieve the right *strategy* to answer each different type of problem that they encounter. This is helpful because (a) it mirrors real life, where we do not typically get to answer a lot of similar questions in a row, and (b) because it allows the learner to select incorrect strategies and make errors that can then be corrected; this helps students to understand which strategy is used in which situations.

THE FUTURE OF INTERLEAVING

Despite the striking results highlighted in the previous section, there is still a lot we don't know about interleaving, making it much more difficult for us to recommend how it should be implemented by teachers and learners. First of all, we don't yet know exactly what type of material should be interleaved. While we know that interleaving completely different things, like science concepts and foreign language vocabulary, is not terribly helpful (Hausman & Kornell, 2014), we don't know what level of similarity is ideal. We also don't know what interleaving does to attention (see Chapter 6): it could hurt attention to the extent that interleaving is similar to multi-tasking, but it could also improve attention to the extent that switching between topics may reduce boredom and mind-wandering.

Another issue with interleaving is that outside of very contrived laboratory studies, it is very difficult to disentangle the benefits of

Outside of the lab, it is very difficult to disentangle the benefits of interleaving versus spacing.

interleaving from those obtained by spaced practice.

That is, imagine that you are interleaving by practicing material you learned today, together with material you learned last week. That involves interleaving, but by bringing back information from last week, you're now also doing spaced practice! As such, we recommend teachers focus more on spaced practice than interleaving – but keeping in mind that during each individual study session, it could be helpful to mix up studying different ideas or answering different types of problems, especially if students will need to be able to distinguish between them later on.

SPACED PRACTICE IN THE CLASSROOM

We are thrilled to see the changes currently being implemented by real teachers in classrooms across the world. Here are a few examples from teachers implementing spacing in the classroom.

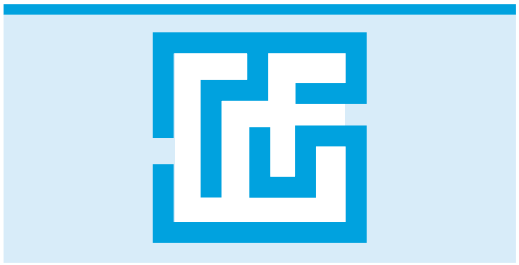
- Mr. Benney (Benney, 2016) writes on his blog about how he staggers math homework assignments on a given topic by one month, and then teaches a review session a month later (and a few months later as well, for topics studied earlier in the academic year). This encourages students to keep information in mind as they learn it, rather than compartmentalizing it after each topic is covered.
- Mr. Tharby (Tharby, 2014), an author and teacher in the UK, starts each of his classes by asking the students to review older material by giving small quizzes. He asks the students three questions about information from the

	SEP	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN
1	Taught	Lag Hwk		SL 1				SL 2		
2		Taught	Lag Hwk		SL 1			SL 2		
3			Taught		Lag Hwk	SL 1			SL 2	
4				Taught		Lag Hwk		SL 1		
5					Taught	Lag Hwk			SL 2	
6						Taught	Lag Hwk		SL 2	
7							Taught		Lag Hwk	
8									Taught	

TOPIC

Spacing table from Mr. Benney's (2016) blog post.

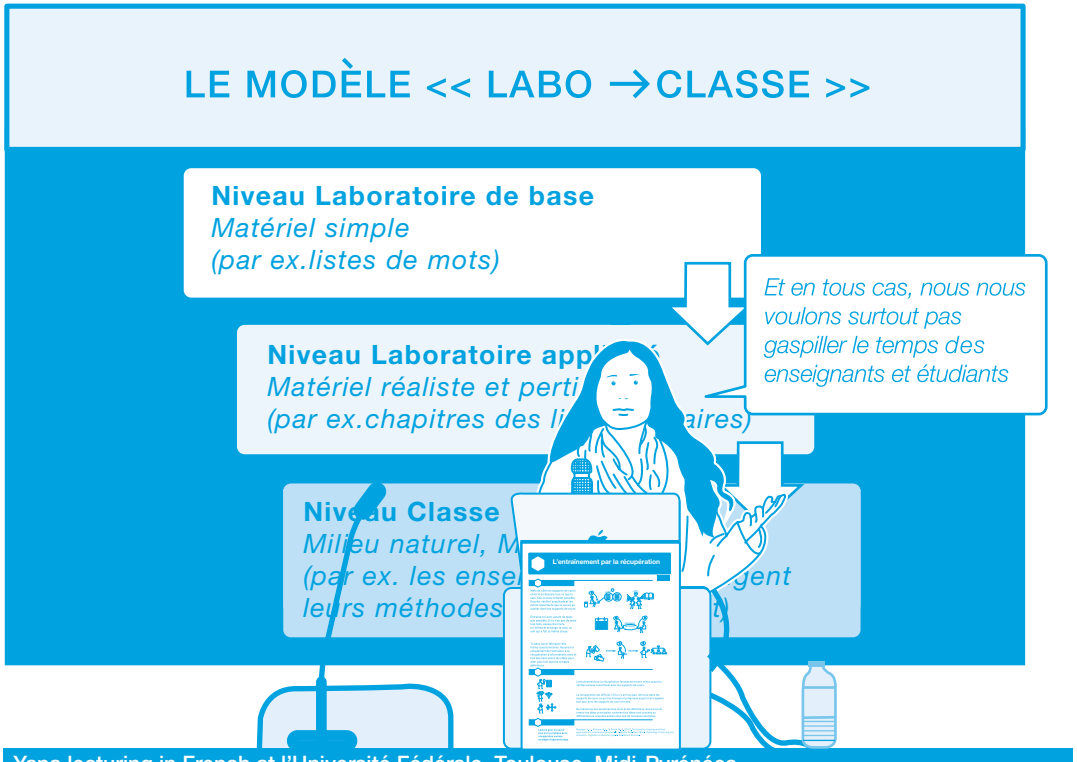
last class, one question about information from the last week, one question about information from the last month, and then finally asks one question that requires the students to make a link between information from the last class and something learned earlier. By asking students these questions, he is spacing out when the students are thinking about the information already taught. This exercise also combines spacing with retrieval practice, a beneficial learning strategy that we discuss in Chapter 10.



Getting students to use spaced practice is really hard. It might be difficult for them to stick to a schedule.

We should end by acknowledging that helping students to plan out when they will study is hard.

In fact, I (Yana) have an anecdote about this very issue. In May 2017, I was planning on giving a talk in French at the University of Toulouse. I had never given a talk in French before (I do speak French, but hadn't done so in a work context before that point). About six weeks out from my talk, I was trying to think about when I would prepare for it. My instinct – believe it or not! – was to set aside two whole days right before the talk. Essentially, to just cram the whole thing. This felt very efficient to me.



Yana lecturing in French at l'Université Fédérale, Toulouse, Midi-Pyrénées

But as I was about to block off that time in my schedule, I suddenly came to my senses: I was planning to prepare for a talk about spaced practice … by cramming. Quickly realizing my mistake, I decided to set aside 30 minutes per day for the next six weeks (coincidentally, that's a total of about 21 hours, or two full days of work) to practice the talk. I blocked off 30 minutes per day on my calendar, choosing a timeslot in the late morning that was usually open on any given day. What do you think happened every day when that time block came around? Well, some days I was too engrossed in what I was already doing, or quite frankly too lazy to study my French talk. It seemed so far away – there were six weeks, then five weeks, then four weeks still to go … but on other days, I did follow my own instructions and pulled out the presentation to practice. At the very least, I did this a lot more than I would have without having time-blocked the study sessions.

In Part 4, we give further tips for teachers who want to help their students plan out their studying.

CHAPTER SUMMARY

The benefit of spaced practice to learning is arguably one of the strongest contributions that cognitive psychology has made to education. The effect is simple: repetitions spaced out over time will lead to greater retention of information in the long run than the same number of repetitions close together in time. Interleaving is another planning technique that can increase learning efficiency. Interleaving occurs when different ideas or problem types are tackled in a sequence, as opposed to the more common method of attempting multiple versions of the same problem in a given study session (known as blocking). More research is needed to fully understand how and when interleaving works. Spaced practice, in the meantime, is ready to be implemented in the classroom and at home.

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1 Memory and understanding

How does information enter the memory, to be remembered and understood over the long term? This chapter explains the key psychological processes and concepts involved. In particular, it covers:

- The types of long-term memory there are, and why there are so many misconceptions about memory.
- Schemas, and the role of meaningful information in recall.
- The importance of learner attention levels, and of context.
- How the spacing effect and retrieval practice effect can be applied.
- Applications of key theories of memory to lesson and course planning.
- What constitutes good learning habits on the part of learners.

Memory is essential to the process of education. If our learners don't remember anything (i.e. if our teaching activities do not have a lasting impact on their abilities), then why do it at all?

In fact, to say that our teaching should have an effect on memory is a very minimal ambition. We want it to have a positive effect, and one beyond that which would have been achieved if we had not done anything at all; after all, children will always learn something, whether they are at school or not. As teachers, then, what we do in the classroom can be seen in terms of the long-term changes that our activities engender in learners, allowing them to develop and retain knowledge, understanding and skills that they will be able to transfer to new situations.

It is important to clarify that psychology uses the term 'memory' very broadly to include any lasting change in thought processes or behaviour. It does not imply meaningless memorisation, and this chapter is certainly not advocating more rote repetition of isolated facts. As will be seen, meaningful connections between prior knowledge and new learning is an essential facet of learning, making it much more likely that new concepts or skills will be retained. The term also applies to a learner's beliefs, understandings and skills, not just their factual learning.

If our work as teachers is to have positive and long-term effects on our learners, it is essential that we understand how human memory works. However, the research literature into memory is large and complex, and many findings are counterintuitive. In addition, the research has developed rapidly in recent years, and despite the value of professional judgement, we cannot rely just on intuition when the effects of an intervention may not be apparent to learners or teachers, or may not manifest itself until a later point. This chapter aims to help teachers to understand the science of memory, and to show how it can be applied in everyday classroom situations.

Why key aspects of memory are not intuitive

What exactly is meant by memory being 'counterintuitive'? Memory defies expectations, we cannot reliably figure out how it works just from experience, and this is especially true of long-term memory (henceforth LTM) (Bjork, 2011). We cannot fully understand human memory simply through our own subjective experience; how the human brain takes in and stores information is primarily a matter of fact, and this field of study continues to yield surprises after decades of careful experimentation. Developing a professional understanding of how memory works is made more difficult in that the results, by definition, are not immediate, and there are important instances where short-term gains are a very unreliable guide to long-term learning (Soderstrom and Bjork, 2015).

It is also hindered by a set of misleading everyday analogies that liken the human mind to a computer's data processor. We talk of 'encoding' information to memory, 'storage', 'processing' and 'retrieval'. In reality,

human memory is not a simple means of recording information, and things we have learned do not stay there in memory in the same format until we are ready to recall them. In short, human memory is very different from a hard drive or video recorder!

Some examples of inaccurate popular assumptions include:

- *We remember things more or less as they were shown to us.* There is now a large body of evidence to show that information is distorted as soon as we begin to remember it, and some of our 'memories' never actually happened (Loftus, 2005).
- *Children are like 'sponges', and remember things better than adults.* In studies of eyewitnesses to a crime, it has been shown that children are highly susceptible to leading questions and false information (Schacter, 2001).
- *The more you repeat something, the better you will remember it.* It is now known that short-term memory is not a reliable gateway to LTM. Going over things repeatedly results in increased confidence without long-term improvements (Kornell et al., 2011), while simply repeating information does not guarantee entry to LTM (Dempster, 1996).

Structure of long-term memory

LTM can be defined as an evolved group of neurocognitive systems involved in the permanent storage of information, understandings, skills and actions in order to retrieve them for future use. It is therefore very broad, involved in everything that draws on previously learned skills and knowledge, and therefore in almost everything we do, from preparing breakfast to discussing politics. In school, learners are drawing on memory when they read, play sports and follow rules, as well as in more obvious situations such as memorising the lines to a play or answering an exam question. And as will be seen in Chapter 4, retention of factual knowledge also plays a key role in creativity.

A complication with understanding LTM is that it is responsible for several apparently quite different functions. Figure 1.1 helps to illustrate

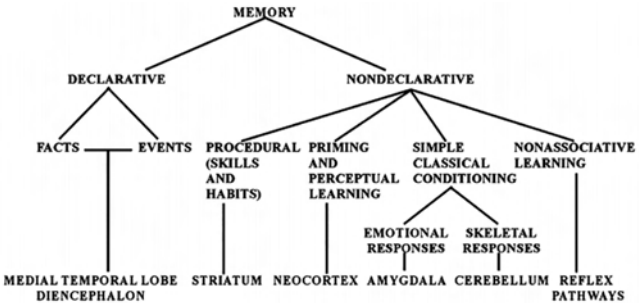

Figure 1.1 Subsystems of LTM with associated brain areas
Source: Squire (2004)

this point by showing some of the different subsystems of LTM, together with the separate brain areas that they are associated with.

As can be seen, there are different types of LTM associated with different functions. Importantly for the teacher, LTM can be split into declarative memory (they know it and can explain it) and non-declarative memory (they have learned it, but cannot necessarily explain how or when; an improvement at playing a musical instrument is one example, as is an emotional association). Therefore, although learning in schools is often linked especially to declarative memory for facts and events, other types of LTM such as memory for procedures and skills are important too, particularly in certain disciplines. However, there are also more basic associative and emotional learning processes that should not be ignored.

As can also be inferred from the diagram, encoding things to LTM involves a change in one or more of the relevant brain areas. Although the details of how this happens are still not fully understood by neuroscientists, we know that it must happen. All of our thoughts and behaviour arise from brain processes – the interaction of neurons, primarily – so if you think differently, remember something new or improve at a skill, a physical change must have taken place within your brain. As might be imagined, this process can be relatively slow, and needs to be consolidated over time. It's not essential for teachers to have a detailed understanding of neuroscience, but it is worth keeping in mind the

general context: all of the memory processes described throughout this book involve the brain, and while a pupil can retain and process unfamiliar information over the short term, no new learning is possible without permanent changes taking place on a neural level.

What are the key principles of memory and understanding?

Clearly, a person's ability to form new memories for facts and events – more broadly termed their declarative LTM – plays a key role in most learning situations. This section looks at several key principles of this memory system, all of which are immediately applicable in the classroom.

Meaning

LTM preferentially encodes and stores meaningful information (Baddeley, 1966). This is why when recounting a story or joke, we remember the gist, not the exact words used when we first heard it. The clear implication of this factor in memory is that if learners do not fully understand things, they are unlikely to remember them over the long term. Meaningful processing of information is often referred to as *deep processing*, in contrast with the processing of more superficial details such as what information looks or sounds like (see the next section of this chapter).

Meaningful information is not stored in separate units (as might happen on a computer hard drive), but is structured into well-integrated groups and categories known as schemas. These schemas guide us by filling gaps and providing assumptions. New information is best remembered if it can be linked to an existing structure; if we have some understanding of a topic already, it is easier to learn more about it than if we are complete beginners.

Schema knowledge is not based on memory for single events, but is the representation of more general and abstract characteristics of objects and categories. For example, a learner may recall being shown a

video of Mount Etna erupting, but their schema for a volcano will draw on this and many other experiences that allow them to make generalisations, such as that volcanoes are usually mountains, they can erupt but are sometimes extinct, etc.

Research into the structure of memory and schemas suggests that our expectations can lead to information being distorted. If something that is presented is partially familiar, learners may unintentionally distort and misremember it to fit their assumptions. This was found in a classic study by researcher Frederick Bartlett, the first British professor of psychology, who read Native American folk tales to his Cambridge University students and then tested their recall. He found that they missed out the more confusing parts, added bits that were not in the originals, and overall distorted the stories to make them more like stories from their own culture. What this suggests for the more everyday teaching context is that learners who lack fundamental knowledge will not be able to take in new, more advanced knowledge – and when they do take in ideas, their understandings may be flawed and inaccurate.

The concept of schemas links well to the dominant idea in education of how knowledge is formed – social constructivism. This states that rather than being an individual process of learning an objective set of facts, knowledge is based on developing understandings partly through interaction within a social and linguistic context (Vygotsky, 1978; see also Chapter 8).

The importance of meaning implies that activities which prompt learners to think about and process meaningful information should be encouraged. This could include tasks where learners categorise information, draw hierarchies, make links and distinctions, explain concepts to others, or spot errors, for example.

Teachers often like to deliver material in discrete chunks so as not to overload learners, but it is important that links to other information are made salient too, in order to activate and develop schema knowledge. The meaningful foundations for learning must be in place; individual isolated facts are easily forgotten, while knowledge that is integrated within a well-understood structure will be retained.

Learners can be encouraged to draw diagrams that show how areas of topic material link together, while tasks that involve drawing on several areas of learning in a real-world context can help them to develop a more interconnected structure of understanding.

Engagement and attention

Being engaged and making a mental effort plays a curious role in memory. While it may seem obvious that learners who are making more of an effort will remember better, a classic research study by Hyde and Jenkins (1973) suggested that meaningful processing plays a larger role. In their study, some learners were asked to try their best to learn a list of words for a later test, while another group were not told about the test, but were asked to state how much they liked the items on the list. It was the latter group who remembered the words better.

Nevertheless, on a more basic level, learners must at least devote *attention* to the task at hand (with some exceptions; see Chapter 2) in order to process new meaningful concepts at all, and too much new information presented at once – such as long lists of words or a large number of PowerPoint slides – is likely to lead to information overload and a failure to encode much of the information to memory.

Boosting the attention level of pupils is not always easy, and depends on an interaction between the learner and the material; people pay more attention if they are interested. It certainly helps to make things relevant to individual learners, activating their schemas and finding analogies that they can relate to. This does not imply that we need to tailor teaching to a pupil's particular 'learning style'; in a review of the popular idea that teaching is most effective when it matches their preference for visual, auditory or kinaesthetic information, Pashler et al. (2008) found virtually no evidence that supported this hypothesis, and many studies that contradicted it.

Emotion also plays a key role in prompting attention. Pupils tend to pay more attention to things that attract them on an emotional

level – from amusement to curiosity, and even disgust. Things that are funny, surprising or rude tend to be better remembered than things that are bland or repetitive. This doesn't mean that we need to shock our learners every day or that everything has to be funny, but we should be wary of making the presentation of content overly standardised; things that are predictable have less emotional impact, just as you would probably remember every holiday you've been on, but not every occasion that you have travelled to work.

A mild degree of short-term pressure (e.g. an in-class competition or time limit) can boost performance. This is based on a principle known as the *Yerkes-Dodson law*, which states that people's performance, including learning, is best at a medium level of arousal (see Figure 1.2).

Attention levels also vary throughout the day, and are linked to fatigue – people take in information less effectively when tired. Evidence is also accumulating (e.g. see Rasch and Born, 2013) that one of the primary functions of sleep is to help to stabilise and consolidate long-term memories in the brain. In a large-scale study, Wolfson and Carskadon (1989) found that pupils who slept for longer and more regularly (i.e. not catching up at the weekend) were significantly

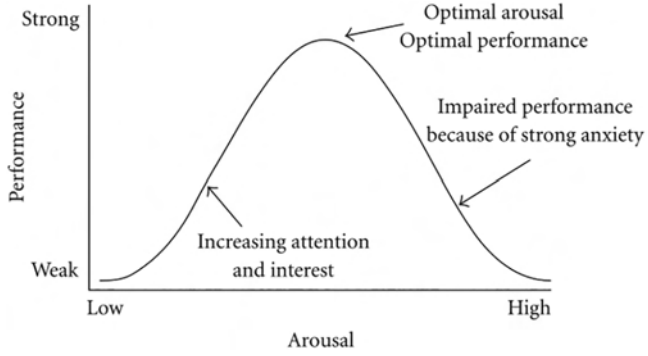

Figure 1.2 The Yerkes-Dodson law shows that performance on tasks such as learning are optimal at a medium level of arousal

more likely to get A grades. Aside from this, attention levels vary across the day as part of our circadian rhythms, meaning that learning will be more effective in the middle of the day than early in the morning or late at night.

The human memory appears to have evolved to pay extra attention to information that will be useful to us in the future. Why, after all, do humans have a flexible LTM, rather than the more instinctive/imprinting-based systems seen in fish and birds? The likelihood is that in our evolutionary past, there was an advantage in having the flexibility to remember a range of things that could aid survival. A number of recent findings have shown that LTM works more effectively in situations that are relevant to life or death, and those that concern animate rather than inanimate objects (Nairne et al., 2013). One example study compared memory for items in three scenarios: on grasslands surrounded by predators, moving to a new home, or (the control condition) just rating the pleasantness of the words, with the former leading to the best recall rate. Soderstrom and McCabe (2011) found a similar effect in a scenario involving being 'in a city being attacked by zombies', suggesting that this evolutionary preparation may be a fairly general ability to focus more on things that seem relevant, dangerous or useful.

Catching learners' attention is a skill that comes partly with teaching experience, but a great deal of it involves stimulating curiosity via simple strategies. One example is to avoid starting lessons with a set of facts, but instead to begin with the questions or problems – for example, what difficulties were renaissance artists trying to overcome when they developed the techniques of linear perspective? Prioritising active research tasks and personalising topics by presenting them via real-life stories can also help to boost attention and engagement.

Teachers don't usually have much control over student sleep or lesson timing, but should encourage good and regular sleep habits. Consideration should be given to learners' well-being, and homework should be designed to be as brief as possible, to avoid learners having to stay up late working on it.

Survival processing is in its early stages in terms of lab investigation, and as yet it is hard to see how it can be broadly applied in the classroom. Can we persuade pupils to 'imagine you need to know this quote from Macbeth to avoid being eaten by a lion'? One promising angle from the work of Wilson (2016) has found that the memory benefit of survival tasks seems to link to the degree to which they require creative thinking. In other words, figuring out whether words and objects would be useful in a survival situation can be seen as a novel problem-solving task. It's therefore probably not necessary to invent scenarios that involve life-or-death situations; learning activities that combine novelty, curiosity and problem-solving will stand a very good chance of being retained in memory.

Context

Pupils learn things in context rather than as separate bits of information. It is easier to recall things in the same context than in a novel context. This is why if we see a person in an unfamiliar place, such as meeting a neighbour on holiday, it can be hard to put a name to the face (i.e. to retrieve the name from our memory). However, the context where learners retrieve information (e.g. the exam hall, the workplace) is often different from where it was learned, and if a lot of information is learned in the same context, it will be easily confused (Smith et al., 1978).

Teachers should keep in mind that learners are not taking in facts in isolation, but as a holistic bundle that includes the social context and sensory information such as their surroundings. They will remember information more readily if the surroundings of recall match those in which things were memorised, but when the context where they will need the information in future is unpredictable, it is best to study in varied contexts. This includes not just the physical surroundings, but factors such as seeing the information in the context of a different topic, working with different people, or even when you are in a different mood.

Spacing

The spacing effect (also known as distributed practice) is the very well-established but little-used principle that for any material, information is better remembered if there is a larger rather than smaller interval between the first time it is studied and the second (Cepeda et al., 2008). Covering anything intensively therefore, such as revising a topic several times within a weekend, will lead to more rapid forgetting than introducing a delay. Having two study sessions spaced apart will be far more effective than a single session – in fact, the larger the gap, the better, within certain limits.

The reason for this effect is a matter for debate, but it may draw on some of the principles already discussed: a time delay before restudy changes the context, boosts attention, and gives the learner more time to consolidate the first learning event via sleep. It also allows more time for forgetting, which (counterintuitively) might actually be helpful, because it makes the second study session more effortful, leading to it having a bigger impact (Pyc and Rawson, 2009).

Spacing interacts with another memory effect known as *interleaving*. This is the finding that new information typically leads to more durable learning if it is mixed or shuffled with other information, rather than being presented in a block of similar items. For example, Kornell and Bjork (2008) presented learners with images of paintings by 12 artists, and then tested their ability to recognise the artists' style via previously unseen paintings. Contrary to the researchers' expectations, participants learned to recognise the various painting styles more quickly when they were interleaved than when they were presented together as a block. Rohrer et al. (2015) applied a similar principle in a school context, and found that maths exercises where problems were set in blocks of the same type – the typical arrangement in most contexts – led to poorer outcomes over a three-month period than when the problems were interleaved.

The research into spacing suggests that teachers should avoid teaching concepts and skills in a single session, instead splitting the learning time across two or more separate occasions (i.e. it suggests a

reorganisation and reordering of when tasks are done). Rawson and Dunlosky (2011) helpfully state this more specifically: learners should practise concepts until they have got them right three times, and then study them a further three times at times that are spaced out over days or weeks.

In terms of whole topics, Rohrer (2015) notes that although learning is already spaced out to an extent, learning a topic over a greater rather than smaller number of weeks (while keeping overall learning time constant) appears to lead to better retention. Teachers could therefore consider extending the duration of topics rather than teaching them in an intensive block, and/or conducting review and extension after a time delay rather than immediately after the topic is first taught.

It will occur to many teachers that interleaving of new target learning items can be difficult and lead to confusion. Kang (2016) notes that in the very early stages, practice of a single item can be helpful, but after this initial learning phase, interleaving of material actually boosts learners' ability to discriminate between easily confused items and ideas. However, teachers need to be careful to keep learners on side, as strategies that make learning more difficult affect motivation.

Retrieval

Getting information into memory ('encoding') is of course essential, but it does not guarantee that we can get it out again when needed – such as in an exam or real-life situation. Retrieval is the term used to mean accessing our memories and recalling the facts and skills, and could include many types of event: performing a piece of music, making a link between new information and something previously studied, or answering a multiple-choice question are all examples of retrieval.

As well as the eventual end result for pupils in exams, retrieval is very useful as a study strategy – people learn better when they are tested than when revising more passively. As a learning strategy, this

is commonly known as retrieval practice, and is considered one of the most effective educational interventions (Dunlosky et al., 2013), along with spacing.

It should be noted that the use of retrieval practice is not the same as formative assessment – a method of using performance to identify weaknesses and priorities (although the two can complement each other). Retrieval practice helps because the active use of learned information appears to consolidate that memory and make it less likely to be forgotten (Karpicke et al., 2014). A good example comes from an experiment by Roediger and Karpicke (2006), which gave groups of learners a text to learn (see Table 1.1). One group was given three additional chances to read the text, a second group was given two additional chances followed by a test, and a third group was simply tested three times (the test involved writing down everything they could remember from the text).

After a memory test five minutes later, Group 1 did slightly better – no surprise, given that they had seen the text more often. However, one week later, the findings were much more surprising – at this point, it was Group 3 who did the best, remembering around 60 per cent of the key ideas compared to close to 40 per cent among Group 1, with Group 2 midway between the two. These findings show that while repeatedly reading or hearing information has an impact on learners, its effects are very short-lived, and it is largely useless as a long-term learning and revision strategy. It also shows how easy it would be for students or teachers to be misled by short-term gains into thinking that permanent learning has taken place.

Table 1.1 Summary procedure of the Roediger and Karpicke experiment, which showed the benefits of testing one's memory rather than rereading

Group 1	Study	Study	Study	**Test**
Group 2	Study	Study	Study	**Test**
Group 3	Study	**Test**	**Test**	**Test**

A number of learning activities involve retrieval. Any activity where learners are having to use previously encoded knowledge and understanding or skills will cause them to retrieve this from memory, including giving a talk, answering a teacher's questions, discussing an issue in class, peer teaching, or essay writing (especially when done 'closed book'). The strategy can also be combined with spacing – retrieval that is spaced out over time is likely to have greater benefits than spaced restudying.

It might be assumed that a test should be done as soon as possible to obtain the benefits described above and to prevent forgetting. However, making a test too easy could reduce its beneficial effects, as follows from the point made about retrieval effort above. For this reason, retrieval will be more effective when delayed by at least a few minutes, and preferably repeated on subsequent days. There is also some evidence that retrieval practice will have the most benefit when it involves 'free recall' – such as writing or explaining something rather than choosing among options, such as in a multiple-choice test, though both are better than simply rereading (McDaniel et al., 2007). However, McDermott et al. (2014) found no difference between short-answer and multiple-choice tests in a study of science and history learning with 12–13-year-old school pupils, but supported the idea that either type of low-stakes test has a significant impact, boosting later exam grades. The difference (or lack of it) may depend on the difficulty of the particular test, and the extent to which it prompts active retrieval from memory. These findings again demonstrate that making learning tasks more challenging can have benefits.

There is of course a debate about the use of tests in education, and the use of large-scale standardised tests is controversial. However, when it comes to short, low-stakes, teacher-generated tests done on a regular basis, the evidence is clear – retrieval helps, and is better for consolidating LTM than when learners are passively presented with the information again.

A theory: levels of processing in memory

The concepts in the previous sections cover the basic apparatus of LTM. For information to be remembered, it must be encoded, a process that

relies on forming meaningful connections to other memories. New learning is more durable in memory when practice is interleaved with other concepts or skills, involves retrieval rather than by rereading/reteaching, and is spaced out over time rather than immediate. These can be considered the basic conditions of learning and remembering, and should guide teachers when thinking about the kind of tasks to use in the classroom.

There have been many theories of LTM proposed, and some are very complex without being especially helpful to the teacher. The levels of processing model (Craik and Lockhart, 1972) is one of the more useful ones, as it explains how items that are processed on the basis of meaning were more deeply processed, and therefore better remembered than more superficial forms of learning (e.g. by sound or appearance).

This was demonstrated experimentally by Craik and Tulving (1975). They presented lists of words together with questions, such as the following, each requiring a yes or no answer from their research participants. For example:

1 Is this word a type of fruit? GRAPE. Yes/No
2 Is this word in capital letters? HOUSE. Yes/No
3 Does this word rhyme with dip? CHIP. Yes/No

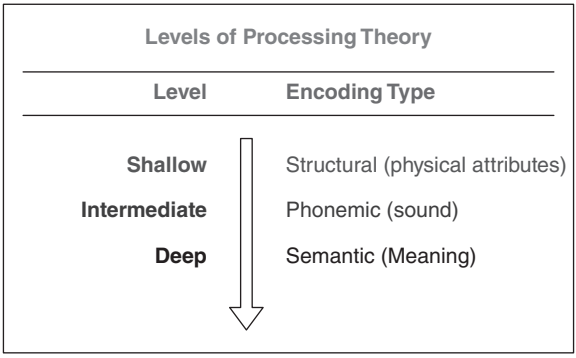

Figure 1.3 The levels of processing model, which focuses on whether information is processed meaningfully

The findings of the study were that even though the participants had paid attention to all of the items in order to process them and answer the questions, items that were linked to a meaning-based question, such as number 1 in the example above, were better remembered. This fit with the prediction of the theory that meaningful items are more deeply processed, leading to better LTM recall.

Using the theory

Importantly, it is not the words themselves that led to better recall in the Craik and Tulving experiment, but the activity that learners were prompted to do. This has implications for the way new material is presented in class – what matters is not the concepts that learners have to tackle, or even the specific worksheets or PowerPoints that a teacher uses, but the activity that a class has to undertake. This is what makes the key difference to encoding the information into LTM.

There are a variety of teaching techniques and activities that could lead to deeper processing. The essential point is to link information in a meaningful way, which generally means connecting it to schema knowledge (which, of course, varies slightly depending on the learner). Tasks that require learners to sort information into categories is inherently meaningful, as is using it for creating stories; Craik et al. (2007) explored the benefits of these techniques for adults with dementia, and the techniques could be used with school learners too. Judging or evaluating items in terms of accuracy or their own personal preference would also be helpful.

Finally, elaborating on target information by creating real-world examples will necessitate deep processing. Elaboration by developing multisensory examples is also the basis of many mnemonic techniques (and indeed, one of the main reasons why deep processing is thought to be effective is that it encourages a greater number of links with other concepts, which can help prompt later recall). For the teacher, elaborative interrogation can be used to prompt meaningful engagement with

an idea. The use of 'how' and 'why' questions during classroom discussion, tutoring or teacher questioning therefore fits very well with this theoretical framework.

It should be noted that the theory has its limitations. It doesn't account for other key variables such as the learner's interests or the learning context, or explain the circumstances under which the learner will spontaneously engage in deep processing. However, it is useful in guiding us as teachers to ensure that the focus of a learning task is on meaningful connections rather than superficial processing.

Using the principles of memory and understanding

So far, this chapter has explained how key factors in memory can have a major impact on how well skills and ideas will be remembered and understood. The following section explains how planning decisions that teachers make can take account of these ideas.

Lesson planning

When preparing a lesson, a teacher will usually consider the quantity of information to be covered and decide how much detail will be appropriate for a given lesson, bearing in mind the limited time available to cover the syllabus. We know that good knowledge is essential for understanding, but we may be concerned about overloading learners with too many facts and ideas.

One initial consideration is to make target information stand out in terms of meaning and emotion. Lessons are often quite repetitive in structure – pupils sit in the same place, and listen to the same teacher in the same surroundings. A school day or class that is very distinctive (the school trip, the day you studied outside, the day a famous author visited the school) will tend to stand out amid otherwise forgettable lessons.

This can also be linked to the principle of context discussed above – learning that occurs in multiple contexts will be more easily accessed at a later date than learning from a single context.

If the above suggestion sounds like a recipe for mayhem, there are other ways of making information stand out. Books and teaching materials typically illustrate information with cartoons and photographs, and this fits with another well-established encoding principle: *dual coding*, the idea that learning information through two modalities (e.g. visual and auditory) boosts recall (see Clark and Paivio, 1991). Teaching the same idea in different ways, through both explanation and activities, can help, as well as gradually reinforcing the points with reading or other activities, which will lead to connections naturally forming in varied contexts.

Clearly, we also need to introduce the most important ideas when learners are most receptive to them. A very reliable finding in psychology is that for any series of items, people typically remember the first few items and the last few, and are much more likely to forget the ones in between (Murdock, 1962). This can easily be demonstrated in the classroom by asking pupils to remember 20 words that are read out one at a time, or 20 objects that are shown one after the other on a screen (see the demo task below). When it comes to classes, learners are likely to remember their first day and their final few classes, but remember the others less well, and the same applies within a class or activity.

This demonstration aims to show the serial position effect – most people remember items at the start and end of the list, and forget many of the other items. Hopefully, it should also demonstrate the importance of distinctiveness – an unusual item in this example stands out from the rest of the list and may be better remembered. Improved memory for unusual items is called the 'Von Restorff effect'.

Although the demonstration focuses on short-term memory, the serial position effect has been demonstrated in LTM too; Tulving (1983) notes that episodic LTM – our memories for life events – also shows this phenomenon. The obvious implication for teaching would

Task

Read the following list of items out loud. Then close the book, take a piece of paper, and write down all of the items that you can remember:

- Banana
- Phone
- Hat
- Mustard
- Business
- Sign
- Laptop
- Cake
- Pocket
- Gate
- Wheel
- Stairs
- Switch
- Mexico City
- Toothbrush
- Guitar
- Lane
- Blanket
- Paper

be to ensure that the messages that we give at the beginning and end of a lesson are the most important ones. Rather than using up the focused attention learners paid at the start to ask them about their weekend, take the class register or tell them a funny story, a teacher might begin with three or four crucial learning points for the lesson even before saying anything else at all, then take time for administrative or pastoral functions midway through, when learner attention levels have dropped.

Course planning

Beyond the structure of a single lesson, most of us are faced with the problem of how best to deliver a fixed syllabus over an inflexible period of time. If we are fortunate, we may have some control over tasks and

timing, allowing us to exercise professional judgement regarding the order in which to present tasks, tests and revision activities. As the spacing effect implies that a time delay leads to superior learning, we can therefore ensure that learning of a particular concept is divided into at least two parts, spaced apart over a term or year.

A popular and understandable reason for not spacing things is a sense of neatness of teaching a single subtopic/text/theory in a single lesson, and perhaps the worry that covering the subtopic in more than one lesson essentially amounts to teaching it twice, and would therefore take too long. However, it should be emphasised that all experiments on spacing keep other variables constant, including the learning time. In fact, even if *less* time was spent on the material overall, spaced learning would still be more effective, and it could therefore be seen as a partial solution to an overly busy curriculum.

Another issue is that a brief or incomplete explanation may be ineffective, and Kang (2016) notes that despite the benefits of interleaving, it tends to be better to learn a new concept or skill in a block during the early stages. At times, a full explanation cannot be practically split into two or more shorter chunks. It may even be the case, though, counterintuitively, that an incomplete explanation has a more powerfully positive effect on memory than a complete one, rather like the lasting emotional impact of a cliffhanger in a TV show. Early research by Russian scientist Bluma Zeigarnik (1927) found that restaurant staff remembered incomplete orders better than ones that had already been delivered to the table, and were therefore mentally finished. This *Zeigarnik effect* may link to the increased attention given to unfinished tasks, and was supported in a study of the workplace showing that workers were more likely to think about incomplete than complete tasks when they got home (Smit, 2015). This could be applied to teacher explanations.

In judging when to return to material after a spacing interval, it appears that the optimal amount of time to be left between the first and second study session depends on when the eventual test/use of material will occur. Rohrer and Pashler (2007) concluded that the time between studying and restudying should be around 10–30 per cent

of the time between the first study session and the final test/exam. Cepeda et al. (2008) looked at longer intervals of up to 350 days, and found a 5–10 per cent delay to be optimal. As they put it, 'The interaction of gap and test delay implies that many educational practices are likely to be highly inefficient' (p. 1095).

Overall, then, people tend to restudy too soon, and a gap of 10 per cent or a little more will work well within most school courses. As a practical example, that would mean waiting 20 days or more before review/testing on a topic if the exam was 200 days away. However, if we want our learners to gain enduring benefits from their work that they will apply to life and to their future studies, it would be best to have even longer spacing intervals, even *after* a course is complete. This could in part be achieved by broad interest-based reading of relevant information, as well as cross-curricular research projects. Küpper-Tetzel et al. (2014) point out that material is typically not reviewed a single time during the school year, but studied on three or more occasions, with decreasing gaps as a test approaches. However, their research suggested that for long-term retention, an expanding schedule (with the spacing gaps gradually increasing in size) or a fixed/regular schedule (e.g. reviewing once per month) were more effective.

The serial position effect, discussed above, also applies not just to a task or single lesson, but to a course as well. Rather than working through syllabus material in more or less the order that it is given by the exam board, another approach might be considered: tackle the most important points at the start and end, and the least important (the ones least likely to be in the exam or of long-term benefit to learners) towards the middle of the learning time.

Many of these points have implications not just for the classroom, but also for homework. Most obviously, there is much to be gained by spacing and interleaving homework tasks, by ensuring that they prompt learners to retrieve information or test themselves rather than reread, and by promoting links to meaningful, real-world examples. Homework is typically presented immediately after learning a concept, and often involves practice of the same tasks done in class

(or doing something entirely unrelated). From a spacing effect perspective, it would be preferable to set a homework task several days or even weeks after the task was done in class, promoting the spaced retrieval of key ideas and, in effect, building revision into the course plan.

Judging task difficulty

Difficulty is another area where the workings of human memory are rather counterintuitive. It might be assumed that making a classroom task easier would help students to encode items into memory; in fact, a body of research has started to show quite the opposite – that making things harder for learners can actually increase long-term recall. Bjork and Bjork (2011) have called these obstacles *desirable difficulties* – an obvious example already described is retrieval practice rather than rereading information.

Spacing is also a form of desirable difficulty – it is more effective to revise after a gap, even if this means that you have forgotten some information, rather than straight away. Ironically, it appears that forgetting and relearning is more effective over the long-term than trying to maintain things in memory. This may be in part because consolidation tasks that are too easy result in reduced attention levels as we develop a false sense of mastery (Kornell et al., 2011). This doesn't mean that we should make things unnecessarily complex, but that our pupils may actually be learning more if it seems hard – even at times confusing or difficult – than if they are comfortable and too quick to think, 'Yes, I get it'.

Examples of ways in which desirable difficulties could be created in the classroom include:

- questioning learners after a 30-minute delay rather than immediately;
- interrupting a reading exercise with another task, then returning to it;
- having pupils summarise a topic in a very limited word count;

- presenting a new text as a gap-fill/close reading;
- not helping immediately if a pupil is struggling;
- asking learners to summarise a concept with textbooks closed rather than open;
- giving homework on a topic one month later rather than the same week;
- giving a short, low-stakes test rather than summarising a topic; and
- having learners rather than the teacher summarise each subtopic.

All of these things will promote learning through forcing learners to recall, think and use information (although some may resist such strategies as they tend to be more effortful!). It may concern teachers that structuring these desirable difficulties, such as having students test themselves rather than reread, will lead to more mistakes. This is true, but this should not be seen as a major problem. As Dweck (2006) has said, an openness to mistakes is part of a growth mindset – learners who view errors as useful feedback are likely to make more progress over the long term than those who stick to easier tasks in order to avoid making mistakes (see Chapter 3). It might concern teachers that incorrect guessing will somehow ingrain the mistake, but research by Kang et al. (2011) found no evidence of this – when forced to guess when unsure, students did no worse on a later test.

An important professional consideration for any teacher is that the desirability of a difficulty can be an interaction between the material and the learner themselves; it is, of course, possible to make things too difficult (McDaniel and Butler, 2011). McNamara et al. (1996) varied the difficulty of a biology text by removing key information. They found that learners with good knowledge remembered the text better after this increase in difficulty level but low-knowledge readers did worse. A simple explanation for the above and similar findings is that the text was already difficult enough for the weaker learners. If we assume that there is an optimum difficulty level, a given task may be too hard for some and too easy for others. This links to the

Yerkes-Dodson law, discussed above – people perform best when the level of challenge is neither too low nor too high. Ideally, therefore, a class set-up will push stronger learners out of their comfort zone, while allowing others more time and space to learn well. However, it doesn't mean that we should be deliberately hard on learners – this could lead to stress without adding desirable difficulty to learning tasks.

Revision and review

A common complaint among school learners is that much of what they do for their exams involves 'short-term' memorisation. Although their terminology is wrong (short-term memory in psychology research relates to immediate recall), their point is nevertheless valid – much of what is studied via cramming at exam time is simply forgotten within a few days or weeks of the exam. This links to another old and very reliable finding in psychology: the *forgetting curve*. New learning is subject to extensive forgetting, which is especially rapid in the initial hours or days.

As can be seen from Figure 1.4, a typical set of information could be subject to over 80 per cent forgetting inside as little as a month. On the other hand, if forgetting can be arrested for a month or so (e.g. by using quizzes and feedback) after two to four weeks the curve levels off, meaning there is a good chance that material will still be remembered six months or a year later.

Rapid initial forgetting may be one of the key reasons why the spacing effect is so effective. It also implies that failing to space is going to lead to a dramatic drop in what our learners are able to do, even within just a few days. In short, learning without spacing is tremendously inefficient! If pupils go over something within a single study session (sometimes called 'overlearning'), the repeated presentations of the information may boost short-term performance but have very little effect on LTM beyond a certain point (Landauer, 2011). Imagine applying more than

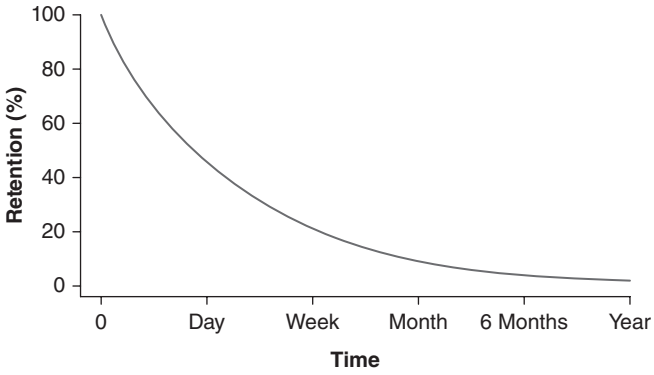

Figure 1.4 The forgetting curve displays the rapid loss of information from memory after it is initially learned

one coat of paint to a wall – the first coat needs to dry first before a second can effectively be applied. This concept was supported by Cepeda et al. (2008), who found that spacing works best when it takes place over days, rather than within a single day.

Positive learning habits

When learners are working through tasks or studying, whether in the classroom or elsewhere, they are likely to rely on inaccurate assumptions about memory, such as the idea that repeated rereading will be effective. As mentioned at the start of the chapter, learners also tend to underestimate the effect of their own actions on learning, and overestimate innate ability. In the broader context of learning, they may be influenced by study advice that they have heard or read over their years of schooling, too much of which, although well meaning, is likely to lack a foundation in research evidence. This becomes particularly important towards the later years of study as they prepare for exams, and in situations where learning takes place more independently.

Consider the following common study tips on the basis of what you now know about memory. Are they likely to be effective?

Task

Note down your responses to the following study advice, on the basis of what you know about memory:

1 Get into a routine.
2 Find a comfortable place to do all of your revision.
3 Use coloured pens to highlight notes.
4 Drink at least 2 litres of water per day.
5 Make mind maps.
6 Form an initial letter acronym/mnemonic.
7 Copy sections from your textbook on to notecards.
8 Have a relaxing bath.
9 Study with a group of friends.
10 Get an early night before your exams.

Feedback on task:

1 The value of a routine depends on what it is that the learner is routinely doing. Routines that involve ineffective studying (such as simple rereading of notes) are best discouraged. Good routines can certainly help to overcome the inertia and procrastination that many learners struggle with, but it is important to keep the level of variability high and avoid always studying material in the same way.
2 From a memory point of view, it would be best to learn in many different places, rather than to form an association with a single place (see the section on context, above).
3 Highlighting doesn't prompt recall from memory, and Dunlosky et al. (2013) describe its overall efficacy as 'low',

although Yue et al. (2015) argue that minimal and strategic use of colours to highlight different types of information could potentially promote deep processing.

4 We do know that a good diet and keeping hydrated can be beneficial for concentration (e.g. Gajre et al., 2008), but it is a myth that 2 litres of water is necessary (McCartney, 2010).
5 Mind maps do have potential as a study technique; they are visually distinctive (promoting dual coding) and require meaningful links to be made. They are better for an overview of course structure than for detailed knowledge; detailed knowledge is better revised via self-testing. If they are used, they would be best constructed 'closed book' to benefit from this testing effect rather than simple copying.
6 Mnemonics are primarily a recall technique rather than a learning technique, and do nothing to support the development of meaningful schema knowledge. They also have diminishing returns (how many times can we use 'one is a bun', for example?), but can be a helpful short-term prompt for lists of verbal information.
7 Notecards/flash cards can be very useful, but are best for summarising (requires deep processing) and self-testing. Although a little bit of incidental learning may occur, copying sections from a textbook is not an effective exam study strategy as it can be done without engaging with the meaning.
8 It is important to relax at least some of the time – among other things, stress is harmful for memory (McEwen and Sapolsky, 1995). However, this should probably not be the main focus of study advice.
9 Studying together can be motivating but also distracting, as the presence of others will divide our attention (see Chapter 2), harming the encoding of new information. However, peer testing and peer teaching can be very effective (Hattie,

(continued)

(continued)

2013), perhaps in part because both involve retrieval practice, or because of their potential for feedback.

10 As mentioned earlier, evidence is accumulating that sleep plays a critical role in memory consolidation and also affects attention levels. A student can choose to go to bed earlier and time their revision for the optimal benefit. To promote better-quality sleep, students would be best advised to limit screen time, especially in the hour immediately before going to sleep (Chang et al., 2015; Hysing et al., 2015). However, going to bed unusually early the night before an exam might just lead to worry and insomnia.

If you found this task difficult, don't worry – this simply reflects how we need factual evidence in order to give reliable advice to learners, to ensure that their time is not being wasted on ineffective strategies. In some cases, more research is still needed to provide a fuller picture of how learning works, but we can at least apply general principles based on memory research rather than rely on subjective assumptions. Learner revision tasks should therefore be guided by the same aspects of memory that influence classroom activities, as described in this chapter – a given amount of time spent on revision will be more effective if it is spaced out over several sessions, if concepts and skills within each subject discipline are interleaved rather than studied in a block, and if revision focuses on retrieval (e.g. self-testing or practice essays rather than rereading of notes). As learning depends on context, it would also be better to repeat material in a different context, which could include practising it in different formats, as a varied context limits the extent to which recall is context-specific, making it easier to transfer learning to new situations. Chapter 8 looks at issues relating to revision and independent learning in much more detail.

Conclusions

Memory is a key aspect of learning, and depends on forming meaningful schema knowledge to which new material can be linked. There are a number of effective interventions, such as retrieval practice, spacing and interleaving, that can relatively easily be applied to classroom tasks and materials without any need to fundamentally alter teaching materials or the way that teachers manage their lessons. Importantly, teaching that takes account of the science of memory does not require more time to do, and may even save time due to its greater efficiency. A key reason why its principles are not already more widely used is that both teachers and learners tend to misjudge the way that the human memory operates, being misled by short-term gains and avoiding effective strategies that make learning feel more effortful. An evidence-informed approach to planning classes and activities led by the teacher can begin to make systematic use of these principles, to the benefit of learners' overall levels of attainment and understanding.

Further reading

Make It Stick: The Science of Successful Learning by P. C. Brown, H. L. Roediger and M. A. McDaniel (Harvard University Press, 2014)
This is written as a popular science book, but two of the co-authors are memory researchers, and it expands upon and illustrates many of the principles that have been discussed in this chapter.

From the Laboratory to the Classroom: Translating Science of Learning for Teachers edited by J. C. Horvath, J. M. Lodge and J. Hattie (Routledge, 2016)
This edited volume contains chapters by active researchers in many of the issues that have been discussed in this chapter. Written in a way that is aimed at teachers, it is light on technical language and statistics, making it much more accessible than many other collections.

Making Good Progress? The Future of Assessment for Learning by D. Christodoulou (Oxford University Press, 2017)
Making a strong argument that educational success depends on accumulating factual knowledge, this accessible book examines and rethinks the popular 'assessment for learning' approach to feedback.

Memory by A. D. Baddeley, M. W. Eysenck and M. C. Anderson (Psychology Press, 2014)

A thorough and up-to-date guide to all aspects of the psychology of memory and cognition. Essentially an academic textbook, but very accessible and full of engaging activities.

Learning as a Generative Activity: Eight Learning Strategies that Promote Understanding by L. Fiorella and R. E. Mayer (Cambridge University Press, 2015)

This work focuses on the development of meaningful conceptual knowledge, drawing on evidence from e-learning and innovative classroom research to summarise eight key practical strategies for classroom use.

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8 Behaviour and classroom management

Behaviour can be a source of stress and workload unto itself. It's often forgotten how hard it is to manage behaviour in the first few years of teaching by more experienced staff. Not only are you still getting to grips with pedagogy, subject content and teaching in general, but you also have to build up relationships, respect and a reputation. When you're trying to balance both aspects to ensure sufficient progress from your students, behaviour that is not conducive to learning can really start to stress you out especially if it is regular and persistent. Yet the positive is that rarely is it the direct result of student behaviour that causes teachers to walk away from the profession.

My NQT was full of difficult behaviour; I certainly experienced my fair share of disruption. The first thing that made it more bearable was knowing I wasn't the only one. Teaching assistants would comfort me at the end of lessons and reassure me that the behaviour wasn't towards me in particular, and that the students were like this for everyone or other members of staff. The second was that SLT were supportive and would take action when necessary. Whilst the support was reassuring, it didn't make it any less annoying or time consuming to deal with.

During the formative years, I found it most upsetting when I'd spent a significant amount time planning what I thought was an amazing lesson and then the behaviour would take a turn for the worse. Before I knew it, I'd be changing the lesson plan, often meaning that rather than teaching I was crowd controlling a classroom of teenagers. I hated every moment of it, the insisting on silent working conditions, showing my disappointment, calling for behaviour support, requesting students be removed from the classroom, anything I could do for the benefit of the other learners.

I'd be kept awake at night, worrying about the classes I had the next day because last lesson student a couldn't be trusted to sit next to student z without stealing their pen, whilst student b was throwing things across the room at student y all whilst I talked to student c at my desk because they were crying after student x had called them something derogatory. How was I to juggle so many situations at once whilst ensuring learning took place for those not involved? It felt like I spent

most of the night thinking of every possible scenario and solution to manage the potential situations.

Then there would be the aftermath of behaviour in the classroom, I was regularly giving up breaks for detentions or chasing up students that failed to attend, calling home to parents to discuss the prolonged behavioural issues and the impact on progress or even having meetings with parents and students to discuss my concerns about their progress. And then in some cases I found that the parents weren't even supportive; it all ended in me feeling deflated and hopeless, and the cycle would begin again the next week.

The hours I spent dealing with behaviour in my first year are uncountable but throughout I tried my darn hardest to always be consistent and followed school procedures so much so that by the second year, my reputation had developed and fewer students pushed the boundaries. I'd also learnt a lot over that time and knew when to interject sooner. I became aware of the little indicators that would initiate low-level disruption. All of which came with time, patience and commitment.

And then I moved schools, and the whole process started again. Different students, different issues, different behaviour. I simply applied what I'd learnt the first time around and stuck with it.

If you find behaviour challenging at all, please do not worry or let it force you to leave. So long as you are proactive, consistent and committed to improving it, it does get better. As long as you are consistent, have clear expectations and follow the school procedures, your reputation develops, and you do see improvements year on year.

Top tip: try anything

The first few years of teaching are about mastering the art and developing your pedagogical approach. Try anything to manage behaviour but be consistent and fair.

In my first four years of teaching, behaviour was challenging at both the schools I worked at, yet the behavioural challenges were so different. This meant that the strategies I'd developed at the first school weren't always effective at the second. It's important to remember that It takes time to master behaviour, so if you don't crack it straight away don't punish yourself over it. Seek advice, watch good practice and be persistent.

My first piece of advice in relation to behaviour to ITT students and NQTs I've worked with is always don't worry about progress in the first term; use the first term to get to know your students and build the relationships that help to hinder behavioural issues. Set your routines and expectations and repeat them time and time again until your students know them. Be consistent in your approach and set sanctions if you need to.

Tips for managing behaviour

The following are ideas and strategies you may wish to try to help manage behaviour.

- Carefully consider your seating plan.
  - From day one with any class, put them in a seating plan. Not only does it help to learn names, it demonstrates that it is your classroom. Inform students that the seating plan is not permanent and will change. As to when it will change, don't divulge such information; that way if the current plan isn't working, students can't turn around with "but you said". Kids always surprise me with how astutely they actually listen.
- Welcome students.
  - Where possible strive to greet students at the door, develop general chit-chat with them, compliment and praise on their way in and just generally give a warm welcome to your classroom. Show them you want them to be there.
- Reward and praise selectively.
  - This one may be controversial, but praise and reward when it is worthy. Basically you need to ensure it maintains its value. Carefully consider the language you use, show students you appreciate their efforts, progress and choices. But do they need to receive a stamp for sitting down? Highlight students that are doing as expected and initially ignore those that are not.
- Have private rather than public conversations about behaviour.
  - Sometimes the teacher's reaction is all students want out of a situation – to see the teacher angry, frustrated and shouting at the class. Other times it's simply because they are struggling but don't want to ask for help. Have a quiet conversation with students when possible, avoid escalation and redirect students to the work. I strive to use the technique of explaining why I have had to speak to the student, what the outcome will be if they choose to continue, and then I ask them about the work. It is only when I discuss the work that I expect a response from the student. At this point I check their understanding and go through the instructions again, answering any questions they have. This hasn't always worked, but practice and experience has helped.
- Develop a classroom routine.
  - The consistency of a classroom routine helps to settle students. It means that I just need to remind them of the routine rather than discuss behaviour initially. For instance, when a rowdy group enter the lesson late, I simply

remind them that we come in quietly, collect our books and get started with the task on the board. Usually this works, but not always.

- Know your school, department or individual behaviour expectations, rules and sanction stages.
  - It's vital you know the expectations, rules and sanctions clearly. It makes it much easier when dealing with behaviour. At my current school, I'll admit I didn't expect any behaviour situations when I started. Before starting, I therefore hadn't fully got to grips with the school behaviour policy and the sanction stages. I regretted this when a few students started to push the boundaries like most teenagers will at some point. I responded in my own way rather than following the school procedures. Erroneous. It meant I undermined myself by not knowing the whole-school consequential procedures and sanctions. Ensure you know them well before starting at a new school to ensure you are consistent with other staff.
- Don't be afraid to seek support from other members of staff, this is not a weakness.
  - Ask everyone and anyone for advice, ideas and help in the classroom if you're experiencing issues with behaviour. Do not fear it. You won't be the first and you certainly won't be the last to experience challenging behaviour.
- Display and refer to expectations for behaviour, sanctions and school rules as and when required. Ensure they are clear and attainable.
- Offer a student-led praise system, either across your school or within your classroom. Allow students to nominate one another for positive learning behaviours, creating a culture of high expectations as a result.
- Hold high expectations.
  - I was once told I was stressed because my expectations were too high. It made me furious because if I didn't believe they could participate in the work set, if I didn't believe they could behave, if I didn't believe they would succeed in the end, then why would they? Don't let anyone tell you your expectations of students are too high; instead support students to meet them. It might be difficult for a while, but they'll thank you later. It might be when they've left school, have their own kids and are employed but they will be appreciative of your time and effort in the end. As long as your expectations are attainable, believe your students can and will achieve them.

Reducing the workload

Reducing the workload surrounding behaviour is a challenge and is completely dependent on your context. I agree that detentions should be set through a centralised

system so that teachers do not lose their breaks, but it still needs teachers to record and monitor and such systems require school leadership implementation.

But here are a few ways to reduce the personal workload:

- Set a time to record behaviour infringements each day so it doesn't eat into the time set for doing other things.
- Keep a bank of behaviour comments and copy and paste, edit with specifics if necessary
- If you have to deliver you own detentions, set them on a particular day of the week so you don't lose out on additional breaks.
- Print consequence slips that just require you to add a date, time, place and potentially reason. These can be given to students, parents and carers or glued into student planners.

Takeaways

- Emphasise the positive rather than negative behaviours.
- Know your own and school expectation, policies and procedures well and apply them consistently.
- Seek out advice when it needed.
- Never fear you are alone in experiencing negative behaviour.
- Encourage a centralised system to ensure staff receive the breaks they are entitled too.

20 Using Teachers' Standard 6

How to assess students accurately

Assessment is a key part of what every teacher does. It is easy, in these days of constant tracking and monitoring of students' performance, to think of it in narrowly mechanistic terms, to think of figures on a spreadsheet. It is easy, too, to think that it is all about the 'high stakes' stuff – the exam results and school performance tables.

However, genuine assessment is richer and more nuanced than that and, at its best, will inform your teaching, as well as helping students to know how they are progressing.

At its best, assessment will also blend with your teaching. You will explain things, set tasks and then use questioning and ongoing assessment tasks to help your students to see how they are doing. This is the assessment that is most going to help them to make progress.

So, from the outset, we make a distinction between two broad forms of assessment:

Formative assessment

This is ongoing assessment designed to monitor student learning and to provide feedback that will help students to improve their learning. Although it may include some numeric mark or level, it ought to go beyond this. Telling a student that he is a C- and needs

to work towards C+ won't help him much, unless there is some outline of what he needs to do to make progress. The best formative assessment is, therefore, often written or spoken advice on what to do more of ('use more interesting, varied connectives') or do less of ('use the words "and" and "but" less').

This is important to the student, but will also inform our teaching: it will help us to know whether, for some students in the group, we need to speed up, slow down, emphasise certain skills and knowledge more or re-teach some concepts.

Good quality assessment will feed into our planning and teaching, and, of course, some of the ongoing, formative assessment will be done by the students – assessing each other's work against criteria you give them or assessing their own work to articulate how they are doing and where they are having difficulties.

This is true assessment for learning.

Summative assessment

Summative assessment evaluates student learning at the end of a topic or unit by comparing it against some standard or benchmark. It's going to show the student and teacher how successfully something has been learned. It will receive a grade or level.

Here is what the Standards require:

Teachers should:

6(a) know and understand how to assess the relevant subject and curriculum areas, including statutory assessment requirements

6(b) make use of formative and summative assessment to secure pupils' progress

6(c) use relevant data to monitor progress, set targets, and plan subsequent lessons

6(d) give pupils regular feedback, both orally and through accurate marking, and encourage pupils to respond to the feedback.

Implications for you

These Standards relate to an earlier set – Standard 3: demonstrating good subject knowledge. That is because, as a teacher of your subject, you will need some conception of what doing better in it looks like. What are the skills and knowledge that most tangibly signify that we are getting better at it? In English, for example, one key indicator of growing mastery of writing is the ability to write in more complex sentences, linking ideas with connectives other than 'and' and 'but'.

Here is a simple demonstration. These two sentences demonstrate what progress looks like in writing:

- Sentence (a): 'I enjoy playing tennis, but I generally prefer squash.'
- Sentence (b): 'Although I enjoy playing tennis, I generally prefer squash.'

As a teacher of English, I therefore know that teaching more complex sentence structure and equipping students with a richer range of connectives ('although', 'because', 'after', 'however', 'while' and so on) will improve their writing. This therefore informs my teaching.

However, I also know that, when assessing students' progress – whether in their spoken English or writing – I will be looking for evidence of these syntactic features. It's what will help me to see whether a student is beginning to demonstrate writing that is more complex.

So, what might this mean in our classrooms?

Here's an underlying sequence for assessment that is built around learning:

Big picture

At the start of a unit of work or lesson, you will want to articulate the outcome of the learning – what students will know or be able to do at the end of the process. You need to be clear about how

they will demonstrate this learning. You will want to show them the criteria by which they will be assessed. This is mapping out the big picture, the trajectory that the learning will take.

Exemplar material

As part of the process, you will want to enable students to see an exemplar of what they are aiming towards. Increasingly, it seems to me that every classroom should have on display a sample essay or assignment that demonstrates top quality work, annotated to show why it is so good.

However, bad models can also be unexpectedly helpful – looking at (anonymous) samples of work that aren't at the highest level and getting students to explore and interrogate these.

Knowing what they are aiming for and seeing samples of work that don't match those standards can be a really helpful way of building students' more precise understanding of what they are aiming for.

Practice

This will be the core of the lesson or unit of work, with students using the big picture, the assessment criteria and the exemplars and then starting to practise the skill for themselves.

This is where learning should be happening, and it may well be messy, with students making mistakes, getting frustrated, making small steps and gradually gaining confidence as they realise that they can do what has been set.

It should be accompanied by opportunities for precise, specific feedback, from you, or other adults, or other students.

Feedback

Whether it's using criteria or level descriptors, or looking at what a student is producing and asking questions and giving feedback,

this is where the process of fine-tuning a student's response can happen.

Increasingly, as an English teacher, I do a lot of marking with students beside me. I can explain where I don't understand a point, where there's a clumsiness or inaccuracy in expression, where certain parts of the writing work really well.

The student, in this way, gets to see and hear what it is that we are looking for, as the experts in our subject, and I can give more directed guidance on what she needs to practise next.

Summative assessment

The process will end in a product – an artefact, a design, a piece of writing, a presentation, a performance – which is the culmination of this whole process. This is where you will be assessing it formally, so that the student knows how good it is.

However, that really shouldn't be the end of the process. If you stick a grade on the work, the risk is that students lock on to that and see it as a final, unmovable judgement. It may well be. But you need to provide some summative comment that helps them to see how you reached your decision and suggests what the student could do next time to do better. A comment or question that then expects the student to respond to your evaluation will help to make it a process of ongoing reflection.

So, after your grade or mark and comment, expect the student to respond. What was he pleased with? What could he have done better? What are the main skills or areas of knowledge he has learned?

How might you demonstrate that you are meeting the Standard?

You will want to show that your marking is effective in helping students to make progress. When you mark books, you will probably want students to respond. You might ask them a question

– 'What specifically could you have done to make your ideas clearer here?' – and expect them to write a response at the start of the next lesson.

In this way, marking becomes more of a dialogue between you and the student. Keep some copies of marking that you think exemplifies this process – where a student has responded to what you have asked or suggested and where, in the next piece of work, you can see that she has made progress as a result.

Be ready to demonstrate that students from different backgrounds and of different abilities do well as a result of your teaching and feedback. Have a spreadsheet of results to show it – especially how you cater for gifted and talented students and those with special needs. Keep evidence of how Pupil Premium students progress in your classroom.

Finally, use regular student surveys in which you ask each class to give you a comment or a grade on aspects of your teaching, including assessment. Be bold about this: if you wish to keep improving as a teacher, you'll want to have regular, honest feedback from your students.

You might, therefore, use a questionnaire that includes questions such as these:

- Do you find my marking helpful? (not very) 1 2 3 4 5 (very)
- How could I improve the feedback I give you?

Completed once a term, as part of your ongoing self-evaluation, this will help you to improve in this key area of your teaching and will provide you with useful evidence for appraisal of the impact your assessment has for students.

TALKING POINTS

- Think back to how assessment worked for you at school: can you remember teachers who gave ongoing formative feedback that shaped your progress, or is it just the summative assessment that sticks?
- Looking through the teacher comments scattered through this text, it's the pressure of marking books that is their biggest complaint. What alternatives to marking can you immediately think of?

ADVICE FOR NEW TEACHERS

Do as much marking as possible alongside pupils, to give maximum impact for them and to address their misconceptions. I find I learn a lot from marking in this way and it also helps the students to explain where they got stuck.

6 How can we help every student improve?

? The problem
Providing effective feedback to students sustainably.

Evidence/practice
Don't start with feedback: start with the preceding problems
Tailor feedback to improve the task, student understanding of the subject or self-regulation, or to link those levels
Show students your high standards and your belief they can improve
Gradually increase student responsibility for creating and improving work
Target, standardise and limit marking
Students may be supported to improve without feedback

The principle
Responsive teachers help students improve their work.

Experience – Warren Valentine, Robin Conway

Checklist

? The problem

Providing effective feedback to students sustainably.

The problem

Marcus has reached the end of a five-period day. He faces one hundred and fifty books, in five neat piles. Despite his careful planning and checks for understanding during the lesson, each book will contain slips, mistakes and misconceptions. Each student will have interpreted the task differently, misspelled different words and reached a different point in a journey towards excellence. Marcus will see two of these classes tomorrow and wants to offer them guidance on how to improve. Several questions concern him:

- What feedback will move every student closer to their goals?
- How can he ensure students understand, act upon, and learn from feedback?
- How can he avoid students concluding that their work – or they – are rubbish?

- How can he avoid students becoming dependent on his feedback, and teach them to improve for themselves?
- How can he mark efficiently and effectively?
- What are the alternatives to marking?

Marcus turns to the evidence on guiding student improvement.

The evidence

Feedback is powerful but problematic. Deliberate practice demands "feedback and modification of efforts in response to that feedback" (Ericsson and Pool, 2016, p. 99). Feedback can "significantly improve learning processes and outcomes" (Shute, 2008, p. 154). However, while feedback is one of the most powerful influences on learning, its effects are highly variable. This is illustrated vividly by Kluger and DeNisi's (1996) review. They found the average effect of six hundred experiments was impressive and positive; astonishingly however, in 38% of these experiments feedback had a negative effect – it made performance worse. They concluded, somewhat equivocally, that feedback sometimes improves performance, sometimes debilitates it and sometimes has no effect (p. 254). Providing effective feedback is therefore a huge challenge: "if delivered correctly," it can improve students' learning and performance (Shute, 2008, p. 154); if delivered poorly, students may give up, reject the feedback or choose an easier goal (Wiliam, 2011, p. 119) at a huge cost to teachers' time. There is much research, but it suffers from "many conflicting findings and no consistent pattern of results" (Shute, 2008, pp. 153–154). Marcus begins exploring the evidence, hoping to refine his approach by applying ideas from the evidence to his subject, not believing he will find straight answers or iron rules.

Don't start with feedback

Marcus's first conclusion is that effective feedback relies on having solved the preceding problems in *Responsive Teaching*:

- Marcus needs "a concept of quality appropriate to the task" (Sadler, 1989, p. 121): he needs to know what he wants students to learn and what success looks like (Problem 1).
- Marcus must share what success looks like with students (Problem 3) so that they come "to hold a concept of quality roughly similar to that held by the teacher" (Sadler, 1989, p. 121); if goals are poorly defined or understood, students tend to be unclear how to use feedback (Sadler, 1989; Hattie and Timperley, 2007).
- Marcus must plan and teach effectively (Problem 2): feedback's power lies in addressing "faulty interpretations, not a total lack of understanding" (Hattie and Timperley, 2007, p. 82).
- Marcus can only offer feedback if he has designed tasks which provide insight into what students are thinking (Wiliam, 2017; Problems 4 and 5); designing tasks with feedback in mind allows a focused response.

Marcus realises that feedback adds little unless his teaching is effective; it is "not 'the answer'; it is but one powerful answer" (Hattie and Timperley, 2007, p. 104). There are many situations in which feedback may not be the most effective way to help students improve; in some cases, it may be unhelpful. If students are struggling or lack foundational knowledge,

for example, feedback is likely to be less helpful than explicit teaching. Marcus needs to ensure his teaching is effective before providing feedback and to avoid seeing feedback as the sole solution to students' struggles.

- **Marcus resolves to review his teaching before providing feedback, and to reteach students explicitly if students are struggling or lack foundational knowledge.**

What feedback will move every student closer to their goals?

Marcus's choice of feedback will reflect the nature of gaps in student learning. An error may reflect one of several underlying causes:

> It could be a slip – that is, a careless procedural mistake; or a misconception, some persistent conceptual or procedural confusion (or naive view); or a lack of understanding in the form of a missing bit of conceptual or procedural knowledge, without any persistent misconception. Each of these causes implies a different instructional action, from minimal feedback (for the slip), to reteaching (for the lack of understanding), to the significant investment required to engineer a deeper cognitive shift (for the misconception).
>
> (Bennett, 2011, p. 17)

Marcus needs to identify what he wants students to change before he considers how to offer feedback. The limitations of focusing on how feedback is given are demonstrated by an experiment in which a school adopted comment-only marking (removing grades from students' work), in line with the evidence. Students who received comments seemed to make less progress than those who received grades, contrary to what the evidence would have suggested. The authors concluded that giving comments has no effect; it is what the comment says which matters (Smith and Gorard, 2005). First, Marcus has to identify what he hopes to achieve with his feedback; only then can he worry about how to convey this.

Marcus clarifies his goals by thinking about feedback as targeting different levels of change. These levels range from making changes to the task to changing the student's approach to learning. Several reviewers have created different frameworks: the framework

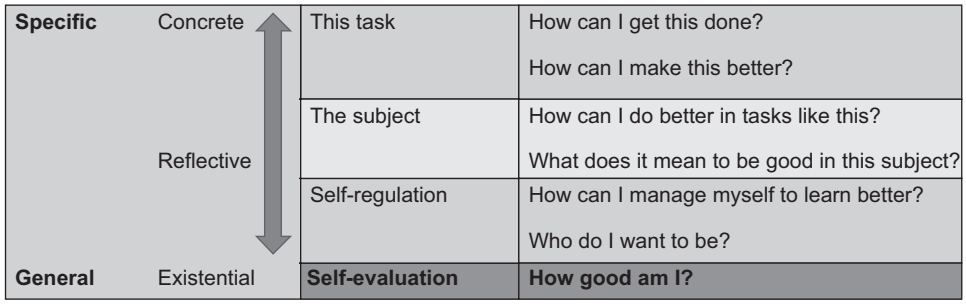

Figure 6.1 Different levels of feedback

seen in Figure 6.1 incorporates the work of Hattie and Timperley (2007); Kluger and DeNisi (1996) and Pryor and Crossouard (2010, p. 270).

This is a way to think about where feedback is targeted, not a suggestion that specific feedback is good and general bad (or vice versa). Marcus wants students to make changes at every level at some stage. Feedback's effect lies in helping students to focus on a particular level (Hattie and Timperley, 2007; Kluger and DeNisi, 1996). Marcus therefore seeks clarity about the levels, their merits and their disadvantages.

Improving this task

Marcus may want students to improve their responses to the current task. Teachers focus most frequently on helping students improve a specifi c piece of work by suggesting corrections or stating whether an answer is right (Hattie and Timperley, 2007). Marcus might suggest:

- Try that again, but this time hold your head up throughout the movement.
- Rewrite your answer to question 3 removing the brackets at step 2.
- Paragraph 3 needs more evidence.
- There is a problem with your answer to question 4.

(These examples, and those throughout, begin with what Marcus might say to lower-attaining students, who will benefit from more directive feedback, and move towards what he might say to higher-attaining students, who may benefit from and think more about less directive feedback; see Shute, 2008).

This can help students improve the current task, but its effects are limited; students are unlikely to be able to transfer what they learn about one task to another (Hattie and Timperley, 2007; Kluger and DeNisi, 1996; Shute, 2008). People struggle to recognise that they can use the solution to one problem to solve an analogous problem, unless they receive a hint to do so (Gick and Holyoak, 1980). Task feedback may also interfere with students' concentration if they are conducting elaborate tasks, learning complex tasks or seeking to follow rules (Kluger and DeNisi, 1996). It is more important that feedback improve the student than that it improve the task (Wiliam, 2017): Marcus wonders how he can offer more general feedback.

Deepening understanding of the subject

Marcus may want to help students deepen their understanding of learning and performance in the subject. Feedback on more general approaches to the subject may help students to identify and correct errors, use better strategies and process learning more deeply: this should lead to deeper understanding and better transfer to new tasks (Hattie and Timperley, 2007). Marcus might therefore give feedback applicable to a range of tasks, such as:

- Always underline key words in the question, then write a plan linked to them.
- Look back at the original question after each step to check you are on track.
- Reframe the problem as a diagram.
- Once you've completed a design, go back to the brief and see if you've met the goals.
- What do we always do first when we identify a problem with our work?

This should help students to understand underlying features of success in the subject; however, students may struggle to apply these features to the current task without specific prompts.

Marcus may also help students understand the subject itself, and the learner's role within the subject. He may help students to adopt disciplinary habits, or recognise what being a great scientist requires, by highlighting features of good mathematical thinking, scientific reasoning or historical questions:

- A good mathematician always checks their working.
- We've discussed how a historian develops their argument from many case studies: how would you structure an argument which draws on all the examples we've discussed today?
- Great artists steal.
- The questions you're asking are the kind which professors of English write whole books debating – so it's good to explore both sides of the answer before reaching a conclusion.

Again, students may need prompts to apply these general ideas to specific tasks.

Improving self-regulation

Marcus may want students to understand better how they learn. First, this means helping students self-monitor, recognising how well they are doing, what they know, and what is working; then it means helping them self-manage, planning and adapting in response to their self-monitoring (Hattie and Timperley, 2007). For example, one experiment increased students' accuracy in assessing their current knowledge and helped them gain higher grades; this proved particularly powerful for lower-attaining students (Casselman and Atwood, 2017). Marcus may help students to identify their current knowledge, skill and learning gaps – self-monitoring – and to think about how they can respond – self-managing:

- How did how well you did today differ from what you expected?
- What do you need to study more to improve in this area?
- Which strategies that you used today worked well? Why?
- What will you do differently during tomorrow's practice session?

Self-monitoring and self-management helps; if it verges into feedback about students directly however, it can have negative effects.

Self-evaluation

Feedback about students themselves is less effective than feedback focused on the task, subject or self-regulation (Hattie and Timperley, 2007). If students receive feedback about themselves combined with feedback about the task, they are likely to focus on themselves, which will distract them from improving their work (Kluger and DeNisi, 1996). Students like praise, and it may help boost self-efficacy, but most reviews find it has little or no positive effect on student learning (because it offers no useful information about how to improve). Even if praise increases motivation briefly, students may become dependent on it to keep learning; removing feedback later may then have a negative effect (Kluger and DeNisi,

1996). So, feedback aimed at students directly is likely to distract them from improvement, such as:

- You are a good/bad/indifferent student.
- You always come up with excellent answers.
- You've tried very hard at this.

Marcus focuses on helping students improve their work, rather than offering praise or personal criticism.

Moving between levels

More powerful than feedback focused on any one of these levels may be feedback which links different levels. Feedback at any one level will be insufficient for success and too much feedback at any one level may detract from performance (Hattie and Timperley, 2007). Students may struggle to apply specific feedback to new tasks; they may struggle to apply general feedback to specific tasks. Marcus may therefore offer feedback which links levels, helping students to recognise how feedback about one task may apply to others, or how they can self-monitor better, based on a deeper understanding of the subject. There seems to be a "powerful interactive effect" between feedback to improve specific tasks and feedback to improve strategies, processes or self-regulation (Hattie and Timperley, 2007, pp. 90–93). Marcus can therefore help students improve immediately and adopt useful strategies by linking feedback about specific tasks with feedback which develops a deeper understanding of the subject and self-regulation. The examples below show how feedback focused on one level can be combined with feedback at other levels:

One level	*Linking levels*	*Goal*
Correct Question 2, dividing before adding.	*Correct Question 2; remember to use BIDMAS.*	Linking task and process
Change 'its' to 'it is'.	*Remember to write formally in business letters: check for abbreviations.*	Linking task and process
Redraft this paragraph: include a quotation for each underlined statement.	*Redraft this paragraph: justify each claim you make using evidence from the text.*	Linking task and process
Remember the steps in creating an accurate graph.	*Remember the steps in creating an accurate graph: you have missed two.*	Linking process and task
Clearer explanation needed.	*Clearer explanation needed: describe the effect of this change.*	Linking process and task
Body position is important.	*Body position is important: hold your arms straight throughout the movement.*	Linking process and task
What are the limits to what the evidence allows us to say about this?	*Historians consider the limits to their evidence: how much can we say with certainty about this?*	Linking process and subject
Science often advances through testing anomalies.	*Science often advances through testing anomalies: why did this prove fruitful in this case?*	Linking subject and process
Great artists steal.	*Great artists steal: how did you use the examples we looked at to help you here?*	Linking subject and process

Marcus also finds this useful in ensuring his feedback provides concrete guidance to students; he replaces sentences like:

> Try to expand on your points with more thorough analysis of Macbeth's character.

with a concrete instruction which still conveys the underlying point he is trying to make:

> Offer a more thorough analysis of Macbeth's character by discussing his doubts as well as his determination.

Marcus may not *write* such lengthy feedback; doing so is slow and makes it harder for students to understand and respond. The important thing is that he remains conscious of opportunities to help students link feedback on one level with other levels, whether in writing, verbal comments or whole-class teaching.

- **Marcus resolves to be intentional about the level on which he is giving feedback and to make links between different levels where possible**.

How can he ensure students understand, act upon and learn from feedback?

Valerie Shute likens effective feedback to a good murder: it requires motive, "the student needs it"; opportunity, "the student receives it in time to use it"; and means, "the student is able and willing to use it" (2008, p. 175). Marcus needs to choose the right level for his feedback, but he also needs to ensure students can and do act upon it. He examines ways to ensure students understand, act upon and learn from feedback.

Understand

Students need to understand feedback to benefit from it. Marcus is not surprised to learn that vague feedback is unhelpful; he is surprised to learn that the more complicated and detailed the feedback, the less students benefit (Shute, 2008). Similarly, Marcus has always preferred guiding students with "facilitative feedback" to correcting them with "directive feedback," but directive feedback seems to be more effective, particularly when students are new to a topic, whereas higher-attaining students may be able to use less directive feedback (Shute, 2008). One experiment examined how likely history students were to accept and respond to feedback: students were more likely to understand the problems and respond when the feedback identified the location and possible solutions to problems; additional explanation made them less likely to respond (Nelson and Schunn, 2008). An extreme illustration comes from attempts to encourage people to learn more about their pension options; reducing a one-hundred page booklet to a single page led ten times more people to respond (Behavioural Insights Team, 2017). Marcus notes the need to be clear about what is to be done, particularly when students have less knowledge, and to limit his explanatory feedback.

In practice, Marcus focuses on offering clear, direct feedback using economy of language. Economy of language means making his purpose clear by using "the words that best focus

students on what is most important, and no more" (Lemov, 2015, p. 414). Marcus can offer a clear goal by writing:

> Rewrite this paragraph including supporting quotations for each statement.

He can explain how and why this should be done verbally, allowing him to check whether students understand what he is asking them to do and why. Such explanations are also more efficient when offered to small groups, or the whole class, than to individuals. Marcus begins to revise his feedback, taking baggy sentences such as:

> I want you to have another go at that, and this time, when you're coming to your run-up, think about your weight.

and increasing their clarity and purpose:

> Try again; this time put all your weight on your left foot.

This saves time and helps students who struggle to process longer instructions. It also leads him to push students to return to models (Problem 3/below) and identify what is needed themselves. When students struggle to act on feedback, his first question for himself is: is the feedback clear enough?

- **Marcus seeks to make his feedback clear, concise and direct.**

Act upon

If students do not respond to feedback, it is hard to be sure they have benefited. Defined strictly, information provided to students is feedback "only when it is used" (Sadler, 1989, p. 121). Whatever level feedback targets, whatever form it comes in, students need to act upon it; a useful test is whether feedback is "more work for the recipient than the donor" (Wiliam, 2011, p. 129). This requires offering students a task to do, rather than presenting them with information alone (Wiliam, 2017). Even if Marcus thinks his feedback is perfectly clear, he has learned to check, rather than assuming students have understood. Marcus considers:

- **Checking for understanding:** sometimes, Marcus checks whether students have understood feedback by asking them to restate it, explaining what they can improve. He also uses hinge questions (Problem 5) to test whether students' understanding has changed through feedback, or simply whether they have understood the feedback and are ready to act upon it, rather than repeating errors.
- **Corrections:** students can correct errors; this works particularly well when Marcus asks them to focus on specific errors, strategies or parts of the work.
- **More practice:** an extension to corrections is asking students to complete similar problems with feedback in mind. This is obviously applicable in subjects like art, music and PE, in which students may repeat performances immediately, but it can be applied to any subject.

- **Redrafting:** taking 'more practice' further, students can redraft their work incorporating feedback. Ron Berger challenges students to treat their work as a craft; he challenges teachers to value quality of work over quantity:

  "What could you possibly achieve of quality in a single draft? Would you ever put on a play without rehearsals? Give a concert without practicing first? How much editing went into every book we read? Students in my classroom often take pride in their dedication to drafts: I did thirteen drafts of this cover, they brag" (2003, p. 90).

  Marcus can ask students to rewrite a paragraph or an essay, to redraw a diagram or to redo a solution. Improving work is more worthwhile than acknowledging feedback, and more satisfying: it forces students to understand and act upon feedback. It demonstrates students' capacity to improve and reach high standards powerfully: "work of excellence is transformational. Once a student sees that he or she is capable of excellence, that student is never quite the same" (Berger, 2003, p. 8). This experience of mastery (and reflection upon how it was achieved) develops student self-efficacy: confidence in what they can achieve (Bandura, 1982). Marcus believes it is important to allow students to perfect their approach to the task through redrafting, even for exam questions they will later complete under time pressure.
- **Marcus identifies an efficient and worthwhile improvement task for students to act upon.**

Learn from

Marcus wants to check whether students have benefited from feedback without creating excessive work for himself. He was unenthused by the fashion for 'triple impact marking' and 'dialogic feedback', in which he offered feedback, students responded, then he responded to student responses. No evidence exists that this kind of marking benefits students (Elliott et al., 2016). Marcus was unsurprised; he found this approach exhausting and struggled to believe that marking the same piece of work repeatedly achieved much. Nonetheless, he wants to check that feedback has worked, to identify how much further he can push students and to promote metacognition. This seems important: students can misinterpret feedback and follow-up tasks just as easily as the initial learning, and witnessing improvement should be satisfying for Marcus and his students. At its simplest, this means having students complete improvements during the lesson (Wiliam, 2017). Beyond this, Marcus seeks efficient, sustainable ways to ensure students are benefiting from feedback by:

- **Checking student work while students are making improvements:** Marcus circulates while students are responding to feedback, focusing on critical points and students who particularly struggled. He comments rapidly: 'Yes' to one student, 'Nicely put' to another, 'Reread the instructions' to a third. He limits his comments; he wants students to focus on the feedback he has written, so he avoids offering additional support too early. Sometimes, he groups students by their improvement task, so he can support them more efficiently and they can help one another.
- **Challenging students to identify how they have improved:** after making improvements, Marcus sometimes asks students to summarise what they have changed and

why. This develops their self-monitoring and self-management; it also provides a useful summary to which they can return.

- **Planning to revisit key points:** Marcus tries never to confuse learning and performance; he wants students to remember what the feedback encouraged, not just respond automatically and then forget about it. He plans to check what students have learned by revisiting key points and misconceptions in future lessons.
- **Marcus checks what students have learned from feedback when he can do so sustainably.** He does not feel guilty when he cannot do so sustainably. He is concerned by another question, however: how can he offer clear, directive, challenging feedback without triggering an emotional response from students who readily take feedback as evidence of their failings?

How can he avoid students concluding that their work – or they – are rubbish?

Students' responses depend on what the feedback is; they also depend on how students receive feedback (Shute, 2008). Feedback promotes learning when students receive it mindfully (Bangert-Drowns et al., 1991), shifting their attention and therefore their behaviour (Kluger and DeNisi, 1996). How students use feedback is affected by their willingness to seek and act upon it, their confidence in their work and whether they believe success relies on their actions or external factors (Hattie and Timperley, 2007). Marcus is unconvinced by 'Growth Mindset', particularly given recent, large-scale experiments which found no evidence for it (Bahník and Vranka, 2017), but he does not need to believe in 'Growth Mindset' to want his students to welcome feedback, believe they can improve and persevere when challenged. He has always sought to avoid practices which may undermine students' use of feedback: being controlling, interrupting or evaluating students (Shute, 2008). Additionally, he realises the importance of:

- **Avoiding giving students grades:** this distracts them from comments and diminishes their interest in the task; comments alone should lead all students to improve their work (Butler, 1988).
- **Never hinting students should stop trying:** Marcus avoids giving proxies for grades such as exam marking criteria, or telling students they have reached a particular level; he wants every student to feel there is a new challenge for them.
- **Avoiding social comparison:** he does not want students to focus on comparing themselves with their peers. He avoids praise and uses model work from previous years, rather than the current one.

Students' emotional responses affect how they react to feedback; Marcus wants to ensure students embrace feedback, rather than feeling threatened. He is intrigued by experiments in which teachers commented on students' essays as they normally would, but some students also received notes assuring them that "I'm giving you these comments because I have very high expectations and I know that you can reach them" (Yeager et al., 2014, p. 809). The results were dramatic for students with low trust in the school. In one study, African-American students who received the message were dramatically more likely to choose to

submit redrafted essays than those who had not received it. In another study, resubmission was compulsory; African-American recipients of the message gained far better marks, having acted on the suggested edits. In a third, guidance about the meaning and value of feedback helped increase students' scores, leading to a higher pass rate on courses. The interventions also increased students' trust in the school and teachers. So Marcus presents feedback in a way which helps students accept it by:

- **Discussing emotional responses to feedback** and the value of separating these responses from useful information: 'When you get feedback, it can feel like you've done something wrong – I sometimes feel the same way too. It's always worth remembering the feedback is about the work – not you – and it's a way to do better next time.'
- **Emphasising why he is offering feedback:** noting high standards for students and a belief they can meet them: 'I'm giving you this feedback because I expect every student to solve every problem accurately, and I know you can do it.'
- **Emphasising why students are improving work:** 'It's worth redoing this, because when you incorporate these suggestions, your argument will be far stronger.'

Marcus separates helping students feel positive about feedback from using feedback to make students feel positive. Designing feedback to help students improve is distinct from using feedback to make encouraging personal comments such as: 'I'm so impressed with how hard you've tried and I'm delighted you seem to be really enjoying the unit at the moment.' This conveys neither useful feedback nor credible positive regard. Marcus builds self-efficacy through asking students to reflect upon their efficacy after successful experiences (Bandura, 1982). Confusing feedback about the task with feedback about the individual distracts students from improving without increasing their motivation or enjoyment (Hattie and Timperley, 2007; Kluger and DeNisi, 1996). Marcus therefore decides to:

- **Separate feedback from relationship-building:** in giving feedback, Marcus follows Laura McInerney's advice to "JUST STICK TO THE POINT . . . you can show the kids you care by your behaviour in the classroom" (2013).

Finally, Marcus seeks to create a culture in which students are accustomed to receiving feedback, recognise its value and respond to it willingly. He:

- **Clarifies expectations:** Marcus explains when students will receive feedback, the format it will take and its purpose.
- **Normalises feedback:** students receive some feedback, of some kind, frequently.
- **Models using feedback:** Marcus shows how feedback can help improve students' work and how he uses feedback from fellow teachers and students to improve his teaching.
- **Celebrates improvement:** Marcus shows previous students' redrafting to demonstrate how much improvement is possible; he encourages students to recognise their own improvement by explaining how they have used feedback to refine their work.
- **Marcus encourages students to welcome feedback and to recognise its value:** his concern is that student may become too accustomed to feedback.

How can he avoid students becoming dependent on his feedback, and teach them to improve for themselves?

Limiting feedback

The better Marcus's feedback becomes, the more positively students respond and the more he worries about their becoming dependent. The effects of feedback may rely on students receiving it on a continuous basis; if so, students' performance may diminish when Marcus reduces feedback or students move on to new classes (Kluger and DeNisi, 1996). Marcus decides not to offer feedback when students receive feedback from the task itself. Students benefit from thinking carefully about the task and learning its rules themselves; his feedback may detract from this (Kluger and DeNisi, 1996). This works in predictable environments (Kahneman and Klein, 2009); wrong answers become clear rapidly when speaking a foreign language or using computer-aided instruction; in a dissection or an essay, students are less likely to recognise the sources of their errors. Marcus avoids giving feedback where students can learn from the task.

Marcus learns that delaying feedback may limit students' dependence and increase learning. Sometimes, immediate feedback is useful; students who are new to a topic acquire knowledge faster with feedback and are better able to learn procedural skills like programming and maths (Hattie and Timperley, 2007; Shute, 2008). Less effective learners have fewer self-regulation strategies, depend more on external feedback and rarely seek feedback themselves (Hattie and Timperley, 2007, p. 94); giving immediate feedback avoids leaving them to struggle unproductively. However, delaying feedback may be effective with more complex tasks, when Marcus wants students to transfer learning from one task to another and with higher attaining students, who may be able to identify errors themselves (Shute, 2008). Leaving students to think longer themselves may both reduce their dependence and increase their thinking about the task. Finally, when students are practising a task to build fluency, immediate error correction may distract from learning and reduce students' automaticity (Hattie and Timperley, 2007); continued practice may allow them to solve problems themselves. Delaying feedback is so counter-intuitive that Marcus finds his colleagues sceptical that it is ever justified; nonetheless, he feels it is worth trying, even if only to test whether it can cause students to take more responsibility for their work. Marcus wonders what else he can do to increase student responsibility for improving their own work.

Sharing responsibility with students

Marcus is sceptical about self and peer assessment. His enthusiasm was sapped by repeated attempts which foundered on simple, stubborn problems. Students were often unsure of the qualities they were seeking in the work they assessed, and commented on the length or neatness of an answer, rather than its accuracy or elegance. Students often assessed their peers, not their peers' work, providing positive feedback because their peer was 'smart', for example; Marcus struggled to train students to give candid feedback kindly. Marcus is also concerned about the difficulties people have in assessing their own understanding accurately (Problem 5); students sometimes assess their work as 'excellent' and resist subsequent feedback. While Marcus could see possible benefits, he did not feel they justified the time and effort needed to achieve them.

Nonetheless, the evidence convinces Marcus to give self- and peer-assessment another chance. Sadler (1989) argues that the information students need in order to improve can be generated by students themselves, and that teaching often seeks to "facilitate the transition from feedback to self-monitoring." Ultimately,

> the indispensable conditions for improvement are that the student comes to hold a concept of quality roughly similar to that held by the teacher, is able to monitor continuously the quality of what is being produced during the act of production itself, and has a repertoire of alternative moves or strategies from which to draw at any given point. In other words, students have to be able to judge the quality of what they are producing and be able to regulate what they are doing during the doing of it.
>
> (Sadler, 1989, p. 121)

Writing of deliberate practice, Ericsson explains the transition:

> Early in the training process much of the feedback will come from the teacher or coach, who will monitor progress, point out problems, and offer ways to address those problems. With time and experience students must learn to monitor themselves, spot mistakes, and adjust accordingly.
>
> (Ericsson and Pool, 2016, p. 99)

If students recognise what success looks like and can monitor the quality of their work and improve it, this would reduce the pressure on Marcus and move students towards success and autonomy. Marcus wonders what he would need to do to meet these conditions.

Marcus realises he struggled with peer- and self-assessment because he introduced it too early. Marcus set out to 'do' peer-assessment for its own sake; students struggled because they lacked the 'concept of quality' needed to assess effectively. If students are to self-monitor, Marcus must solve the previous problems in *Responsive Teaching*: he needs to be clear what he wants students to learn (Problem 1) and set tasks which will show whether students have succeeded (Problem 4). Most importantly, he must ensure students know what success looks like and how to achieve it (Problem 3): self-monitoring requires "effective mental representations" (Ericsson and Pool, 2016, p. 99). Having met these conditions, students should be able to identify and close gaps between their current work and their goal. Students must be used to understanding and using feedback; if they are accustomed to welcoming, acting upon and learning from teacher feedback, they should be able to do the same using peer feedback. So, before Marcus introduces peer feedback, he assures himself he has solved these previous problems. Where he has doubts, he:

- **Reviews what excellent work looks like:** revisiting the models students have seen and asking students to explain their qualities and limitations.
- **Revises his expectations for using feedback:** reminding students of how and why they receive feedback and how to benefit from it.

Having established these conditions, Marcus wonders what practical approaches might work for self- and peer-assessment, and decides to begin with checklists.

- **Before Marcus asks students to assess themselves or their peers, he ensures students can identify success and act on feedback.**

INTRODUCING CHECKLISTS

Marcus is impressed to read how checklists are used to remind professionals of key actions. Having seen how pilots and surgeons use checklists to prevent avoidable errors (Gawande, 2010), he decides to use them to help students (Fletcher-Wood, 2016). Marcus has been frustrated by students' poor proofreading. Once students have been taught to leave a line between paragraphs, put a box around a diagram or check their working, they should be responsible for doing so. Marcus develops checklists to help students identify simple errors in their work, or their peers', and to improve their self-monitoring.

A simple presentation checklist includes:

- Title, underlined
- Date, underlined
- New paragraphs indented
- Capitals at the beginning of every sentence, full stops at the end
- Spelling and grammar accuracy

In maths, he includes:

- Date and title
- Question numbers
- Units
- Decimal points
- Calculations

Marcus expects students to complete checklists like these whenever they submit work. Occasionally, students do not take this seriously, giving their work a cursory glance or waiting for Marcus's more authoritative feedback. Marcus takes an increasingly firm line, returning work to students if they have missed obvious errors he is confident they know. Checklists reduce the time Marcus spends marking missing capital letters and simple calculation errors, allowing him to focus on more significant comments. Yet he recognises their limits in codifying what success looks like (Problem 3); checklists are powerful if they deal with superficial features or they remind students to complete actions they know how to do, but they cannot convey what quality looks like.

REVIEWING WORK AGAINST MODELS

Marcus revisits models so students can identify how their work compares to a model of success. Students need to judge their work against models and mental representations of success (Sadler, 1989; Ericsson and Pool, 2016); Marcus asks them to compare their work to

model paragraphs, solutions or performances. Feedback as to whether an answer is correct or incorrect tends not to be useful: students need to see correct answers (Bangert-Drowns et al., 1991; Kluger and DeNisi, 1996). Marcus shows model solutions and asks students to identify whether their own work is missing any features included in the model; he plays compositions and asks students to note similarities and differences to their own. Sometimes, students diverge from models in intentional, creative ways; asking them to compare their work to models helps them recognise why this has been successful. At other times, comparing their work to a model allows students to identify missing steps or misconceptions themselves. Marcus wants students to recognise the similarities and differences of their work and models, so they can self-monitor effectively.

Often, Marcus structures students' comparison of their work and model work. Sometimes, he provides a checklist alongside a model; in each paragraph in an essay explaining the reasons for the Break with Rome, he asks students to include:

- A named reason, linked to the question
- Evidence for the reason
- Explanation why that reason affected Henry's mind
- A link back to the question
- Evaluation of how this compares to other reasons in the essay

He would not be confident asking his students to assess using this list alone, but using it with a model, they can check what a 'link back to the question' looks like. Structures like this help students to focus on important features of the work, avoiding overwhelming them by asking them to compare everything. Eventually, Marcus hopes students will internalise models of good practice, creating mental models which allow self-monitoring and remove the need for a checklist.

Once he is sure students know what success looks like, Marcus seeks to overcome other barriers to effective self- and peer-assessment. This means modelling, too: he models giving brief, constructive feedback frequently and reminds students explicitly what it looks like (and does not look like) before asking them to give and receive it themselves. He models acting upon feedback, showing how students can edit and improve work. He reminds students to return to models and previous feedback when they approach new problems; this helps them transfer what they have learned previously to new tasks. Marcus remains wary of investing too much time in self- and peer-assessment, however, or beginning it too early. He introduces them in a gradual, structured, limited way; he assures himself students know what success looks like and how to act upon feedback and monitors peer feedback and students' reactions closely. The evidence has convinced Marcus that students should be playing a greater role in providing and acting upon feedback; his scepticism remains, but it pushes him to provide the models and structures to ensure students are genuinely benefiting, through a better sense of quality and better self-monitoring.

- **Marcus ensures students know what success looks like, can review their work in a structured way and know how to respond.**

How can he mark efficiently and effectively?

Marcus thought that improving feedback meant marking; the evidence forces him to reconsider its importance. There is "a striking disparity between the enormous amount of effort invested in marking books, and the very small number of robust studies that have been completed to date" (Elliott et al., 2016, p. 4). Most studies are small-scale and/or focus on marking in higher education or English as a Foreign Language; most examine short-term impact, not long-term outcomes. Nonetheless, marking has become "disproportionately valued by schools and . . . unnecessarily burdensome for teachers," according to the Independent Teacher Workload Review Group (2016, p. 5), which recommended that marking should be driven by professional judgement and be "meaningful, manageable and motivating." Robin Conway (2017), at John Mason School, adds that

> this is not just an externally imposed problem. I have found myself adding more and more to my 'depth' marking over recent years; seeking to address literacy, give targets, identify what strengths the work shows, model effective answers and give directives for the application of targets . . . in short to make each piece of marking the perfect 'solution' to student progress. Too rarely have I stopped to think carefully about what the impact of each piece of feedback was, or which parts of this exhaustive process were actually the ones that best supported students' learning. When students made progress it felt irresponsible to tinker. When they struggled it felt dangerous to step back and reduce my input . . . so I generally added more.

While marking may have a powerful impact sometimes, Marcus begins by recalling some pitfalls suggested by the evidence on feedback in general:

- When students receive feedback from the task itself, he should not distract them with additional feedback.
- When students know what success looks like, Marcus should help them to take responsibility for fixing errors themselves.
- The longer and more complicated the feedback, the less likely students are to understand it and respond.
- Feedback is only feedback if students respond to the information Marcus provides.

Marcus realises that many common ways of marking do not help students improve. For example, noting that he has provided verbal feedback or writing verbal feedback in students' books adds no additional information helping students improve. Similarly, 'ticking and flicking' his way through students' books gives the illusion he has examined the work but tells students nothing. Finally, telling students that their work has reached a particular grade highlights superficial features of the mark scheme but does not develop their understanding of a great piece of work. The underlying problem is that Marcus is marking for many purposes. Sometimes he marks to help students improve; sometimes, he marks to show parents, managers or inspectors that he is doing a good job. This seems to underpin the obsession with recording on paper what needs to be in students' heads.

- **Marcus resolves to be clear about his purposes. When he wants to help students improve, he focuses on that and avoids wasting his time on cosmetic flourishes**. When he needs to demonstrate his hard work to others, he adopts approaches dedicated to doing so: he considers collecting examples of students improving their work from one draft to another, for example, which would demonstrate their progress and provide a useful resource for him in future years.
- **Marcus recalls the many circumstances under which individual feedback may not be the best approach and considers alternatives. He counts the opportunity cost that marking entails: an hour marking is an hour not planning better explanations, for example.**
- **When Marcus does mark students' work, he applies the evidence about effective feedback in the most efficient way.**

Over half of respondents to the government's Workload Challenge named excessive marking as particularly burdensome (Gibson, Oliver and Dennison, 2015). Marcus seeks to follow three principles to make his marking manageable, efficient and worthwhile:

Targeting marking

Students can produce more work in an hour than a teacher can be expected to mark (or a student can be expected to improve subsequently). Marcus examines a handful of student responses to identify common issues, then targets a particular aspect of the work, for example:

- The opening sentence of every paragraph
- The accuracy of the drawing of diagrams
- Three questions which capture every major misconception

Targeted marking is swift, but it has additional advantages. It provides a focus for students' improvement and for Marcus's reteaching and modelling next lesson. He applies the same principle to correcting spelling, punctuation and grammar, noting the first three errors, then only highlighting subject-specific vocabulary students will not see corrected elsewhere. Marcus does not tell students in advance how he will target marking, partly to avoid them focusing their efforts on that aspect of the task, partly because he decides the target having examined a handful of student responses. However, he does explain what he has chosen to do and why afterwards, to avoid students believing all unmarked sections of their work are perfect, or that their efforts on the whole piece are not worthwhile. Targeted marking saves time while supporting improvement.

Standardising feedback

Most student responses fall into a handful of categories: 'got it', 'partly' and 'didn't get it'. Rather than writing the same feedback dozens of times, Marcus standardises his feedback, for example, by:

- **Creating a sheet with common targets for frequent tasks** (like writing an essay in a particular genre), on which to indicate student successes and problems with ticks and crosses.

- **Developing marking codes and use them instead of writing words in fully:** in history, for example, Marcus uses 'Ev' to represent 'Evidence'; a tick and 'Ev' means the evidence is strong; a circle around 'Ev' means more or better evidence is needed. Marcus uses this abbreviation on every history essay he marks.
- **Grouping next steps for students into standard tasks:** Marcus finds he usually wants students either to:
    - Repeat the initial task with additional scaffolding or support
    - Develop or improve their answer
    - Go beyond the initial task with a new challenge

  Rather than writing the same thing fifteen times, he writes 'Target 1' on the work and displays the targets on the whiteboard to discuss with students and ask them to record/act upon as necessary.
- **At John Mason School in Abingdon, teachers develop 'Examiners' Reports', which collate their observations on a class's answers:** in subjects such as English and history, text summaries show strengths and weaknesses applicable to most students – students then have to work out which strengths and weaknesses apply to which of their work. In science and maths, spreadsheets show questions which students had completed well and poorly, alongside common observations (Conway, 2017).

When a student's answer is unique, Marcus provides unique feedback; for students who have performed exceptionally or have missed the point entirely, he offers personal feedback and support. Most student responses show similar strengths and weaknesses, however: Marcus cannot justify offering unique feedback for common problems when he can provide group feedback more quickly and effectively.

Reducing marking (increasing thinking)

The more complicated feedback is, the less students seem able to benefit (Kulhavey et al., 1985, in Shute, 2008). The more Marcus writes, the less students are likely to improve: verbal explanation of feedback is likely to be more useful, as it allows him to check student understanding as he explains. Marcus recalls the importance of economy of language and marks as concisely and simply as possible. He finds that sometimes he can make simple comments which challenge students to think much harder than his normal marking. For example:

- While telling students which answers are wrong allows them to correct those answers, telling students that 'One of these solutions misses the third step, can you identify which, and fix it?' forces students to examine their answers again carefully and spot the difference between work which meets the desired standard and that which does not.
- Rather than explaining every problem, Marcus can highlight where there is an issue without explaining what it is, then ask students to compare their work with the model and identify how to improve.
- Writing a comment for each student on paper, then providing groups of four students with their four comments, Marcus asks students to examine one another's work and identify which comment applies to which answer.

- For each error he finds, Michael Pershan writes an example that is related, but not identical, to the original problem on a sheet: all students receive the same sheet, and are asked to find an example related to a question they struggled with, and fix it accordingly (2017).

Marcus is careful not to frustrate students with these techniques. He uses them when students have the knowledge and the confidence needed to succeed; he ensures they are motivated and understand the purposes of the exercise. If they are not going to identify the improvements, he does not leave them searching vainly; his goal is to foster more thinking, while marking more efficiently.

What are the alternatives to marking?

Following the evidence on marking often moves Marcus away from individualised feedback towards feedback and improvement tasks targeted at groups of students. The logical conclusion is to find ways to offer feedback which do not require him to put pen to paper at all.

Feedback during the lesson

When he can, Marcus offers students feedback during the lesson. He follows the same feedback principles: he chooses a level of feedback and asks students to act upon it. He offers individual verbal feedback sometimes, but he struggles to spend sufficient time with each individual student to explain points thoroughly. After verbal feedback, Marcus checks students' understanding, asking them to explain it, or he asks them to begin revising their work and returns to check soon afterwards. Alternatively, he indicates the next step for students on their work, providing something students can refer to again once he has moved on. Group feedback is more efficient than individual feedback; he stops the class if he finds three students with a similar problem, on the assumption that there are more students in the same situation; even if this overestimates the number of students who are struggling, overlearning – continued practice and improvement, beyond the point at which students have mastered something – has powerful positive effects on learning and memory (Soderstrom and Bjork, 2015).

When planning feedback after the lesson, Marcus begins by examining student answers and errors, like Jo Facer (2016), who reads all her students' books once or twice a week, reading sixty books in thirty minutes. As he writes, he follows her example, noting problematic spellings, students' strengths, the main issues to improve and individuals who have done particularly well or poorly. Having read students' work, rather than writing on it, he uses other strategies:

Reteaching

Reteaching allows Marcus to challenge common misconceptions or knowledge gaps efficiently. He reiterates definitions or offers mnemonics to support students' factual knowledge; he offers examples, counter-examples and big pictures to support conceptual understanding (Shute, 2008). He repeats initial teaching, using fresh images, examples and metaphors from his unit plan (Problem 1). Students who struggled to add using a number line may do better

with counters; those confused by their reading about the American Constitution may benefit from studying current cases in the Supreme Court. Students who 'got it' last lesson need not get bored; they often forget aspects of the lesson, they can be asked to overlearn, to explain points to the class or they can be challenged with fresh tasks. Reteaching seems the simplest and most effi cient way to approach knowledge gaps and misconceptions without giving individual feedback.

Revisit model work

Closing the gap between students' performances and goals may require more (or clearer) knowledge; it may also require clearer goals. Just as Marcus revisits what he has taught students, he revisits the models he offered, or provides fresh ones; students can now compare their work with the model and better understand where the gap lies. Carolyn Massey (2016) used Orlando Figes's *A People's Tragedy* to model good historical writing for her A-level students; she then sent students back to this model, asking them to examine pages which demonstrated what they needed to do: 'Your sentences are overlong, reread page 46.' Revisiting checklists (discussed in Problem 3) helps students identify missing features of their work: punctuation, point sentences or balanced equations. Usually, Marcus chooses the models students will examine rather than asking them to use one another's, to ensure they can see the features which seem most important. Revisiting goals allows students to improve their work and understand better what success looks like.

Revise the process

Marcus reminds students how to create a good piece of work. He models the process of improvement, providing demonstrations and worked examples to show what students can do to their work (Shute, 2008; Problem 3). For example, he takes a student's answer, or a weak example he has created himself, and models rewriting or correcting it on the board. He takes a paragraph and works through it line by line, reading the line and then asking students open questions initially, moving to direct questions if they struggle to spot the points he is making:

- How could this be improved?
- How could we put this more clearly?
- What specific term should we use here?
- Who can suggest an unnecessary word we could remove?

He asks students to compare weak examples with model work and identify what's missing: 'Go back to the model: which step is missing from the solution?' Demonstrating how to improve work and guide student thinking about the choices made has two effects. First, it reinforces students' understanding of the choices and decisions which help create great work, particularly when Marcus refers to the original models students saw (Problem 3). Second, it models the process of correction, editing and redrafting he wants students to use to refine their own work.

More practice

Knowing how much students know is important, but it does not mean Marcus has to intervene immediately. Students may benefi t from further practice, perhaps even without error correction. Building on the distinction between learning and performance – that lower performance can sometimes lead to greater learning (see Problem 2), Josh Goodrich (2017) notes that teachers skilled in formative assessment can use this to keep tight control of student learning, mistakes and misconceptions. This can mean that students never get the chance to struggle, as teachers address misconceptions immediately without allowing students to do the thinking which may lead to longer-term learning. This is supported by Kluger and DeNisi's (1996, p. 265) observation that feedback "may reduce the cognitive effort involved in task performance" and so be "detrimental in the long run": there is value in allowing students with high prior knowledge to identify improvements themselves. As Goodrich observes, if teachers do not allow students to struggle, it can appear that students are doing well but may harm their longer-term retention. Deciding exactly how much extra practice to ask students to do is a matter of judgement, but Marcus tries leaving students to continue for at least two or three more problems or sentences, then checking back with them. Marcus fi nds this is not an easy message to convey – particularly to observers – but it is an important one: rapid feedback, particularly after students have acquired the knowledge they require, may diminish learning. Sometimes more practice helps most.

Conclusion

While it is helpful for Marcus to consider each strategy for guiding improvement individually, in practice his responses are far more fl uid than his categorisation suggests. Over a handful of lessons, students may receive verbal feedback, targeted marking and feedback addressed to the whole class. Individual feedback may be supplemented by revising model work as a group, for example. Marcus shifts between strategies depending on the needs of individual students, just like Susan Strachan (2017); normally, she offers whole-class feedback, but if individuals will struggle to identify their own targets:

> I will pop their name next to a specific target and when I am circulating the class after giving the information to the students I will tell them what I want them to work on, or in the case of some of my weakest students I will have written their target quickly into their book.

Combining approaches allows Marcus to be efficient, while ensuring every student gets the help they need; it allows Marcus to give collective feedback, while ensuring students know how they can improve. Marcus finds avoiding individual feedback saves time he can use better. Instead of trying to explain how to improve work for every student in writing, he can spend time planning a five minute explanation which will show every student what he means clearly. Marcus's review of the evidence and his options convinces him that Shute is right to argue that there is no "best" type of feedback (2008, p. 182), but when he can follow the evidence and do so efficiently, he finds feedback can support students to improve powerfully.

The principle

Responsive teachers provide students with clear feedback tailored to what they need to improve, in a sustainable way.

Experience – Robin Conway

Saving time through group feedback

John Mason School is a comprehensive academy in Abingdon, Oxfordshire. Robin Conway has worked there as a teacher since 2007. A history teacher originally, he also teaches sociology, politics and psychology to A-level. He has worked as Head of History and Humanities and Professional Tutor, and he became Director of Research and Innovation in 2015 with a brief of supporting the school to bridge the gap between educational research and classroom practice. He writes for and edits the school's reflective blog (https://jmsreflect.blog/), from which this is an extract.

"At JMS we did indeed pilot this model of feedback across various subjects and key stages in order to reflect on the purpose of feedback and the impact it could have. There were a lot of positives to it: once teachers got into the swing it was a dramatic workload-saver. It drew my attention to exactly how much time I spend rewriting the same comments on several students' work. Instead, using this model we produced a single class feedback sheet, which we started terming the 'Examiner's Report' and then focused on how we would ensure that students took the key messages on board. As with any feedback model, simply telling students what had gone well and what needed improving was not enough. Modelling helped but even combined both methods rely on students being able to identify which aspects of the general feedback applied to their work. Those with lower confidence had a tendency to be over-critical of their work and risk focusing on fixing problems which did not apply. Those with a limited grasp of the assessment criteria could not always see which bits of feedback applied to them.

"One-to-one conversations with those students who struggled to apply the feedback were crucial. I think our openness that we were trying something new and wanted their feedback on it also helped; students seemed more willing to admit early on if they were struggling to understand the feedback. This may be because 'problems' could be safely located with the 'new' model, rather than in themselves or the teacher, which facilitated questions and dialogue.

"For me, the process has given a new emphasis to the importance of dialogue in feedback. I am not advocating extended written discussion, or even a specific pen colour. Workload has to be a consideration, but so does turnaround time if the effort is to pay off for the students. However I am convinced of the value to my students in seeing the feedback I give as the first step in a dialogic process where we discuss what went well and how that was achieved, what the next steps are and how they will try to meet these and then a way forward.

"This does not have to be a laborious written dialogue built in different colours over several weeks, with books and folders passed back and forth. Sometimes, often, verbal

discussion is quicker and more directly relevant to the student or small group with whom I wish to discuss their work. Tools such as the 'examiner's report' marking can play a valuable part in this by cutting down wasted time marking repetitively whilst shaping my thoughts on how to move students forward and giving us a clear starting point for dialogue beyond the piece of work itself. However I have found whole-class feedback to be very much the start of a process, and not sufficient on its own. In whatever form I need my students to respond directly to my feedback to be sure that it is doing the job.

"Questions that helped me to reflect on student responses to feedback

1 How widespread is this error and is it something I need to address with the whole class?
2 Is this something the students can fix themselves? If so, when am I going to give them time to do that?
3 How will I know if this feedback has 'sunk in'? What am I expecting students to do with it or how am I expecting their thinking to develop? When am I going to give them time to do that?
4 What is the most time efficient way to work with the student on this development point?"

Experience – Warren Valentine

Planning the work which requires feedback

Warren Valentine is head of government and politics at a state grammar school in the southeast. He has been teaching for five years and has recently completed an MA in History Education. He has recently launched a working group in his school on feedback and assessment and continues to experiment with his practice in this area.

"I radically transformed my teaching practice when I experimented with looking at every student's book at the end of every lesson. I had grown frustrated with the way I had bought into a system that conflated the terms 'marking' and 'feedback' and mandated that some form of 'formative feedback' be provided to students once every six lessons. This ultimately led to students working towards an 'outcome' piece of work, where I would then rewrite the same sort of comments across all of the exercise books. Students might then have looked and observed the comments that they were provided with, but we would then quickly move on to the next unit of work. This did not seem particularly helpful; major misconceptions were being picked up long after the teaching, and I had little evidence that students had actually 'got it' after a single written statement had been provided to them on the strengths and weaknesses of their writing.

"I therefore decided to adopt the practice of 'dot marking', to see if it was sustainable and valuable to judge every student's work, after every lesson, at Key Stage Three. I restructured all of my lessons so that they drove towards a short piece of writing at the end, revolving around a question that I believed would stretch all students, and demand them to explain the main concept of the lesson in their own words. I had previously

experimented with 'exit-tickets', where students would write some form of judgement on a Post-it note, but I had found that these were too short. Without dedicating a significant portion of the lesson over to a task, my students were treating this cursorily and I was not left with any sense of the depth of students' understanding. Once I was collecting in students' paragraphs, I dedicated approximately twenty minutes, per class, in a morning to read over all of the paragraphs. Every student was awarded one of three coloured stickers. I regularly mixed the colours up so as to avoid any sense that these were grades. My students have always been in the routine of completing a 'bell task' as they walk into the room. These tasks switched to becoming focused tasks, divided up depending on which colour students had been given. Students were placed into three groups: 'got it', 'almost there' and 'has misunderstood the concept'. The former were offered a question to stretch their thinking further, the 'almost there' students were asked questions of clarification or extension which I would check at some point during the lesson. Those students whose responses I had judged to be weaker were brought together and given a pre-planned explanation to help them overcome their initial misconceptions, and then they were instructed to redraft their paragraphs.

"I found this extremely beneficial. Students' misconceptions, or procedural errors, were being rooted out far earlier, allowing me to treat summative assessment as just that. I put more of my time into making accurate judgements rather than providing formative comments on what should have been summative tasks. I was also making a note in my lesson PowerPoints of the key misconceptions that were arising, which I have then planned ways of avoiding, addressing, or at least discussing when a topic was taught again in a later year.

"The main challenge to providing direction to students in this way was still trying to conform to whole school and departmental expectations of providing written feedback every six lessons. I was saving great sums of time, but on balance, more time was being spent applying additional comments to be seen to be meeting school policies. I worked around this in two ways. At the right juncture, I would provide students with a series of 'WWW/EBI' comments that they could use depending upon the colour their task was given. I followed this up by demonstrating the efficacy of my approach to senior leadership, who have since significantly relaxed their expectations and encouraged a diversification of how feedback is provided to students. I was pleasantly surprised that students did not conflate the colours with grades. This was the case with one or two classes, but when it was explained that this was individualised feedback for specific comments they had made rather than a judgement on their performance, they seemed to be more than satisfied with the approach.

"The one tip that I picked up from this experiment was to plan what I needed to see and provide feedback on, and what I did not. I was finding that there were paragraphs I was reading where I already had a sense or even evidence from the lesson that students had 'got it'. Meanwhile, there were ideas appearing in students' writing that I wished I had sought evidence of in the lesson, and addressed immediately. So, while I have not continued to look at a piece of writing from every student, from every lesson, I have instead planned what I need to provide feedback on for students, and when. This can only make my use of time more efficient, and allow more time to be given over to planning better lessons that address misconceptions I now know to be looking out for."

Checklist

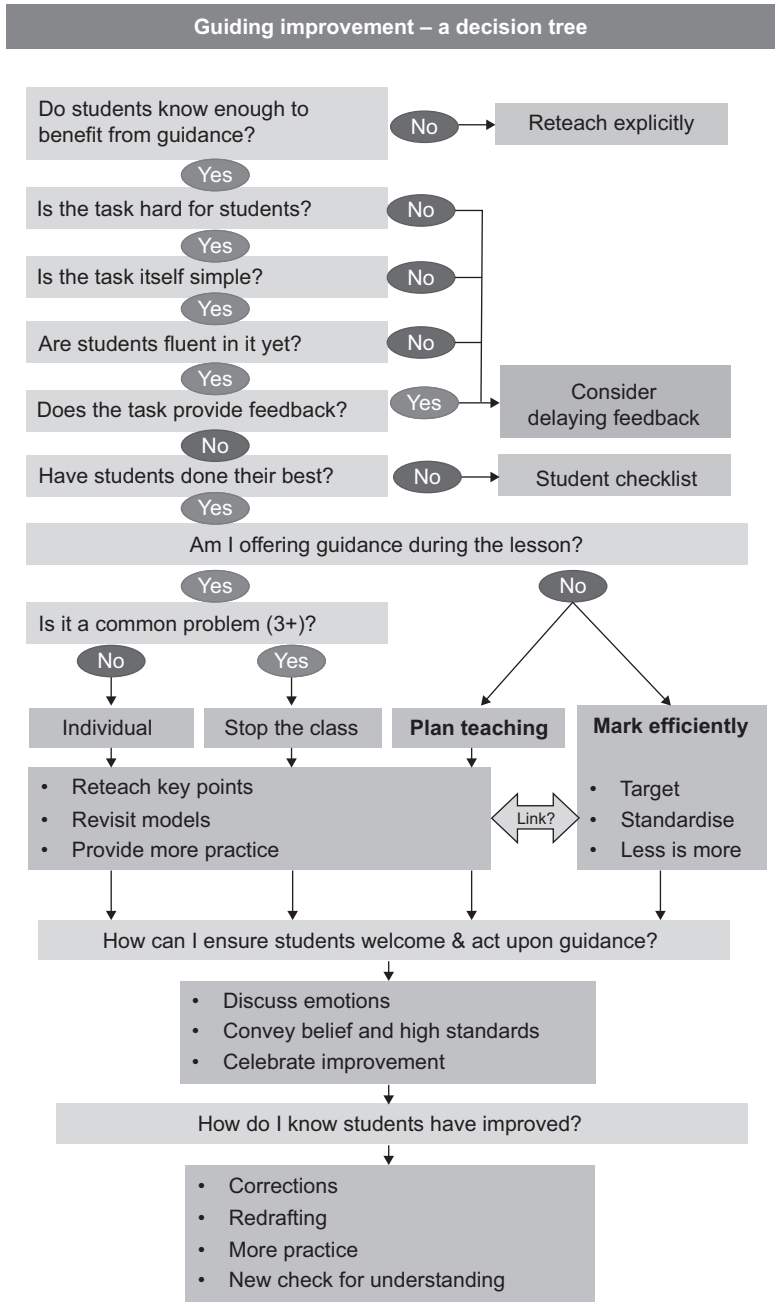

Figure 6.2 Feedback: a decision tree

Checklist: more efficient, effective marking

1 Is the problem further upstream?
   - Do students know what success looks like? ☐
   - Does the task allow focused feedback? ☐

2 Can students take more responsibility for this work? ☐

3 Can you target your marking on a specific aspect of the work? ☐

4 Can you standardise your approach to marking? ☐

5 Can you limit how much you are writing? ☐

6 Can students improve without individual feedback?
   - Give feedback during the lesson ☐
   - Reteach ☐
   - Revisit model work ☐
   - Revise the process ☐
   - Give more practice ☐

A great read on this is . . .

Berger, R. (2003). *An ethic of excellence: Building a culture of craftsmanship with students*. Portsmouth, NH: Heinemann.

Ron Berger is a carpenter and an elementary school teacher. This book shows how he creates a culture of craftsmanship and of continual improvement in his classroom.