

The Open Door: How to be a Research-Sensitive School

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Institute for Effective Education



Acknowledgments

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Any inquiries about the report should be directed to Jonathan Haslam (jon.haslam@gmail.com).

About the authors

Nick Abercrombie is an Emeritus Professor of Sociology, University of Lancaster and was a Board member and Trustee of the IEE from 2006 to 2020.

Jonathan Haslam was director of the IEE from 2018 to 2020, having joined the IEE in 2008 as Manager of Dissemination.

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Foreword

The Institute for Effective Education (IEE) was established in 2008 at a time when education was going through a period of significant change. The framework for the changes had been set by The Education Reform Act of 1988 which introduced the national curriculum, standardised tests, inspection and the reporting of results as well as a focus on parental choice. These were probably the most radical set of reforms since the 1944 Education Act and since then, despite an avalanche of further legislation and initiatives, this structure remains at the core of our school system.

Over the same period, there has also been a shift in power from local authorities both to central government and directly to schools. In the late 1980's, schools were given the responsibility for their own budgets through local management of schools and, since then, governments of all political parties have encouraged and incentivised schools to become independent of local authorities and take on a status that gave them a direct relationship with central government - Grant Maintained and City Technology Colleges in the early years and Foundation and Academy status more recently.

As a result of these policies, we have become a data rich school system with information at pupil and school level helping us to identify good practice as well as under-achievement. This data shows that the difference in standards is at least as great within schools as it is between schools and that schools serving similar catchment areas achieve different results. This has challenged the long-held assumption that the under-performance of certain groups in society is almost inevitable and, as a result, the focus on school improvement is now about closing the achievement gap. The same data also shows that teachers and the decisions they make about their practice are key to the progress of their pupils; effective pedagogy and good teacher practice has become a main focus in the effort to raise standards. It is in this education landscape that evidence based practice has emerged.

The national programmes like the literacy and numeracy strategies introduced in the 1990's were rooted in major reports into international best practice and could rightly claim to be evidence based. However, they were very much government-led pedagogical initiatives with little discretion for individual teachers and, although they led to considerable success, the model of instruction by government became unsustainable. Teachers felt their professionalism was under threat and they didn't have the freedom to respond to the individual needs of their pupils

and students. Policy responded and the political language became that of trusting teachers to make the right decisions about how to teach.

However, if this was to happen, teachers would need good quality information so that they could make wise decisions. This was new territory for schools. The school system does not have a strong tradition of evidence informed practice; in the past, decisions have been guided more by custom, tradition and political ideology than perhaps is the case for any of the other professions.

The infrastructure for an evidence-informed school system was not in place. There was no trusted source of quality guaranteed research, such as is available to health professionals through journals like the BMJ or organisations like the National Institute of Clinical Excellence. Teacher training did not include the use of research and teachers had no say in how national research budgets were allocated. Too much of the research published bore little relationship to the priorities of schools. For evidence-informed practice to become a cornerstone of school improvement, more good-quality research needed to be readily available and comprehensible; teachers would need to reflect it in the decisions they made and the worlds of education research and schools would need to work much closer together.

Over the past fifteen years, good progress has been made in making this happen. Links between universities and schools are stronger, teachers have established organisations like ResearchEd, a research strand was part of the early Teaching Schools, the Education Endowment Foundation started work as one of the government's What Works Centres, the Chartered College of Teaching was founded - and these are just a few of the initiatives that have sprung up.

The work of the Institute for Effective Education (IEE) in its early years focussed on developing and evaluating pedagogical research and raising awareness of evidence-informed practice amongst the education community. The Coalition for evidence-based education and the Education Media Centre were both projects started by the IEE and both are now independent organisations playing a key role in the evidence-informed movement. As is often the case, some teachers were already developing evidence-informed practice before it became a popular thing to do but the challenge is how to extend this good practice to all schools. Education reform is littered with examples of good ideas that have stopped at the doors of a small group of schools.

Research Schools are an attempt to get this right. The vision is of a school system where teachers and policy makers base decisions on the best evidence available so that a body of professional knowledge is built up and passed on from generation to generation. Teachers would build on the achievements of their predecessors and pass on even richer information to

those who come after them. The task of the Research School project is to first establish what is needed to develop an evidence informed school and then, through the Research Schools Network to work towards building an evidence informed school system.

Education has too often had a short-term approach with a myriad of initiatives but the IEE firmly believes that evidence-based reform is here to stay. Like all good policy and practice, changes will need to be made in the light of evidence and experience but for those of us who believe that it is an essential next step in school reform, there is an obligation to try to make sure that as many schools as possible benefit from what it has to offer. The focus of the IEE has always been on pedagogical research and evaluation as well as being part of the evidence-informed movement. Its involvement with the Education Endowment Foundation, in the development of Research Schools has been a natural way of bringing its work together.

We hope that this report will help schools to take the next step in what could be one of the most important developments in the challenge of raising standards for all children.

Estelle Morris
Chair of the Trustee Board of the Institute for Effective Education
March 2021

Executive Summary: A busy reader's guide to the research-sensitive school

Research-sensitive schools incorporate teaching and learning approaches that have research evidence of their effectiveness.

It is a whole-school enterprise, incorporating the following approaches:

1. Teaching and learning is *the* priority of the school. The school leader sets the priorities and moral case for research-sensitivity, but delegates its implementation. A supporting framework, covering issues such as behaviour or data collection, is in place.
2. Teachers act as reflective practitioners – reviewing, questioning and innovating. In order for them to do this, they are supported by the school, particularly by the provision of staff who are expert in distilling research.
3. Schools manage the tension between school priorities and teacher autonomy as reflective practitioners by providing good reasons – evidence - for the current priorities.
4. Schools create a matrix of structures – CPD, meetings, communication, inquiry questions, appraisals – through which these current priorities are thoroughly considered.
5. A community of practice develops of like-minded people for whom it is natural and routine to engage in casual conversation – teacher talk - about teaching and learning.
6. Conventional boundaries – classrooms, departments, schools - are treated as permeable.
7. Schools almost always adapt new teaching and learning approaches to suit their local conditions. However, the evaluation of new approaches tends to be weak. Local, small-scale evaluation is feasible and offers a solution to this.
8. Research-sensitive schools are isolated examples of practice. To be sustained and spread, they need a supportive infrastructure at local, regional and national level. This would include adequate funding, a supportive policy framework, a reciprocal relationship with the research community, and, of course, evaluation of the research-sensitive school approach to establish that it is more effective.

Preface

This report is based on a set of interviews with teachers whose schools had taken part in a project about the way in which evidence of effectiveness of teaching methods could be more widely disseminated. One of the interviewees, a head of department who could stand for many in our sample, was asked how evidence of effectiveness is harnessed in her school and she replied by making a comparison between her present school and others in which she had worked previously:

‘So, in previous schools I’ve worked in we had a fortnightly meeting - they called it training or short Monday training. But by and large it would be a couple of nice people who would stand at the front and say, “well we tried these ideas, do you fancy giving them a go as well?”... And when I came here, the things that we were looking at were, you know, the metacognitive approaches, what my old school had started to look at, but my old school didn’t have any evidence suggesting why we should be doing this and what the rationale behind doing it was ... And I know I speak to colleagues and other schools and they’re 100 miles behind where we are still sort of fumbling their way through and, and not really knowing why they’re doing something. And therefore, it’s difficult for them to know what impact something’s going to have, because they don’t know the reason why they’re doing it ... And that there’s this there’s seems to be a strategic plan. You know, we’ve looked at metacognitive approaches, and we’ve looked at memory in tandem, so we can see why we do one then the other, they work hand in hand. Whereas in previous schools, it’s been we’re going to put them in a box and we’ve ticked the metacognition box – everybody, off you go.’

We cannot prove that this school, or the other schools that we visited, are indeed 100 miles ahead but this is a teacher who appears to work in a different environment from her colleagues and friends in other schools. The aim of this report is to describe how schools such as hers operate, to develop a hypothesis as to what is needed to be a “research-sensitive school” and to consider the implications that this has for the system as a whole.

Outline of this report

We interviewed two sets of teachers - first with staff whose schools were Research Schools and second with teachers who had run small-scale evaluation projects. From the interviews we learned how both groups were trying to put education research into practice.

We begin by outlining (Chapter 1) some of the context of our report. What are the challenges to teachers, schools, the “middle tier”, and national organisations when putting evidence into practice? What is the current state of research evidence in education? What is the recent history of the movement towards evidence-informed education? It is within this ‘ecosystem’ that the teachers and schools we spoke to must find their way.

In our interviews, we find (Chapter 2) that in a research-sensitive school¹, research evidence has an impact on the culture of the school, shaping ideas of the right way of going about daily tasks. This is closely linked with the school’s moral purpose, of achieving the best outcomes for children. By being evidence-informed, the choices made within the school are seen to be based on firm foundations, rather than the latest whim or fad.

In Chapter 3, we see how this culture is expressed in practice - reflective practitioners within a reflective school. Practitioners are constantly thinking about their practice, identifying ways in which they would like to improve, or addressing particular challenges they face. Research evidence is implemented in practice in many ways, for example changing the way that lessons are planned or providing teachers with a toolbox’ on which they can draw in the moment teachers. But they do not do this alone. They are supported by a reflective school that itself is always reviewing its practice.

The reflective school arranges this by, first, getting the basics (such as behaviour management and data collection) right, so that staff can focus on teaching and learning. The school creates as much time as possible for teachers to work together, formally and informally, on their practice. It breaks down barriers – around the classroom, the department, and the school – to enable the free flow of communication. One of the key aims of this is to encourage the maximum amount of teacher talk about pedagogy.

In Chapter 4, we consider the structural arrangements that schools have in place to support these practices. All schools will have such arrangements as CPD and appraisal but the key point about research-sensitive schools is that they integrate structural elements into a matrix

¹ There are important differences between a Research School and a “research-sensitive school”. See Appendix B for our definitions of these and other key terms used in the report.

centred around the priority of the improvement of teaching and learning by accessing evidence of effectiveness. Thus, leadership has to be honest, diffuse and ethical, setting the moral nature of the enterprise and its particular teaching and learning priorities. It also seems to be important for leaders to step back from leading teaching and learning personally, or at least to delegate these responsibilities across the school staff. Some of those staff have to have time bought out of class teaching in order that they have the time to be expert internal consultants.

Creating time and space for continuing professional development (CPD) is seen as vital, but any formal training sessions are only the start of the process. Research-sensitive schools get teachers to incorporate research-informed approaches into their practice. This might involve a formal structure, such as the inquiry question (IQ), where one teacher, or a group of teachers, explore a practice-relevant question. It might take a more informal route, with small groups of teachers working on a new approach together. Whether formal or informal, though, the schools allow teachers to try an approach and reflect on its success (or otherwise) and appraisal is then linked to performance in implementing new approaches in teaching practice.

In Chapter 5 we look at how research-sensitive schools manage the challenge of autonomy. Leaders set the priorities of the school, often in consultation with the teachers, the governing body and parents but, still, the final responsibility lies with them. Teachers are expected to work in accordance with these priorities but, at the same time, their participation is necessary *and* they have a considerable degree of autonomy. Our interviewees were well aware of this dilemma. In research-sensitive schools it was managed in several ways. Communication was key, allowing staff the time to question the rationale behind a change of approach. So too was the nature of the evidence, using the fact that a particular approach has research to support it to convince staff it is the right thing to do. Staff need to be given good reasons for doing what they are asked and evidence of effectiveness is a very good reason.

In Chapter 6 we consider a further challenge - how research-sensitive schools manage the distillation of complex research and its digestion by practitioners. There is little evidence in research-sensitive schools of top-down implementation or mandated compliance with a particular approach or checklist. Instead there are repeated examples of staff adapting or tweaking interventions and approaches to the local context. In fact, adaptation is the default mode of the use of evidence-based interventions. Are the approaches still effective? Staff think so, but the challenges of implementation and evaluation make it difficult to be sure.

In Chapter 7 we examine the contribution that school-run evaluations might make. These projects were challenging for the staff involved, and even more so for schools to run without

additional financial and methodological support. Projects were usually carried out on issues that were tangential to the school's key priorities. Yet the unexpected findings of the projects suggest that school-level, or perhaps MAT-level, evaluation, would provide useful information. For the research-sensitive school in particular, it would provide reassurance that their implementation of research-informed approaches was as effective as had been promised.

In Chapter 8 we draw together our conclusions, and consider how the research-sensitive school model fits into the wider context of the education ecosystem.

Methodology

This study derives from the Research Schools Network, a project started as a partnership between the Educational Endowment Foundation (EEF) and the Institute for Effective Education (IEE). The purpose of the Research Schools Network, which began work in 2016, was to 'lead the way in the use of evidence-based practice and bring research closer to schools'. The emphasis was, therefore, on the dissemination of research-based practice, mostly through a growing number of Research Schools. As part of this project, the IEE decided to investigate how schools innovated in their teaching practice and, accordingly, funded 30 innovation evaluation projects. These were small-scale, school-led evaluations of innovations of teaching and learning approaches (see Appendix B for more complete definitions of Research Schools and innovation evaluation schools, Appendix C for more on the history of the Research Schools Network, and Appendix E for more on the innovation evaluation projects).

In the summer of 2019, the IEE decided it needed to undertake a study to investigate the way in which Research Schools actually operated as distinct from the manner in which they could act as disseminators of good practice. At the outset, we proposed two linked studies, one of Research Schools and one of innovation evaluation schools. By the time we carried out the study, there was a diverse selection of schools for us to interview. Our original plan was to interview 9 Research Schools and 9 innovation evaluation schools using semi-structured interview schedules. In each Research School we would conduct several (5 or 6) interviews with individual members of staff with different levels of responsibility. In each of the innovation evaluation schools we would interview the member(s) of staff responsible for conducting the project.

For Research Schools, a 3x3 matrix was used to classify schools. One axis represented the extent to which we felt that research use was embedded within the Research School. The other

axis classified schools as primary, secondary, or a multi-academy trust (or other structure sitting above a group of schools). Decisions on the allocation of schools were made by one author and two of the Research School Facilitators employed by the IEE to work with Research Schools.

The interview schedules for both Research Schools and innovation evaluation school interviews were developed by the authors and the Research School Facilitator. The schedules are reproduced at Appendix D.

Interviews were scheduled to take place in March and April 2020 and Research Schools were asked to provide a diverse range of staff to interview. Interviews were carried out in the first three weeks of March 2020. By the third week of March, schools were facing serious challenges because of the COVID-19 pandemic and it was decided to suspend further interviews. As a consequence, we had a total of 22 completed interviews (instead of a planned 50), interviews from 4 (instead of 9) Research Schools, and 5 interviews (instead of a planned 9) from innovation evaluation schools. Quotations from interviews are used extensively in the chapters that follow. Those quotations are referenced in brackets to the anonymised schools followed by the interviewee number and page number of the interview. A list of the schools can be found at Appendix A.

Some of the characteristics of the sample are also indicated at Appendix A. The main bias of this sample is that it does not reflect the intended diversity of either Research Schools or innovation evaluation schools. In particular, “successful” schools are probably over-represented, since they had the capacity and confidence to be interviewed, and therefore these were the interviews that were arranged first. Research Schools that were less effective (and were perhaps therefore sensitive or even defensive of their performance) or innovation evaluation schools that were less successful are under-represented.

On an early analysis, it became clear that the innovation evaluation schools had some of the characteristics of the Research Schools but certainly not all of them. That is hardly surprising since the innovation evaluation schools (or at the very least some individuals within those schools) clearly had enough of a research culture to apply for funding for innovation projects. Where there are commonalities, we, in effect, treat both sets of schools as constituting a single sample, while noting the differences between Research Schools and innovation evaluation schools.

Chapter 1. Context

How does evidence find its way into classroom practice? How do teachers and schools change their practice, and how is this informed by research evidence? When changing practice how do they incorporate the findings from research evidence, and how do they innovate when research is lacking?

In education, the way that research evidence affects practice is far from straightforward. In this section, we reflect on this wider context, and the challenges it presents. We are mostly concerned with school-age education, focusing on mainstream primary and secondary schools. Early years settings, special schools, pupil referral units, and colleges are further complications which, though important, we do not consider. There are four broad levels of organisation within the sector – classroom/teacher, school, middle tier and national. The concerns of each of these levels are subtly but importantly different, and this affects both the research evidence each is interested in, and the way this evidence can be put into practice.

The classroom teacher

This is the most important level at which research evidence must have an influence. If nothing changes in the classroom, then nothing changes. There are around 500,000 classroom teachers in the UK, with a further 200,000 support staff. For the most part, classes are still taught by one teacher (with or without support staff). There are important differences between primary and secondary (aside from the growing maturity of the children they teach). Primary teachers will usually have one class of children all the time, teaching them all subjects. Secondary teachers will usually be subject specialists, and will teach a number of different classes of children.

How do teachers change, and hopefully improve, their practice, and what role does research evidence have in this?

We must start with autonomy, since the extent to which teachers are able to define their own development is a limiting factor. Teachers do not work in one-room schoolhouses where they are in control of their own work. Instead, many other actors (particularly the wider school, middle-tier, and national organisations) limit their freedom. Teachers must work within these constraints to identify their own area for development (if even that is allowed). They may have a variety of reasons for wanting to change their practice:

- Intrinsic satisfaction – to do the best job they can and become a better teacher. Unsurprisingly this has been identified as the most common reason teachers have cited for wanting to improve (Poet et al., 2010).
- Outcomes for children – a related motivator is the desire to achieve the best outcomes for all (or a particular subset of) the children they teach. In primary, for example, this might be prompted by the needs of a challenging group of children in their current class.
- Career development – the desire to improve, and develop skills and experience, with a view to progressing up the career ladder, in particular developing into school leadership.
- Intellectual curiosity – a particular aspect of practice that has piqued their interest. This might be related to a particular political or philosophical approach to education, or their personal definition of what education is for. This may lead to academic pathways (further study or research).

Poet et al. (2010) identified the following as the most common specific areas of interest to teachers:

- new pedagogic approaches and responding to teaching and learning needs
- subject-specific issues or curriculum areas
- approaches to assessment
- use of technology in the classroom
- inclusion and cultural sensitivity
- learners with SEN
- behaviour management and emotional support
- leadership and management skills
- time and workload management.

How can research evidence support this process? In the Evidence for the Frontline project (Lord et al., 2017), led by the IEE and Sandringham School, teachers from 32 schools posed questions that might be answered by research evidence. Almost 200 teachers asked questions. Often, they posed very specific questions (eg, with respect to age or subject) where research could provide only generic answers (eg, overall findings from the research on motivation). Where those questions could be answered by researchers, the answer was typically ‘the research suggests that you think about this, this, and this’ rather than ‘do this’. So teachers were left with plenty of work to do to answer their question in practice. Indeed, Evidence for the Frontline had more impact when it began to be incorporated into wider school practice such as performance management.

This reflects the broader picture. For teachers, on their own, to develop their practice and, further than that, to incorporate research evidence into that practice, is extremely difficult. Indeed government guidance on effective CPD does not even consider that teachers might do this on their own (Department for Education, 2016). The multiple constraints placed upon them by the culture and structure within which they sit (what they are “allowed” to change) and the difficulties of enacting evidence-informed practice (eg, access to research, and time and skill in

evaluation and adopting into practice) make it the preserve of an exceptional few. These constraints also lead to the privileging of particular approaches with evidence. So, for example, a teacher might be “allowed” to apply the principles of cognitive load theory to the materials used in their classroom, but not be “allowed” to change their approach to the teaching of reading.

For the classroom teacher, there is also the problem of evaluation. What impact has the new approach actually had? Given the variability in class cohorts, and their own subjectivity, this is effectively impossible to measure. Finally, though, as we said at the beginning of this section, the classroom teacher remains the gatekeeper to improvement.

The school

When we move up to the level of the school, enacting evidence-based approaches seems, on the face of it, to become easier. In part this is a function of size. For the average secondary school, for example, some aspects that are challenging for the classroom teacher become more achievable. In particular, appointing someone with the time and skills to appraise the research evidence (often known as a research lead) becomes possible. At the same time, schools can start to identify common factors across the school, and direct change more strategically.

Schools arguably have more autonomy than an individual classroom teacher, but they are still heavily influenced by organisations in the middle tier and at national level (for example, by exam results and Ofsted inspections). Within multi-academy trusts there can be wide variation in the freedoms given to individual schools.

There are important differences between primary and secondary schools when it comes to research-informed school improvement. Firstly, secondary schools are considerably larger than primary schools. This in part explains why secondaries tend to have more formal, corporate structures (eg, departments). They can also more easily allocate time and resource to exploring research evidence and organising structured training for staff. Primaries have more informal structures, and may approach the task of engaging with research in a less structured way. Secondly, the research-based options available to primaries and secondaries are somewhat different. In primary, there are interventions or programmes with evidence of effectiveness (and many more without!), that can be bought in, and delivered “as it says on the tin”. Teachers’ practice can therefore be developed in two ways - via these programmes or by working on particular aspects of pedagogy. Secondary schools have many fewer of these off-the-shelf

programmes available to them, and are more likely, instead, to work on incorporating more general pedagogical approaches into practice, often in a bespoke manner.

There are several other challenging factors for schools wanting to incorporate research evidence into practice. The gains from such practice are small and hard-won and, frankly, there are easier ways to improve a school. As with other professions, schools are rated 'on performance indicators chosen for ease of measurement and control rather than because they measure quality of performance accurately' (O'Neill, 2002, p 54). This creates perverse incentives. For example, it is probably easier to recruit "better" students than to improve existing students. There are numerous ways of covertly selecting better students (slick marketing, requiring an expensive uniform, off-rolling badly behaved students) and there are few sanctions for leaders who behave in this way.

Effective school leadership is essential if schools are to be successful in putting research evidence into practice. Yet the use of research evidence challenges the swashbuckling leader who is certain and decisive, because its findings can be nuanced and uncertain. Incorporating research evidence effectively demands a culture that learns and develops rather than one that dictates. There are very few structures in place that support a more thoughtful style of leadership.

Individual schools also still have the problem of evaluation, knowing objectively whether or not an approach is effective. Their size limits the extent to which robust evaluations can be carried out, and, in any case, few schools have the skills and resources to run such evaluations.

Middle tier

Organisations that sit above schools and operate in the middle tier, between individual schools and national policy-makers, have seen huge changes over the last twenty years. Decreased funding and responsibility have led many local authorities to dwindle, while multi-academy trusts (MATs) have been growing and finding their place in the system. In some ways, these latter organisations are ideally placed to fulfil a role in an evidence-informed system. They are of a sufficient size that they could have the resources to support the appraisal and use of evidence in their schools, and even to carry out meaningful studies of the effectiveness of new approaches (Slavin, 2019). This is particularly true of MATs, who have more direct control over their schools, but local authorities and church organisations might do the same.

The priority for MATs, though, is the delivery of their particular approach, both in their existing, and in their new schools. This approach might be informed by evidence; or it might be built on a foundation of previous perceived success, whether of individuals or schools; or it might be built on a particular philosophy or culture. The way that MATs define their model (their theory of change, if you like), and the relationship between the central team and each individual school, varies widely (Menzies et al, 2017).

There are a small number of consistently high-performing MATs and a large number that perform averagely (or worse). The success of the few is proving difficult to spread (Hutchings and Francis, 2018). Quite why this is so is superficially surprising given that for a long time academisation has been a flagship government policy. Perhaps competition between MATs is hindering the process or perhaps success is deeply personal (either from the individuals involved or from their approach) and difficult to duplicate. Such considerations are beyond the scope of this report, though we do see hints in our interviews of how reflective, evidence-informed MATs might operate.

National

At the national level – the government and related organisations – we are a long way from the individual classroom. The search here is for approaches that can be effective in 500,000 classrooms rather than a handful. At this scale, it has now been shown to be possible to run large-scale trials that evaluate the impact of interventions, but these interventions are often constrained in order to be testable (and effective) at scale.

To take one example, a scale-up in 83 schools of a writing intervention (Torgerson et al, 2018) had an impact that was a fraction of a previous trial (Torgerson et al, 2014) in 23 schools. The scaled-up model used teacher trainers who had never seen the intervention delivered in the classroom; the previous trial used the original developers of the approach. To an organisation interested in national scale-up this difference matters; they need approaches that can be delivered in a train-the-trainer model, or similar. To schools, or those in the middle tier, it does not. If slow, careful roll-out is required for success that is fine (so long as they are early in the queue!). For national organisations, finding suitable interventions that can be scaled up, and then proving that they have an educationally useful impact at scale, is not easy. It is not the proof that's difficult, it is the product.

England has one of the most autonomous education systems in the world, only behind the Czech Republic and the Netherlands in terms of the ability to take decisions at school level (OECD, 2011). The English system is not only autonomous but also incredibly diverse, with numerous different kinds of schools – academies, free schools, maintained schools, faith schools, grammar schools, cooperative schools, private schools, public schools – managed and controlled in different ways. This makes it difficult for national initiatives to have a consistent impact.

In a 2012 article, Estelle Morris identified four levers that national policymakers can employ: structural change (such as introducing academies or free schools); choice and the market (encouraging competition); accountability mechanisms (such as Ofsted and exams); and pedagogy. The last of these is a powerful lever, arguably the most powerful, but we still lack a structure to allow it to be pulled. School improvement in England now focuses on improving classroom teaching, and how this occurs is crucial to the development of the research-sensitive school.

Research, evidence use, and school improvement

While much progress has been made in recent years, we still do not have enough good evidence on which to rely. In the EEF toolkit, the evidence for around 40% of strategies is limited or very limited (including important issues such as performance pay and setting and streaming). Most interventions are no better than business-as-usual. Of 100 randomised controlled trials conducted by the EEF, around one in five has evidence of a positive impact. Those that do have an impact have impacts of a size that are much lower than what was considered “educationally important” just a few years ago. Of the interventions that are available to practitioners, at least 75% have not been rigorously evaluated (Haslam, 2020a). As the Evidence for the Frontline project showed, research does not have all the answers. Yet teachers and schools want certainty about what the research recommends. They are faced with a problem that needs addressing and want an answer now, not in a few years’ time.

The question as to whether teaching should be evidence-based or evidence-informed is a helpful way of thinking about this. It is frequently framed as a binary question, but it depends on the strength of the evidence. If practice is ‘the integration of the best available evidence with professional expertise’ (Sharples, 2018) then, when the evidence is strong, professional expertise should be of secondary importance and practice should be evidence-based; if the evidence is weaker, then professional expertise should be of primary importance and practice

should be evidence-informed.² This is a difficult balance to achieve and it depends on a clear understanding of the current state of the evidence in each area (as well as one's own professional expertise).

The journey

Individuals and schools often describe themselves as going on a journey as they become more evidence-informed. When the IEE started, it was thought that it might be possible to capture this journey in order to develop a route map for other schools. The model for the involvement of schools with Research Schools (see Appendix C) retained some of this hope. However, as, for example the RISE project showed, a prescribed route map is likely to be derailed by both external factors that change priorities and by internal factors such as staff skills and interests. In any case, it seems likely that there are not only a number of different routes, but also a number of different potential destinations (Nelson and Campbell, 2017).

Research and research use

The evidence movement in education did not begin ten years ago, but around that time the movement started to grow, particularly among teachers and schools. The launch of the Education Endowment Foundation in 2011, with £125 million 'to commission robust evaluations... to create a bank of approaches proven to work at improving attainment of disadvantaged pupils' prompted a huge expansion in the number of randomised controlled trials. The first ResearchED conference followed in 2013, 'working out what works', one of many grassroots initiatives that encouraged classroom teachers to engage with research, and researchers.

This growth came at a time when national government was stepping back from prescription. 'The time is right for central government to step back from much of the central provision and initiatives that have been developed over recent years and to consolidate resources and decision-making at school level, allowing schools to determine their own needs and to commission appropriate support' (Department for Education, 2011). While this autonomy might be welcomed, there was no infrastructure put in place to support school-level improvement (the "self-improving system"). As Estelle Morris commented at around this time: 'We need to both

² To reflect this view, we have used these and other terms (such as research-informed) interchangeably throughout this document.

acknowledge the importance of pedagogy and together build a structure in which all teachers can learn from improved pedagogy' (Morris, 2012). The National Strategies had arguably achieved the former. 'The National Strategies have prioritised the importance of teaching and learning and as a result ... have created a ripple effect with recurrent positive effects, as teachers and leaders take greater responsibility for system improvement' (Department for Education, 2011). However, no one put in place the latter.

Today, there are numerous individuals and organisations who say that they are evidence-based or evidence-informed, and can provide books, training and consultancy that can help teachers to put this into practice. There are at least 3,500 education blogs in the UK, and social media has been a galvanising influence. While this is very welcome, there must be concerns about what is being implemented. To what extent is all this activity and implementation being evaluated? Are evidence-based approaches delivering the impact that was promised? Are they being implemented correctly? Are the best approaches being chosen? There are more than 1,000 active education researchers in the UK (never mind those in related disciplines such as sociology and psychology). While some are involved in the movement for evidence-based practice, how can the interface between research and practice be improved? Is the relationship one that builds on the experience of research and practice, such that we can stand on the shoulders of giants?

In the rest of this report, we look at how some teachers and schools work within this environment and suggest some possible ways forward.

Chapter 2. Culture

At the outset we have to make the relatively obvious point that the sensitivity to research in schools is not a binary quality. It is not the case that schools either have it or they do not. Rather, schools can be ranked on a continuum of research sensitivity. Our interviews were mostly with staff in schools or school organisations that hosted Research Schools. These schools are probably further along the continuum than most. As a result, we are not able to make a direct comparison between such schools and others whose practice is not influenced by research findings. However, we are able to draw on interviews with innovation evaluation schools, which throw some light on the behaviour of schools at different points on the continuum of research sensitivity. In addition, interviewees often compare their current experience with that in other schools in which they have taught.

It's not just about interventions

There is a temptation to see the matter of research evidence as a question of specific interventions that are passed around – disseminated – almost like a set of parcels delivered and received. This does occur, of course, in the case of packaged interventions. At this point it might be helpful to reflect on the differences in the use of packaged interventions between primary and secondary institutions.

In our sample, primary schools often used packaged interventions: 'It tends to be something off the shelf' (Two Tunnels, 2;4). 'We will try to use the intervention as it [is] meant to be used, to be honest, because, you know, if you're adapting it, then you're not actually staying true to what the people who've devised it have meant it for and if the research behind it has shown that that's how it works, if you're going to adapt it, then you're not adhering to those guidelines, it may not work necessarily' (Lyncombe Vale, 1;6). At the same time, there is an appreciation that using packaged interventions alone would never be sufficient. Thus, a primary school headteacher, in discussing the ways in which research is used in her school, distinguished between two different kinds of intervention. 'One is about kind of, you know, choose interventions and identify things that you do, as it says on the tin. And the other one is always from a more philosophical aspect where we read it to encourage ourselves to look from a different direction or a different perspective' (Lyncombe Vale, 3;9).

In secondary schools, packaged interventions are rarely used. 'Not to my knowledge here' (Southstoke, 2;14). 'So, in science we don't' (Southstoke, 3;6). There are actually comparatively few interventions available for secondary education that need to be implemented "as it says on the tin" in order to have the promised impact.

In any case, even in primary, it was clear that packaged interventions brought with them more than simple adherence to a checklist. One teacher described discussions with their contact for Success for All, an evidence-based programme, to agree changes in the way the programme was delivered. 'I think as long as you've got the evidence to back that up and you know, when they come in and talk to the children, I'm happy for them to do and look at my books, they can actually see that. And that makes me happy' (Toghill Barn, 1;13).

How research evidence affects school culture

Research evidence is not, then, an object, a thing. It rather contributes to the shaping of ideas of the right way of going about daily tasks. In short, it contributes to a culture. For example, many of our interviewees talked about "metacognition". In doing so, they refer to a general set of ideas rather than to any particular practices. But the use of the term indicates the presence of a culture in which everybody – teachers and learners - understands the significance of being aware of one's own learning. Gradually the use of research evidence becomes a way of thinking. One experienced secondary teacher described how introducing one kind of evidence-based intervention – retrieval quizzes – paved the way for others. 'Very quickly, members of staff saw a positive outcome coming out of that. We saw our students remembering our case studies better. We saw that factual recall improving and that challenge that it was creating into our lessons, and the fact that students were finding our lessons harder, but in a good way harder. And that then allowed me to start bringing other things in. I'm pretty sure if I'd started going on about tier two vocabulary as the first thing, I probably would have got that not happening. But what the staff have seen is a success with the strategies that we've chosen, which has then allowed us to bring other things in' (Tormarton Grange, 4;8). The result is that thinking about, using and experimenting with evidence-based practice is simply part of the teaching day. A recently arrived teacher in another secondary school says that once a particular piece of research is used, the idea of 'metacognition is already threaded through the lessons ... I think it doesn't then become about that strategy or that piece of research because it's already embedded. So once it becomes natural, you don't talk about it like that anymore. You could pick it apart and say, "Oh, yeah, well, I've done that there." But you don't see it like that, because

you're not trying to do it like that anymore. It's just a part of your natural practice' (Southstoke, 2; 9).

Teachers at Tormarton Grange, a Research School, really do feel that their school is different in that it systematically applies evidence of effectiveness to its teaching practice. This attitude was expressed by those near retirement, having spent a lot of time at the school, those who are mid-career and will have been at Tormarton Grange for ten years or so and those who are relatively newly qualified and have only joined recently. A head of department puts this well: 'I had an assistant head in from a neighbouring school on Tuesday and they were just astounded by how the research had just embedded itself into everyday language and talk with the teachers...But she said, it's not until you're actually in here, and you're walking around, you just start seeing things that have been done, and it's just become normal' (Tormarton Grange, 4;14/15). Or an assistant headteacher: 'I would say it's sort of one of those things where you suddenly look around and be like, wow, people are really talking about evidence-informed practice here. It sort of creeps up on you, you know, you sort of, you don't realise for a long time, how much it's seeped into everything that you do' (Tormarton Grange, 5;4).

In primary, a senior leader makes much the same point about research sensitivity being an entire way of looking at her work in describing her school as "researchly". That meant 'looking at what's in front of us, generating an idea, generating a hypothesis or a theory and then seeking to evaluate or identify whether that's right or wrong. And so we do that all the time ...' (Lyncombe Vale, 3;17). Another primary headteacher at an innovation evaluation school (Sion Hill, 2;2) confirms the notion that research sensitivity is a world-view but, in her case, it is centred on innovation which is "systemic" in her school – and which is not in others.

Indeed, our respondents frequently contrasted their school with others³. For example, other schools may appear to be taking evidence seriously but are actually following fads and making teachers do 'silly things', implementing approaches in a superficial way. A teacher comparing his experience at Tormarton Grange with that at his previous schools says that it 'was a light bulb going on' and that he had never been guided to think of 'pedagogy at that level of detail'. One primary headteacher, on being asked what her school would be like if it was *not* drawing on research evidence answered: 'I think it would be reactive. I think it would be a setting where

³ It is important here to point out that we only have our interviewees' evidence that these schools are so dramatically different from others. Interviewees were selected by the school, and we have no control group to confirm or deny this. Again, it is almost certainly not a binary issue. Some of this culture and practice may well be seen in other schools, if not to the extent it is found in research-sensitive schools.

prioritisation was murky. That initiatives were based on characters, or emotion, or the drive or the personal needs of the head' (Lyncombe Vale, 4;9).

Newly arrived teachers amongst our interviewees pointed out the differences between their new school and their previous experience. For example, one secondary teacher noticed the way that teaching in her department around vocabulary was based on a research project that had been done the previous year and then rolled out across the whole school. It seemed to her that 'everybody in the department is very confident with it, everybody in the department kind of sees that, as you know, that's the kind of guiding thing that we use'. To her eyes her more established colleagues somehow naturally 'pull apart the bits that seemed to work and then the bits that don't really work' (Southstoke, 2;3). Similarly, long-established teachers notice the change come over their school as it becomes a research-sensitive institution. Initially the changes were relatively small-scale – 'kind of lighting fires around the place'. But then it grew more pervasive and more systematic. More and more teachers in the school were contributing to discussions about teaching with 'strong expertise' to the point where there are no longer 'any teachers in our school that aren't really aware of evidence-informed practices even if they don't always use them'. While originally the culture was to a degree permissive – 'We say, here's the principles, apply them to your subject' – there is now a firm recognition of the importance of research evidence. New teachers are 'just swept up with it. There's no choice, that's our direction of travel'. But it is a *process* of reaching that point. In between: 'You're sort of having to convince people more and more that this is actually not just something they have to do because some assistant head's telling them, but it's beneficial to their practice and students that they teach' (Tormarton Grange, 5;4/5).

In sum, the *culture* of the research-sensitive school is different, radically different. And as such it is *total*. It seeps 'into everything that you do' (Tormarton Grange, 5;4), teachers 'make every lesson count' (Tormarton Grange, 2;3) and 'we are always seeking ways to do things slightly better' (Tormarton Grange, 1;22).

Evidence use as moral purpose

This culture is framed in terms of a *moral purpose*.⁴ All the teachers in the school *care*. They care about their students. More specifically, they care about making teaching and learning as

⁴ We are not for a moment suggesting that schools elsewhere on the continuum of research-use do not have a moral purpose. But in research-sensitive schools that research-sensitivity is inextricably linked with the school's moral purpose. Indeed, is taken as one of the most important expressions of that moral purpose.

good as it can be because that is the best way of helping their students. A head of department puts it well in referring specifically to the culture of the school: 'we want the best for our students, and I think identifying where we're not achieving that, and being open and honest about that and not hiding away from it. And then if you can show the positive outcomes of it, you can get people on board' (Tormarton Grange, 4;8). Our respondents frequently connected a research-sensitive culture to the wider culture of the school expressed in a set of moral categories. One primary headteacher, for example, thought of success as a research-sensitive school as connected to the values of trust, respect and openness exhibited in the school (Lyncombe Vale, 2;1). Another derived her priorities for the school, which were informed by evidence, from the fundamental belief in 'achievement for all' (Lyncombe Vale, 4;2).

This sense of moral purpose is often attached by our respondents to the headteacher and then to the senior managers. But, crucially, they are *experienced* by teachers in their daily round and they appear in the practices engaged in by teachers and their leadership; they give them a *reason* for doing what they do. Our respondents were all too aware that it takes time for the culture to develop. One secondary assistant headteacher very much saw his job as a work in progress. For him, one of the key drivers for the development of a research-sensitive culture was the relatively rapid turnover of staff in schools ('it's not that uncommon for 20% of your teachers to leave at the end of the year'). At first, he encountered resistance to the introduction of research-informed practice from established staff. But over time, new staff coming into the school simply find that this is the established culture of the school to which they adapt. Thus, he introduced a system whereby staff shared their practice. Initially, he had few takers but, at the time of the interview, almost half of the staff had put themselves forward. Other respondents noted the way that the culture developed over time by a process of 'lighting fires'. At first there is a group of enthusiasts who know each other and work together. But, then, their enthusiasm spreads not least because, importantly, teachers have a reason (backed by research evidence) for adopting one teaching practice rather than another.

The question arises as to the nature of the relationship between these two things – a shared culture of securing the best outcomes for students and the use of research evidence. Is it causation or correlation? Which must come first? We don't have the evidence from our interviews to know for sure, but it seems likely that the moral purpose must come first, driven by the school leadership. It is quite possible that a moral purpose can be shared by school staff without the need to engage with research evidence. An overarching approach to teaching and learning can be implemented, and staff committed to it (and seeing it as "moral"), without this needing to be evidence-based. Can a school authentically engage with research evidence

without having a shared culture of moral purpose? This seems more unlikely. It is difficult to see how the challenges provided by research can be faced down within a more authoritarian culture. The key, of course, is in the “authentic” engagement with research evidence. Research evidence within education remains sufficiently contested and uncertain that cherry picking from research to match a leadership-directed approach is entirely possible.

Chapter 3. Practices; how is a research-sensitive culture expressed in practice?

Cultures are made visible not only in what people say about their lives but also in the formal and informal practices in which they are engaged. Culture inflects everything that is done. In a school like Tormarton Grange, the priority of teaching and learning structures becomes the basic assumptions of everyday life in school. And central to these assumptions is the idea of the reflective practitioner.

The reflective practitioner

This idea has featured in the literature on education since Dewey in the early twentieth century and has become more systematized in the past forty years or so. It has also been incorporated into initial teacher training. For example, in a book in a series on learning to teach, the Open University (2016) notes that reflective practice is an important professional competence. It can be developed by training into a virtuous cycle of determined reflection on current practice, analysis, generation of alternatives, action and learning. How, then, does the idea of reflective practice appear in our interviews?

None of our interviewees actually use the phrase but the character of the reflective practitioner does, nevertheless, appear in several different guises in what they say. Thus, they refer to the need to challenge the basic assumptions behind their practice. As a primary teacher says: 'You challenge yourself for starters. So, previously, if you go back to the interventions, you know, many years ago, you certainly wouldn't have questioned quite so deeply as to why you were doing it because it was, you know, that's what people have done for years. And it seemed to work, you know, sort of thing. Whereas now, it really, it has become just that underpinning, hasn't it? So that's been one of the biggest changes I think, really...' (Lyncombe Vale, 5;10). Or, a secondary deputy headteacher gives an example of the self-challenge that is part of being a self-reflective practitioner. He recalls an INSET (in-service training) day in which a teacher described his attempt to improve the retrieval of knowledge by his class. This teacher wanted to go beyond the simple technique of giving a quick quiz at the start of the lesson. The newer method that he adopted seemed to work. The students achieved high scores on the subsequent test. But then, having reflected on his method he came to the conclusion that this was a superficial success 'because the students weren't actually having to think hard about stuff'. And a recently qualified primary teacher 'fresh out of university', where she had learned about

evidence-based practice, was confronted with a team 'that have been here for quite a long time, and doing the things that they've always done, it was a bit difficult to be like, okay, so some things do need to change, but how can I approach it and suggest a different way of doing things?'. The implication of this is that the reflective practitioner has to have *reasons* for doing one thing rather than another, a point stressed by several of our respondents. As she continues: 'So that's where the research evidence came in, because I was able to say, well, let's try it this way...' (Midford, 2;2).

The implication of these examples is that the reflective teacher is - or should be – always scanning their own practice. However, teachers have to make a large number of decisions every day. It seems unlikely that these decisions can be made with a great deal of thought or by consulting relevant evidence. Interviewees were explicitly asked about how research evidence would influence their moment-to-moment decision-making. Their replies supported the notion that the vast majority of decisions are not taken consciously. 'Teaching's too quick, it's too fast paced' (Southstoke, 2;4), so one answer is 'to plan beforehand to allow the research to inform your lessons'. Reflection then takes place after the lesson has been delivered. Alternatively, it might be possible to focus on, and practise, particular approaches that have been gleaned from research – wait time, questioning, vocabulary – 'there are definitely things while I'm teaching that I'm trying to keep in mind that are based on stuff that I've learned from my research or stuff from, like CPD' (Tormarton Grange, 3;6). Practise them until 'It's now just in the moment, it just becomes kind of the norm' (Southstoke, 3;3). In the responses from our interviewees, there was a suggestion of a difference between secondary and primary (and particularly early-years). One early-years practitioner commented that 'you've got to be reflective, you've got to see what's going on and adapt and abandon. And to kind of follow up on and be prepared to abandon if you think you've spent so long planning something and it's just going, it's just not happening. To be prepared to let it go' (Lyncombe Vale, 6;12).

There are a number of different ways, then, in which teachers can incorporate research evidence into their practice – planning, changing the structure/type of lesson, and focusing on/practising particular behaviours or routines. It can also expand the skills and knowledge (the "toolkit") upon which teachers can draw in the moment. It seems clear, though, that most of the reflection practised by a reflective practitioner occurs outside the lessons themselves. A secondary class teacher frequently referred in his interview to the need to think 'very carefully about what we teach and the manner in which we teach' and to 'the expectation that we are always striving and attempting to use evidence to adjust how we do things' (Tormarton Grange, 1;5). A primary headteacher argued that 'it's good to have questioning, reflective teachers as

opposed to technicians who just do what they are told' (Sion Hill, 2;6). Not that changing habits is easy. A recent review has suggested that it is the formation of well-established habits that hinders teacher development (Hobbiss, Sims and Allen, 2020). We found some evidence to support this. 'If somebody has been doing this for x amount of years, it's very hard to break habits. And if you just expect those habits to be broken, because you go, we can do this. Yeah, it's not going to happen' (Tormarton Grange, 4;9). This interviewee argues that it takes external monitoring and challenge to make this happen.

The pursuit of reflective practice is a difficult enterprise. It can be intellectually demanding. It is taxing and difficult. Faced with the need to make decisions quickly, teachers may prefer to rely on past experience rather than on a cycle of innovation followed by reflection and several of our interviewees noted that in all schools there were those who resisted any change in their practice. One mathematics lead in a primary school said that there were two categories of teacher in her school. There were those who routinely tried new practices and read the evidence. In the second category were those 'are very happy for me to say this is how I want you to do maths and they will just do it'. But, nonetheless, this second group is not absolutely resistant. Quite the contrary, they are willing to try something if they can be shown the evidence that it is effective. 'And I think they really have to see the evidence, they have to see the impacts. And ... once they have seen the impact, they now come on board ... They wouldn't just go "Oh, yeah, I'll try that"' (Charlcombe, 1;4). Indeed, being a reflective teacher may be less *safe* than simply depending on the routines that have always been used and takes risks that involve calling into question those very mechanisms that help them get through the day.

Given these difficulties, why do teachers persist in being reflective practitioners? Partly, because it is a moral enterprise that they are engaged in. Teachers wish to be the best themselves and do the best for their children and most of them, personally, see new challenges each day that demand a response. In addition, teachers are necessarily caught up in the movement for school improvement, the impetus for which comes from external sources such as Ofsted, the Department for Education, and the middle tier above the school. But most importantly, teachers behave as reflective practitioners because schools expect them to and provide the support that is needed. Much of the literature on the reflective practitioner concentrates on the particular qualities of the *individual* teacher. Actually, it is the reflective *school* that is important or, more precisely, the relationship between school and teacher. The use of evidence-based teaching methods, the creation of a research-sensitive school, is essentially a *collective* activity. As Daniel Lortie (1975) notes in his study of the American schoolteacher, although the teacher appears to be a solitary worker, actually 'teachers see each

other as the primary source of good ideas' (193). And in our interviews, one primary headteacher and MAT executive confirms the point: 'The most important attributes of a successful school in terms of outcomes for children ... happy and welcoming and friendly and secure and safe place for children and staff. Probably not in any particular order. One of them is around staff who are willing and open to learn and try new things and having a culture where they are supported, encouraged, fed new interesting stuff. Somewhere that has a direct and targeted focus on teaching and learning, and everything is focused around that. So, and with that comes a kind of wider aspects around bringing the whole community in. So, it's outward facing, everyone coming in, being involved and supporting each other' (Lyncombe Vale, 3;8). It seems unlikely, therefore, that one could have a research-sensitive classroom in a school without those qualities. The challenges of being research-sensitive without external support and challenge make this extremely difficult. No classroom is an island. A reflective teacher relies on the presence of a wider, reflective school.

The reflective school

What are the qualities, then, of a reflective school? How do schools enact the reflective practitioner? In many respects, they mirror the qualities of the reflective practitioner. For instance, a reading specialist notes that in her primary school, 'we're always reflecting and we're not taking things for granted, really, and just thinking, well, we're just going to stick with this. We're always reflecting and think well, should we change that' (Lyncombe Vale, 1;8). She draws a contrast between her school and others that do not have the qualities of reflection: '... some people might think, you know, might have an outlook of it's worked for them in the past, kind of thing. In some schools, perhaps they might think, "Oh, it's, worked before." ... But I think we do tend to stop and think, well, that might have been the case but it doesn't, it's not necessarily going to work here just because it's worked in the past, in a different setting' (Lyncombe Vale, 1;3). Teachers may notice a change in the nature of their school upon the appointment of a new headteacher or deputy headteacher. A primary teacher comments upon the arrival of a new headteacher: 'I think what happened was it became a very much a can-do school. And through that, the ethos was very much yes to everything unless there's good reason why not. And that was prior to the sort of research coming up behind that, really. But I think there was very much the change was seen as good, exciting, let's go with it, sort of thing. This whole new lift to the school really, which was desperately needed at the time, and then behind that there came the research to back that up. And so, by the time people have a lot of change to cope with, there

was that mentality of, yes, why not, instead of, urgh, something else to try' (Lyncombe Vale, 5;10).

However, a change in the whole ethos of a research-sensitive school is not reducible to a simple change in leadership (and we come back to this point later). Reflective practitioners need to have *reasons* for doing what they do, as we pointed out earlier, and the best reason, we suggest, is that a proposed change is supported by research evidence. The same primary teachers continue: 'And it's good to know that there's something behind it you know, there's a reason why we do it. It's not just because a head has come in from another school and that's what we always did at that school ... I think that drives you forward a little bit more because it's not just somebody's whims. You know it's a real thing. It's real research...'. In fact, the word "whim" occurs quite often in our interviewees' discussion of what a research-sensitive school means to them. And the terminology contains a moral claim because whimsical leadership would not be good for the children or the teachers. '... the children deserve more than that. And they need more than that. I just think it all feels like kind of safer and more held together' (Lyncombe Vale, 6;13).

Clearly an important part of being a reflective school lies in the provision of effective practical support to reflective practitioners. Here again, there is a difference between a school that is home to a Research School and innovation evaluation schools. In the former, it appears that the support is more formally organised, while in the latter it may be provided but is done on a more ad-hoc basis. For teachers who are engaged in thinking about their practice and seeking to change it, the most important source of support, apart from the cooperation of their colleagues, is the provision of time. The schools in which Research Schools are based have a history of being creative in order to allow time for teachers to reflect on their practice; they create the space. A senior secondary teacher declares: 'We finish early every Monday and meet for a couple of hours, primarily as departments' (Southstoke, 5;2) and continues: 'You know, we have 60 plus hours of CPD time for staff each year, which is great. If you add up what that costs, that's an awful lot of investment in terms of time and money.' The Research Schools themselves have time created in part by the financial support that Research Schools received. The schools where they are based benefit from this, largely because they have a resource of "research distillation" upon which they can draw. This came up time and again in the interviews. A primary teacher notes that 'they come back here to the Research School, to say, "Do you know anything about this? Is this a good one or not? Do we know anything about it?"' (Lyncombe Vale, 5;2). Or a secondary class teacher finds that 'I've gone back to the Research School and said, right, but this is the area I need to develop' (Southstoke, 1;6).

In the innovation evaluation schools, that provision is less systematically organised. Again, funding for the innovation evaluation projects allowed teachers to “buy” some dedicated time to work on the project. But even so, teachers engaged in designing, implementing and evaluating an innovative intervention, reported a real shortage of time, sometimes to the point where they decide never to do it again. They find themselves working extensively at home while trying to arrange a patchwork of support in school. It is not that the school is hostile to providing the support. It is just that the provision of time (and resources) for these purposes was not an everyday and organised routine; it appears to be rather ad hoc and random.

It seems that the schools in our sample are trying to create time for teachers to develop their own pedagogy, not through a process of compliance, but by presentation of the evidence on a particular approach in a usable format (probably at a formal training session), then being given time to try the approach in practice, and then reflect on it, either as part of a formal process or informally via conversations and discussion with colleagues. Teachers work long hours (49.5 hours per week, 2019 Teacher Workload Survey). Almost half of these (21.5 hours) teaching in the classroom, where opportunities for reflection with colleagues are presumably limited, and where, as we have seen, there is not enough time to reflect as you teach. Teachers have relatively little time for teamwork and dialogue with colleagues (2.7 to 3.2 hours) and appraising, monitoring, coaching, mentoring, and training other teaching staff (1.9 to 2.2 hours). And, perhaps as a result, from the same workload survey, a significant minority reported they ‘tend to disagree’ or ‘strongly disagree’ with the statements: ‘I have enough time to keep informed on changes to guidance and rules affecting professional practice’ (47 per cent); and ‘I have time during my contracted working hours to take part in professional development activities’ (39 per cent).

Among the ways that schools have been creative in making additional time are:

- Prioritising teaching and learning, so that CPD time is spent on teaching and learning as much as possible.
- Reorganising the school timetable/schedule to add extra time or create whole-school (or department) time that is more efficient.
- Developing a culture of trust within the school, such that staff feel supported to discuss pedagogical issues in a non-judgemental manner.

Permeable boundaries

Being a reflective practitioner in a demanding but supportive and reflective school implies a willingness to cross boundaries of the classroom, of the department, of the management structure and of the school. This is important because those boundaries create a sense of

safety for teachers. The fact that the day is spent using the same routines with the same people in the classroom, department or school is a major source of security. But, at the same time, in order to discharge the moral imperative of improving teaching, these boundaries have to be transgressed in order to find the very best pedagogical solutions. How then do research-sensitive schools break the boundaries? Tormarton Grange's open-door policy is a good place to start (Quigley, 2016). The classroom is traditionally seen as the inviolate private space in which the teacher's autonomy is practised. Daniel Lortie (1975), in the study referred to earlier, argues that the teachers that he interviewed welcomed the boundary set around classrooms because 'they ward off the constant threat to task completion and the ever-present sense of time eroded' (185). Things have moved on a long way since then, of course, and, for example, headteachers and heads of department would now routinely expect to observe lessons as part of the appraisal process. It is worth exploring, though, whether these and other visits are performative, enable professional conversations, are a matter of trust, or are acts of surveillance.

At Tormarton Grange, the classroom door is left "open" as an invitation, particularly to other teachers, to come in, sit down and take in what is being done in the lesson. This, then, becomes a route to discussion of different teaching practices and the identification of innovative solutions to problems that arise. And it does not seem to teachers to be a veiled form of surveillance. For example, a newly qualified maths teacher says: 'But, it doesn't faze you, because you're not, it doesn't feel like you're being judged. They're just looking to see what's happening' (Tormarton Grange, 3;5). And, in reverse, this teacher did not feel the need to ask if she could go into other teachers' classrooms. She was simply told: 'Pop in. You don't have to pick a time'. A more established teacher confirms these views. 'There's an open-door policy, we're dropping into each other's lessons all the time. You know, and it's, it's not seen as ... threatening in any way, intimidating in any way or, you know, big brother's watching...' He will visit other classrooms and '... will just wander in for 10 minutes and just watch and listen.' And: 'I know that any adult visiting another classroom in this school environment is very much about learning and sharing and taking away ideas...' (Tormarton Grange, 1;23/24). Similarly, a head of department declares: 'We have an open-door policy across the school and I think the geography department is probably one of the best at taking advantage of that, just members of staff and then other teachers, just walking in, and you know, taking photos of what's on the board, and then coming back and having a chat' (Tormarton Grange, 4;6). These teachers at Tormarton Grange recognize that other schools will have an open-door policy and/or some equivalent like learning walks. But they also feel that their system is more informal and confidence-inspiring.

The open-door policy provides material for corridor discussions, for emails from the head of department, for departmental meetings or for more formal CPD discussions. The interconnectedness of the structures and practices of research-sensitive schools which this illustrates is an important characteristic of such schools and we return to the point in the next chapter. But the classroom is not the only boundary which reflective practitioners cross, even if it is probably the most striking. Departments, especially in larger secondary schools like Tormarton Grange, also have marked boundaries. They represent a major reference group for teachers. More precisely, it is the subject taught that is treated as special. In our interviews, it is not at all uncommon for teachers to emphasize that their discipline demands particular pedagogical approaches and it is difficult to transfer initiatives which appear to work in one subject to another. There is, indeed, evidence which supports such an idea. One of our innovation evaluation projects found that providing audio feedback decreased teacher workload in sociology, but increased it in maths (Coats, 2019). Another found that retrieval practice quizzes had more impact in geography than in history (Enser and Smith, 2020).

Our respondents did not, however, take the view that disciplines have nothing to learn from one another. The default position is to see how another department's initiative can be adapted and used in one's own; it is not to argue that a discipline's special characteristics mean that cross-departmental discussion is very unlikely to be fruitful. Therefore, a newly qualified teacher found it unexpectedly intriguing to participate in a meeting about formative assessment with half-a-dozen different subject teachers. For her, disciplines may have particular approaches but there is always something to learn. '... there are bits that you can take away from it, even though it's a completely different subject, like even with art, ... even though it kind of feels like you should always just be like, well, I just want to know how this relates to maths, actually it is really beneficial to ... get insights from different people around the school' (Tormarton Grange, 3;4). A more established teacher notes, almost in passing, as if it did not require special comment, that his 'things like test sentences and sentence stems that have been taught to us at various INSET days by the English department' have now been embedded in the practice of the geography department (Tormarton Grange, 1;7). Of course these internal boundaries are mostly found in secondary education. In primary schools the boundaries are weaker, and, rather than being related to subjects, they tend to be across the age range, between Key Stages, for example. The boundaries of hierarchy are also crossed. Our respondents noted the way that all staff, senior and junior, contributed to discussions about teaching and learning. 'Staff at all levels of

experience are invited to speak at INSET and are encouraged to design projects and research certain aspects of pedagogy and implement them in their subject area, report back on how that's going' (Tormarton Grange, 1;24).

Finally, the school itself has boundaries that are less frequently crossed. One of the important features of a research-sensitive school is its willingness to look outwards. One of the interviewees actually saw this as one of the three most important features of a research-sensitive school (Tormarton Grange, 5;6ff). Regular schools do this too, but maybe the research-sensitive school does it more persistently. Critical engagement with research is likely to spill over into being critical of other sources of information. Whereas 'my old school didn't have any evidence suggesting why we should be doing this and what the rationale behind doing it was' (Southstoke, 1;2), research-sensitive schools critically analyse.

As we have said, breaking boundaries carries risk. It means disrupting the routines that structure the day and give a feeling of safety. Therefore, if reflective practitioners look to scrutinise their own teaching practices by investigating the alternatives presented in other classrooms, departments or schools they will need support in doing so. Tormarton Grange provides a network of such support agencies. The first port of call is the department, then other departments and the wider Research School team.

Teacher talk

The conduct of the reflective practitioner in a reflective school is represented by the practices we have described so far but is also carried out by something even less formal and organised, namely what we shall call "teacher talk". The proposition here is that teachers in research-sensitive schools talk to each other about teaching and learning *casually* and that this talk is a kind of oil or glue between more formal settings in which pedagogies are discussed and decisions are made. Our respondents persistently referred to the conversations they have with colleagues about their teaching practice, the problems that they encounter, their ideas about changes that they might make and then about specific new interventions that might be effective.⁵

A key feature of the way in which research-sensitive schools constitute themselves concerns the relationship between teachers and, crucially, the talk between 'like-minded people'.

⁵ Because of the way in which the sample was constructed (see the Methodology section and Appendix D) we do not know the extent to which these conversations might also take place in "control" schools.

Conversations between colleagues take place because they can be trusted, are like-minded and are informed. Trust is important because the talk has to be fruitful and that involves challenge. 'Always, we challenge each other in a very positive way to actually say, why are we doing that? You know, sort of, have you thought of this? And I think you have to have that relationship where you wouldn't take offence at that ...' (Lyncombe Vale, 5;12). It has to be a supportive relationship in which people can admit being wrong.

For example, a class teacher became interested in the Cornell note-taking method as a result of trying to improve memory. He found the method to be very simple on paper but, at the same time, he discovered that it is 'very easy to do incredibly wrong'. As a result, he had to start again. But the point is that he had to admit his mistakes in front of others and that was treated as entirely right because the culture of the school supported him in the process of experimentation and reflection, which includes making mistakes. At a meeting of his team, he was greeted by a 'sea of smiling faces... when you say this has gone wrong' (Tormarton Grange, 1;25) - and he was not being ironic.

Colleagues also have to be well-informed. Our interviewees talk to each other using a wide range of technical terms freely as if they all understood what they meant. Perhaps revealingly, interviewees rarely used the language of research (trial, meta-analysis, systematic review). Instead their conversations are more likely to focus on the approaches that are being introduced (metacognition, interleaving, paired questions, for example) about which they were confident when interviewed.

The casualness is illustrated by a primary teacher who, on being asked about how discussion about teaching happened, said: 'Just between us as colleagues really, we're always discussing what's new and what's brought in, you know, and I think just sat at dinner time you can just have that chat like, oh, have you tried this? How did it work? What did you think about it? So we're always feeding back in the moment with each other as a team anyway, so we've kind of got a general feeling of what everyone's feeling, you know, is it just you?' (Midford, 2;4/5). A secondary class teacher, new to Southstoke, sees casual talk with her colleagues as a necessary part of accommodating to new interventions. 'But then you have to allow people time to, to kind of play with it, and see what they think ... we're fairly contained in a small office ... So if someone comes in and they've done something, and it's worked really well, or something that's totally bombed, you normally hear about it, and then it's a case of, you know, having a conversation. What you do with that is then obviously, personal decision ...' (Southstoke, 2;33). Similarly, for a newly qualified teacher coming to Tormarton Grange it was rather like being

dropped into a tank of continuous conversation about teaching. She has a mentor and participates in the school's CPD but she also reads the weekly blog from the deputy headteacher, participates in focus groups on particular problems such as formative assessment, goes into other teacher's classrooms, and takes part in departmental discussions, while all the time talking about how to develop her own practice to other teachers who mostly, but not invariably, are from her subject. That might take the form of picking up on an idea from a teacher giving a session on her practice in a school CPD session and then going to talk to her about it. Or it might be the result of having gone into a classroom, seeing how the teacher used a particular practice and, again, going to talk to them about it. What is more, it is not just a case of a new teacher learning her craft. From her perspective, everyone in the school is talking about the ways that teaching can be improved. And from our other interviews she appears to be right.

Senior leaders often see informal talk as an important management tactic. One assistant secondary headteacher (Larkhall, 1;10), for example, wants 'to be in a situation where I can walk into the staff room and have conversations with colleagues about teaching and learning' because that indicates that staff fully accept the crucial importance of pedagogy and want to be involved in discussions about it. And for him, discussion of this kind is the very stuff of his management style. 'And that's where I come in as someone that has those conversations with people. I mean, I say I'm in a really lucky position because I, you know, 90% of my conversations with staff are about teaching and learning, and that's exactly what I want it to be' (Larkhall, 1;15).

The idea of the importance of casual talk of this kind in organizational life has been emphasized by Henry Mintzberg in his notion of strategic conversation. He argues that strategy formation in successful organizations is not developed in a formal process that eventuates in a document written following a kind of recipe. Instead it arises out of ongoing conversations, usually amongst the senior leaders, which produces a more fluid sense of direction responsive to the identification of new problems. In much the same way, evidence-based pedagogies do not receive acceptance only as a result of formal training or a set of instructions but out of conversations in corridors, classrooms and canteens around something – the importance of how people teach and learn successfully – that the community has defined as a moral priority. Making that transition from senior management to classroom practice requires an authenticity in the process for it to be effective. This authenticity (expressed through trust) is difficult to build and remains ever fragile and easy to destroy.

Chapter 4. Structures

Culture and a network of intersecting practices constitute a school's identity. But research-sensitive schools, of course, also employ more formal, structural, arrangements that both reflect and reinforce that identity and, unlike practices and culture, they are more likely to appear in a school's organizational chart. We have in mind here such features as leadership, messaging, departmental and other meetings, CPD, appraisals, and mentoring. All schools may have these elements in some form but research-sensitive schools will inflect them in particular ways. Most important of all, we will argue that it is the way in which research-sensitive schools *combine* the elements to form a kind of matrix that is significant in the prioritisation of teaching and learning. That argument requires a certain level of detail and we think that the best way of doing that is to focus the discussion on particular schools, both secondary and primary.

Secondary schools

In general, our interviewees were keen to stress the importance of leadership. This is not surprising; there needs to be some security and a sense of purpose and leaders are important, though not all-important, in engendering that. At Tormarton Grange, our respondents see the headteacher's leadership as conveying the sense of participating in a *moral* enterprise. The deputy headteacher of the school argues that the school has to be led by someone with a 'real strong moral compass' a quality that, in his view, is lacking in the current 'breed of headteachers'. His headteacher is seen as insisting that the school is centred on doing the best for all the children that the school educates and that children must be treated equally. Teachers must *care* about that. And a dedicated concern with using the very best, evidence-based, methods of teaching and learning is the main way of giving all the students the best chance of success in their school education. An assistant headteacher thinks a headteacher of this kind is unusual since 'if you sit in a room full of heads, they won't often talk about teaching and learning, they'll talk about the other aspects of running the school' (Tormarton Grange, 5;2). But, at the same time, it is not necessary or even desirable for the headteacher to be directly involved in teaching and learning interventions. His view is that she is a powerful presence, especially for the more senior teachers, but she stays, nevertheless, in the background. A considerable amount of autonomy is given to the senior management team and especially to the deputy headteacher responsible for teaching and learning. The headteacher defers to the expertise of the team and is prepared to give them support in the improvement of teaching and

learning even when that can take some considerable time if it is to be properly supported by evidence. The net result is that the school has a *diffused*, not a centralised, leadership which takes in several middle managers. It is this leadership group that defines the teaching and learning mission and they do so by identifying the problems that the school has and then looking for evidence-based methods to deal with them. At Tormarton Grange, for example, that solution currently takes the form of concentrating on the four areas of metacognition, formative assessment, memory, and vocabulary because the team believe that there are challenges in each.

Southstoke, similarly, has a relatively diffused leadership which establishes an overall mission about teaching and learning, though this came across less clearly in our interviews. It establishes an annual, whole-school focus, based on analysis of the previous year's exam results.

The leadership teams in these two schools, therefore, set the priorities of the school and the importance of evidence-based teaching and learning as applied to the problems that the school faces. How, then, are the priorities enacted? The schools connect together the priorities of the school with the individual teacher and the department via CPD, appraisal and meetings. A central element in this is the practice in both schools of the inquiry question. At Southstoke, having set the whole-school objective, vulnerable learners in one year, vocabulary in another, CPD is treated as crucial. This is continuing professional development in the sense of the professional development of individual staff rather than, for example, simply a series of training events. By the beginning of the school year, individual teachers are required to formulate an inquiry question, which is a teaching and learning issue relevant to their own teaching and to the overall school objective, that they will investigate over the year. That question has also to be designed to fit within a departmental focus on the whole-school objective, a focus that is arrived at by departments 'trawling through their results from last year' in the words of one informant. Departments may, indeed, decide that all staff will take on the same inquiry question to maximise the amount of research material that they can read and enlarge the sample of students that can be included in an evaluation. A head of department gives a view of how the system works from her point of view. Taking the whole-school focus, she reflects on the past year and scrutinizes the exam results; 'I've analysed what the students did well, what they didn't do well, what we need help with, and then I've gone back to the Research School and said, right, this is the area I need to develop. What would you recommend and what would you suggest?' The school benefits from the support of the specialist Research School staff, who have the time to 'get all the research and plonk it all in one place for us to look at so I don't have

to spend time finding stuff' (Southstoke, 1;7/8). The departmental team split up the research reading and then discuss what is relevant to the problem they have identified. The team then develops three or four possible inquiry questions which are discussed with the Research School staff. As a result of that discussion, one question is selected for the whole team to work on.

The system is a mixture of inputs from the whole school, the department(s) and individual teachers. As an assistant headteacher says: 'We've got a spreadsheet with the inquiry question titles on this year 2019 into 2020. And so they all have ...they look at various interventions around the vulnerable learners that they teach. So that's kind of the whole-school objective like you said. Now, within your department, there might be an additional drive that's come out through the examination results from the previous year, there might not be. And so you might be able to weave in your subject objective as well. And then it's very much who do you have in front of you that requires that intervention that may or may not work?' (Southstoke, 5;3).

In the course of this 'disciplined inquiry' teachers are expected to read research material on their question and to design a rigorous and controlled study that will investigate it. Part of the CPD 'training is directing people towards bite-sized bits of research ... Once we have their areas of declared interest... we sit down as a team and direct people towards some evidence-based reading tasks'. Our class teacher informants were very clear about the importance of having access to Research School staff who had been given the time to develop expertise in finding and disseminating relevant research. Evaluation of interventions created as responses to inquiry questions is treated seriously. As part of the inquiry question process, teachers have to complete a form which checks that teachers have identified a control group, prepared a pre-test and planned a post-test.

Finally, the teacher appraisal system is geared around the inquiry question and functions as much as a developmental device as an assessment one. Appraisal is 'a clear and consistent assessment of the overall performance of teachers, including the headteacher, and for supporting their development within the context of the school's plan for improving educational provision and performance, and the standards expected of teachers. It also sets out the arrangements that will apply when teachers fall below the levels of competence that are expected of them' (Department for Education, 2019). Such a definition, and the fact that the Department for Education has established a legal framework for the conduct of appraisals, sets a challenge for schools that try to create a trusting, supportive culture. But it is also clear that, if appraisal is not brought within that culture, it will wreck it.

At Southstoke, for example, appraisal is rechristened 'personal development'. One respondent sees the appraisal/inquiry question link as a positive advantage. The whole process remains 'pay related' but that still works because it is the process itself that is important. It does not matter if an intervention designed as a result of an inquiry question fails an evaluation. It does not 'prevent you from ultimately climbing the pay scale'. The system employed at Southstoke is clearly expensive of teacher time. There are many departmental meetings, in some cases weekly, 60 hours of CPD per year and the inquiry questions to be prosecuted. Why do teachers support it? One assistant headteacher is clear. Staff go through the process because it helps them 'with the really important job of, you know, planning, teaching, marking and working on their feedback', it does not punish failure and it does not infringe on their own time. And this view is supported by the teacher quoted in the Preface who emphasizes what so many teachers in our sample felt about evidence-based teaching; it provides a rationale for what they do, gives a sense of safety almost. Furthermore, this teacher passes on the confidence in the research-informed practice to her students so that they can say 'aah, I can see why you won't let me listen to my headphones ... I can see why we're doing this constant low-stakes testing'. And a science teacher contrasts the inquiry question regime with a teaching practice in which one simply teaches in the same way every year. 'And there are many, many colleagues across school who have done their inquiry questions, myself included, and have found that this works really well. It works really nicely for students enjoy it, they learn better, they get better outcomes, and we've actually continued it. And it's become kind of embedded within what we do in school. So, you know, that is a real kind of area where inquiry-question work then becomes practice in the classroom' (Southstoke, 3;2). The manner in which the identification of school and departmental priorities fit together with CPD and the appraisal system is highly organised at Southstoke and at Tormarton Grange. But other schools represented in our sample also demonstrated elements of this kind of integration. An assistant headteacher at Larkhall for example described how appraisals at his school took the form of noting what CPD sessions the appraisee had been on but then the appraiser would ask how that CPD had impacted teaching practice with the question 'If I go and watch you tomorrow, what am I going to see that you picked up on?'.

The fundamentals of practice at Tormarton Grange are much the same as at Southstoke. That is, the key feature is the way that priorities, messaging, appraisal, meetings and CPD fit together to create an environment for applying evidence-based teaching and learning interventions. And inquiry questions are also used. But there are also differences. The overall

feeling conveyed by the interviews is that, at Tormarton Grange, the system is looser and more distributed with more autonomy being given to departments and individual teachers.

This applies to the way that priorities are set. At Tormarton Grange this seems to be proactive (a medium-term approach) rather than being annually reactive as in the yearly identified whole-school focus used by Southstoke. At Tormarton Grange there is a more long-term emphasis on what they call threshold concepts, namely, metacognition, formative assessment, memory and vocabulary, which they have identified as critical areas for their particular school. As a member of the senior team says: ‘... we just sort of talked about it and said, you know, we've sort of built up over the last three, four years a decent amount of a knowledge base, we said right, what are the things – what are our almost non-negotiables? Are we saying that if our teachers are really good in these areas, that's what's gonna make the difference for our kids? And, you know, it all comes back to that moral purpose, what's the best for our kids at Tormarton Grange? Which is why vocabulary is one of ours, because we really think that's a key issue.’ (Tormarton Grange, 5;5).

Every teacher, as part of their annual appraisal, has to formulate a teacher inquiry question that has to be based on one of the four concepts. Teachers work on their question together with other teachers who have the same focus and the group is run by a senior leader who has familiarity with the topic and the research associated with it. These focus group meetings, in addressing issues across the school, convey a collective interest. They also draw on staff from different departments and that can produce other advantages. A newly qualified member of staff is enthusiastic about what can be learned from other disciplines. ‘These are creative strategies other people come up with because there are bits that you can take away from it, even though it's [a] completely different subject ... they have so many strengths, like making reflective learners and stuff, which you can always take away...’ (Tormarton Grange, 3;4).

The scope of the inquiry question is also limited by the particular demands of a department. As one assistant headteacher says: ‘you need to be encouraging your staff to pick an inquiry question linked to your department improvement plan, because that just makes sense, because that's your way of enacting that plan. But beyond that it's quite free’ (Tormarton Grange, 5;7). It is up to the department to identify where the weaknesses in the teaching practice are. And therefore: ‘We wouldn't impose that on them as the Research School team and say, okay, the evidence says that actually the best thing for languages is this, so you need to do this. We would say, where are your weaknesses? And therefore, what from the toolbox of evidence-informed practices, which of those tools will fix that problem best? Our role is to provide that

layer of kind of, you know, where the solutions might be for you. But not tell them what their problems are. I think that's quite important'.

Departments do not just meet in order to formulate improvement plans. There are fortnightly meetings which discuss evidence and research, often supplied by the management team, which will be of potential benefit to the department and which concentrate on 'something that works in the context of this school' (Tormarton Grange, 5;3). 'And the idea behind those is that it's an opportunity for the team to meet, but not to talk about admin or data entry, etc, it's to talk about what we're teaching in the forthcoming fortnight, how we're going to best teach it, where can we find research evidence ... and how can we get the best out of it?' (Tormarton Grange, 4;6).

Most of our interviewees in all schools said that they could not hope to read even the research directly related to their own interests. They depended on summaries prepared by various organizations or individuals outside the school and, more importantly, on communications from the senior leadership team within the school. A secondary head of department believes that a local, expert source of relevant evidence is crucial. 'I don't sit and read the research and the guidance. I just don't have time. I trust that the people in front of me have read it and they are telling me the bits that they think are most important' (Southstoke, 1;6). A newly qualified teacher, on being asked how she accessed ideas and evidence, replied that the deputy headteacher sent a weekly email and other teachers wrote blogs. 'So, there's a range of different ways this year, it's more so we get like a blog sent through on a weekly basis, at the end of the week. And we can look through those, I tend to like pick and choose a couple. And I don't have a lot of time. So, I can't say that I read all of them, but it is there. So, if there was something that I'm struggling with, I know that I could go back through those emails and find something specific, and often to the original link for articles and papers' (Tormarton Grange, 3;2). And these various forms of messaging are not just on any topic but are concentrated on the teaching and learning priorities of the school. Another informant described the process as 'cherry picking' the 'most effective pieces of advice from various streams, blogs, online, whatever might be academic journals. And they will distil it down into a very consumable level...' (Tormarton Grange, 1;5). Importantly, this is cherry picking the pieces that are relevant to your practice at the moment, rather than cherry picking the evidence in the abstract.

Individual teachers at Tormarton Grange, therefore, have an inquiry question which they are encouraged to develop in accordance with their departmental priorities and which are pursued in cross-departmental focus groups. Besides that, individuals receive a constant stream of information about potentially useful research and evidence. And they participate in departmental

discussions aimed at applying research evidence to departmental practice. Further, there is a connection between appraisal and the inquiry question in that the latter provides evidence for the former. Our informants believe that the appraisal system operated in Tormarton Grange is unusual. One described his first experience of appraisal at the school as a 'shock' in that those at his previous schools were simply 'tick box' exercises. He continued that coming to Tormarton Grange 'you're really made to think very, very deeply and carefully about the impact you're having on the classes you teach. What else you do to help inform and influence the practice of your peers. You know, how are the ideas you'll bring into the room, to the table, improving the learning experience of students that are not in your classroom?' (Tormarton Grange, 1; 8).

The two secondary schools represent two different ways of being a research-sensitive school; they illustrate two solutions to the dilemma between control and autonomy, an issue that we come back to in the next chapter. Southstoke has a greater emphasis on the periodic identification of a whole-school problem which drives the way that both departments and individual teachers design and implement interventions. CPD is emphasized. Tormarton Grange, on the other hand, conceives of its priorities more generally, does not necessarily embrace the annual definition of a problem and appears to give greater scope to departments and individual teachers in identifying solutions to specific problems.

However, we do not want to overstate the differences. They both recognise that departments and individual teachers will have specific problems to solve and they provide support for that. And the essential point remains. For both, the formal structure is a flow through a matrix of interactions of different kinds and levels of organisation – teacher, department and whole school - which intersect and are organized around teaching and learning. Both schools integrate a set of institutional structures – CPD, appraisal, departmental and other meetings, and information flows – to ensure that good evidence is brought to bear on teaching practice. We would argue that an outcome of this decision is that the teachers' primary point of reference is no longer solely the classroom and the department but the larger collective entity.

The result is that being a teacher at these schools must be a demanding experience. But a Tormarton Grange teacher could have been talking for both schools in saying that '... there's no draconian expectation that we're at any moment if anyone were to walk into our classroom, they're going to see in here the words retrieval or interleave or metacognition, all the rest of it. But it's certainly, I think, an expectation being here that we are always striving and attempting to use evidence to adjust how we do things for the greater good of the students' outcomes and our own professional capabilities' (Tormarton Grange, 1;3).

One surprising aspect of the interviews is the lack of formal structures for mentoring or coaching. Newly qualified teachers have mentors, as they would in other schools, but otherwise the development of practice seems to be an immersive, shared experience, rather than working through one-to-one or even one-to-many coaches. Given the popularity of, for example, instructional coaching, this seems surprising. But even when prompted, there was little mention of coaching. In these research-sensitive schools, it seems, the “coaching” role, of talking to someone about the new approach you are trying, discussing your successes and failures, seems to be taken, informally, by multiple individuals, in varying positions of seniority and experience.

Primary schools

The research-sensitive primary schools in our study are rather different from their secondary counterparts. They tend not to have the formal structures described above. Their pedagogical problems and consequent research needs are different and the difficulties of teaching reading, writing and mathematics predominate. The differences between early years and Year 6, whether in terms of children’s development or the way teaching is organised, are more significant than those found in a secondary school. Even the perceived external constraints differ. In our small sample, at least, primary schools worry more about Ofsted while secondary schools are anxious about GCSE results. There is also the difference in size. In 2020, the average secondary school was four times the size of the average primary. Secondaries will benefit from economies of scale but they might also need more formal systems of organization. It is true that membership of a multi-academy trust may give some of the advantages of size but, at present, only about one-fifth of primary schools are in a MAT. In any case, the structures in large secondaries have developed over many years. MAT-wide structures are in their relative infancy. Our interviews almost all come from primaries in MATs and this should be borne in mind.

One of our respondents, in particular, identified cultural differences between primaries and secondaries. She finds secondary schools to be ‘corporate’, bureaucratic, more than a little autocratic. Furthermore, ‘primary heads are possibly a little bit more grounded, because there's stuff around dealing with snot all day. And - but it's true - we do! We deal with snot! We deal with colds, we deal with puke, we deal with - and also because the schools are smaller and more intimate and we're more community focused. So we're not just, you know, an exam factory’.

Despite these differences between primary and secondary education, research-sensitive primary schools do achieve similar outcomes but with a more fluid and flexible structure. Thus, a key point starting point in our analysis is the importance of priority setting. As with Tormarton Grange and Southstoke, that is primarily a matter for the leadership. A primary headteacher puts it in terms of the need for a clear strategic vision – ‘analysis of where we’re at and what we need to do alongside the EEF guidance reports, and recommendations from collaboration across the Trust and engagement with research’ (Lyncombe Vale, 4;2). (Interestingly, primary schools were more likely than secondary schools to specify multiple sources of evidence when identifying their priorities.) The priorities for the school are not *driven* by external agencies but they are informed by them. ‘It’s more informed by where we’re at now, where we want to be and how we think we’re going to get there.’ For this headteacher, it is important not to be overwhelmed by the blizzard of initiatives, reports, opinions and even research evidence that come at the school – what is elsewhere in this report described as ‘faddism’ – but to keep a firm strategic sense of what matters to the school.

Of course, it is not just headteachers that are relevant here. As with secondary schools, leadership is diffused in most primary schools. The senior leadership team may not be very formalised or structured but is still relevant to the way that teachers behave. Other senior staff may therefore take the lead in supporting and encouraging change in methods of teaching. As one class teacher said, on being asked who decides what she should do in class; ‘It would be the senior leadership team that would essentially decide ... or if any of the class teachers found something that they thought that would be a good idea and looked as if it would have positive outcomes, then, you know, there’s room for innovation. But ultimately, I think it would probably be a collaborative decision that we’d talk to the senior leadership and see whether they thought that that would work’ (Lyncombe Vale, 1;2). At the same time, it is important that headteachers do not actually obstruct pedagogical innovation. As a CEO of a MAT says: ‘It’s really difficult to get through to a school, you tend to have pockets, in primary, of teachers that get it and then the senior leadership don’t, and that’s where it stops. So, my thing is to always target the head or the deputy or somebody that can actually make that change school-wide, because it’s great to have pockets of people, but unless we’re going to get those people it’s not gonna happen. So now when we’re running events, we’re inviting the head as a matter of course, and trying to get them engaged wider than the Trust’ (Lyncombe Vale, 2;7).

Also important to the successful prosecution of evidence-informed teaching is how teachers throughout the school *experience* leadership. Our interviewees made three points about this. First, as a matter of simple good management, teachers need to be given reasons for doing

things and those reasons have to be *good* reasons that can convince and be trusted. Both senior managers and class teachers make the point. An assistant principal notes: 'So I get the value of actually saying, there's a reason why we're doing this, and I'm going to share that reason with you rather than just telling you to do it. As a teacher, I used to hate that. And as a leader, I think it's bad practice not to carry people with you, and [instead] say, it's not just me telling you because of my badge, it's because of this, there's actually research that says this actually works' (Lyncombe Vale, 1;8). A reception class teacher reflects on going to training days and wondering whether to engage with a particular intervention, she has to know 'what's the purpose behind it? Why have they done it that way and where have they got that evidence from?' (Midford, 2;1/2). And she continues: 'When you're a colleague and you're in the meetings and people telling you what to do, I think as long as you're filtering that message down and the reason why, and allowing people to pick it apart, then it'll be okay, people will be more understanding' (Midford, 2;11). Second, senior leaders have to listen. One headteacher, for instance, emphasizes the importance of 'staff voice' in trying to get a feel of what is going on in the school. Another senior leader stresses the importance of attending to the 'pupil voice'.

Lastly, leaders have to allow a certain independence to teachers in order to find the right balance between centralised control and autonomy. For example, for one headteacher this is an article of faith. She believes in 'giving teachers the space to tweak and reflect on their own practice and their own kind of classroom cohort and tweak the innovation. So, there isn't a common straitjacket approach and if anything, because our community is about developing metacognitive teachers, we would really encourage teachers to veer away from the script because it means that being critical and reflective and being responsive in their approach in the classroom' (Sion Hill, 2;3). We return to this point in the next section.

The primary schools in our sample do not have the formal interaction between inquiry question, CPD, appraisal and information provision that we outlined in the discussion of secondary schools. But, in our view, they do have the functional equivalent. It usually involves training or CPD sessions, staff meetings, and then working on implementing the approach either individually or in small teams. While in secondary schools the senior leadership provides the flow of information and advice and much of the CPD, in the primary schools we interviewed that usually comes from the MAT. Critically, however, the individual school identifies its own priorities. As an assistant principal describes his role: 'Since we joined the academy chain a year and a half ago I've become involved in a senior leaders group, which looks specifically at metacognition, the research around metacognition. And my role within school has been to bring some of the findings from the research back into school and see whether they're applicable and

then lead staff training and monitoring and assessment and support on introducing metacognitive strategies' (Midford, 3;1). And the CEO of a different MAT takes much the same view on being asked how the MAT schools used evidence: 'the research forums, lots and lots of discussion at the principal away days, for example, and Ann will present one of the guidance reports and then we'll all get a chance to unpick it and decide how we're going to use that to improve things back at school. That's then disseminated down to the staff. And so ... I would definitely say we are steeped in evidence, really.'

It is not only the MAT that provides information and training on evidence-informed pedagogy. Senior staff mentioned other sources, for example, material from the EEF. Most of our respondents from the primary sector emphasized the importance of discussing any proposed intervention with the staff. One recently qualified teacher describes the process. 'If something new needs to be trialled, if SLT [senior leadership team] had some research themselves and they brought it back to school, they tend to have a staff meeting about it, discuss what they found, the benefits from it'. The discussion is not about 'here is an intervention, now we will try it'. It is instead a case of 'how would the intervention work in our school' and it may need substantial variation in implementation to suit different key stages and particular classes. 'So as long as the message is clear, and the children are, you know, receptive to what it is you're doing and are able to use that within their learning then the school and the SLT are happy for you to implement it in your own way. As long as the underlying theme is there, as long as it's having an impact positively on the children, then we have kind of scope to move around a little and make it our own, basically' (Midford, 2;3-4). Much the same point is made by other class teachers confronted with a proposal from the senior leadership team. 'But I still think there's opportunities to turn around and say, actually, even though it's research driven, can we just have that conversation about is this working? You know, and actually to feel that you can have that conversation. And to listen to a different perspective as to why it may be somewhere else but not in a particular group or class' (Lyncombe Vale, 5;11).

The process for introducing new teaching methods in the primary schools in our sample is not as systematic or as formally organised as in the secondary sector but it is also relatively flexible and experimental. In some, innovation comes from class teachers rather than from senior leaders but a mechanism is still found to support the teachers concerned. Others constitute cross-school teams for year groups or areas of the curriculum such as reading. A group of this kind acts as a forum for discussion and as a source of expertise and advice for teachers. In one school for example, '... most year group teams, well, all year group teams, will meet on a regular informal basis over lunch or something to talk about what they're planning, what's going

well, what isn't'. These groups have coordinators who give advice and support. 'We've asked our coordinators to be very proactive in terms of sending out bits of information ... We've asked all our coordinators to sign up to the national associations because they've got masses of resources and if you subscribe to them, which we do, then there's loads of resources there' (Midford, 3;4). A respondent in the same school conveys a sense of relaxed experimentation. As an assistant principal, he tried to introduce a technique of paired talk for activating prior knowledge and it didn't take at first and his diagnosis was that he had not been explicit enough. His response was that 'it's no problem, I meant we should be doing it like this, can you try this and see if that makes a difference ... And so we tweaked things, and it's been a dialogue, and I've had lots of conversations with people about what does and doesn't work. I think people are pretty comfortable talking to someone about it ...' (Midford, 3;5).

It is possible to say that, underlying a diversity of relatively informal structures and relaxed experimentation, is a belief in the involvement of staff in exploring evidence-informed teaching. One headteacher puts this well in emphasising the development of a culture which encourages expertise in staff. 'I mean, the quality of the leadership and management in this school is really down to me drawing on the expertise of staff really ... I cannot retain or develop that level of understanding of each area as they have. When I'm looking to recruit ... I'm looking for individuals who are thoughtful and willing to research, to read, to understand beyond just delivering lessons. So, it is part of our approach to develop our own professional understanding of what the impact of the research, or reading around to understand more about the pedagogy, really ... there is an awful lot of dialogue and professional discussion within the staff...' and 'it's about us formulating an approach through collaboration' (Midford, 4;7). Revealingly, this respondent concludes by saying 'this is not something we timetable'.

Chapter 5. A question of autonomy

As one of our secondary respondents commented: 'Much of it in schools is down to the head, I think. It really is. You just, you're not really going to get anywhere with anything, if the head's not properly on board ... I mean schools are such hierarchies in that way' (Tormarton Grange, 5;9). There is striking agreement across both sectors and between school leaders and class teachers that the involvement, or at least acquiescence, of the headteacher and the leadership team is essential to any serious pursuit of evidence-based teaching and learning. One MAT executive comments that the leadership can 'open the door' for initiatives while another declares that: 'I mean, the biggest thing I found is that you have to have the SLT on side when we're in school' and it may be that a class teacher will try out new practices but, without the support and participation of the leadership, they will stay in the classroom (Two Tunnels, 2;3). A common way of putting it is to suggest that it is a top-down flow. In its developed form, as in the secondary schools, Tormarton Grange and Southstoke, discussed in the last chapter, the leadership sets the priorities, devises structures which can be seen to implement those priorities and provides the required support in the form of CPD and the distillation of research evidence. So, a Southstoke head of department utilises the image of a top-down flow for his department in saying that 'I think that our whole-school priorities massively influence what we do. And two, three years ago, had a whole-school focus not been vocabulary, I would have never dreamt of doing a little inquiry question into vocabulary instruction, it just wouldn't have crossed my mind' (Southstoke, 3;5). Primary respondents adopt a similar model. One primary headteacher, for example, is actively supportive of evidence-based innovation in her school to the point of being personally involved in projects such as the introduction of retrieval practices. And her view is that the required culture had to come from the leadership. 'And it definitely needs to come from the top down. Because if you're not, if you're not modelling that good practice as a leader, I think it's going to be very difficult for other people to see the benefit of that' (Charlcombe, 1;15). Importantly, this primary headteacher goes on to say, as if she has gone too far, that the leadership can be actively involved but they can also simply 'facilitate' and 'actually that does enable individual teachers to kind of run with things'. Many of our respondents, especially those in leadership roles, were keen to offer similar qualifications. Leadership is important but so is the involvement (and compliance) of the staff. As one of the MAT executives cited above notes: '... what are the key things? I think, well, being really clear on your vision, what you actually want to achieve as a school and how you're going to get there and getting everyone on board

with that. That's got to be key' (Two Tunnels, 2;6). There are two reasons for the perceived need to get staff on board with the priorities of the leadership. First, it is simply a precept of management good practice. That view is expressed by a secondary assistant headteacher who is keen to create time to enable lead teachers to 'engage in coaching with some of our staff - they can engage in modelling and actually have those valuable conversations about embedding new practice'. If staff are trying something new, then it is better to have 'someone who's more of a peer to, to kind of advise' (Larkhall, 1;8). But, from the point of view of the promotion of evidence-based teaching, it is also important to involve teachers because a successful promotion has to involve both innovation at the classroom level and the adaptation of interventions to local circumstances. We return to these issues in the next two chapters.

There is, therefore, a potential tension between authority and teacher compliance. Leaders, or the leadership team, set the priorities of the school. They may do so in consultation with the teachers, the governing body and parents but, still, the final responsibility lies with them. Teachers are expected to work in accordance with these priorities but, at the same time, their participation is necessary *and* they have a considerable degree of autonomy. They will spend the greater part of the teaching day by themselves in classrooms and what they actually do there is comparatively unsupervised. There is, therefore, a potential conflict between the authority of the leadership and the autonomy of the teacher in the classroom and we have referred to this tension at several points in this report. This dilemma cannot be wished away but it can be managed well or badly.

The authority/autonomy dilemma is, to varying extents, characteristic of public services generally. As Michael Lipsky (1975) points out, those who work in direct contact with the recipients or clients of public services, such as social workers, police officers, administrators in welfare or justice organizations, and teachers all have considerable power. They have resources for resistance because the conditions of their work mean that they are often not directly controlled. But these 'street-level bureaucrats' are severely cross-pressured. On the one hand, they are supposed to respond to the demands of their managers and, ultimately, of those who devise public policy, and, on the other, they have to deal with the varied and often contradictory demands of their clients in an under-resourced environment. The result is that they devise a multitude of routines and practices that manage this dilemma, often in contradiction to the rules of their organization, and the outcomes of which may bear little resemblance to the formal public policy. Lipsky sums this up by saying that public policy is not that announced by politicians or civil servants but instead consists in the decisions made by street-level bureaucrats.

In education, the “street-level” is probably found at both school and teacher level. Schools are faced with many external pressures – high-stakes exams, ratings and league tables that often change, and can even be contradictory. There are pressures from local and national policies and campaigns. To maintain a steady course amidst these changing winds is difficult. Arguably, schools have instead become expert at street-level rebellion, complying with the spirit of the law if not the letter. So, for example, re-presenting existing data or practices as if they were the new ones. The expert leader is able to maintain their own course while meeting all these external demands. We witnessed this in the wider Research School project, where examination of a Research School’s actual research engagement could be “proven” with a convincing performance by senior leadership.

Teachers similarly have to deal with the demands of their managers in school which may, in turn, be dictated by outside agencies, academy trusts and governmental bodies of various kinds. At the same time, they have to manage their classrooms, a complex demand. They have to make those decisions on the spot. And they have to deal with the varied and demanding expectations and circumstances of the children and their parents. They work in a public service that is chronically under-resourced. In particular, there is a shortage of *time* in which to meet all the demands placed on them. In these conditions, teachers will adopt short-cuts, work-rounds and routines and habits of work which simply help them to get through the day. And some of these will be at variance with the established policies and priorities of the school.

These general considerations apply in particular to the policies and practices of evidence-informed teaching. Research-sensitive schools will prioritise the improvement of teaching and learning methods but the teachers who have to implement them have considerable autonomy in the manner in which they respond to the priority. One of our respondents – a primary school headteacher – makes the point in a discussion of the relative power of the academics who produce research and the teachers who have to implement it. ‘... the power lies with us because we take the ideas and the research into a real-life meaningful kind of transaction ... very much seeing the power lies with practitioners’ (Sion Hill, 2;14). Furthermore, that autonomy is supported by the fact that teachers are seen by themselves and others as *professionals* who, by virtue of their training and skills, can be left to teach without extensive supervision. The dilemma between authority and autonomy is inevitable but it does not have to result in conflict if schools manage it successfully. How then do research-sensitive schools do the management?

One mechanism is the creation of a culture that we have described earlier. Cultures are compelling. For example, interviewees from one secondary school – Tormarton Grange – often

reflected on the compulsory or voluntary nature of the school's priorities and on the possible tensions between the relative autonomy of the class teacher and the headteacher's insistence that students should have the same education experience whatever class they were in. One assistant headteacher argued that, at the beginning of the move to evidence-based teaching, the culture was more permissive: 'So I think it was sort of like, here's some really good ideas. So this is how memory works. This is some ways you can exploit that to help your students. Okay, and it was sort of left a bit for people to pick that up and run with it or not...' But as the culture developed and new staff arrived, it became more compelling. '...we're not über prescriptive. We say here's the principles, apply them to your subject. But the ability to be a bit more forthright and say this is how we do things has increased over time, I would say. And I think that's, I mean it's that acceptability idea, more and more staff got on the board with the idea that this is a worthwhile way of doing things. And so therefore, they, you know, they pick it up, and then it just becomes part then of the culture' (Tormarton Grange, 5;5). At another school this was an intentional strategy, to gain trust by letting teachers have more autonomy, with a view to directing this more strategically in the future. 'At the moment the key to that change in culture is the buy-in from staff, and I'm wary of dictating to certain colleagues where they need to go. At this point in the journey, because I really want engagement from everybody, and they're more likely to engage, ... once I feel that they [have] bought into the process, that's when we can be more influential in, in directing people, certainly' (Larkhall 1;8). We have seen this elsewhere ('the ethos was very much yes to everything unless there's good reason why not') and it does seem that providing generous freedom, with an understanding that this will ultimately be curtailed, or perhaps strategically targeted, is an important first step in establishing a culture of trust.

It seems, therefore, that there is a – probably delicate – balance being struck between prescription (or co-ordination of effort) and autonomy. And it is certainly the case that, from our interviewees at Tormarton Grange at any rate, there was not a feeling of oppressive surveillance that ensured compliance. It is rather a case of willing participation. As a relatively recent entrant to the profession puts it: 'So it's getting the balance right between making sure that, regardless of which teacher the students get, they get the same diet, the same core diet, both of learning, but we're very different individuals in terms of how we approach our pedagogy and how we do deliver our lessons. So what I love about this place is that there is absolutely an acceptance and acknowledgement that every classroom will be different' (Tormarton Grange, 1;5). Similarly, in the earlier discussion, we noted how an open-door policy did not appear, surprisingly to us at any rate, to result in any feeling of surveillance on the part of the teachers.

This is again a tension, of course, when it comes to interventions with evidence, as another primary headteacher reflects 'If something has an intervention, for example, or a practice or a pedagogy, has, from my perspective, evidence that it is effective, then you need to apply it as it says on the tin in order to have the best chance of it having the effect that it has been found to have in other contexts' (Lyncombe Vale, 3;8). The intervention may not be right for your context, but wholesale tweaking may ruin it.

Our interviewees generally did not make much of any conflict over the introduction of a new teaching practice. One head of department, on being asked specifically about this issue, said that she could not remember any example of a proposed innovation being resisted by her staff (Claverton Down, 1;13). In another school, however, there was some initial resistance. An assistant principal in a primary school (Midford, 3;8/9) became worried about the displays of various kinds on the walls of classrooms. He felt that teachers felt that they were 'being judged by how nice their classroom was ... and a lot was being placed on that'. At the same time, he argued that the displays distracted the children who could not give their full attention to the whiteboard or to what the teacher was saying. His proposal to reduce the displays was indeed resisted by class teachers (and initially, it should be said, by the principal). However, that resistance became muted by the assistant principal explaining why he had made the proposal. Such explanations were an article of faith for him. As he declared: 'So I get the value of actually saying, there's a reason why we're doing this, and I'm going to share that reason with you rather than just telling you to do it. As a teacher, I used to hate that. And as a leader, I think it's bad practice not to carry people with you, and say, it's not just me telling you because of my badge, it's because of this, there's actually research that says this actually works ... you can't just tell people, don't do that. You have to say why you don't do that. You could show the picture of a classroom with this going on and say, if you're a child that struggles with memory, and struggles to retain pieces of information, only remember one out of the eight things you're told, what's going to put you off?'. This was clearly an event of some moment in the school because, very unusually, the same story was told by the principal in his interview. The importance of discussion is also the view from the other side. Two class teachers in another primary school reflected on how changes in pedagogy happened in their school. 'We do that in staff meetings, we have discussions if we're launching anything. We always have that platform. We always discuss, unpick, and then ask questions. We're allowed to do that. It's not something that's just, you know, just do it. We like to unpick and have a discussion around it and ask the what-ifs and whys and wherefores...' (Lyncombe Vale, 6;11).

In sum, the school leaders in our sample were well aware – daily – of the dilemma between authority and autonomy and the need to manage it. On the one hand, they could not rely on simply telling teachers to do things. Apart from anything else, the relative autonomy of the teaching role would make that unlikely to succeed. There has to be communication. As one primary class teacher who also has a leadership role says: ‘... if I've learned anything on my middle leaders and my senior leadership course, it's communication. It's not an impersonal email. It's a sit down chat. A conversation, you know, how's your dog, you know, that he has been poorly; I hope he's okay’. And the same interviewee insists that consultation has to have the *potential* to change the leader's mind. ‘And I appreciate my staff for saying, okay, I don't agree with this, because of x, y and z and then it makes me rethink...’ (Toghill Barn, 1;5). A secondary head of department further emphasises the importance of allowing for teacher discretion. He needs to establish the important issues, what he calls the ‘key prompts’ without any attempt to prescribe ‘lesson plans’. He further stresses that some diversity is good – ‘It's good for students who have multiple approaches because it builds up their mathematical ... knowledge’ (Southstoke, 4;6).

On the other hand, authority is exercised, often by means best described as surveillance. One primary assistant headteacher describes the tools used to reinforce ‘an expectation’ of teaching in a particular way. ‘As a school leadership group we do learning walks, where we walk around, we watch people's lessons, we dip in and out, we talk to the kids, we look at the children's books. We collect physical evidence of what's being taught. Pupil voice about what's being taught. Those two aspects are so important because lots of teachers can turn on a great lesson if they're being observed, but it's what you want to see, do they do it every day when someone isn't in there? And the children are the greatest moderators of that, they'll tell you. If they say that was a great lesson, or that's the first time we've ever done it, or we practise that, yes. They will drop teachers in it without realising it’ (Midford, 3;3).

One point frequently made by our interviewees, especially the class teachers in the sample, was that they could be told, potentially, to do something without a convincing reason why they should. A secondary teacher with responsibilities for delivering CPD argues that teachers in his school derive a sense of security from being given the evidence for teaching practice based on ‘really good foundations of knowledge and intelligence’ (Southstoke, 5;11). The authority/autonomy dilemma is more manageable and teachers more inclined to try a new intervention out if they are given *good reasons* for doing so. And evidence, especially if it comes from a credible and trusted source, is a powerful reason.

Chapter 6. The digester model

As we have seen, teachers and schools rarely take on evidence-based interventions unaltered – “as it says on the tin”. Even where the approach is a packaged intervention, there will be some adaptation – push back to the developers of the approach – to the local context. In terms of broader pedagogical approaches, such as retrieval practice, metacognition, or growth mindset, schools and teachers will likely have to develop their own way of incorporating them into existing practice. There are fewer pre-packaged approaches and, in any case, particularly in secondary education, that is not how they are implemented.

In this context, it is useful to think about the difference between the distillation and digestion of evidence. Distillation involves reducing the evidence to its concentrated ingredients, a summary of the evidence devoid of academic superfluity, focusing only on those elements of use to practitioners. Digestion involves the consumption of evidence by teachers and schools and its conversion into practical plans, actions, and behaviours. This is the step where evidence is integrated with professional expertise.

How is this best arranged? Books have been written, and academic careers built, on this challenge. How far should knowledge mobilising intermediaries go in translating evidence into something digestible? Not far enough, and it risks practitioners being presented with a distillation of evidence that is still academic, difficult to action, and indigestible. Too far, and it risks practitioners being presented with easily digested tips that do not necessarily reflect the evidence base or give practitioners an understanding of the evidence. The “evidence” simply becomes one’s trust in the organisation that has provided the guidance. And, of course, no one can do your digestion for you. Even with pre-digested guidance you still need to digest it for yourself.

It is the subtleties and nuance that risk becoming lost in this process. If an evidence-based approach requires careful implementation, a simplistic application of guidelines is unlikely to be successful. Dylan Wiliam (2013), for example, identifies that, of eight ways to deliver feedback, only two result in a positive outcome.

As we have indicated already, distillation is very important to our respondents, most of whom do not have the time to read research papers and books. Furthermore, it is critical that expertise in evidence-based interventions is *local* - is in the school and even in the department or teaching team - because it has to be applied to particular circumstances. This dependence by class

teachers on the distillation of evidence by others should not be overstated. Some of our interviewees did go back to academic research when they needed to for some specific purpose but they did not do so as a matter of routine.

So, when our interviewees talk about distillation, it is usually done by someone else. 'They will distil it down into a very consumable level whether that be a very short blog' (Tormarton Grange, 1;3) and 'through blogs, through papers being distilled down to us' (Tormarton Grange, 4;3). Sometimes interviewees were aware of the dangers of distillation, 'it's been distilled so much actually is there any value in the message that they're giving you or is it just someone's idea that might be nice and might work but equally might not' (Two Tunnels, 2;11).

Digestion, on the other hand, includes some processing of the evidence to produce guidance that can be used by practitioners, or it might describe the process where practitioners take the evidence (distilled or otherwise) and incorporate it into their own practice. As two secondary practitioners say, 'You'll go away and you'll digest stuff and you'll try to embed it' (Larkhall, 1;6) and 'you need those moments to go through the process yourself to digest it to then use it' (Southstoke, 2;5). And a primary class teacher firmly declares: 'And for me personally, I think that things like the Education Endowment Foundation ... I'll take those and not read them in depth, but take elements of those that are a good idea. I'll go and try that in my school, in my class ... And I'll take little snippets of lots of different things. So ... I won't take a research project, for example, as I "Oh, you know, that's proven that that's going to work" ... I'm more of a let's try lots of things in and see how they work and what I can develop ... ' (Charlcombe, 1;1). This is a dangerous line to tread, of course, since it risks missing out important elements and disrupting the research-into-practice connection. The localness of digestion is a key point. As we will discuss, it may well be important that the digestion takes place close to the point of use (with the practitioner and their close colleagues). Pre-digested artefacts – straightforward do's and don'ts for teachers and schools – risk a superficial relationship with the evidence. This is not research-sensitivity, but rather simple compliance with the expert practitioner/consultant issuing the instructions.

There are two main factors which limit the applicability of any model that insists that teachers should simply be given the research evidence and then told to get on with applying it. The first of these is the significance given by teachers to the virtues of practical knowledge and to the figure of the experienced teacher. The accumulation of a feeling for what works pedagogically given by years of practice is highly rated. In this respect, teachers are like other professionals. For example, Dopson and Fitzgerald (2005:126) argue that the clinical experience of doctors is

the most important influence in practice for conditions such as glue ear or asthma. In general, clinical practice ‘contains many judgments, much tinkering, reckoning, and tacit knowledge, which is more reminiscent of craft skills than traditional conceptions of science’ (149). Evidence of the kind generated in clinical trials and written up in guidance issued by official bodies is not ignored but it is interpreted through the filter of accumulated experience. For teachers, as we shall see in more detail later, practical knowledge functions in much the same way. And it is easy to see why. Accumulated knowledge and skill enable a teacher to get through the day under trying circumstances. It helps to form a safe environment and it provides a way of making decisions in the specific circumstances presented by each school. These conceptions of practical knowledge are often embodied in the figure of the wise and experienced teacher (Allison and Tharby, 2015; Quigley, 2016). Every teacher has someone like this in mind. Daniel Lortie (1975) in his study of American teachers refers to ‘charismatic’ figures who ‘establish and sustain cordial, disciplined, and work-eliciting relationships with students’ (133). For our interviewees, this teacher *knows* the tricks of the trade that help her get through the teaching day and can tell from experience what interventions will work and what will not. They recognize ‘good’ teachers and they use such words as ‘intuition’ when applied to teachers of this kind. For example, a secondary deputy headteacher argues that senior leadership teams in the past have tended to make staff do ‘silly things’ just because it was easier to measure them. But, actually, for him, good teachers are aware of what works and what does not. These are often the staffroom cynics but they ‘intuitively know what good teaching looks like ... and challenge some of the nonsense that they’ve been asked to do’ (Tormarton Grange, 2;3/4). And for this deputy headteacher it is very difficult to determine how these teachers operate; ‘...there is some kind of X-factor that, you know, you couldn’t quantify’ (7). And a primary class teacher reflects on the importance of simply acquiring experience. When she started teaching she would not have known how to deal with ‘a lesson that’s going to fail at something, or if a child comes in and throws a chair, you know, or if you have a member of staff coming to you crying with a problem’. She remembers ‘failing and floundering and drowning, and that, you know, is the loneliest place to be’. What she needed was an experienced teacher to talk to who would just say ‘No, this is how you do it’ (Toghill Barn, 1;2).

The specialness of the school

The top-down model does not work satisfactorily for a much more important reason however. Very many of our respondents argued that their school was *special* in some way and that therefore interventions supported by evidence of effectiveness in other institutions would not

apply in theirs or would not do so without serious revision (Rickinson, 2005). Some schools will take this quite far. One primary headteacher argues that claims of the generalisability of evidence are misplaced. 'I think there's an issue for us about generalisability anyway, because we believe that most research of the kind that we carry out is context-specific' (Sion Hill, 2;2). For this headteacher, all schools are different and, as a result, one cannot 'take an innovation as if it were a medical trial, and then use it in a very different organism, a different culture, a different level of reflexivity' because 'school communities are completely different' (9).

The difficulty is that this claimed specialness can take a large variety of different forms. For example, several of our respondents argued – often rather vaguely - that particular interventions would not be compatible with the 'ethos' of the school. One specialist primary teacher argued that her school would not always be receptive to any intervention because 'it might not necessarily fit in with our ethos ... Because even though it would be a proven intervention or a proven way of working it, we might just not agree with it. Just because of our point of view, really' (Lyncombe Vale, 2;3/4) and 'if it was against your principles, you wouldn't, no matter how much research it had behind it, you just still have to think whether it would fit our children in this school at this point' (8).

Other respondents would point to more specific characteristics that differentiated their school and made it difficult, if not impossible, to adopt interventions that worked elsewhere. One primary headteacher pointed out that 41 different languages were spoken at his school and 70% of the children had English as an additional language. 'So it's a real melting pot, it's a coming together of different communities, different beliefs, different religions, different languages' (Midford, 1;4). Or the school is placed in a deprived area and the children therefore demanded treatment of a particular kind. Again, a school will respond to its environment by defining its pedagogical problems in specific ways. For one school in our sample, it is spelling while, for another, it is retrieval, for a third it is comprehension in reading and, for a fourth, science teaching is insufficiently demanding of students. These problem definitions are seen by the schools as requiring particular interventions crafted in a particular way to suit their own circumstances.

Schools also have internal organizational issues which are peculiar to them. For example, for many of the secondary schools in our sample, subject peculiarities and departmental affiliations provide a source of differentiation. They might find, for instance, that interventions that worked in some subjects do not work in others. (As mentioned previously, two innovation evaluation projects found this (Coats 2019, Enser and Smith 2020)). Both the secondary schools

discussed in Chapter Four – Tormarton Grange and Southstoke – used problem spotting at both the whole-school level and the department level. A Southstoke head of science, for example, noted that while he paid attention to the whole school issue, most of his attention was taken up in solving departmental problems. In the year of the interview, analysis of departmental results had revealed deficiencies in depth of understanding and staff were engaged in trying interventions to address that. Some of our respondents took this kind of argument further still by proposing that every *classroom* was different. One secondary teacher declares that ‘what I love about this place is that there is absolutely an acceptance and acknowledgement that every classroom will be subtly different’ (Tormarton Grange, 1;5) while a primary teacher argues that there always has to be room to have a conversation about any research-driven intervention and ‘listen to a different perspective as to why it may work somewhere else but not in a particular group or class’ (Lyncombe Vale, 6;11). Or, *teachers* are different. One primary class teacher who has some leadership responsibilities says: ‘You know, you can’t just go in and say, “This is what we’re going to do. This is the model”, I want everybody to try this because, you know, might not work for them, they have different children, they are different teachers, they are different people’ (Toghill Barn, 1;4). Again, *cohorts* differ. A primary headteacher discovers an intervention that really worked. But in the next year it does not work, a problem that this headteacher thinks is actually an advantage. ‘It’s not going to work year in, year out year in, year out. And I think the really exciting thing about research is that it evolves. And something that was amazing this year, in two years’ time, is not going to be amazing anymore. Because actually, everything changes, cohorts change and things develop and it’s no longer relevant. And in 10 years’ time, it might be again ...’ (Charlcombe, 1;16). And lastly, and hardly surprisingly, *children* differ, a point frequently mentioned by primary sector teachers who have to manage different levels of reading fluency or arithmetical ability. For example, one primary teacher wanted to help one of her pupils who was finding it hard to retain information and had slow processing and working memory. To encourage him to think more linearly, she devised a kind of trail using post-it notes. She reflects that ‘you stand in front of your class and you teach and not every child learns the same way and ... you can only sort of adapt things so many different ways’ (Toghill Barn, 1;3).

In sum, our respondents were able to identify a welter of differences or difficulties which made the application of any intervention, especially if it comes from outside the school, problematic to say the least. This is not a problem restricted to the educational field. Studies of the way in which this works in medicine, for example, note that original research papers or centrally prepared summaries of evidence are less likely to be trusted than research deriving from

personal contact or from an influential local opinion former (Nutley et al. 2007). In addition, it is not always clear that the identification of *relevant* differences is well-founded. Sometimes, it seems that *any* difference will imperil the use of a new intervention.

One possible response to a conclusion that schools are different and classes or teachers are different would be to abandon evidence-based interventions introduced from outside altogether. Decide that, in the words of Monty Python, “Yes, we ARE all different!” That is not the reaction of research-sensitive schools to specialness. They choose instead to *adapt* – digest - the intervention to the special requirements of the school, department, class or teacher.

Digestion and fidelity

A characteristic pattern of digestion is to adopt an intervention rigorously to start with and then, as confidence grows, to change it. Here are five teachers in rather different schools describing this process.

‘So we did it by the book last year, with Year 5 and 6 and stuck to it rigidly and then we've actually said this year, we're going to change the narrative and use a Bob Cox approach [<https://searchingforexcellence.co.uk/>] to the narrative, so we're going to adapt that slightly... So I think it is good to do things quite rigorously initially. But then to reflect on it and to have discussions and to make it suit your setting’ (primary headteacher; Midford 1;3/4). And it is not only the senior leadership who are deciding to alter an intervention; it is also the class teacher. ‘So as long as the message is clear, and the children are, you know, receptive to what it is you're doing and are able to use that within their learning then the school and the SLT are happy for you to implement it in your own way. As long as the underlying theme is there, as long as it's having an impact positively on the children, then we have kind of scope to move around a little and make it our own, basically ... it's good to have the knowledge of others around you. Especially when we go on to cluster meetings, have training days with other members of staff from different schools, hearing their practice is fantastic. But you always have to tweak it to your own school, to your own personality of how you teach. So, I always think about, you know, will it fit my children? Am I going to be interested in teaching it that way? You know, how can I make it fun and engaging, but also ultimately, what's the purpose behind it?’ (primary teacher, Midford, 2;3).

'We reshaped what the academics were saying, I mean, what the academics were saying could never have been the project. So, we actually had shaped it, sort of developed it into a meaningful package (primary headteacher; Sion Hill 2; 14).

'You know, because some people might think, you know, might have an outlook or it's worked for them in the past, kind of thing. In some schools, perhaps they might think, Oh, it's, worked before. So we'll just go on we're working with that, because that's it works. It's got proven record that it works. But I think we do tend to stop and think well, that might have been the case but it doesn't, it's not necessarily going to work here just because it's worked in the past, at a different -in a different setting. So we will always look through, look at it to through, you know, what's the research behind it, but not just in isolation with those other factors. With them all weaving together really to come to a final decision. And it's manpower as well. And you know, who's available to, perhaps there'd be some training that you'd have to go on, and all sorts of practical implications like that you've got you have to take into consideration' (primary specialist teacher; Lyncombe Vale, 1;3). 'Whereas I think previously, if you're less confident or less aware of how to make those informed decisions, you possibly would just go out and buy it. You may buy it because somebody sold it to you, and there's no research around it, or the research is flawed or is biased. Or you might just buy it because the EEF are recommending it as having some success. I think we've moved on. I think even about two or three years ago, I perhaps would have gone to the EEF guidance report and thought "oh, I'm going to do that". But now I'm much more measured about how that recommendation fits within this context, and what evaluation needs to take place to make sure it matches what we're trying to achieve' (primary headteacher; Lyncombe Vale, 4;4/5). On the introduction of IPEELL: 'So we were kind of, this is an academy-wide decision, however, how we implement it, we've definitely done it in our own way, because I think that's important because the other schools in the Academy are not really like us. We're very different because we're inner-city, and they, they have their issues, but they don't have the same issues that we have (specialist teacher; Lyncombe Vale 1;5).

And it is not only the senior leadership who are deciding to alter an intervention; it is also the class teacher. 'So as long as the message is clear, and the children are, you know, receptive to what it is you're doing and are able to use that within their learning then the school and the SLT are happy for you to implement it in your own way. As long as the underlying theme is there, as long as it's having an impact positively on the children, then we have kind of scope to move around a little and make it our own, basically ... it's good to have the knowledge of others around you. Especially when we go on to cluster meetings, have training days with other members of staff from different schools, hearing their practice is fantastic. But you always have

to tweak it to your own school, to your own personality of how you teach. So, I always think about, you know, will it fit my children? Am I going to be interested in teaching it that way? You know, how can I make it fun and engaging, but also ultimately, what's the purpose behind it?' (primary teacher, Midford, 2;3).

There is, however, an obvious difficulty about altering an intervention. As we noted earlier, many interventions are designed to be delivered in a particular way and, if they are not, their effectiveness may be reduced. The sensitivity to accuracy of implementation will vary from intervention to intervention and this is still a relatively unexplored aspect of evidence-based interventions. This "fidelity problem" is found widely in evidence-based policy formation and implementation. In their survey of the literature, Nutley et al. (2007) note that a 'wide range of studies have shown that the higher the quality of implementation fidelity, the more effective a programme is likely to be' (p.54). But they also note that interventions may have to be modified to establish a sense of ownership and that the context for applying the research will never be exactly the same as the one in which the original research was conducted. Nutley et al. conclude that there needs to be a balance between exact replication and the demands of particular contexts. Furthermore, insistence on fidelity impedes innovation and risks a "right answer" approach. In education this is particularly true, as the essential "active ingredients" of an intervention are rarely well-specified (Haslam, 2020b). The fidelity problem is made worse by the chain of dissemination. Rarely does an idea for an intervention make its way from its originator and/or evaluator directly to the class teacher. More commonly, it arrives via a series of intermediaries in the form of a chain. The journey from the originator will go via organisations such as the EEF and the IEE (who aggregate and translate research evidence), subject associations, expert teachers, consultants and trainers. From there, they might pass to school organisations, headteachers, subject specialists (or whoever the schools sent on the training). These steps may involve misunderstanding, adaptation, or simple information loss, as the originator's life's work is reduced to a day or two's training. The chain of dissemination risks turning into a game of Chinese Whispers in which the intervention as delivered in the classroom is significantly different from that designed by the originator. This system favours simple innovations that are not easily disrupted by the process. These innovations are likely to be those that fit most comfortably with existing teaching processes, and present less of a challenge either to the individual teacher, or to any members of the hierarchy along the way. Innovations that are more difficult, challenging, or subtle are less likely to be disseminated unscathed.

Many of our respondents were well aware of the fidelity problem and the possibility that adaptations risked compromising the effectiveness of the intervention. As a specialist primary

teacher says: 'We will try to use the intervention as it meant to be used, to be honest, because, you know if you're adapting it, then you're not actually staying true to what the people who've devised it have meant it for and if the research behind it has shown that that's how it works, if you're going to adapt it, then you're not adhering to those guidelines, it may not work necessarily. So, we do try to stay on, you know, we keep it time limited, we keep to the, to the time hopefully, that it's meant to be used over. We do sometimes use the principles of an intervention. If, for instance, we were working with a group of children, perhaps some SEN children we might use those principles to do a more bespoke version just for those individual children. We perhaps do that, but in general, we just, we tend to stay to the way that it's been designed really' (Lyncombe Vale, 1;6).

Teachers are, therefore, insisting both that they follow the evidence and that they are reacting to the specialness of their school, their classroom or their personal teaching style and convictions. A primary class teacher speaks for many in saying: 'Yeah, I do try to look at the evidence. I mean, I am, you know, usually led by the EEF and their recommendations, I do usually consult those and I've tried to read a bit more widely around that research because usually, you know, it gives a more balanced approach. So I do try to take their lead really. But in general, I do sometimes read academic papers as well but with so many of them about is hard to get a balanced view sometimes but you know, I am interested in it, I try to read widely to come to an informed decision about something'. But she goes on to say about a possible intervention: '... we'd look to see if that would be relevant for our particular setting, because although it might have worked in a different school, it might not necessarily work in our school, so we look at the research, but we'd also see whether it matched you know, our purpose' (Lyncombe Vale, 1;2).

There is a tension between fidelity and adaptation. Our respondents frequently used the word 'tweak' to refer to their moderation of an intervention. 'She's created staff training, which, initially I just delivered as she created it, but now I've started to tweak it and make it more appropriate for our school' (Midford, 3;5). This usage is in itself significant. It is faintly apologetic and it suggests that the alteration necessary is actually rather minor and consequently will have a lesser impact on the effectiveness of the intervention. Yet it also connotes a seriousness of purpose that is important to gain support within the school. It is not a whimsical and unthinking adoption of a recommended practice but rather a thoughtful, if limited, adaptation to particular circumstances. It is, to put it differently, the outlook of a reflective practitioner. Adaptation is not only seen as necessary by our respondents, it is also seen in a positive light. For example, one primary school respondent saw a willingness to adapt an existing intervention as being an indication of a confident teacher. It was only unconfident teachers who followed prescribed

routines: 'Are they too afraid to adapt it to sort of change the routines and sort of, you know, take in a direction that they want it to go and adapt it for their children?' (Toghill Barn, 1;12). Back to the wise teacher. And a secondary head of department reflects on his attitude to the view of his staff that a particular evidence-based intervention does not work. 'I'm not coming in here to say that what you've been doing is wrong. I just, you know, what I really want is what you've been doing to sit alongside what the research from external sources is saying and try and combine those two things together. It shouldn't be a battle. It shouldn't be, well we've done it like this, and the research says this. There should be some kind of happy medium between the two of them. Which, if you get that, that's when it normally gets that buy-in' (Tormarton Grange, 4;10).

How, then, to resolve the tension between adaptation and fidelity? How do the teachers in our sample know that their tweaking of interventions or approaches actually works? They could mount a rigorous evaluation utilizing a controlled test, especially if the intervention was a large one which involves many children, and some did that. Tormarton Grange, for example, was interested in seeing whether an accelerated reading intervention would work 'in our context'. The school 'set up a, an intervention group and a control group in Year 10. And we ran that for about seven months, and then evaluated that ... the effect size was 0.7 so we rolled it out across the year groups' (Tormarton Grange, 2;17). However, the majority of respondents adopted more informal means of evaluation – or none at all. Others will depend on an evaluation involving colleagues which looks at children's outcomes. An obvious example here is performance in tests where improvement in outcomes following intervention is taken as some evidence of effectiveness. Some will combine multiple sources of evidence for confirmation: 'Book looks, pupil progress, learning walks, pupil voice' (Charlcombe, 1; 9). But the bulk of our respondents will form a view of the success or otherwise of the intervention based on their experience as teachers; it is an observational evaluation. A head of department, who also has research responsibilities, proposed a trial of a notetaking intervention to his staff. Some of his staff liked it and some did not. 'So I decided, I said to the team, right, you make a decision. It's up to you - again, it's going back to that professional judgement. If you feel that it's benefiting your class, then stick with it. There is no actual research out there that definitely says that this notetaking method definitely improves. There are some signs that it potentially could, but they're very small scale. So I said, we don't have a research basis here that says that this definitely works, so I'm not going to force you to do it' (Tormarton Grange, 4;11).

This is a difficult area. Teachers are fallible, and they do not, indeed cannot, always know what is most effective for the children in their class. In one of the innovation projects that showed a

clear negative effect, the teacher planned to continue with the practice nonetheless. In another, it identified weaknesses that the school were largely unaware of. 'I think that it made SLT look at the teaching of reading generally, and the realisation that maybe everything isn't as good as it might have seemed' (Perrymead 1;11). The perseverance of approaches with no, or even negative evidence, such as learning styles or Brain Gym, illustrates the emotional hold that individual approaches can have over professionals. Judging the impact of a particular approach in a (statistically) noisy cohort of 30 children, with so many confounding variables, is not possible.

The approach taken by a MAT, combining fidelity to evidence-informed interventions with the development of professional skills, offers a possible way forward, at least in primary. 'But there's a difference between a pedagogy or theoretical perspective about how you would approach a task, and an off-the-shelf intervention that you've bought to apply. That's one of the challenges of the EEF stuff actually, because in very few contexts does it actually tell you how to approach a whole-class scenario. It's just buy this, buy this, buy this and apply that on the child. So, I think we've always used research in two different ways. One is to choose interventions and identify things that you do, as it says on the tin. And the other one is always from a more philosophical aspect where we read research to encourage ourselves to look from a different direction or a different perspective. And I see those two stances being quite different. You know, one's about developing us as professionals and being reflective and responsive and intellectually stimulated and challenged. And the other one is about finding solutions to certain challenges that might be out there that have some weight behind them.' (Lyncombe Vale, 3;9, edited)

In secondary education, the relative lack of interventions with evidence makes this more difficult. But it may be one reason for the popularity of approaches with clear evidence of effectiveness that are relatively easy to implement (such as retrieval practice). Perhaps that is another reason why inquiry questions often look at weaknesses in exam performance (how does an approach improve performance on one- and two-mark questions?) where impact will be clearer (and, of course, directly helpful to the school).

In many ways that is hardly surprising. Mounting a rigorous evaluation is difficult and demanding, as we shall see in the next chapter. As one primary assistant headteacher muses about the difficulty of proof and the need to rely on his own observations and experience: '... we've sent the kids to forest school because we think it will help support their behaviour and support their confidence. But we have absolutely no proof. We can't possibly, because it's one day for maybe four weeks that a group of children go, but there are so many other things that

happen to them, that could impact on them. It doesn't mean we don't do it. It just means that we can't say hand on heart, this is definitely making a difference. I can say, from the kids that I've taught and the way that I've taught the subjects that I teach, I have seen the difference' (Midford, 3;10). Yet, evaluation would seem to be a critical constituent of the reflective practitioner. We turn, therefore, to an examination of a possible solution to this dilemma in the use of small-scale evaluations.

Chapter 7. Innovation and evaluation

As we said in the introduction to this report, we embarked on two linked studies based on interviews with teachers, the second of which concentrated on the cycle of innovation and evaluation. These interviews were carried out in schools not designated as Research Schools in the EEF/IEE programme. However, in order to apply to the IEE to have their innovation project supported with funding, they had to work with their local Research School to develop, and sign off, their application (See Appendix E for further details on IEE's programme of innovation evaluation). The teachers who developed these innovations were interested in research evidence, but their individual schools varied in their wider relationship with evidence. Some were on their way to becoming a research-sensitive school, some were network schools, developing and deepening their relationship with their local Research School. Their experience helps throw more light on the development of a research-sensitive culture within a school. While Research Schools were further along this journey, and to an extent were reflecting on where they had been, here were schools that were still developing. (Of course, we also get some of this reflection from teachers who are new to a Research School or are in schools that are new to the Research School MAT).

The pursuit of innovation is clearly intimately bound up with the activity of reflective practice, which involves a routine examination of the basic assumptions of current practice. Commonly, then, the need for innovation arises out of a perceived problem. This is not quite the straightforward issue that one might think. The reflective practitioner has to realise that something is wrong with their teaching practice and the realisation itself demands adequate information. He or she further has to identify what has caused the difficulty. And, lastly, the practitioner has to constitute the problem as a problem, that is, something that ought to be fixed, and has to persuade others of that conviction.

Problem-spotting and innovation

Problem-spotting can have a number of sources, but the proximal cause is almost always a desire to improve specific outcomes for students (rather than, for example, being an academic, political or philosophical interest of staff). It is usually driven by changes to the regulatory environment for schools, the high-stakes testing regime for students, the demographic profile of the school, or wider societal changes expressed locally. A regular catalyst is Ofsted, whether through national changes (such as a new Ofsted framework for inspections) or through the

specific reports the school has received. In school-specific Ofsted reports inspectors may identify perceived issues in a school and even asides in such reports will be taken up and turned into school priorities. It can come from the school leadership concerned that the performance of the school is not all it should be or from individual teachers who believe that there is a deficiency of some kind and can see a way to remedy it. Or, more positively, there is a particular area of practice that they wish to explore or develop. Our interview data are at the school or teacher level. For these interviewees, the important problems are often related to the 'specialness' of the school, which we noted in the last chapter. For example, a Specific Learning Difficulties teacher on arrival at her new school felt that the synthetic phonics approach being used was ineffective for the children she worked with because of 'the way these children learn...' (Perrymead 1;3). She did some research and found that some children needed more than a synthetic phonics approach, and therefore focused her intervention on developing children's reading fluency. She felt that '...a lot of the time the children were sitting in a state of confusion and some of them had sort of seemingly switched off'. The children were essentially passive and her solution was to make them active learners. She wanted to reach the point at which the children 'don't even realise that they're learning because you make it fun and you make it, you know, you're building on, you start with what they know, and you just gradually build and there's lots of repetition...'.

For another primary school teacher, the problem was spelling. Comparing data from assessments in Year 6 with phonics screening data from Year 1, they noticed that there was a 'kind of gap, a period that we had children based on strong phonics, when it came to following spelling rules and spelling patterns, they weren't as confident. So, I think that's how we knew there was an issue somewhere' (Sion Hill, 1;3). They tried to work out how to deal with this but struggled to 'to find a really strong evidence base of ways to teach spelling'.

A secondary teacher defined the problem as being '...how to keep Key Stage 3 students reading...' given newspaper headlines about declining reading during adolescence. She knew that the school had a specific problem because they had conducted a survey of Key Stage 3 and Key Stage 4 reading habits. They found that Key Stage 3 students could recall their favourite books read while in primary school and the books they were reading now. But, while Key Stage 4 students could also remember their primary school reading, they could not remember those that they had read at Key Stage 3. 'So, we were kind of like we're doing something wrong in the teaching of reading. If we've got really impassioned teachers teaching books that we love, and our Key Stage 4 students can't even name the book' (Bailbrook, 1;3).

The difficulties of innovation and evaluation

If innovations are triggered by the perception of a problem, then who initiates the proposed solution? In the network schools that we investigated, it was striking that it was usually, though not always, the class teachers who identified the problem and designed the intervention. On occasion, that can be a teacher who has been involved for some years in research findings and is always on the lookout for ideas to try out. But, more usually, it was simply a teacher who was worried about a group of children who were not adequately catered for in some way. Senior leaders were not therefore necessarily directly involved in the creation of the intervention and its implementation. One primary headteacher who was an exception to this rule observed, somewhat critically, that in contacting other schools involved in trialling the intervention in which she was involved, she never saw the headteacher. There is a contrast here with the research-sensitive schools in which the senior leadership take a central role in the determination of the pattern of innovation. In part, this illustrates the differences between the two projects. The innovation evaluation projects allowed teachers with unanswered questions to obtain funding to explore them. The money was no doubt useful in persuading senior leadership to explore something they had not been interested in previously. The other is the normal business of schools – the defining of whole-school areas of focus. What is a little disappointing is that this was rarely seen as a suitable issue for evaluation. Innovation evaluations were often a little to one side of school priorities.

However, in noting that senior leaders are not involved in the cycle of intervention and evaluation, we do not mean to say that they are positively obstructive. On the contrary, our interviewees generally felt that they were permitted and even encouraged to try out novel interventions – and to evaluate them. That might be best expressed in terms of autonomy. As one teacher expressed it: ‘... I don’t have someone standing over my shoulder every second of the day, which meant that I was in a position to pursue the innovation grants without any sort of feeling that there were any sort of organisational constraints put on me’ (Locksbrook, 1;12). This same teacher also noted that the SLT was not really involved but they were ‘aware’ of the experiment underway. Practical support would be given of necessity, most notably in the form of replacement teaching to give the innovating teacher the needed time. This kind of support may have been relatively easy for the management to provide because, in this case, a grant was provided by the IEE. And that grant was not simply a question of money; it also brought a certain status to the school. But, in the end, the feeling that emerges from interviews with innovators in these schools was that they were on their own.

Innovation is not easy – and evaluation even less so. Unsurprisingly, most of the difficulty arises from the time involved. There just was not enough of it and some teachers felt guilty about asking for coverage of their own teaching so that they could work on their project. But less obviously, projects could be disruptive of the work of the school, particularly if they were ambitious. This would particularly be so if other schools were involved in the project. One innovator noted that his intervention had to run over two blocks of 16 to 20 lessons in order to assess impact. That was bad enough in his own school but ‘it was a huge barrier to recruiting schools because they perceived there's risks, you know, we're trying something relatively unknown. And we were basically asking if we could take over a significant chunk of their curriculum’ (Locksbrook, 1;8). Larger projects quickly faced problems familiar to professional researchers. Working with other schools necessarily took up a good deal of time and unfamiliar diplomatic effort. And then some innovators thought that parents should be informed of changes in the way that their children were being taught. One primary school noted that parents were initially reluctant to accept what seemed to be experimentation on their children. Reassuring the parents required ‘the time to have that conversation with your community, with your parents and get them to understand the value in what you're doing as well as getting staff on board, getting the local authority and all those kinds of things that we had to do’ (Sion Hill, 2;6).

Innovations, therefore, tended to be initiated by individual teachers, often implemented in concert with immediate colleagues without the active participation of senior managers but with their permission and support. If an evaluation turns out to be effective, it would be of wider benefit if actively sustained over time *and* disseminated. The response of a senior leader in a secondary school who *was* involved, not in one but in three innovations, is illustrative here. The first of these was trialled in two departments, successfully in one and unsuccessfully in the other. But the interviewee did not know whether the innovation was sustainably used even in the first department. The innovations were discussed in a training day but he again did not know if any other departments besides the first two had taken them up. He also did not know what was happening in the other schools that had taken part in the trial: ‘I don't know what's happening outside our school. You know, we've not done any sort of follow-up with any of the schools that were involved since the evaluation’ (Locksbrook, 1;13/14). The second and third innovations were trialled in a single department and the interviewee was unsure whether they were sustainably used in that department let alone in others. He doubted whether one continued to be used, mostly because it involved a substantial change in teachers' practice, especially in lesson planning. The evidence from this school, then, is that the system of spreading even successful innovations in the school and outside it, works only fitfully, if at all.

There are a number of things going on here. Firstly, conducting an innovation evaluation project might be, literally, an academic exercise: ‘... most of the research we conducted [was] very clearly explicitly qualitative and we actually wanted to engage in some sort of quantitative research with a different methodology’. And completing the project may be enough. Secondly, the questions thrown up by the evaluation (usually from the process evaluation) caused a rethink of the innovation, which delayed its further implementation. Thirdly, scaling up interventions is difficult. The next level for these interventions might be an application for further funding to conduct a larger evaluation (one of the projects has been successful in this). But this begins to take teachers beyond their normal role and more into the field of programme developers or professional researchers, which demands a further level of enthusiasm. Most projects were side hustles on the day job, and teachers have no desire to take them further. And finally, as we have mentioned, the projects often explored issues one step removed from the school’s area of focus. Even with a positive evaluation, it may still be difficult to get senior leadership’s attention. Where this did happen, for example with the reading fluency project, leadership took action independently of the project.

By contrast, in a primary school, a specialist teacher who pioneered innovations in her practice which involved others in the school, felt that her results were at least widely shared, the SLT were ‘aware’ of her findings and at least in Year 1, the changes in practice that she instituted were continuing. ‘There’s still changes to be made, some changes have been made, but there are still changes and that has all come from the back of the research’ (Perrymead, 1;13). More widely, she believes that the generality of teachers in the school were beginning to see that there were problems in their practice, especially in the teaching of reading. She suddenly no longer felt alone. Furthermore, she thought that this general awareness, essentially the awareness of the reflective practitioner, was spreading into other areas, particularly in the teaching of mathematics. ‘I think there seems to be more questioning about what we’re doing’ (14) and, in her view, that attitude arises out of the use of data produced by rigorous testing rather than ‘just a person’s perception or impression’ which was the previous method of evaluating children’s progression.

This is a challenge to the practice of trusting teachers’ professional expertise. Often this expertise relies on ‘knowing’ that a particular approach is working within class, or that a new approach is working better than a previous one. Yet this can only be a very rough evaluation of an approach. The variation inherent within school cohorts makes it almost impossible for schools to evaluate robustly on their own, but they can do better than whether a teacher ‘knows’ it works. The innovation evaluation projects were, in part, an attempt to show this. For example,

in the Perrymead evaluation, the initial pre-test, a validated, external assessment, more robust than any used recently in the school, identified problems with the school's existing approach.

The impulse to change things – to innovate – is all very well but it can have undesirable consequences. In particular, it produces what a lot of teachers referred to as faddism, the pursuit of one new practice after another when it is not clear that any of them work or even precisely what is the problem that they are meant to address. In the view of many of our interviewees, the solution to this difficulty is rigorous evaluation.

Our interviewees often referred to ideas that work or do not work. However, it is not always clear how they come to these judgments. Usually they were based on teachers' uncontrolled observations of what happened when a novel practice was introduced or, in the words of a primary teacher 'just a person's perception or impression' (Perrymead, 1;15). However, it was a condition of receiving a grant from IEE for innovation projects that a rigorous evaluation was carried out. For many schools that was something of a shock. One primary school (Sion Hill) prided itself on its innovatory stance but had previously carried out evaluations based simply on focus groups. The transition to a controlled trial proved difficult. This was partly the technical issues of establishing the experimental and control groups and undertaking the statistical analysis. But it was also managing the relationships with their partner school which was somewhat behind in its knowledge of evidence-based practice. The expectations and opinions of parents also needed managing, especially in the ethical issues involved in the allocation of children to the group that would receive the new intervention and the group that would act as a control. A secondary school confronted similar issues. As the teacher concerned said: '... I'm really not used to quants, here we need measured things and I found that problematic because, you know, as an English teacher, I quite often don't believe in the numbers anyway. So that was hard, fitting into the format that was required was a discipline as well, and took time and took longer than I thought it would. And the writing up took longer, much longer than I thought it would but it was all very valuable ...' (Bailbrook, 1;8). Despite these difficulties, in reflecting on the project, she welcomed the discipline and structure of a more rigorous approach to evaluation and also its ethical demands, especially in consulting with parents.

Schools could feel enthusiastic about their innovation projects even when the evaluation showed that the intervention concerned made little or no difference. And sometimes that was because the experience had prompted a change in ways of thinking. For example, a teacher in one primary school (Perrymead) welcomed, as a result of her experiment, the greater acceptance of the importance of numerical data. Whereas her colleagues had previously relied

on their own impressions of a child, now they would accept a diagnostic assessment that resulted in 'proper' data. Enthusiasm for the innovation/evaluation cycle was, however, tempered by the perception that resources had to be provided as a matter of routine. In essence, innovation only fully works if it becomes part of the job.

When we began the innovation evaluation projects, we hoped that they might begin a pipeline from innovation to widespread dissemination. The innovation evaluation projects would provide the first evidence of promise, and lead on to larger evaluations. For the most part, this did not happen, because there are very few options for scaling evaluations up. However, we can make the following observations.

- There is little demand from schools to evaluate innovations, or even approaches with evidence that may have been locally adapted.
- Where evaluations did take place, the results were often surprising. In the case of approaches with evidence that were being implemented locally, these often did not perform "as it said on the tin". There were evaluations that had a negative impact of a fairly similar replication, and approaches that were less effective across different subjects or different year groups. These results were probably caused either by misunderstanding the essential elements ("active ingredients") of the approach or by problems with the implementation of the approach (such as not receiving "buy-in" from other staff involved in delivery). This suggests that implementing evidence-based approaches is not straightforward and more attention to evaluation is needed. These negative results might have been picked up by the more informal evaluation generally carried out in schools, but this seems unlikely. Project leads were usually surprised and disappointed by the results.

Chapter 8. Conclusion

What kind of animal is the research-sensitive school? Our argument in this report is that it has four principal features:

1. The prioritisation of teaching and learning.
2. The development of a culture of the reflective practitioner.
3. The optimal management of three closely related dilemmas – that between “official” evidence from outside the school and innovation generated from within the school; that between the requirements of the school and the autonomy of the teacher; and that between practical knowledge and the reflective practitioner.
4. The creation of a matrix of overlapping structures and practices.

The prioritisation of teaching and learning

Our interviewees often insisted on the importance of schools having a strong and clear sense of strategic direction. But that strategy has to emphasise the crucial significance of the quality and methods of teaching and learning. As we noted at the start, all schools have, to an extent, become interested in pedagogy. But not, we would argue, with the intensity that research-sensitive schools bring to the task nor with the level of organization that ties together the elements of evidence-based practice into a coherent whole. This emphasis derives from the conviction that other valued educational outcomes, such as achieving full literacy or passing examinations or, more fundamentally, instilling a love of learning or closing the gap in attainment, flow from adopting the most effective and efficient means of teaching and learning.

The prioritisation of teaching and learning needs to be expressed in different ways and in different contexts within the school and be maintained over the long term. It also has to identify the connection between this priority and the particular character of the school and the problems that it faces. This implies that it is critical that the school leadership is behind it. That leadership can come from the enthusiasm of the headteacher. But it does not have to. In some schools, other members of the senior leadership team took the initiative. In these circumstances however, headteachers still have to be involved to an extent and not only permissively but also supportively. Whatever the position of the headteacher, in research-sensitive schools the senior management team must be involved because they are so deeply rooted in the operations of the school.

The reflective practitioner

Reflective practitioners are those who routinely examine their own practice and the basic assumptions that underpin it. The term is often interpreted as denoting a characteristic of individual teachers who need to be trained to be reflective and then encouraged and supported in the teaching practice that results. This is, indeed, important. As one primary headteacher says, the requirement is for 'staff who are willing and open to learn and try new things'. However, reflective practice at the individual level means little unless it takes place across the school. As the same headteacher goes on to say, what is also needed is a school culture in which teachers 'are supported, encouraged and fed new interesting stuff' (Lyncombe Vale, 3;8). That judgment is an understatement however since the effective use of evidence is both *collective* and an *enterprise*; it is not simply a case of supporting enterprising individuals. The research school is, in short, a community of practice (Wenger, 1998; Nutley et al., 2007). More precisely, it is, perhaps, a set of communities of practice – departments, teaching teams, inquiry question groups – unified in a common purpose and by a matrix of structures, a point to which we shall return. As we have described in this report, our interviewees *talk* to each other about teaching and learning but they also engage in common projects, both small and large.

The management of dilemmas

Organizations are always faced by dilemmas which can never be finally resolved but which can be managed well or badly. In this report we have identified three such dilemmas that are important for research-sensitive schools – that between the requirements of the school and the autonomy of the teacher; that between the figure of the teacher as the repository of practical knowledge gathered from experience and that of the reflective practitioner who is dedicated to the upsetting of such knowledge; and that between 'official' evidence from outside the school and innovation generated from within the school. Research-sensitive schools manage the first of these by giving good reasons for the introduction of changes to teaching practice and by the introduction of a community of practice that emphasises collective benefit. The second and third dilemmas are managed by a process of digestion in which proposed interventions, from outside the school or inside, are altered to suit particular local circumstances posed by the characteristics of the school, of the department or class and by the prior experience of teachers. These aspects of management combine to give teachers some sense of *control* over their environment.

There is a sense in which these dilemmas are facets of a particular characteristic of research use. *Context* is all-important in the manner in which research evidence is generated and taken up in schools. There is a tendency in public discussion of research use to suggest that research-based interventions – and, for that matter, policy directives generally – are parcels that are straightforwardly passed, often through many hands, to schools where they are simply implemented. In the schools that we studied, that is not the case. The context given by the specialness of schools, the relative autonomy of teachers and the importance of practical knowledge will all affect the way in which innovations are processed.

A matrix of structures

All schools have forums in which staff communicate with each other, ask questions and even participate in decisions. There are staff meetings, departmental meetings and working groups and emails relaying news about the school, recent decisions and information of various kinds. Our hypothesis is that research-sensitive schools not only have rather a lot of these means of communication but, crucially, they are interconnected to the extent that they constitute a matrix. By effectively concentrating on problems of teaching (and often the same problem), staff meetings, departmental meetings, cross-departmental meetings, ad-hoc meetings, appraisals, the flow of information and advice and CPD combine to produce a very effective means of bringing relevant evidence to bear on teaching practice and concentrating minds on the same problems. This set of institutional arrangements creates and sustains communities of practice which are underpinned by taken-for-granted practices such as informal and casual talk about the practice of teaching and, more fundamentally still, the creation of a culture which insists on the moral priority of continuous scrutiny of teaching and learning methods.

Sustainability

In these four respects, research-sensitive schools are different from other schools. But the distinction is not a sharp, binary one. There are different ways of being a research-sensitive school – different ways of enacting the fundamental features. Furthermore, many schools will have some of the characteristics that we have described. Indeed, several of our respondents described their school as having completed a journey towards being a research-sensitive school or, at least, having started on it. And some saw this in personal terms. One secondary deputy head, for example, described his own journey from faddism and ‘Ofsted chasing’ to utilising available evidence to challenge existing practice. And another also utilises the word to describe

the position of his own school. He admits that; 'I've worked with colleagues in schools that are very much down the road of research-based practice. And they are a number of years, I think, ahead of where we are ... But we're on that journey. Absolutely' (Larkhall, 1;4). Indeed, one secondary teacher, perhaps somewhat wearily, described that process, accurately, as 'never-ending'. Furthermore, as we have noted, many of the schools that we studied leave a major gap in their provision in that they do not apply rigorous evaluation to the digestion or tweaking of interventions.

We have noted in this report that being a teacher or a manager in a research-sensitive school is demanding and hard work. Questioning the basic assumptions of your own practice, identifying teaching problems in the school, formulating or adopting novel practice are all intellectually and practically exhausting. In addition, the adoption of evidence-based interventions depends on adequate resourcing. All this suggests that the sustainability of research-sensitive schools is a very real issue. We have concentrated our discussion in this report at the school level.

However, as we indicated in chapter 1, schools are very much part of an ecosystem of institutions. We have made recommendations about how schools can become evidence-led but they can only do so if they receive the appropriate support and resourcing. Our respondents stressed the importance of having local expertise provided by teachers whose time is bought out. Funding is also important to support for small-scale evaluations of novel interventions at the school, and perhaps middle tier, level. Schools may be able to develop the skills necessary for such interventions but outside organizations, such as universities and think-tanks, will be required for larger-scale research. Further, knowledge brokers, such as the EEF, play an important role in helping schools develop interventions to try out.

Research-sensitive schools are not currently part of a supported infrastructure. They are instead isolated pockets of good practice, reliant upon their current leader, and senior staff with the appropriate skills and knowledge. Their sustained existence is fragile, sensitive to the departure of key individuals. Those that host Research Schools benefit from the funding and access to evidence this brings. They also benefit from being part of the network of Research Schools and other informal networks of like-minded schools and organisations.

For research-sensitive schools to thrive and grow, we suggest that a few things are needed:

The model we have outlined here is based on the interviews we carried out, combined with wider experience of working with these and other schools. It is by no means definitive, and needs refinement, development and, ultimately, evaluation. (We do not know that research-sensitive schools per se are more "effective" than any others.) It is important that this continues

to be developed as a whole-school approach, rather than piecemeal initiatives on particular aspects (CPD or teacher talk, for example). However, leadership, it seems to us, is a challenge. We do not think leaders of the kind that we have described are developed and supported in the current system. The leaders of research-sensitive schools operate in the way they do despite the current system, not because of it. This is difficult to change because, as in the research-sensitive school itself, it is likely dependent on the development of trust in school leaders.

Research-sensitive schools need a supportive infrastructure to sustain them. This includes funding to support their engagement with evidence and the evaluation of new approaches. It also implies new relationships with external organisations. Organisations that carry out educational research (aside from pursuing their own academic interests) should be encouraged to support schools in implementing and evaluating evidence-based approaches, in a cyclical, reinforcing approach that builds on prior knowledge. Policymakers should consider how the growth of the research-sensitive school model might become a powerful lever that influences pedagogy. Indeed, this model provides a useful way of thinking about how teachers and schools fit within the wider system.

The pressures of the environment

Organizationally, research-sensitive schools seem to be characterised by flexibility, innovation, reflexivity, autonomy, fluidity, and informality *but* accompanied by central determination of priorities and direction. In these respects, they are reminiscent of the organizations described by Tom Burns and G.M. Stalker in their book *The Management of Innovation* (1961). From the point of view of this report, the key point made by Burns and Stalker is that the structure adopted by organizations is related to the context within which they operate. We have concentrated so far largely on the internal organization of the school. But it also has to respond to the pressures exerted by its environment. On the one hand, schools are regulated. Locally, they are subject to the variable control exercised by MATs or local authorities. Nationally, they have to respond to a national curriculum, to the system of testing and examinations and to the periodic visitations of Ofsted. One secondary head of department puts the point brutally: ‘... as practitioners, we all, whether I like it or not, we're here to get them to pass exams. I don't like that idea. But whether I like it or not, that's what I'm here to do’ (Southstoke, 1;3). And one primary assistant headteacher notes the influence of Ofsted in saying: ‘Well, for me, and I'm guessing for the other teachers as well ... because of the external pressures placed on us, we have overemphasised the teaching of English and maths because that's the thing that we're

judged on' (Midford, 3;2). Rather less often mentioned are the pressures from the community and from parents, which seem to be more acutely felt in primary schools. In addition, schools are expected to respond to policy initiatives; the one most frequently mentioned by our interviewees is the need to close the attainment gap. On top of all this, the environment in which schools operate induces competition. Ofsted inspections and examination performance are used to make judgments about how successful schools are.

These environmental pressures, in their different ways, drive schools to look for new ways to improve their performance and, increasingly, that means a concentration on pedagogy. That can produce faddism, the often rather unthinking adoption of currently fashionable interventions. But it can also be important in adopting evidence-based pedagogy. In this sense, the organization of the research-sensitive school and its prioritization of research evidence can be seen as an adaptation to the environment for educational institutions. It is a rational means to an end and it can serve other ends. But schools do not choose the ends.

Appendix A. School profiles (anonymised)

Citations in the text mention the interviewee's role and in brackets their school, their number and the page number in the interview transcript. This is a list of the twelve schools⁶ – anonymised – that furnished interviewees. We have given some brief background information for each school under the following heads: phase of education, membership of an Academy Trust, pupil numbers, percentage of pupils receiving free school meals and in brackets the percentage at any time in the past six years receiving free school meals; percentage of pupils receiving special educational needs support; percentage of pupils whose first language is not English.

Bailbrook School

Secondary; Community School; 1740 pupils; OFSTED Outstanding; FSM 7.7% (13.8%); SEN support 13.7%; EAL 1.1%.

Charlcombe School

Primary; Academy Trust; 250 pupils; OFSTED Good; FSM 11.6% (19.1%); SEN support 7.8%; EAL 35.3%.

Claverton Down School

Secondary; Community; 1480 pupils; OFSTED Good; FSM 8.0% (14.3%); SEN support 4.7%; EAL 1.0%.

Larkhall School

Secondary; Academy Trust; 1500 pupils; OFSTED Good; FSM 12.2% (21.7%); SEN support 9.7%; EAL 2.1%.

Locksbrook School

Secondary; Academy; 1490 pupils; OFSTED Outstanding; FSM 8.1% (13.2%); SEN support 0.8%; EAL 8.1%.

⁶ The number of schools interviewed does not appear to match the number of schools mentioned in the Methodology section. This is because, for interviews carried out in a Research School based in a multi-academy trust, sometimes staff from more than one school in the MAT were interviewed.

Lyncombe Vale School

Primary; Academy Trust; 240 pupils; OFSTED Outstanding; FSM 32.7% (40.7%); SEN support 6.3%; EAL 3.8%.

Midford School

Primary; Academy Trust; 700 pupils; OFSTED Good; FSM 38.2% (47.2%); SEN Support 12.0%; EAL 67.1%.

Perrymead School

Primary; Community School; 550 pupils; OFSTED Good; FSM 7.7 (7.9); SEN support 23.2; EAL 19.3.

Sion Hill School

Primary; Community School; 470 pupils; OFSTED Outstanding; FSM 20.7% (40.6%); SEN Support 24.2%; EAL 44.1%

Southstoke School

Secondary; Community School; 1530 pupils; OFSTED Outstanding; FSM 8.6% (14.1%); SEN support 8.2%; EAL 4.8%.

Toghill Barn School

Primary; Academy; 420 pupils; OFSTED Outstanding; FSM 25.9% (31.4%); SEN support 8.0%; EAL 6.1%.

Tormarton Grange School

Secondary; Academy; 1650 pupils; OFSTED Good; FSM 11.7% (20.1%); SEN support 15.1%; EAL 5.1.

Two Tunnels Multi-Academy Trust

A multi-academy trust consisting of 30 schools, a mix of secondary, primary, and special.

Appendix B. Definitions

This study is based on interviews with teachers in schools involved in a project run by the EEF and the IEE. When describing the schools involved, we use the following terms:

Research School – ‘Research Schools aim to lead the way in the use of evidence-based practice and bring research closer to schools. They work with the other schools in their network to help them to make better use of evidence to inform their teaching and learning’ (<https://researchschool.org.uk/about/the-network/> accessed December 2020). It is important to understand that a Research School is only a tiny fraction of the school in which it is based. A Research School might be staffed by a director (often 0.8 Full Time Equivalent), an administrator (0.5 FTE) and several subject specialists (0.2 FTE), leading training in their specialisms. Most of the work carried out by the Research School is external, with other schools in their local/regional network. This report is not about the activity of the Research School externally, but its influence, and the influence of research and innovation, on the wider school of which it is a part.

Research-sensitive school – A research-sensitive school is a school where leaders create a culture and framework that allows teachers to focus on teaching and learning. Teachers are reflective practitioners, working alone and with others to develop their practice with innovation, research evidence, and evaluation. How to be a research-sensitive school is the focus of this report.

Network school – A school within an individual Research School’s network. In theory, network schools would begin with a relatively superficial engagement with a Research School (e.g. staff reading the Research School newsletter or attending an event). That engagement would gradually become more in-depth, until a network school might ultimately become a Research School in its own right. In practice, this journey is unlikely to be a linear process.

Innovation evaluation school – A school that has run an innovation evaluation project supported by the IEE. While these schools had to have some relationship with a Research School, and therefore were, in theory, a network school, in practice, the depth of that relationship was very variable. Nonetheless, their involvement with research evidence casts further light on the development of the research-sensitive school.

Appendix C. History of the Research Schools Network

In 2015, the National College for Teaching and Leadership (NCTL) and the Education Endowment Foundation began recruiting up to ten EEF Research Schools. The schools would 'translate and support the use of evidence to improve teaching practice and raise the attainment of disadvantaged pupils and close the gap with their peers, across their local and partnership schools'. Each school would operate in a "supra region" to carry out the following activities:

- To help bridge the gap between research and practice through developing innovative practices by applying the best available research evidence with professional expertise. This would include producing high quality practical advice and tools for schools and testing them at greater scale (development and research).
- Provide a focal point for evidence-based practice and gap-closing expertise in a region.
- Identify and build evidence locally, cataloguing successful evaluations of interventions among schools in alliances or networks, in particular those that can close the attainment gap.

The schools that were encouraged to apply were 'Schools with outstanding evidence-based practice in closing the gap, such as Pupil Premium Awards finalists ... either by applying directly if they are a Teaching School, or through their existing Teaching School alliance or by working together with a Teaching School alliance'. The close relationship with Teaching Schools was unsurprising, given the involvement of the NCTL, which designated and funded Teaching Schools.

Teaching School Alliances had been expected to deliver a "Big Six" set of activities:

- Initial Teacher Training (ITT)
- Continuous Professional Development (CPD)/Leadership Development
- School-to-school support
- Specialist Leaders of Education
- Succession planning & talent management
- Research and development

However, there was a perception that 'research and development' was carried out less successfully than some of the other activities (understandably, since schools were likely to have more experience in, particularly, ITT, CPD and school-to-school support (see for example, Gu et al 2014). Research Schools focusing on research and development were a logical solution to this problem. Each Research School would receive £60,000 in funding for their first year, with the promise of further funding beyond that. More than 100 schools applied, and 13 were shortlisted. However, funding was withdrawn and the project looked to have stalled.

Later in 2015, the Bowland Charitable Foundation (via The Institute for Effective Education) emerged as a funder (replacing NCTL) and the project was revived. This time each school would receive £200,000 over three years, with additional funding made available to support innovation projects. There would also be central support provided by the IEE and the EEF, particularly two Research School Facilitators, whose role would be to help the schools plan, and monitor their activities.

The thirteen schools that had been shortlisted were asked to complete a further application in May 2016. The criteria were not markedly different:

‘Research Schools will become a focal-point for evidence-based practice in their region, building affiliations with large numbers of schools and supporting the use of evidence at scale. Research Schools will engage with local schools in a variety of ways and with varying degrees of intensity. It is our aim that over 1000 schools will be reached across the Research Schools network in the first year.

The Research Schools project will focus on three key strands of activity:

1. Disseminating evidence-based programmes and practices, and supporting their implementation through events, school-to-school support, training and professional development (~50% of total activity).
2. Modelling and developing evidence-based practice (~25% of total activity).
3. Bridging the gap between research and practice by developing innovative practices and interventions, based on the latest research (~25% of total activity).’

There were, however, important differences in emphasis between the two calls. The second call had less emphasis on raising the attainment of disadvantaged pupils (though both organisations felt that was important) and it also gave more prominence to research evidence. There was no mention of collecting evidence locally. The second call also had a useful diagram (below) that explained the relationship between the three Research School activities, and how, as network schools moved to a closer relationship with the Research School, they would become involved in more of these Research School activities.

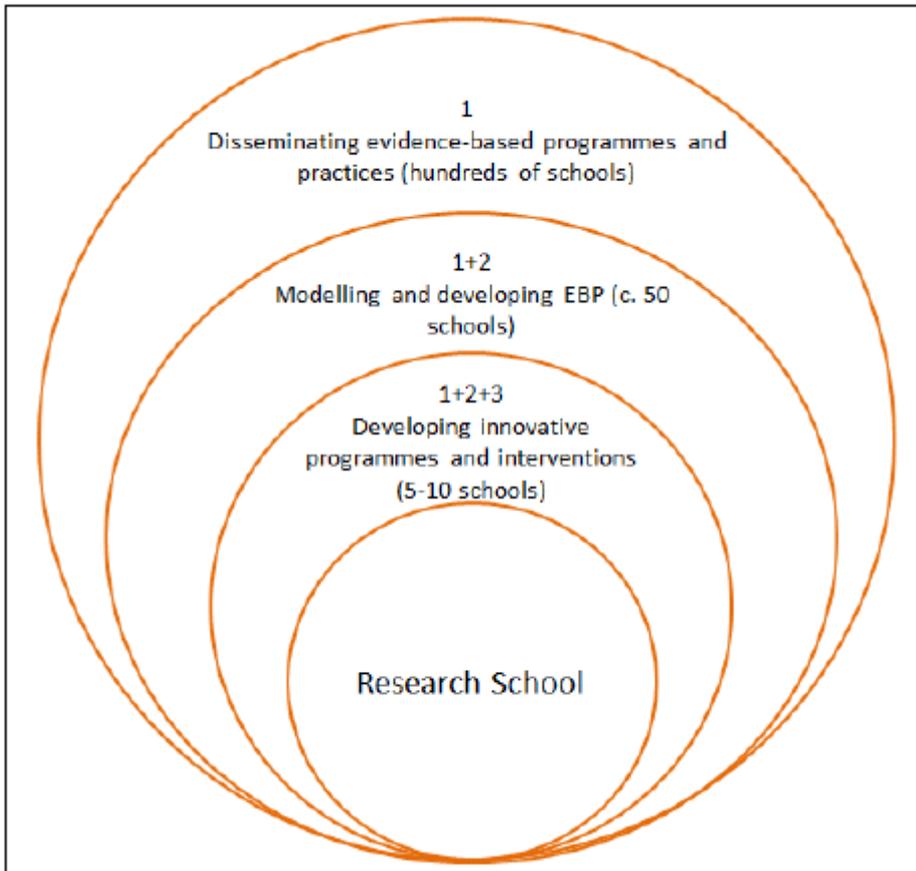


Figure 1. Engaging and supporting schools (from the Research Schools Network application document)

Schools were shortlisted for interview, and scored, based on their proposals for the three strands of activity, and on their capacity (their existing skills and the resources they were providing for the Research School), delivery (evidence that they could deliver the activities), and reach (their existing networks and connections). Shortlisted schools were interviewed for approximately two hours. Interviews checked the validity of the shortlisting scores and probed any particular areas of concern or weakness.

There was no typical 'winning profile' of school. A school that was considered weaker on its knowledge, understanding, and application of research evidence to practice might still be successful if it had impressive regional reach and was prepared to commit staff and resources to the project. The extent to which the use of research evidence was embedded in the school was not a make-or-break point-scorer. As Research School activities were largely concerned with influencing other schools, provided that those individuals who would be involved with the

Research School could show a credible understanding of research evidence, further proof of the school's commitment to evidence was not essential.

Identifying the extent to which the use of research evidence is embedded within a school is a difficult process. When selecting Research Schools, this mostly relied upon an application form of no more than 1500 words and a two-hour interview, usually face-to-face during a visit to the school. The application form provided evidence that the applicant understood the terminology and could identify and discuss research evidence clearly. Interviewees (often senior leadership) again had to show confidence when discussing research and its use. Yet this provided a relatively superficial picture of evidence use within the school.

There were also a few constraints on the schools to be chosen:

- The network had to have national coverage, ideally at least one school in each of the nine regions.
- There had to be a mix of primary and secondary schools (and if possible other kinds of settings as well).
- Ideally, the schools should be state schools, non-selective, with better-than-average results, at least the national average for disadvantaged students, and good results for those disadvantaged students.

In the first instance then, following interviews, five Research Schools were appointed to start in September 2016. The intention was that a further recruitment round would be carried out in early 2017 to recruit the second five schools to start in September 2017. In the event, things rapidly became more complicated than that.

The original proposed ten schools were funded as a partnership between the Education Endowment Foundation (EEF) and the Institute for Effective Education (IEE). In late 2016, the Department for Education designated 12 Opportunity Areas, 'areas of the country where disadvantage is most entrenched' (Department for Education, 2017). Each of these areas was to have a Research School, funded by the Department for Education and the EEF. Opportunity Area Research Schools had a number of differences from the original concept. Firstly, their priority area of activity was the Opportunity Area itself (typically a local authority), much smaller than the geographical remit of an original Research School (a supra region). This meant a preference for schools within the Opportunity Area itself (though those nearby and with strong links were considered). This presented a much smaller number of schools from which to recruit. As we have seen, 'research and development' activity is relatively rare for a school. Some Opportunity Area Research Schools might therefore need additional support in terms of their development. There was also an additional Research School for Suffolk, employing some funds that had been made available for a previous initiative in that county. The consequence of all this

was that from September 2017 the project expanded to 22 Research Schools, with a variety of different backgrounds, experiences, skills, and responsibilities. This created many challenges for the Research Schools Network project (see Gu et al., 2020) but for the purposes of this report, it gave us access to a range of schools in various stages of development towards becoming more research-sensitive. This variety enriches this report.

Network schools and the role of innovation

Innovation was explicitly mentioned in the both of the original calls for Research School applications which would ‘... help bridge the gap between research and practice through developing innovative practices by applying the best available research evidence with professional expertise’. In reality, the role of Research Schools was not to innovate, but instead increasingly to disseminate EEF guidance reports and training courses developed by staff from Research Schools, the EEF and the IEE (see Gu et al., 2020).

This means that Figure 1 is somewhat misleading. As network schools in a Research School’s network worked more closely with their local Research School, they did not get involved with ‘developing innovative programmes and interventions’, but instead were more likely to get involved in delivering existing (centrally produced) training programmes and school improvement initiatives.

Schools that did want to develop and evaluate innovative programmes and interventions were able to do so with funding provided by the IEE. These schools were obliged to work with their local Research School to develop their proposal and submit it to the IEE. However, as innovation was not considered an essential part of the development of network schools, these schools were not (either by definition, or necessarily) becoming more closely involved and connected with their local Research School. They were not necessarily on their way to becoming a Research School (or Associate Research School) and the innovation projects were not a step in that journey. However, the interviews with schools conducting innovation evaluation projects have provided us with a useful perspective on the development of a research-sensitive school and are much quoted here. These schools were all engaging with evidence in some way, and their experience of putting evidence into practice and evaluating it throws valuable light on the journey to research-sensitivity.

Appendix D. Interviews - Methodology and Interview Schedules

At the outset, we proposed two linked studies, one of Research Schools and one of innovation evaluation schools, to be conducted by semi-structured interviews. By the time we carried out the study, there was a diverse selection of schools for us to interview. They were diverse in a range of characteristics - whether Research Schools (primary/secondary, experienced/novice, academy/local authority school, etc) or innovation evaluation schools (positive/null/negative impact, completed/incomplete, research engagement of wider school, relationship with Research School, etc).

Our original plan was to interview 9 Research Schools and 9 innovation evaluation schools. In each Research School we would conduct several (5 or 6) interviews with individual members of staff with different levels of responsibility. In each innovation evaluation schools we would interview the member(s) of staff responsible for conducting the project.

For Research Schools, a 3x3 matrix was used to classify schools. One axis represented the extent to which research use was embedded within the Research School. The other axis classified schools as primary, secondary, or a multi-academy trust (or other structure sitting above a group of schools). Decisions on the allocation of schools were made by one author and two of the Research School Facilitators employed by the IEE to work with Research Schools.

For innovation evaluation schools, the Research School Facilitator responsible for supporting the projects selected schools to be interviewed. This included schools that had, and had not, completed their project, and had a positive or negative outcome.

The interview schedules for both Research Schools and innovation evaluation school interviews were developed by the authors and the Research School Facilitator.

Interviews were scheduled to take place in March and April 2020 and Research Schools were asked to provide a diverse range of staff to interview. Interviews were carried out in the first three weeks of March 2020. By the third week of March, schools were facing serious challenges because of the COVID-19 pandemic. It was felt that, in the circumstances, given the way the virus spreads, face-to-face interviews at schools were ill-advised and, in any case, staff were under pressure to deliver more important activities. Further interviews were therefore suspended.

The further impact of the pandemic on the financial circumstances of the IEE, including the furloughing of staff and ultimate closure of the charity, meant that it has not been possible to conduct any more interviews.

Some of the characteristics of the sample are indicated in Appendix A. The main bias of this sample is that it does not reflect the intended diversity of either Research Schools or innovation evaluation schools. In particular, 'successful' schools are probably over-represented, since they had the capacity and confidence to be interviewed, and therefore these were the interviews that were arranged first. Research Schools that were less effective (and were perhaps therefore sensitive or even defensive of their performance) or innovation evaluation schools that were less successful are under-represented.

On an early analysis, it became clear that the innovation evaluation schools had some of the characteristics of the Research Schools but certainly not all of them. That is hardly surprising since the innovation evaluation schools (or at the very least some individuals within those schools) clearly had enough of a research culture to apply for funding for innovation projects. Where there are commonalities, we, in effect, treat both sets of schools as constituting a single sample, while noting the differences between Research Schools and innovation evaluation schools.

All interviews were approximately 45 minutes long, and were recorded and transcribed.

Research School - Interview Schedule – Leaders (senior, middle, or research lead)

Establish consent

Permission to record

This is an interview which will be used for an end-of-project report for the IEE on the Research Schools project. We need to capture what we have learned from the project. In this interview we will be talking about being a research-sensitive school (RSS). A research-sensitive school is one that considers internal and external evidence when establishing the way that it operates. Internal evidence might include teachers' professional knowledge and experience, and information gathered on pupils or students. External evidence might include the experience of other schools or organisations, but also academic research, or summaries of that research.

Would you describe your school as a Research Sensitive School?

Why? In what ways?

What would you say are the three most important qualities of a research-sensitive school?

How are these enacted in your school?

How other staff involved in that process?

What are the most important attributes of a successful or effective school?

How do you know that they are important? What is the evidence you rely on? Which one would you regard as being particularly evidence-informed or supported by evidence?

Talk me through how you are going to try and improve the school next.

How and by whom are priority area(s) identified?

What "evidence" will you draw on?

Who will find that evidence, read it, distil it?

How will you innovate a new approach? Who will be involved, what will they know?

What will the new approach replace?

How will you implement the new approach?

How will you evaluate it?

Do research-sensitive schools make a difference?

What impact has being a research-sensitive school made on your school?

How have you measured the impact?

How do you think your school would be different if you didn't look at academic research?

Please describe how you became a research-sensitive school.

How did it all start?

What are the steps that you took?

What mistakes did you make?

What would you have done differently?

How are you going to sustain a research-sensitive school?

How do you create the time and other resources to make this a research-sensitive school?

How will you keep it fresh?

How do you know that class teachers are evidence-informed teachers?

How do you avoid becoming complacent?

How will you know how much effort is worthwhile?

With any approach in education, we face the challenges of sustaining it and scaling it up. How do you think research-sensitive schools can be sustained and scaled up?

Do you teach?

Yes = On to next section, "Thinking about practice in your own teaching..."

No = Would you be willing to be interviewed again if that proved necessary?

Research School - Interview Schedule – Class Teachers

Permission to record

Consent

This is an interview which will be used for an end-of-project report for the IEE on the Research Schools project. We need to set down what we have learned from the project. In this interview we're defining a Research-Sensitive School to mean a school that practises evidence-informed teaching.

Evidence-informed teaching

What do you understand by the term evidence-informed teaching?

In our definition, we would say an evidence informed teacher does this..... Would you describe yourself as an evidence-informed teacher using this definition?

Why do you think that?

What does evidence-informed teaching mean for you in your daily practice?

How much of your daily teaching day/classroom practice would you say is informed by evidence?

Can you give me some examples, either way?

Who decides what happens in your classroom?

Do you engage with research evidence directly yourself or how does this happen?

If we think of evidence-informed teaching as being the incorporation of the best available evidence with professional expertise, how does this happen for you?

Are there areas of your practice that you would like to develop? How do you go about improving these areas? What's the process for improving practice in your school? Do you have the opportunity to raise areas for development with SLT/is it led by SLT?

How do you identify the areas of your practice that you need to work on?

Working with other teachers

Do you talk to other teachers about your practice?

What are the formal or organized means by which that it is done?

How about informally – how, when, where?

Would you say that these discussions are evidence-informed – in other words, built around incorporating the best available evidence with professional expertise?

How well do you think evidence-informed teaching is embedded within school?

Innovation

Talk me through how you are going to try and improve your practice, or what happens in your class, next.

How and by whom are priority area(s) identified?

What “evidence” will you draw on?

Who will find that evidence, read it, distil it?

How will you innovate a new approach? Who will be involved, what will they know?

What will the new approach replace?

How will you implement the new approach?

How will you evaluate it?

Tell us about the application of a specific intervention (different examples can be used for what can/is and what can't be adapted):

To what extent do you adapt evidence based approaches? How did you decide what to adapt and how? How do you know which elements could be adapted? How do you know how much you can adapt the elements (what is acceptable divergence?)? How do you know this adaptation worked/was successful?

Can you think of a time there were key elements of an approach that you couldn't change? How do you know that you haven't diverged from these key elements?

Would you be willing to be interviewed again if that proved necessary?

Research School - Interview Schedule – Innovation evaluation project lead

Permission to record

Consent

Background questions

Tell me about yourself and your teaching career

What is your position in the school (now and at the time of the evaluation)?

How many years have you been teaching?

How long have you been teaching in this school?

What role does innovation and evaluation have in your teaching practice?

Have you applied the EB school improvement cycle before (identifying a specific issue, using the evidence to develop an approach to address the issue, monitoring impact)?

Had you done any school-based research before this project? (this could include any form of research (qualitative, data analysis, action research, disciplined enquiry, impact evaluation etc) for any purpose (directed task, personal interest, as part of qualifications etc) on any scale)

What role does innovation and evaluation have in your school?

Who is involved?

Is this approach encouraged or supported by SLT? If so, how?

Developing the innovation

Tell me about how you identified the issue your innovation was designed to address

What sources of evidence did you use to understand this issue?

(How) did you triangulate sources of information to develop a hypothesis about the issue?

Tell me about how you developed your innovation

Where did you start with your innovation? Where did the idea come from?

Who, if anyone, did you talk to while developing/choosing the approach? Is that kind of talking encouraged/formal in your school or is it more informal/ad-hoc?

How did you develop the innovation? If you used an existing innovation, did you modify it in any way? How did you decide on any adaptations?

Did you look at existing evidence while developing/choosing the innovation? If so, how did you find existing evidence? How did you assess the relevance and applicability of any evidence you used?

Did you get any support (either within school or externally) at this stage?

Are there any barriers to innovation, both within your school and more generally?

Tell me about why you decided to evaluate this approach

What motivated you to evaluate the innovation?

Would you have run an evaluation if the innovation evaluation grants weren't available? If so, do you know what sort of evaluation model you might have used? How similar/different to the final project might this evaluation have been?

Running the evaluation

Tell me about your experience of running the evaluation

How easy/hard did you find it to:

- plan the evaluation?
- run the evaluation?
- draw conclusions from your findings?
- write up your report?

What did you learn during the evaluation process? Did you find anything surprising about the process?

Who else from your school, or from other organisations, was involved in the evaluation? What were their roles?

What role did SLT play in your evaluation?

Tell me about the things which supported you to run the evaluation and the barriers you came across

What factors enabled you to run the evaluation? Consider personal factors, in-school factors and external factors. Do you feel any of these would be particularly important for others running a teacher-led evaluation?

Did you find anything particularly challenging about running the evaluation?

What barriers did you face which made the evaluation harder to run? What did you do/could be done to minimise these barriers?

How did others support or hinder the evaluation?

In what ways (if any) did SLT support the project? Did anything done by SLT make the project easier to complete? Or harder to complete?

Is this approach to monitoring impact typical/used by others in the school? Did whole-school attitude to evaluation influence the running of your project?

What did others in the school think of the approach to evaluation/monitoring impact (if anything)? Was anyone sceptical/concerned? If so, how did you manage this?

Were any people/groups important to the successful completion of your project?

Did you need more support with anything?

Impact on being/becoming a Research Sensitive School

Do you think anything has changed in your practice, or in the school more generally, as a result of being involved in innovation and evaluation? (It's fine to talk about this project and others)

Have you used the findings since the evaluation was completed? If so, how?

Is your innovation currently used in school? Have any modifications been made? How does this align with the findings of your evaluation?

Since starting the project has anything changed in your practice/at school in the way you:

- engage with evidence?
- select or develop new practices and approaches?
- monitor impact of new and existing approaches?

Have you shared your findings with other schools?

Who have you told? How have you shared your project?

Do you know what (if anything) schools have done with this information?

Do you want to take anything forward from this experience?

If so, what? How will you achieve this? What would your next steps be?

Would you do more innovation?

What sort of support might you need with innovation if you did it again?

Appendix E – Innovation evaluation projects

The goals of the IEE’s innovation evaluation fund were to “increase the evidence base by supporting evaluations of innovations of teaching and learning approaches, communicating the findings among the Research Schools Network, and encouraging applications for larger systematic evaluations of promising approaches.” The evaluations were pilot studies of innovations, not large-scale randomised controlled trials. Nevertheless, studies had to have a comparison of pupil achievement that would indicate whether or not the intervention had potential.

Applications had to be developed by schools in association with their local Research School. The application form of 1500 words had to cover the following:

- The problem or issue the innovation addressed.
- The innovation to be evaluated.
- How the innovation would improve the problem and benefit teachers and learners.
- Existing evidence: What existing research evidence exists?
- What evidence is there that this innovation will improve outcomes?
- Research question or hypothesis: What effect will the intervention, implemented for how long, with which pupils, have on what outcomes?
- Method: Describe exactly how the evaluation will be conducted, including sample/participants, design and assignment to condition, measures, intervention, process evaluation, and data analysis
- Implications for practice and communication plan

For many schools considering an application, this was challenging, asking schools to reach a methodologically high bar. Nonetheless, there were eight applications for the first round, and four were awarded grants in February 2017. Subsequent, termly rounds were always over-subscribed, and over the next eighteen months a further 26 projects were successful in their application for a grant, bringing the total number to 30. The applications included a wide range of interesting, school-led innovations, from after-school film clubs to improve the creative writing of Year 5 pupils, to the use of audio feedback with Year 12 pupils.

The projects were led by schools, and support provided at the IEE by a Research Schools Facilitator. This support was mostly informal, with school staff drawing on advice as needed. The formal points of reference occurred if schools requested interim payments (in which case an interim report was required) and at the final report (and payment) stage. The final report had to be approved by the IEE, and this often led to a number of drafts, and back-and-forth with the schools.

Of the 30 projects that were funded, 24 published a final report. There were a variety of reasons for projects not publishing a final report, including changes of personnel and personal circumstance.

There were completed projects across both phases of schooling (primary and secondary), in many different subjects (English, maths, science, humanities and social sciences), in non-curriculum areas (skills for learning, social-emotional learning, behaviour and attendance), and looking at different outcomes (academic achievement, wellbeing, teacher workload).

As one might expect for small-scale projects, a substantial proportion (42%) reported very positive results (effect sizes $> +0.25$). A few (8%) reported smaller positive impacts ($> +0.1$). Many projects (28%) reported mixed results (either both positive and negative impacts or negligible impacts) and the remaining few (12%) reported negative results (< -0.1).

Projects that reported mixed or negative results, and teachers' reactions to those results, were one of the most interesting aspects. Teachers naturally wanted, even expected, their innovations to succeed, so to be presented with negative results was a challenge. It forced them to reflect both on the effectiveness of the innovation and on the way that it was implemented, either of which could have contributed to the negative outcome.

Projects that had positive results were rarely scaled up. Indeed, we know of only one (My Big Life) that was successful in obtaining further evaluation funding. This is not particularly surprising, for a couple of reasons. Firstly, just as there is no tradition of small-scale evaluation in schools, there is no established pipeline to scale up such evaluations. Secondly, in terms of time and skills, these pilot projects were a challenge for the teachers who ran them. Scale-up would involve even more challenge, and nudge them nearer to becoming professional researchers. For most, this was not their ambition.

The full project reports can be found on the websites of the IEE and the Research Schools Network.

A collection of summary reports was published in 2020 - IEE Innovation Evaluation projects - Summary reports, Institute for Effective Education (2020) <https://the-ieee.org.uk/wp-content/uploads/2020/01/Innovation-Evaluation-Projects-booklet.pdf>

A handbook that provided guidance for schools on how to carry out an evaluation was published in 2017 - Innovation evaluation handbook, Institute for Effective Education (2017) <https://the-ieee.org.uk/wp-content/uploads/2017/03/Innovation-Evaluation-Handbook-September-2017.pdf>

An evaluation handbook, to support schools in planning and carrying out robust evaluations of practice as part of an evidence-informed approach to school improvement, was published in December 2020. <https://the-ieee.org.uk/wp-content/uploads/2020/12/Evaluation-Handbook.pdf>

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