Teachers constantly reflect on classroom interactions and question why students behave and perform in a particular way. However, to understand why things happen in the way they do necessitates standing back and taking time to deliberate more explicitly about practice. This requires the conscious management of thinking and activity through setting aside time to:

- learn about theories or codified explicit knowledge
- engage in activities and make explicit tacit knowledge
- justify and develop new knowledge
- subject new ideas to the critical scrutiny of other practitioners.

**Types of knowledge about teaching and learning**

Knowledge about teaching and learning is constantly developing and evolving and can be classified into three broad categories.
Firstly, we have explicit knowledge that has been codified formally using a system of symbols and language which can be easily communicated or diffused. This codified academic knowledge may be object-based or rule-based. For example, we have come to understand the nature of the chemical bond and know a fair amount about our own human development, and we were probably introduced to this in secondary school science lessons. This sort of knowledge is found in textbooks. Furthermore, it is related to our ongoing intellectual development and progresses through a hierarchy leading to greater levels of abstraction. In a school context, codified knowledge can also take the form of organization-specific, rule-based information such as records, correspondence and manuals.

There is also a vast educational research literature of well-grounded propositions which, although abstract in nature, have the potential value to be highly applicable in classrooms. The second form of knowledge which is tacit, practical and implicit is used by teachers to perform their job and make sense of classrooms. This knowledge is hard to verbalize because it is expressed through action-based skills, is difficult to make explicit or to represent in a textual form because it is largely acquired informally through participation in teaching situations, and it is often so ‘taken for granted’ that teachers are unaware of its influence on their behaviour. This knowledge is context-specific and is not easily codified but nonetheless also plays a key role in school-based practices and activities. The third form of knowledge is cultural knowledge which is also context-specific and is associated with the shared assumptions and beliefs that are used to perceive and explain classroom reality and to assign value and significance to new information and ideas. The curriculum is imbued with cultural values and the translation of this into teaching episodes will also be value-laden with the thoughts behind the choice of words, tone, storylines, and other elements which are not explicitly articulated but can be picked up by the learners nonetheless.

Donald McIntyre argued that there is a gap between the first type of codified research knowledge and the second type, teachers’ everyday practice knowledge. McIntyre suggested that this gap was created because the kind of knowledge that research can offer is of a very different kind from the knowledge that classroom teachers need to use. Such codified research knowledge is not easily translated into practical knowledge because each classroom context is different and what works for one teacher, or in one school, or with one class, or on one occasion, may not translate directly into action in another. This is because each school is unique, each classroom different, hour by hour and each teacher has their own individual ‘schemata’ for recognizing classes or pupils or situations as being similar to others they have dealt with before, each schema incorporating a range of more or less remembered individual cases, and on corresponding repertoires of actions that have seemed to work in some circumstances in the past. (McIntyre, 2005: 359)

In other words, teachers make judgements based on their beliefs and values, and these have developed through a range of experience. The role of the teacher/researcher is to try
to bridge the gap between codified research knowledge and the everyday ‘craft’ knowledge of teachers. So researching practice is about challenging beliefs and values through encountering new ideas from other teachers and codified research knowledge, so that well informed judgements can be made in classrooms which ultimately increases the well-being and attainment of every student in each class. Box I.1 uses Donald McIntyre’s (2005) words to summarize the reasons why teachers ought to engage in school-based research. These words are even more pertinent as ‘craft knowledge’ dominates educational policy ‘reform’ at the time of writing this second edition.

**Box I.1**

‘A first suggested way of dealing with the gap between codified research knowledge and ‘craft’ knowledge starts from the understanding that the two contrasting kinds of knowledge at the ends of the spectrum both have inevitable limitations but also have considerable and mutually complementary strengths. This first way of dealing with the gap is in my view well conceived but has not received the attention it deserves.

Three elements are necessarily involved in this way of dealing with the gap. First, there has to be a recognition – which we shall assume here – that the characteristics of classroom teachers’ craft knowledge and of research-based knowledge, as we have described them, are in no way inappropriate but, on the contrary, are in both cases necessary for their purpose, and also mutually complementary in potentially highly fruitful ways.

Second, realization of the potential value of their complementarity depends upon some movement, in both cases, from the extreme ends of the continuum. Third, time, energy and helpful procedures are needed to foster effective dialogue, exploring relationships between their two kinds of knowledge, including the development of new syntheses of the two kinds of knowledge. When productive, this process of dialogue – which might be either metaphorical or literal – should culminate in classroom teachers themselves investigating the merits of research-based proposals by testing them through action research in their own teaching. This approach is based therefore on the premise that research can be helpful in improving the quality of classroom teaching, but equally on a second premise that research cannot be helpful except through quite complex processes culminating in classroom teachers engaging in dialogue with research-based proposals.’ (McIntyre, 2005: 362–3)
Reflecting as learning

Professional learning and teacher knowledge is embodied, contextual and embedded in practice. Teacher learning takes place at several levels of conscious awareness. In day-to-day classroom interactions, teachers draw on their intuitive tacit knowledge gained through previous experience. This ‘hot action’ is coloured by feelings and reactions and relies on an instant response, building up ‘knowledge in action’. More measured reactive or reflective learning takes place through interpretation of the situations accompanied by short reactive reflection which might take place at the end of a teaching episode or in conversation with another teacher.

Changes in practice occur through deliberative learning. This requires a more conscious management of thought and activity through setting aside time to learn about and engage in activities which are directed towards a clear workplace goal. Deliberative action or ‘knowledge for action’ (Table I.1) is what takes place during systematic class-room-based research (Wilson and Demetriou, 2007).

<table>
<thead>
<tr>
<th>Table I.1 Teacher judgements from (Wilson &amp; Demetriou, 2007)</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Implicit / Tacit Judgements</strong></td>
</tr>
<tr>
<td>'Hot' action Judgements based on intuition</td>
</tr>
<tr>
<td>Mainly emotional responses Knowledge in action</td>
</tr>
<tr>
<td>'Act' like a teacher Recognizes patterns Instant response Routine action Some awareness of the situation</td>
</tr>
</tbody>
</table>

Researching practice

To research classroom practice involves searching for information, and in the process creating new knowledge about particular teaching situations. In this way, teachers’ personal tacit
knowledge is extended through their daily experiences both inside and outside classrooms. However, for this tacit knowledge to be made explicit so that it can be shared with other practitioners, it must be articulated through dialogue and reflection and presented in a way that is meaningful to other practitioners and researchers, so that it will contribute to our understanding about how children learn and develop or better understand how schools function. Alternatively, this knowledge might involve the development of new ideas about innovative teaching approaches which might inform what other teachers do.

Making more informed judgements through classroom-based research

Teachers choose how to act and decide what to do – that is, they exercise judgements. These judgements may be intuitive or explicit, often have important consequences and are not only driven by rational thinking but to a large degree by human experiences and emotions. Moreover, this professional judgement is always value-laden and not based simply on technical judgement. Becoming involved in classroom-based research involves standing back and identifying what your personal values are so that you can take these into account when interpreting what you see in classrooms. In other words, we learn to be teachers through the growing capacity to make appropriate judgements in the changing, and often unique, circumstances that occur in our different classrooms. However, with time, teachers become more familiar with classroom situations and there is a danger that we may come to react in ways we have always done instead of responding sensitively to situations. Having the opportunity to stand back and think about an issue or problem can aid such sensitivity.

Researching our practice presents the opportunity to problem-solve more intelligently, through drawing on existing research findings and by using rigorous methods to collect evidence which helps clarify our thinking. Experiences of participating in an informed way, and acting freshly, offer the teacher for whom teaching has become a routine a sense of freedom, of meaning, of worthiness and consequently increased self-esteem. Therefore, generating practice-based knowledge can often be liberating for the individual teacher while not necessarily being directly transferable to other classrooms. It could be argued that the real value of classroom-based research is in the process of building the capacity to reflect critically on your own practice so that more students learn and that you better understand this process.

Reflection and reflexivity

Reflection-in-action and the term reflective practitioner were first used by Donald Schön in 1983. Schön described how reflection-in-action could be used by professionals
as a tool to improve their practice. He argued that reflection-in-action involves teachers retrospectively analysing their own actions and attempting to determine how these actions influence classroom events.

The notion of reflexivity goes further and requires more deliberative thinking. In other words, reflexivity is an interactive process that takes into consideration the relationship between the teacher, the students and the learning context, and also examines the underlying assumptions and priorities that shape interaction within a given time, place and situation. Furthermore, the process can also be transformative, in that, by definition, it requires a teacher to make a major shift in their understanding of classrooms. It is also integrative in that it involves interrogating taken-for-granted topics such as gender, policy or power. At its heart is the idea that practice is rooted in the same skills of critical thinking and sceptical inquiry that underlie most scientific and critical disciplines. Finally, it is certainly a problematic concept because it is always difficult to think reflexively and to challenge one’s own presuppositions in relation to seemingly fundamental topics like assessment and gender.

To sum up, reflection is related to self and improving future practice through a retrospective analysis of action. Even in the reflection-in-action process, reflection is post facto, relating to completed stages and analysing them before taking the next step.

Reflection is future-focused in that it seeks to improve practice through an understanding of the relative successes and failures of previous events. However, it remains connected to the past focusing on completed stages: reflection takes the form of a cumulative body of knowledge that can then be used to improve practice. Although reflection influences the development of reflexive practice, there are profound differences. Being reflexive involves a teacher also being proactive through explicitly requiring the re-evaluation of assumptions and priorities that shape classroom interactions.

Reflexivity can be used to provide insight into priorities before the teacher reacts inappropriately. Reflexive practice in this manner can have an immediate impact in improving practice, as practitioners are able to incorporate new insights into each interaction. Hence, one key difference relates to when the process of introspection takes place. In reflection, it takes place after an interaction, whereas the reflexive process incorporates interactive introspection into each interaction.

Creating new knowledge about teaching and learning

In published educational literature about teaching and learning, the direction taken by professional researchers seems to follow two basic approaches. In simple terms, the first is research on education which is concerned with understanding how children learn and develop. This research is carried out through both empirical and theoretical studies and the outcome of this work is published in educational journals and textbooks.

Secondly, and equally important to the classroom practitioner is classroom-based research which uses ideas often generated via knowledge created through empirical and
INTRODUCTION: WHY SHOULD TEACHERS DO SCHOOL-BASED RESEARCH?

theoretical work, which is then used to inform what teachers do in their specific classrooms.

Research that contributes to understanding

Professor Neil Mercer, at the University of Cambridge, is a very experienced, and prolific educational researcher, and in the following extract from an interview with the author he explains the rationale for a recent research project he undertook, which contributed to our understanding of how children learn through the use of dialogue.

we realized that we wanted to know whether the kind of claims that were becoming common, based on Vygotsky’s research back in the ’30s, about the relationship between social interaction and children’s cognitive development, were justified. It seemed to us that there wasn’t actually any empirical evidence to show that Vygotsky’s claim that children’s interactions, with adults especially, and other people, shape the way they think. It seemed plausible and sensible, but was there any strong evidence? And we thought, well, we should try and look at whether there is, by setting up some sort of conditions in which we would say, well, children are given a special quality of interaction, a certain quality of interaction. We will then see if that affects what they learn and how well they understand things. And we will compare them systematically with children who are just going about life in a sort of ordinary way. So we had that theoretical interest — was Vygotsky right about the relationship between what he called the intra-mental or psychological, and the intermental or social? (Mercer interview, 2007)

The outcome of this particular research project has been published in a very influential book, *Words and Minds* (Mercer, 2000) – in other words, it has now become explicit, codified knowledge which is considered to be essential subject knowledge for aspiring teachers.

Creating practical knowledge based on an intervention

In a different research project, Professor Mercer and Dr Lyn Dawes worked together on a classroom-based intervention in which teachers introduced group work to investigate what would happen if students were given more opportunity to engage in dialogue. Professor Mercer describes the research rationale for this practical-based, knowledge-generating project:

We also were motivated by some practical questions, which was that people were concerned about the quality of groupwork in school, when children work together. One lot were saying ‘groupwork’s great’, while another lot of people were saying ‘it seems to be a bit of a waste of time. They should be sitting more and listening to the teacher and so on, getting a lot more out of it’. And we thought, can we show that if you set up groupwork in a certain
structured, organized way, it achieves certain sorts of goals, that you can say make it worthwhile? (Mercer interview, 2007)

The outcomes of both projects are published in the educational literature and while both projects are very relevant to classroom teaching, the work remains largely inaccessible to most school-based teachers.

Part of the process of teachers accessing this literature is to attempt to bridge the gap between such important codified knowledge and teachers’ tacit everyday knowledge.

**Teachers creating new knowledge about teaching and learning**

Teachers can also create new knowledge which will be invaluable to them personally and to other practitioners in similar educational contexts. In the process of undertaking such research, a teacher will also come to better understand the dynamics of their classroom.

Finally, a further concern is the perceived imprecise nature of research undertaken by teachers. Teachers themselves often believe, together with other critics of small-scale qualitative studies, that the only legitimate research is large-scale and quantitative, seeking clear-cut conclusions and a steer for future strategies and policies.

In summary: Teachers develop criticality as their theoretical knowledge increases, and become more expert as their pedagogical skills increase. Thus it is important for teachers to be able to integrate theory and practice as they relate to curriculum, teaching practice, and assessment knowledge in the areas that are the focus for professional learning. Teaching is a complex activity in which moment-by-moment decisions are shaped by teachers’ beliefs and theories about what it means to be effective. Theoretical understandings give coherence to these decisions.

**How this book will help**

Written by members of the PGCE – M Level teaching team who cross the boundaries between academic research and classroom teaching as part of their role as teacher educators, each author has been a classroom teacher and so understands the complexity and tensions of being in the classroom from firsthand experience, but also contributes to the generation of academic codified research knowledge.

This book is aimed at beginning teachers involved in classroom research as part of their M-level initial teacher education, as well as serving teachers completing Masters courses. Our aim is to try to demystify the research process so that teachers can systematically research their classrooms in a rigorous way. To this end, we have illustrated the principles by exemplifying each stage using existing M-level and expert researchers’ published work set in school contexts.
INTRODUCTION: WHY SHOULD TEACHERS DO SCHOOL-BASED RESEARCH?

Section 1: Using existing research to understand and plan school based research

Chapter 1: Becoming a reflexive teacher

Chapter 2: Refining a research focus and asking questions

Chapter 11: What data is available about the school context?

Chapter 4: Researching primary school classrooms

Chapter 3: Using and reviewing literature

Section 2: Carrying out and reporting on classroom based-research

Chapter 5: Research design: methodology

Chapter 6: Doing the right things and doing things right: ethical considerations

Chapter 7: Data collecting methods

Chapters 9 and 10: Analysing textual data

Chapter 8: Handling data

Chapters 11 and 12 Analysing numerical data

Chapter 13: Writing about the research

Section 3: Methodologies

Chapter 14: What is action research?

Chapter 15: How to do action research

Chapter 16: The case study

Chapter 17: Building theory from data; grounded theory

Section 4: Paradigms

Chapter 18: Beyond positivism: scientific research into education

Chapter 19: Interpretivism: meeting ourselves in research

Figure 1.1 Book layout
The structure of the book

Section 1 is about critically engaging with the existing research literature and planning classroom-based research. Chapter 1 introduces the idea of becoming a reflexive teacher and guides the novice researcher through the process of critically reading existing literature. Chapter 2 provides examples using PGCE M-level work. Chapter 3 discusses how to review literature so that you can produce a literature review. The new chapter 4 in this edition includes examples from primary school classrooms.

Section 2 is about carrying out and reporting on classroom-based research. Chapter 5 introduces methodology but from a research design perspective and in terms of finding the best methods to answer your question. Later on, when you come to write a thesis, you can extend your understanding of other possible methodologies through reading Chapters 14–17 in Section 3, which look in depth at action research, using case studies and grounded theory. There is a new ethics chapter (Chapter 6) in this edition. Chapter 7 summarizes the limitations and strengths of each data collection method and Chapter 8 considers how to handle and analyse data. Chapters 9 and 10 deal with qualitative data, which is mainly in the form of words, and Chapters 11 and 12 look at quantitative data which is mainly in the form of numbers. Chapter 14 provides advice on the difficult task of writing about your work. Section 4 builds on the ideas of paradigms.

Second edition

In this new edition we have added new chapters, updated certain sections and added new references to illustrate the points being made.

In Section 1 as well as updating Chapters 2 and 3, we have added a new Chapter 4 about researching primary school classrooms. This chapter is written by two primary phase experts, Paul Warwick and Roland Chaplain and will make the book more useful for primary phase teachers too.

In Section 2 we have split up Chapter 5 and 6 into research methods and ethics. Kris Stutchbury’s ethics chapter will strengthen this important area and help teachers to do the right thing at the planning stages as well as doing things right as they collect data in classrooms. Chapter 7 and 8 have been updated and there is a new updated version of Mark Winterbottom’s chapter using contextual valued added data as a background to understanding basic statistics. Chapter 13 has a new section on how to transform a thesis into a research paper.

In Section 3 there is a new chapter (14) which defines precisely what action research is, with Chapter 15 explaining how to do action research in a classroom.