REPORT OF PROFESSIONAL PRACTITIONER USE OF RESEARCH REVIEW: Practitioner engagement in and/or with research

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1. Introduction

This is a technical report of a systematic research review that focuses on how practitioners engage in and/or with research to inform and develop their practice. The overall question for the review is: What are the links between practitioner engagement in and/or with research and learner (student/patient/client) outcomes? Given the broad nature of this question, the review group developed a number of sub questions to help scaffold the analysis of the studies included in the review. The answers to our sub questions have in turn helped us to flesh out and illustrate the answers to our overall review question. Our sub questions are:

1. What are the obstacles to practitioner engagement in and/or with research?

2. What forms of support are required to help practitioners overcome such obstacles?

3. What is the range of approaches to practitioner engagement with research findings?

4. What is the range of approaches to practitioner engagement in research?

5. What are the similarities and differences between practitioner engagement with the research of others and in their own research?

6. How do practitioners apply research within the contexts of their existing standards and practices?

7. Are there identifiable differences in engagement in and/or with research when client/learner relationships with practitioners are one-to-one or one-to-many?

The review is divided into seven main sections:

1. The policy and practice background surrounding the education, and health and social care sectors.

2. The overall review question and the sub questions developed by the review group to scaffold the analysis of the included studies.

3. The methodology designed to complete the review.

4. A descriptive map used to identify which individual studies were likely to yield evidence for our review sub questions.

5. A synthesis which draws together the evidence from individual studies in education and from research reviews in health and social care.

6. The similarities and differences between engagement in and/or with research in education, and health and social care.

7. The conclusions and key findings of the review.

In addition to the technical report we have produced four summaries outlining how four groups of users of the review might make use of its conclusions and findings. These summaries are targeted at national and local policy makers, practitioners and organisational leaders and higher education Initial Teacher Education, CPD providers and researchers, and the learning and skills sector.

2. Aims of the review

This systematic review focused on finding and synthesising research which had the capacity to inform the review question about the links between practitioner engagement in and/or with research and the outcomes of such processes.

3. Authors, funders and other users of the review

The review was jointly sponsored by the General Teaching Council for England (GTCE), the Learning and Skills Improvement Service (LSIS), the Centre for the Use of Research and Evidence in Education (CUREE), and the National Teacher Research Panel (NTRP) which is funded by the Department for Education (DfE).

The review was conducted by a team from CUREE, with some support, during the data extraction phase, from NTRP members and CUREE associates Zoe Fowler and Chris Noden. The advisory group comprised representatives of the review sponsors, members of the academic research community, practitioners and local authority (LA) representatives. (See Appendix A).

4. Policy and practice background in education in England

Practitioner engagement in and/or with research, in terms of engagement with outputs and in processes, is becoming an increasingly prevalent feature of professional learning and development in England. This applies across all phases in the education system, from age three to adults. Since the (then) Teacher Training Agency's promotion of teaching as a research and evidence informed profession in 1996, some central government departments and national government agencies have supported a number of different tailored initiatives to either improve teachers' access to research, or to encourage their engagement with it. Much of the latter has taken place in the context of the national school improvement agenda and in the accompanying focus on teacher professional development. The large scale Teaching and Learning Research programme (TLRP), centrally funded and spanning nearly a decade (2000-2009) involved researchers working closely with practitioners (and in some cases, learners) in a variety of learning environments on a large number of teaching and learning projects.

Other major initiatives have included the creation of different teacher research award programmes, web based summaries and related tools, and resources for CPD (Continued Professional Development), including GTCE's substantial Research for Teachers Resource Bank and the Teacher Training Resource Bank for initial teacher education. Mediation for such resources includes the strategic support of engagement in and/or with research evidence, and the championing of teachers' own research through the work of the NTRP and its biennial teacher research conference, and the Training and Development Agency (TDA) funded professional post graduate programme (PPD). The GTCE research resources are mediated through the Council's support for research oriented teacher development, networks and the Teacher Learning Academy (TLA). The TLA actively promotes teacher classroom inquiry as an effective form of professional development and school improvement. Engagement in and/or with research is also embedded in CPD policies such as The National Framework for Mentoring and Coaching and research lesson study in the Primary National Strategy. (See CUREE, 2007 for more detail.)

On the wider policy front, the 'Extra Mile' project[1] is an example of a potential shift in government attitudes towards encouraging engagement in and/or with research. Here, a policy focused on meeting the needs of our most vulnerable pupils is explicitly attempting to build on research and also promote action research as the vehicle for implementation. In other words, we have witnessed a shift from what Saunders (2007) sees as something very different from the "'application' of 'evidence' to teaching; it is altogether a much more interesting and dynamic process, with teachers' structured learning – collective as well as individual – at the core".

Some leading edge LAs are also encouraging schools to engage in and/or with research for school improvement. Essex, for example, established its Forum for Learning and Research Enquiry (FLARE) in January 2002. This mainly comprises serving teachers and headteachers, and its remit includes promoting the involvement of teachers and other school colleagues in using and conducting research. FLARE has mapped research being undertaken in Essex, providing guidance on the nature of practitioner research and has run local and regional conferences. This has led to a range of outcomes including FLARE's work on the concept of the Research Engaged School. (Handscomb & Macbeath, 2003.)

In the learning and skills sector too, the Institute for Learning and the Campaign for Learning have developed structured frameworks for CPD that promote action research as a basis for improvements in teaching and learning. CPD is now mandatory in the sector where a conference audience (AOC, Birmingham, November 2008) vociferously welcomed Frank Coffield's challenging call for a renewed focus on teaching and learning. LSIS has actively promoted programmes in which practitioners systematically link their own and others' evidence such as peer benchmarking and coaching, and most recently funded and promoted a programme of practitioner research fellowships. LSIS also produces an evidence based bulletin (*Inside Evidence*) which is encouraging practitioner engagement in and/or with research as a means of enhancing practice in the sector.

Other agencies, including the subject associations and specialist organisations such as NCETM (National Centre for Excellence in the Teaching of Mathematics) and the National Science Learning Centres have successfully promoted practitioner engagement with and in research and made available tools and resources to support evidence informed practice.

However there is still a long way to go. In a recent (2010, forthcoming) national teacher survey by the National Foundation for Educational Research (NFER) for GTCE, one third of respondents (33 per cent) said that they had undertaken their own research and enquiry to improve their practice in the last 12 months. Of those, most had found it a useful way to help them to improve their teaching practice. Researchers suggested that "part of the gap between what teachers would like to do and what they actually experience in terms of professional development may be explained by the presence of what might be called a weak 'culture of research' at some schools: it was clear that some teachers felt that schools could do more to support and encourage their use of research and other self-improvement activities".

Many of the programmes and activities promoting and supporting teacher engagement in and/or with research listed above demonstrate a consistent focus on learner outcomes. Feedback from practitioners consistently highlights this as a key factor in motivating and sustaining participation in the initiatives managed by the sponsors of this review and so a focus on learner outcomes has also characterised the review itself. The review focuses on studies involving teacher engagement in

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[1] http://www.teachernet.gov.uk/teachingandlearning/schoolstandards/extramile/

and/or with research, including only those studies which attempt to establish the link between such engagement and the outcomes for learners.

4.1 International education policy and practice background

The concept of teacher engagement in and/or with research has been part of a larger international discussion too. The teacher-as-researcher concept first found its way on to the ERIC Clearinghouse database as late as 1993 when Beverly Johnson (Johnson, 1993) wrote that:

> *The concept of teacher-as-researcher is included in recent literature on educational reform, which encourages teachers to be collaborators in revising curriculum, improving their work environment, professionalizing teaching, and developing policy. Teacher research has its roots in action research.*

Also in the US, Zeichner & Klehr (1999) conducted a national review of teacher research activities. They found that teacher research can be a major strategy for CPD, with the potential for significant effects on teaching and learning. They also found that teacher researchers gained confidence from conducting research, and developed closer relationships with their students and colleagues.

The types of teacher research investigated by Zeichner & Klehr (1999) varied from data analysis of observations, interviews and document collection, to interpretative dissertations.

> *Some teacher research involves posing and investigating a specific question, while other projects focus simultaneously on several questions… …while some research projects primarily attempt to develop a better understanding of practice, others also aim to improve it. Some studies focus on specific classroom issues, while others move beyond the classroom to issues that are school wide or larger.*

They also found that the degree to which external research is incorporated into the teachers' studies varied widely. For example, some teacher researchers used concepts, questions and ideas from external research as the starting point for their own research; others used external research as a resource later on in the research process; and some chose not to use external research at all. The authors went on to describe the range of motivations behind teacher engagement in research and cautioned about the anecdotal nature of much of the evidence about impact and the lack of information about how the research was conducted or supported. The latter are two issues at the heart of the research questions for this review.

Writing in *Teacher Education Quarterly* Kelly Chandler-Olcott (Chandler-Olcott, 2002) described how in the US "the last 15 years have seen a groundswell of attention to teacher research – what Cochran-Smith & Lytle (1993) called 'systematic, intentional inquiry carried out by teachers'". She cited a number of school and university based scholars who argued that teacher research had the potential to prompt educational change, transform teachers' perceptions of themselves as professionals and contribute to the generation and critique of knowledge about teaching and learning. She also pointed out the growing number of professional organisations calling for teacher research to be a part of their frameworks for professional licensure and the increasing number of teacher training organisations incorporating research elements into their ITE programmes.

> *While the requirements for these experiences differ across contexts, their primary purpose seems to be consistent: to introduce teachers to procedures for formal inquiry that can be used to improve and inform their work on an ongoing basis.*

Generating and brokering 'relevant' or 'useful' research knowledge for practitioners to engage in and/or with to 'inform' their practice is now routinely discussed in national and international research forums. In 2003 an Organisation for Economic Co-operation and Development report *New Challenges for Educational Research* (OECD, 2003), claimed that:

> *Major knowledge and cultural changes [are] needed in the practice of teachers, researchers and policy makers… …Teachers need to look beyond their schools for evidence and think rigorously about their practice. Policy makers need to 'value' and apply research evidence in the development of policy and implementation. Researchers must work more closely with teachers to improve the knowledge base on education practices. These changes are beginning to take place in a number of OECD countries.*

By 2007*, Evidence in Education: Linking Research and Policy* (OECD, 2007) presented analyses from international experts on evidence informed policy in education from OECD countries. The report examined the issues which policy makers, researchers, teachers and parents face in using research evidence. It explored the challenge of brokering between policy makers and researchers with examples of policy-relevant research from Canada, Finland, Singapore and the UK. Some of the agencies it described included the EPPI Centre, the Knowledge Chamber of the Netherlands, the New Zealand Best Evidence Synthesis Programme, the Danish Knowledge Clearinghouse and the Canadian Council on Learning. Interestingly, for the purposes of this review, the report also pays attention to the field of social care in the form of the UK's Social Care Institute for Excellence (www.scie.org.uk). It explained this: "From this contribution we can observe both the similarities of experience, goals, and efforts of a brokerage agency in this domain, as well as some shared challenges". Engaging *in* research (teacher-as-researcher) and *with* research (using the public knowledge base to inform practice) are, in 2010, the subjects of considerable investment by OECD countries as well as the subject of ongoing debate and research to which this review may make a useful contribution.

Perhaps one of the most significant OECD findings for the purposes of this review comes from the 2009 OECD TALIS report (OECD, 2009). This comprehensive international study found that individual and collaborative research has the highest impact rate in terms of teachers' perceptions of their professional development (CPD). Yet, despite increased participation in recent years, research engagement as a form of CPD has one of the lowest teacher participation rates.

4.2 Health and social care background

Practitioner engagement in and/or with research in health and social care has also been the subject of similar researcher scrutiny. Stevens et al. (2005) cited a 'variety of initiatives' which have been created with the aim of increasing engagement in and/or with research in social care practice. Their evaluation of a pilot research information service provided by the '*What Works for Children Project*' highlighted some of the obstacles to using research and the gap between what practitioners want from research and what research actually provides. Mitchell et al. (2009) reported on the context for practitioner research and its impact on practice. In the USA, Manuel et al. (2009) reported on a project to enhance practitioner engagement in and/or with evidence based practice (EBP) by using a supportive strategy including training and technical assistance through a partnership between university based researchers and three social work agencies. Oshana (2006) described the concept of evidence based practice as "perhaps one of the most important ideas the social sciences have investigated in recent years. Even a cursory glance at the literature reveals a burgeoning interest in evidence-based practice". However, what is available "is of little use because so many scientific studies are conducted in contexts that have little resemblance to realistic practice situations". Oshana's proposal for bridging the gap between research and practice is a specific methodology for evidence based practice. This was based on insights from the field of healthcare and evidence based

medicine, where the focus is on integrating 'best research evidence with clinical expertise and patient values.' (Sackett, Straus, Richardson, Rosenberg & Haynes, 2000, cited in: Oshana, 2006).

Walter et al. (2004) identified three distinct 'models' of the process of research engagement for social care practitioners. They distinguished between the research based practitioner model, the embedded research model, and the organisational excellence model. These have strong parallels with the types of teacher engagement in and/or with research suggested by Saunders (2007). In the research based practitioner model:

> *individual social care practitioners are responsible for keeping up-to-date with the latest research and for using research findings in their day-to-day practice. When faced with a practice problem, practitioners search the literature, appraise the evidence they find, and integrate this evidence with their own practice-based knowledge and with service users' views to reach a solution…*

In the embedded research model, "practitioners do not engage directly with findings from research. Instead, evidence about 'what works' in social care becomes embedded in policies, guidelines and practice tools". In the organisational excellence model:

> *the key to successful research use lies with social care delivery organisations: their leadership, management and structure. The emphasis is on developing a 'research-minded' culture within the organisation that is open to research and supports its use…*

The Children's Workforce Development Council (CWDC) has also been active in promoting practitioner engagement with research, involving, for example, a range of health and social care practitioners who focus on supporting learning. Like CWDC and like Nutley et al. (2009), the review group and the sponsors, CUREE, the GTCE, LSIS and the NTRP, framed the review on the basis of a belief that a cross-sector perspective has the capacity to inform support for practitioner engagement in and/or with research. It enables us, for example, to learn from pioneers in other fields and also from the similarities and differences in the remits, roles and cultures that exist in the different disciplines that focus on supporting children and young people.

According to Nutley et al. (2009) "too much discussion about evidence-based practice occurs in sector silos, whereas there is much to be learned from looking across sectors". But such learning needs to take into account the particular demands of different professional contexts, values and practices and their capacity to affect, encourage and influence engagement in and/or with research and evidence (Spillane, 2007). We therefore chose in this review, to set our systematic analysis of education practitioners' engagement in and/or with research in the context of two related fields – health and social care. There are already a number of potentially relevant research reviews in these fields. To enable meaningful contextualisation we approached the health and social care literature by synthesising across the findings of systematic research reviews on practitioner engagement in and/or with research to identify similarities, differences and contextual underpinnings that had the capacity to inform our own review questions. (See Section 7.)

The review focuses on practice settings, which preliminary scoping indicated would provide a rich contextual comparative base. For example, Stevens et al. (2005) reported that their research had uncovered various initiatives designed to increase the use of research in social care practice. Their study identified some of the obstacles to using research as well as the gap between what practitioners want from research and what research provides. Similarly Mitchell et al. (2009) reviewed the literature on practitioner research in social services to establish the context for practitioner research as well as its impact on practice.

4.3 Education practitioners' engagement in and/or with research

There is a long tradition of research interest in the nature and value of practitioner engagement in and/or with evidence and enquiry in the UK. Stenhouse's work in the seventies did much to break ground on the teacher's role as creator and utiliser of knowledge about teaching and learning (Stenhouse, 1981). The intervening years have seen rapid growth in research about teaching and learning, increasing significantly the relevance of published work to practitioner concerns and interests. A review of research resources published in 2007 mapped those made available by Government Agencies (CUREE, 2007). To cite just a few examples, Assessment for Learning (AfL), has become an issue of interest and application across the UK since the publication of Black & Wiliam's Review of evidence about Assessment for Learning (AfL) (Black & Wiliam, 1998) even if, as yet, the full potential of AfL practices has not been realised. The outputs of the large scale, government funded Teaching and Learning Research Programme (TLRP) (Marshall & Drummond, 2006), have been made available in a number of different formats designed to reach into practice. Early years practice has been extensively influenced by the findings of the large scale, longitudinal EPPE project (Sylva et al., 2004). A recent special edition of the Cambridge Journal of Education in 2008 (38(1)) focused almost exclusively on Knowledge Transformation and Impact. Jean Rudduck's (1998) influential work on pupil voice has also demonstrated its capacity to impact on practice. 'Learning how to learn' (James et al., 2006) is now the focus of a number of curriculum reform initiatives, including the Campaign for Learning's practitioner research projects.

At the same time, as the 'supply' of evidence and interest in it has grown, there has also been an accumulation of studies into the process of practitioner engagement in and/or with research, shedding light on issues around teachers' engagement with the evidence base, and where and how this is happening. Following conclusions in the Hillage Report (1998) that practitioners' actions and decisions are insufficiently informed by research, the National Educational Research Forum produced a report in 2001 on research capacity in the educational system and its relation to policy and practice. The report suggests that practitioner and policy maker capacity for both producing and using research has been enhanced in recent years. Yet other, more recent investigations have identified some of the problems with research outputs which hinder their ability to inform practice (Helmsley-Brown & Sharp, 2003; Ratcliffe et al., 2004; CUREE, 2007). The Department for Education and Skills (DfES) commissioned CUREE's review of developments relating to practitioner engagement in and/or with research from 1997-2007 (CUREE, 2007.) This identified these problems as being that research:

- is frequently small scale and incapable of generating findings that are reliable and generalisable;

- is insufficiently based on existing knowledge and therefore incapable of advancing understanding;

- is presented in a form or medium that is largely inaccessible to a non-academic audience; and

- does not offer interpretation for a policy making or practitioner audience.

Nevertheless, the report noted an increase in research outputs, with a greater focus on teaching and learning, as well as in the number and range of resources designed to support practitioner engagement in and/or with the research outputs. Robinson (2009), in her Best Evidence Synthesis of leadership identifies five detailed design criteria for outputs in the form of tools which:

- clearly explain the rationale for the change being supported;

- acknowledge the existing understandings of those at whom the tools are targeted;

- signal likely misconceptions;

- connect abstract principles with detailed illustration and practical examples; and
- are embedded in documents that are logically structured around a clear and unambiguous purpose.

There is an increasing number of research outputs designed to bridge research and practice, most of them produced through the brokering agencies described in Section 4. Cordingley (2010) lists some of them and describes them as "developed for a range of national organisations and programmes specifically to promote and support engagement by practitioners in and with research findings". They include:

- TRIPs digests (http://www.standards.dfes.gov.uk/research/). Four to five web page summaries of the latest and most practical research papers from referenced education research journals for the Teacher Research Informed Practice (TRIPs) website sponsored by the DfE.

- Research Bites (http://www.teachernet.gov.uk/docbank/index.cfm?id=13558). These are web based PowerPoint presentations that take two point five minutes to view and offer a speedy introduction to the research in the 'TRIPs digests'.

- Research for Teachers (RfT) web papers (http://www.GTCEe.org.uk/teachers/rft/). These resources involve substantial practitioner oriented presentations of cornerstone empirical studies and also strands of theoretically driven empirical work by Vygotsky, Dewey, Bruner, Dweck etc. They are organised to 'tell the story' of key findings, have hot links to each core concept and/or finding to illustrative summaries of high quality teacher research and complement and mediate these substantial pieces with a series of CPD tools and resources.

- A website designed to provide access to the research and evidence base about teacher education for initial teacher trainers (http://www.ttrb.ac.uk/).

She concludes that considerable progress has been made in the development of accessible resources designed to promote teacher engagement in and/or with research. But in terms of the objective, research based criteria developed by Robinson (2009), more attention to the needs and work of specific sub groups of practitioners in specific contexts seems to be needed. This would enable resources to be more precisely targeted towards supporting the existing understandings of different groups of teachers and towards the underpinning rationale for different types of change interventions.

Part of the purpose of this review is to develop greater understanding of what such support might look like.

While the issue of the relationship between research and practice generally, and teacher engagement in and/or with research more specifically, continues to spark debate (Vanderlinde & van Braak, 2009), a number of studies are beginning to yield an empirical evidence base around the processes and outcomes of teacher engagement in and/or with research and evidence (Figgis et al., 2000; Morris et al., 2007). Jane Figgis and colleagues explored what research made it through to practice, and the nature of the 'connecting web' between practitioners and researchers (Figgis et al., 2000). Morris et al. (2007) brought together evidence from a range of sources to provide guidance on the design of practitioner research and development programmes.

However, we know much less about the ways in which practitioner engagement in and/or with research and evidence impacts on learner outcomes. There are numerous empirical studies of CPD which investigate and report on the links between a CPD intervention and the outcomes for the learners involved (e.g. Timperley et al., 2007; Cordingley et al., 2003; 2007). But evidence about

such links in relation to practitioner engagement in and/or with research has been less extensively identified, analysed and synthesised. As with CPD studies, studies whose focus includes student outcomes seem to be largely the product of research about specific improvement programmes and interventions. So the aim of this review was to interrogate this research in order to uncover the processes involved in practitioner engagement in and/or with research, the different approaches being used to support it, and their impacts on pupil learning.

The review represents a comprehensive (within the parameters it defines) exploration of the evidence base about links between learner outcomes and practitioner engagement in and/or with research. The latter concept has itself been the subject of considerable discussion. Nutley et al. (2009) explained that their "article focuses on the use of evidence rather than its generation, although… …evidence generation and use are often interconnected". Because this review will focus on both engagement in and/or with research; with generation and use, we expect to be able to explore some of the ways in which that interconnection takes place. Hence the review moves beyond the Stenhousian view of teachers needing to do research in *order* to use it, and embraces both engagement *in* and *with* research (Cordingley, 1999).

Saunders (2007) asked the question "what are teachers doing when they engage with and in research?" She suggested that practitioners may be doing some or all of the following:

- directly accessing research intelligence, for example, through websites, reading groups, researcher-in-school schemes, as well as journals and other print media;

- participating in externally generated research studies;

- undertaking research as part of their accredited professional studies;

- undertaking specific teacher researcher activities outside accredited study;

- actively experimenting in their own classrooms using a reflective-evaluative enquiry approach; and

- working in pairs or groups to read, analyse and discuss research relevant to professional and school development, and to design collaborative studies within or even across schools.

In support of her contention that increasing numbers of teachers are research active and research literate she cited:

- a growing base of evidence and theory to support the development of teaching expertise;

- school curricular and pedagogical development that is teacher led;

- rigorous and relevant professional learning and development for teachers;

- a range of rich data for accountability purposes;

- a culture of self and collective scrutiny and evaluation; and

- [opportunities] to question one's assumptions, to think and look beyond one's own horizons and to work in communities of other professionals.

This review therefore sits at the centre of extensive research effort and an increasingly interconnected set of policy and practice initiatives. What is distinctive about it is its attempt to explore both the engagement of practitioners with the research of others and/or in their own, in the context of evidence about outcomes for the intended ultimate beneficiaries (learners, clients, patients).

In terms of the specific focus of the review, practice rather than policy was the primary aim. Policy provided the context, and in some cases the explicit driver for increasing practitioner engagement in and/or with research – but it is what practitioners can and need to do that is the prime focus of this review. Nonetheless, implications for policy maker engagement in and/or with research (and consequent implications for practice) and implications for policy making about practitioner engagement in and/or with research have been identified and reported.

5. Review questions

5.1 Overall question
What are the links between practitioner engagement in and/or with research and learner (student/patient/client) outcomes?[2]

5.2 Sub questions
In order to interrogate the studies in detail we asked the following sub questions:[3]

1. What are the obstacles to practitioner engagement in and/or with research?

2. What forms of support are required to help practitioners overcome such obstacles?

3. What is the range of approaches to practitioner engagement with research findings?

4. What is the range of approaches to practitioner engagement in research?

5. What are the similarities and differences between practitioner engagement with the research of others and in their own research?

6. How do practitioners apply research within the contexts of their existing standards and practices?

7. Are there identifiable differences in engagement in and/or with research when client/learner relationships with practitioners are one-to-one or one-to-many?

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[2] The review group was aware that links between practitioner engagement in and/or with research and learner outcomes are sometimes ignored, tenuous or anecdotal in studies of practitioner engagement in and/or with research. The review process we designed ensured that only studies where the weight of evidence regarding learner outcomes was judged medium or above were used for the synthesis of findings in relation to learner outcomes.

[3] The review group questioned whether it would be possible to pose direct questions to establish *the extent* of practitioner engagement in and/or with research in terms of how widespread it is and the numbers of practitioners involved. We concluded, in the light of the search results that this would require primary research which was not within the scope of this review.

6. Definitions

6.1 Practitioners

The review group adopted the term 'professional practitioner'. For the purposes of this review, a 'professional practitioner' is someone engaged in:

a) paid employment;

b) a profession[4] with formalised CPD and a professional body;[5] and

c) a direct client relationship (including school settings and hospital settings)[6].

The review of reviews relating to health and social care practitioners also applied to practitioners who were professionally qualified and who met the definition of (a-c) above.

6.2 Research

The primary focus of this review was the engagement of practitioners with research evidence and/or their participation in enquiry (engagement in research).

The definition of research we chose to adopt was derived from the approach developed by the NTRP for the selection of research for its biennial research conferences (NTRP, 2005). From a practitioner perspective, the NTRP argues that it is helpful to explore the value and weight of both academic and practitioner research through a set of criteria expressed in common language. Our analysis of their criteria and their application suggested to us that it would be useful, for this review, to define research as:

> *A sustained and systematic process for investigating and analysing phenomena through structured enquiry instruments; a consistent logic for evaluating and analysing data and a commitment from the start to discovering and making accessible evidence that is useful in supporting progress in learning.*

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[4] Our definition of practitioner was inclusive of school and other organisational leaders – two of our included 25 studies were school leader initiated.

[5] Point (b) of our definition meant that in school settings only studies involving qualified teachers were included in the review.

[6] We originally excluded clinical settings from our definition of practitioners and included only those settings where health/social care practitioners were directly involved in supporting learning. This was largely because of the large number of studies we would have had to tackle in clinical settings. However, after approaching health and social care through research reviews of multiple studies we relaxed the definition to include clinical settings. This does raise the question of whether it is viable to draw comparisons between health and social care practitioners, typically in a 1:1 relationship with clients/patients at the point of action and teachers in a (typically) 1:30 relationship with learners at the point of action.

6.3 Keywords

The keywords used in the search and coding for the map are attached to this protocol as Appendix B. Keywords were selected using words taken from the research question as these were more likely to generate relevant results. These were grouped together as search strings and input into several databases. They were then modified depending on results and synonyms used where necessary.

7. Methods used in the review

7.1 Education practitioners' strand

In order to complete this strand of the review, we:

- agreed with the Steering Group the protocol and inclusion criteria (Appendix C) at the outset and agreed major updates as the process unfolded;

- conducted a comprehensive electronic literature search;

- screened titles and abstracts against the published criteria;

- retrieved full studies;

- re-applied the criteria to the full studies;

- completed a map of the literature;

- applied a third filter because the number of studies was unmanageably high;[7]

- extracted data from the retrieved studies and assessed the weight of evidence using an explicit methodological framework;

- 50% of initial data extractions were cross-moderated;

- 100% of all data extractions for studies included in the synthesis were double blind data extracted;

- identified the weight of evidence of the studies – and determined which to include in the synthesis;

- synthesised evidence from the included studies to address the main and sub questions; and

- commissioned anonymous peer review comments.

Following peer review refinements and amendments we have tested our findings with policy makers, practitioners and researchers in order to identify conclusions and implications, and report on these.

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[7] The number of studies which passed through the second stage filter to full data extraction was 159. At this point the Review Team took the decision to reduce this number to more manageable proportions by removing those studies where only one teacher was involved. This left 98 studies for full data extraction. We approached the task by applying the weight of evidence criteria earlier rather than later in order to manage the amount of time available for data extraction. This resulted in the identification of 25 studies for full data extraction and inclusion in the review.

7.2 Health and social care practitioners strand

Our pilot searches revealed that a comprehensive search and synthesis of the literature on practitioners in health and social care were beyond the scope of this review. For example, early searches resulted in over 80,000 abstracts in the field of health care alone. What this also revealed was the existence of a number of existing research reviews in this field. For comparative purposes, we decided that synthesising across reviews as distinct from individual studies would enable us to work with meaningful (i.e. selective, see definitions section above) groupings of professionals rather than having to sift the extremely diverse literature that accompanies the (also extremely diverse) workforces in health and social care. A similar approach was taken by Walter et al. (2005) who also limited searches to "relevant reviews and overviews of interventions to enhance research use", and to evaluations of four large scale, multi-site initiatives. Our aim in doing this was to review the evidence about practitioner engagement in and/or with research in education in depth and to contextualise this through comparisons with evidence from other professions rather than researching other professions *ab initio*. We synthesised across the findings from the review of reviews (by means of our sub questions) in the same way as we did for the individual studies and reviews we uncovered in the purely educational strand of the review. We then compared and contrasted the findings and identified some of the key learning points from the health and social care literature. This process is illustrated in Figure 1.

Figure 1

8. Identifying and describing studies

8.1 Defining relevant studies: stage one criteria

The individual studies included in this review were subjected to a two-stage inclusion process. (See Appendix C).

At the first screening (stage one) studies were included if they satisfied the following criteria:

- were written in English;

- focused on practitioner engagement in and/or with research;

- had been published since 1998;

- included evidence of learner outcomes; and

- included only practicing practitioners rather than teachers in pre-service training programmes.

All studies which passed the stage one criteria were keyworded and mapped. Because of the focus on learner outcomes, the majority of the studies were empirical research projects, including both researcher manipulated interventions and practitioner action research projects.

We did not select only peer reviewed research because practitioner research does not necessarily reside in academic journals. Although the research we used had not necessarily been peer reviewed, each study was quality assured by the review team using explicit criteria and double blind cross-checking.

At the second screening studies were scrutinised for their methodological design. (See Section 10.)

8.2 Identification of studies: search strategy

The studies for the review were identified using a range of search tools:

a)   Electronic databases

For the widest range of international and UK studies we searched the Educational Resources Information Centre (ERIC); the British Education Index (BEI); Current Educational Research in the UK (CERUK); INGENTA; BL Direct; and the Educational Evidence Portal (EEP).

b)   Websites

Education studies

To maintain its international dimension, the group also searched the American Educational Research Association (AERA) and the Association for the Advancement of Educational Research (AAER) websites. Other websites we searched included the Australian Council for Educational Research (ACER); the Scottish Research in Education Centre (SCRE); NFER; the Office for Standards in Education (OFSTED); DfE; British Educational Research Association (BERA); and selected LA and university websites.

Teacher action research/inquiry projects have become an increasing feature of practice in England in recent years. Examples range from individual projects carried out as part of accredited programmes of study, such as TDA's PPD programme. Many of these projects are in turn evaluated and the best are then promoted through the NTRP's biennial conferences. They are also an established feature of CPD in other countries. Many of these projects demonstrate a consistent focus on learner outcomes which interestingly, is not a common feature in other studies. We included only those studies which

attempted to explore systematically engagement in and/or with research *and* the outcomes for learners, and those that had been quality assured as a research based resource for informing others' learning: e.g. via the NTRP's QA system for the biennial research conference or as a contribution to the public knowledge base via peer refereeing for journals.

In England this type of practitioner research is published on websites of organisations like the NTRP and on selected university sites, including the University of East Anglia, Worcester University and Canterbury University. (See Appendix D).

Health and social reviews

After preliminary scoping searches we identified a range of websites to target for systematic reviews of engagement in and/or with research in the health and social care fields including: NICE (National Institute of Clinical Excellence); SCIE (Social Care Institute for Excellence); C4EO (The Centre for Excellence and Outcomes in Children and Young People's Services); World Health Organisation; PubMed Central; King's Fund library database; Cochrane Library; Science Direct; EPPI (The Evidence for Policy and Practice Information and Coordinating Centre); Campbell Collaboration; Social Care Online; ASSIA (Applied Social Sciences Index and Abstracts); ERIC (Education Resources Information Centre); CSA Social Services Abstracts; LISA (Library and Information Science Abstracts); ISI Web of Knowledge; OVID (Medline and HMIC); ARVAC (Association for Research in the Voluntary and Community Sector); FLAG (Families, Lifecourse and Generations Research Centre); RURU (Research Unit for Research Utilisation); CRD (Centre for Reviews and Dissemination, York University).

c)   Recommendations
Recommendations were sought from advisory group members, known specialists and overseas correspondents, practitioners and other specialists as needed.

d)   Following up citations
Where appropriate, the review followed up citations contained in published and unpublished research.

A bespoke database system was set up to track and code studies found during the review.

8.3 Filtering studies

We applied the initial (stage one) search criteria to titles and abstracts and then to full reports. We collected copies of full reports, studies and articles selected through the initial search process, and re-applied the initial criteria.

Decisions to exclude or include studies were sampled for consistency regularly by internal moderators. The process as a whole was subject to quality assurance processes.

8.4 Identifying and describing studies: quality assurance process

Application of the inclusion and exclusion criteria was cross-moderated by researchers working independently and then comparing their decisions and coming to a consensus.

9. Mapping

We produced a descriptive map of the individual studies which survived the application of the initial filtering. The map illustrated the contours of the research landscape in terms of the origin and types of study. For the latter we made it clear whether the study was descriptive or comparative and outlined methodological approaches. (See Section 9.1).

We also clarified whether studies focused on:

- engagement in and/or with research – or both;

- the engagement in and/or with research as a means to an end – for example in addressing improvement areas in subjects; and

- teacher engagement in and/or with research as the primary aim of the research.

We also used the map to identify those of our review questions for which the individual studies were likely to yield evidence.

9.1 Types of study

Studies were keyworded in order to distinguish between:

i. **Evaluation**: Studies which evaluate a policy, practice, programme or other intervention by assessing whether it works well in terms of intended or unintended effects on learner/client outcomes. These may include qualitative and/or statistical techniques. The evaluation could be based on assessments after a policy or practice has been in place (post-test), or both before and after (pre- and post-test) or on several occasions before, during and after. The participants in such evaluations could be individuals (e.g. pupils or teachers) or groups (e.g. classes, schools, or LA/school districts).

We distinguished between researcher manipulated evaluations and naturally occurring evaluations – i.e. those which assess processes or outcomes for individuals or groups who have not been allocated by researchers to receive particular policies or practices. (http://eppi.ioe.ac.uk/EPPIWebContent/downloads/EPPI_Keyword_strategy_0.9.7.pdf)

ii. **Action research**: We keyworded practitioner action research projects separately in order to distinguish these as a group of studies in the synthesis. Studies coded as action research were analysed using the same weight of evidence judgements as the other studies.

iii. **Review**: Reviews may be systematic or non-systematic, and may, or may not, include a quantitative synthesis (meta-analysis).

Our review question was 'What are the links between practitioner engagement in and/or with research and learner (student/patient/client) outcomes?' From our preliminary searching and testing of our data extraction framework we identified a tentative typology of the approaches to the engagement in and/or with research being explored in studies. Some of these approaches also fell within the overall cluster of action research study types. Studies were therefore keyworded in order to map whether they involved practitioners engaging in and/or with research as part of:

- accredited forms of study (e.g. MA);

- ongoing CPD as required by the school, professional network etc.;

- experimental (i.e. comparison groups and/or pre- post-test);

- practitioner driven inquiry into practice (i.e. no comparison groups or pre- post-test);

- reflective practice (i.e. developing theory);

- coaching based CPD; and

- being involved in someone else's research study (e.g. as part of a sample).

We do not claim this is an exhaustive list.

9.2 Map of education research studies

Of the 8,000 studies identified through the searches:

- 339 abstracts passed through the first stage filter;

- 300 full studies were purchased and/or downloaded; and

- 39 studies were not obtainable.

Of these studies 224 passed through the reapplication of the filter and 76 were rejected.

These 224 studies were mapped according to their country of origin, sample sizes, types of study and the approaches to engagement in and/or with research so we could begin to build a bigger picture of the research landscape.[8]

Table 1: Country of origin

UK	108
USA	76
Canada	3
Australia	23
New Zealand	7
Other	7

Unusually, the majority of the studies in the map originated in the UK. Previous research reviews in education have tended to find that the majority of the studies they found when they searched the international research databases were conducted in the US. This is due to the large number of teacher action research studies (83) selected from across the many English action research programmes by the NTRP for use by practitioners. When these are removed from the map the number of UK studies drops to 25.

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[8] Note: As we indicated when we revised the approach to health and social care we did not include the research reviews for health and social care in the map as they each individually deal with data from a range of studies according to their individual review foci. The review findings have been synthesised in detail.

Table 2: Teacher sample size

1 teacher	86
2-5 teachers	70
6-10 teachers	20
11-29 teachers	21
30-99 teachers	20
100+ teachers	7

Table 3: Student sample size

1-10 students	19
11-39 students	69
40-99 students	63
100+ students	69
Not applicable	4

Studies with only one teacher involved constituted the largest single block. Small groups (2-5 teachers) were the second largest block. Large numbers were rare – only 27 studies involved more than 30 teachers. However, the numbers of students involved in the research (Table 3) provide a better reflection of the scale of the studies. More than 130 studies involved 40 or more students of which 69 involved 100 or more students.

Table 4: Phase

Infant	18
Infant and primary	6
Infant, primary and secondary	2
Primary	90
Primary and secondary	17
Primary and secondary and further education	1
Secondary	72
School with sixth form	9
Special educational needs	1
Further education	4
Not school based	4

Studies conducted in primary schools constituted the largest block (90 studies) with those conducted in secondary schools following close behind (72 studies). Only four studies were conducted in a further education setting.

Table 5: Accredited or sponsored research

Accredited forms of study (e.g. MA)	54
Sponsored research by third parties	40

Table 5 indicates whether practitioners were involved in the research as part of a course of postgraduate study or whether they were taking part in a research programme sponsored by external agencies, including official evaluations or HEI projects.

Table 6: Types of study

Evaluation (naturally occurring)	19
Evaluation (researcher manipulated)	59
Action research	158
Review	9

Practitioner action research was identified as a separate category for synthesis and comparative purposes. Categories are therefore not mutually exclusive as some action research projects were evaluations of particular classroom interventions.

Table 7: Nature of the approach to engagement in and/or with research

Ongoing CPD as required by the school, professional network etc	9
Mini experiments (i.e. comparison groups and/or pre- post-test)	63
Practitioner driven inquiry into practice (i.e. no comparison groups or pre- post-test)	100
Reflective practice (i.e. development of theory without necessarily trying out new approaches)	20
Coaching based CPD geared to interpreting and applying the research of others	4
Being involved in someone else's research study (e.g. to contribute an action research component to wider field work as part of a sample)	28

For the purposes of the map we were interested to see the general contours of the landscape of practitioner engagement in and/or with research. The categories identified here were derived from an initial scrutiny of a sample of the retrieved studies which passed through the first filter.

Table 8: Studies to be included for in-depth data extraction

The findings are based on at least two data sources	185
Potential to contribute to review questions	
Obstacles	54
Forms of support	48
Engagement with research	80
Engagement in research	109

All of the mapped studies were subject to a further filtering stage to determine whether they would be included in the in-depth data extraction process. In order to proceed to this process findings from the research had to be based on more than one data source *and* the studies had to report on sufficient process data to enable the research to contribute to one or more of the review sub questions in addition to our overall question.

10. Application of stage two criteria

Due to the number of studies remaining after the application of the stage one criteria, we applied a stage two filtering process agreed with the sponsors with the advice of the advisory group. This involved the application of consistent criteria related to design and methods and was applied to all studies, whether they were classroom based teacher action research projects or large scale researcher manipulated interventions. Because we explored links between practitioner engagement in and/or with research in relation to the links between such engagement and identified learner/client outcomes, we needed to be sure that such outcomes were robustly evidenced.

For stage two we applied the following criteria:

1. *The findings are based on at least two data strands (one of which must be pupils) OR two forms of pupil data (e.g. observation and survey responses), OR if the evidence is quantitative only it must include a comparative measure.*

2. *Each study must be relevant to at least one or more of the first four review sub questions:*
   1. *What are the obstacles to practitioner engagement in and/or with research?*
   2. *What forms of support are required to help practitioners overcome such obstacles?*
   3. *What is the range of approaches to practitioner engagement with research findings?*
   4. *What is the range of approaches to practitioner engagement in research?*

Triangulation in the research design was a key consideration for deciding on whether a study passed or not. This was based on evidence that teacher self-reports alone are an unreliable indicator of changes in learner outcomes (Timperley et al., 2007).

As this process resulted in the inclusion of a very high number of studies (159 studies) which the review group considered to be unmanageable within the budget and timeframe, we excluded all studies which involved only one practitioner. This excluded many of the MA studies and a substantial number of the lone practitioner action research studies.

Following cross-moderation, those studies identified as meeting the inclusion criteria were analysed in depth, using a detailed data extraction framework. The framework was constructed to enable the systematic and consistent population of a specially constructed database from which we were able to synthesise the review findings. Data were extracted by two reviewers working independently and any irreconcilable differences were subject to third party arbitration.

11. Assessing quality of studies and weight of evidence for the review question

We used systematic and explicit approaches for assessing the methodological robustness of the studies at the in-depth review stage. For example, at a minimum, quantitative studies needed to demonstrate reliability and validity of data collection and analysis tools. Qualitative studies were required to demonstrate robust triangulation processes. We set out criteria for testing the weight of evidence and piloted them against a sample of the studies to ensure they were fine grained enough to differentiate between the range of evidence we encountered. We also attempted to cross-refer them to the tests for weight of evidence used in the systematic reviews from health and social care that we synthesised. The resulting criteria were agreed with the sponsors and advice was sought from the advisory group.

12. Synthesis of evidence

12.1 Introduction

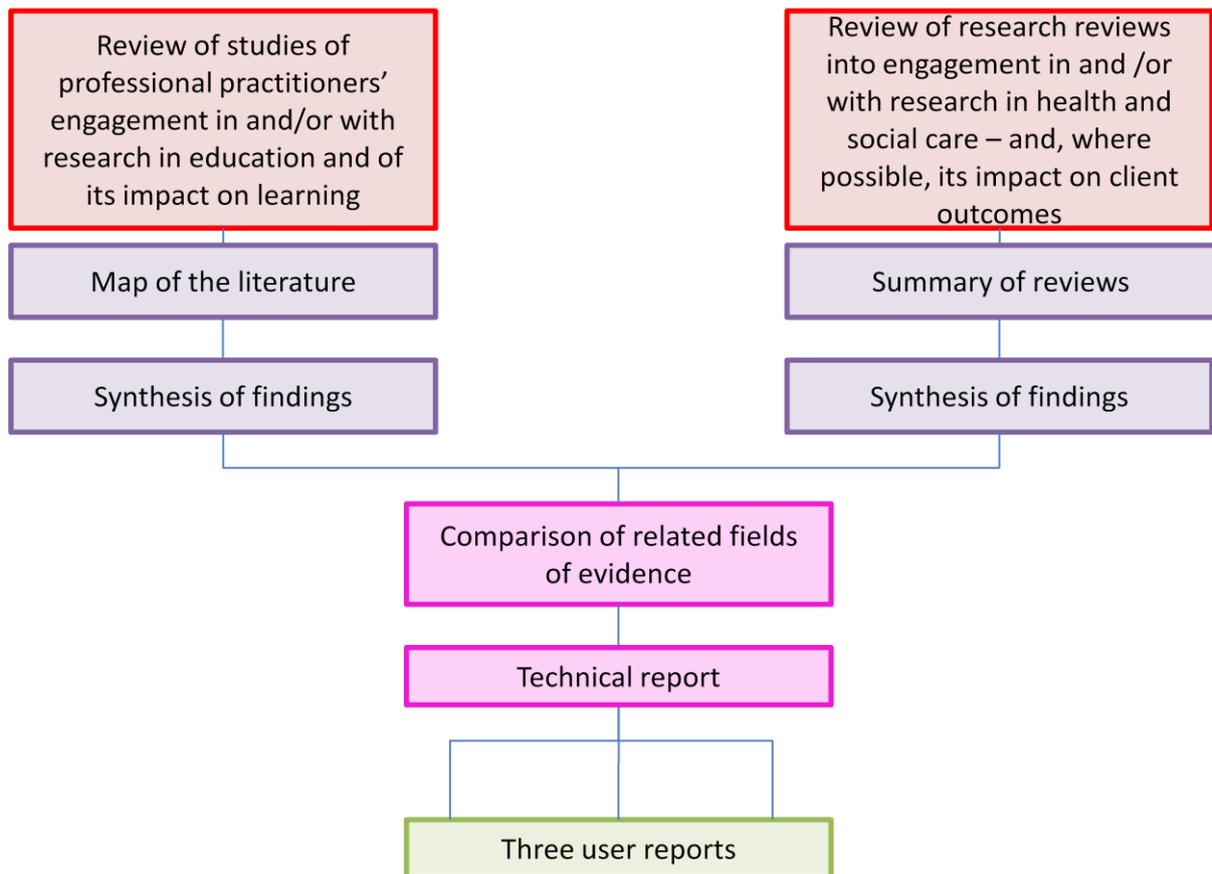Because our synthesis draws together evidence from individual studies in education and from research reviews in health and social care, the synthesis itself and our report of it is layered. To help clarify this we have presented here:

- a reminder of the contours of the unfolding academic analysis of concepts that are key to this review: engagement in and/or with research;

- the research questions; and

- the grouping of the studies in education.

These introduce our description of the obstacles and strategies for support and the impact of the different approaches. We conclude with a discussion of the similarities and differences between education, social care and health. To help readers keep track of this layeredness we have repeated our graphical representation of our approach to the review below.

Figure 1

```
┌────────────────────────┐              ┌────────────────────────┐
│ Review of studies of   │              │ Review of research     │
│ professional practi-   │              │ reviews into engagement│
│ tioners' engagement in │              │ in and /or with        │
│ and/or with research   │              │ research in health and │
│ in education and of    │              │ social care – and,     │
│ its impact on learning │              │ where possible, its    │
│                        │              │ impact on client       │
│                        │              │ outcomes               │
└────────────────────────┘              └────────────────────────┘
            │                                        │
┌────────────────────────┐              ┌────────────────────────┐
│   Map of the literature│              │   Summary of reviews   │
└────────────────────────┘              └────────────────────────┘
            │                                        │
┌────────────────────────┐              ┌────────────────────────┐
│  Synthesis of findings │              │  Synthesis of findings │
└────────────────────────┘              └────────────────────────┘
            └───────────────────┬────────────────────┘
                   ┌────────────────────────┐
                   │ Comparison of related  │
                   │   fields of evidence   │
                   └────────────────────────┘
                                │
                   ┌────────────────────────┐
                   │    Technical report    │
                   └────────────────────────┘
                                │
                   ┌────────────────────────┐
                   │   Three user reports   │
                   └────────────────────────┘
```

12.2 The studies in the education synthesis

12.2.1 Groups of studies

Evidence about student outcomes was an essential criterion for any study to be included in the synthesis. But student outcomes were not in themselves the critical focus of the review: they were an evidence based pre-condition for inclusion rather than the core focus. Our focus was practitioner engagement in and/or with research explored through a number of lenses including its impact.

What we found as a result of our search and filter process (and our insistence on evidence about student outcomes) were three quite distinct groups of studies. These were: researcher led, larger scale studies; teacher initiated, smaller scale studies; and Masters based teacher inquiry.

We have identified several elements of our search process (see Section 12.7 Limitations of the Review) which may account for this. For example, we confined the international search to electronic databases but the vast majority of teacher MA dissertations are not published on these databases so

we surfaced only those that had been published. Only a handful of recommended individual websites were searched and only in the UK. We also excluded hundreds of studies with no learner outcome data. To enable us to read across between the groups as well as between the studies as a whole we have identified each group separately. (To illustrate the range and types of studies, their sample sizes and the data on which the reported outcomes were based, we have included brief descriptions at Appendix E.) The three groups of studies (which we have labelled without intending hierarchy) we would describe as follows:

Category A: **researcher led, larger scale studies – (academic studies for short).** Studies that involved researchers and teachers, in which the latter were participants in research projects designed by academic researchers. Although the teaching practitioners were in each case active participants, the extent to which they were involved in designing and planning the intervention and in-data collection and analysis varied and the aims of the research are fundamentally different. Seven of these 11 studies specifically focused on the evidence about teacher engagement in research in the design of their projects. Another study, (Kuiper et al., 2009) designed a project in which teachers supported student inquiry activities as the principal learning vehicle for improvement in student learning outcomes. The teachers were "explicitly invited to adapt the project to their own students and circumstances, provided that the project's main characteristics would be preserved". Studies in this category came from across the US, UK, Australia and New Zealand. This is the largest category (eleven studies).

Category B: **teacher initiated small scale studies (TISS studies for short).** Studies which are, in effect, reports of practitioner research projects undertaken via a range of different support mechanisms and drivers and selected and quality assured for promotion nationally via the English National Teacher Research Conferences between 2002 and 2008. This group of studies is solely UK based, no doubt partly because we did not search individual HEI or agency websites in any country other than the UK. In the UK we searched those we knew about, including, as we have explained, the NTRP database in order to ensure that we were in a position to explore teachers' own research alongside research led by academic researchers. For the rest of the world we only found what was available through electronic database searches. Six of these studies were teacher or headteacher initiated, designed and implemented. One was coordinated through a science centre and supported by an academic researcher. There were seven studies in this category.

It should be noted that the NTRP database is not a unitary source of research, but rather a portal and organising system for practitioner research carried out all over England. The summaries published on the database reflect a diverse range of research activity, including research for Masters qualifications, large scale project work and smaller scale practitioner enquiry.

Category C: **Masters based teacher enquiry (Masters based studies for short).** Studies undertaken by practising teachers as part of their MA degree requirements at St Xavier University in the USA. This Masters based cluster of studies emerged via our electronic database searches but there are clearly many thousands of MA teacher research reports from the USA and internationally which have not been included in the databases that we searched.

Ranging from 1999 to 2008 the seven Masters based studies focused mainly on improving students' learning behaviours through different kinds of pedagogical interventions. The design and approach to the 'teacher action research projects' showed consistent characteristics: the aims and goals were set by the teachers; the interventions were all research based. All followed a consistent process: teachers identified a problem or issue in their own contexts; they undertook a review of research around that issue; they decided jointly on the intervention, based on the research findings; they

jointly planned and implemented the intervention; collected and analysed their data and reported their findings. There were seven studies in this category.

12.2.2 Characteristics of the studies

Engagement in and/or with research

The primary focus of this review is practitioners' engagement with research and/or their participation in practitioner enquiry (engagement in research).

As we saw in the background section of this report there has been an evolving interest in teacher research and enquiry in England. Lawrence Stenhouse's (1981) work in particular gave this initial impetus. A key tenet of his approach was a belief that in order for teachers to engage with the research of others it was necessary for them to engage in research. The growth of interest in action research in England has, from time to time, tested, reinforced and also contested this view. For a time, for example, the Centre for Action Research (CARN) advocated strongly that the most important evidence in teacher enquiry was evidence from their own classrooms rather than evidence from researchers (Somekh, 1995). The introduction of national funding to encourage and promote teacher research that was/is developed to the point where it is published both for peer review purposes and to inform the practice of others provoked another round of debate. Academic researchers such as Foster (1999) and Gorard (2001) contested the validity of all teacher research for informing the practice of others. Others argued that only particular forms of teacher enquiry are of value (Whitehead, 1989).

Academic discussion of teacher engagement with the research of others has followed a tangential path, starting with Hargreaves' 1996 critique of the nature and quality of education research. He highlighted the importance of considering teachers' access to research from the public knowledge base and its relevance and utility. This was followed by the development of a substantial literature focused variously on knowledge management (Hammersley, 2001; Oakley, 2003; Pollard, 2008); on communication and co-construction (Saunders, 2007); and on CPD (Cordingley & Temperley, 2005).
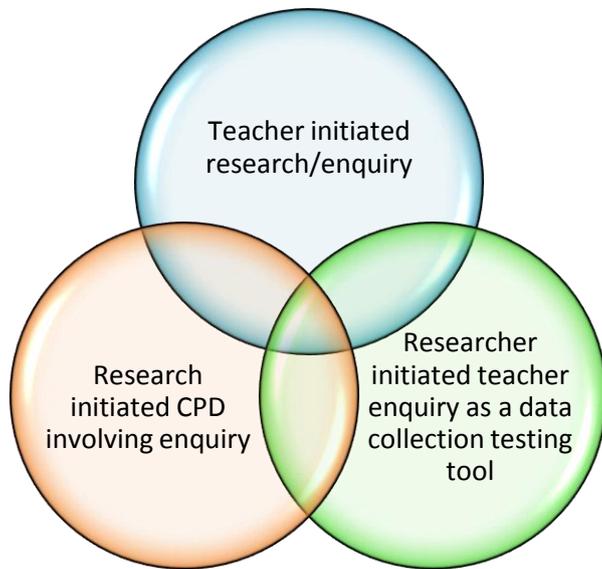
In this review we have uncovered studies that range, at one end of the spectrum, from:

a) researcher led support for teachers in developing an understanding of research findings and confidence and skills in deploying evidence based teaching and learning techniques; - through -

b) teachers' self-initiated attempts to understand and adapt research findings for their own context; - through to -

c) formal and tightly designed research projects carried out and published by teachers.

As we can see, the scale is not linear nor are there simple cut-off points. The purpose of teacher engagement in and/or with research also adds a layer of complexity.

For example, some studies involved teachers in action research both to enable the research team to access and test the development of teaching practice and learning outcomes as an outcome of engaging with published research – and as a tool for supporting teacher development. We have

represented this as an additional dimension on our spectrum as shown in Figure 2 below.

Figure 2

The core processes for collecting and interpreting evidence are at the centre of these overlapping fields of endeavour (and our circles) and also at the centre of many of the studies in our review. What largely distinguishes them from each other is purpose. Purpose was a determinant of the extent to which enquiry activities were initiated, analysed and written up by teachers and/or researchers. The focus of decisions about purpose, in turn seemed to be important in distinguishing between different types of activity and, as we discuss later, between activity in different professional fields.

None of the studies in the review involved practitioner engagement in research without also engaging with the public knowledge base. The latter stimulated or informed and shaped their own research activities. But a number of studies involved teachers engaging with rather than in research.

The definition of research in our protocol is derived from the NTRP's experience of quality assuring and selecting teacher research for promotion nationally over the last ten years, namely:

> *A sustained and systematic process for investigating and analysing phenomena through structured enquiry instruments; a consistent logic for evaluating and analysing data and a commitment from the start to discovering and making accessible evidence that is useful in supporting progress in learning. (NTRP, 2005).*

For the purposes of this review we have used three key criteria for distinguishing between engaging in and engaging with research. If practitioners are engaging in research they will:

- address themselves to a research question;
- use instruments which enable them to explore both adverse and positive outcomes; and
- contribute to the analysis and reporting.

From these definitions, we can see that in terms of practitioner engagement in and/or with research, studies across our three groups could be arranged along a broad spectrum which is illustrated in Figure 3 below.

Researcher led

At one end, they were all planned, analysed and reported by researchers, with practitioners actively involved in implementation and in data collection and review (academic studies). In relation to engagement with research, teachers were introduced to research findings and the underpinning rationale or theory, by researchers. They were offered extensive support, often via enquiry rich development activities, to interpret findings and adapt them for context. We have defined practitioner engagement in this category as engaging with rather than in research – noted A in Figure 3.

Practitioner led

At the other end of the spectrum, activities explored were wholly practitioner planned, implemented, analysed and reported (six out of seven TISS studies and all Masters based studies). In the teacher initiated and directed studies a range of support was drawn down by the teachers involved, from a wide range of sources including HEIs, LAs and specialist organisations. In the Masters based studies, i.e. those supported by St Xavier University the guiding hand of the HE tutors is evident in the consistencies between the methodologies adopted by the authors of the studies. Whilst the nature of the support varied between studies the processes were very similar. Practitioners were involved in data collection through a range of methods, usually including observation; review of practice and refinement of the approach; and analysis and reporting. We have defined these studies as involving engagement in and with research.
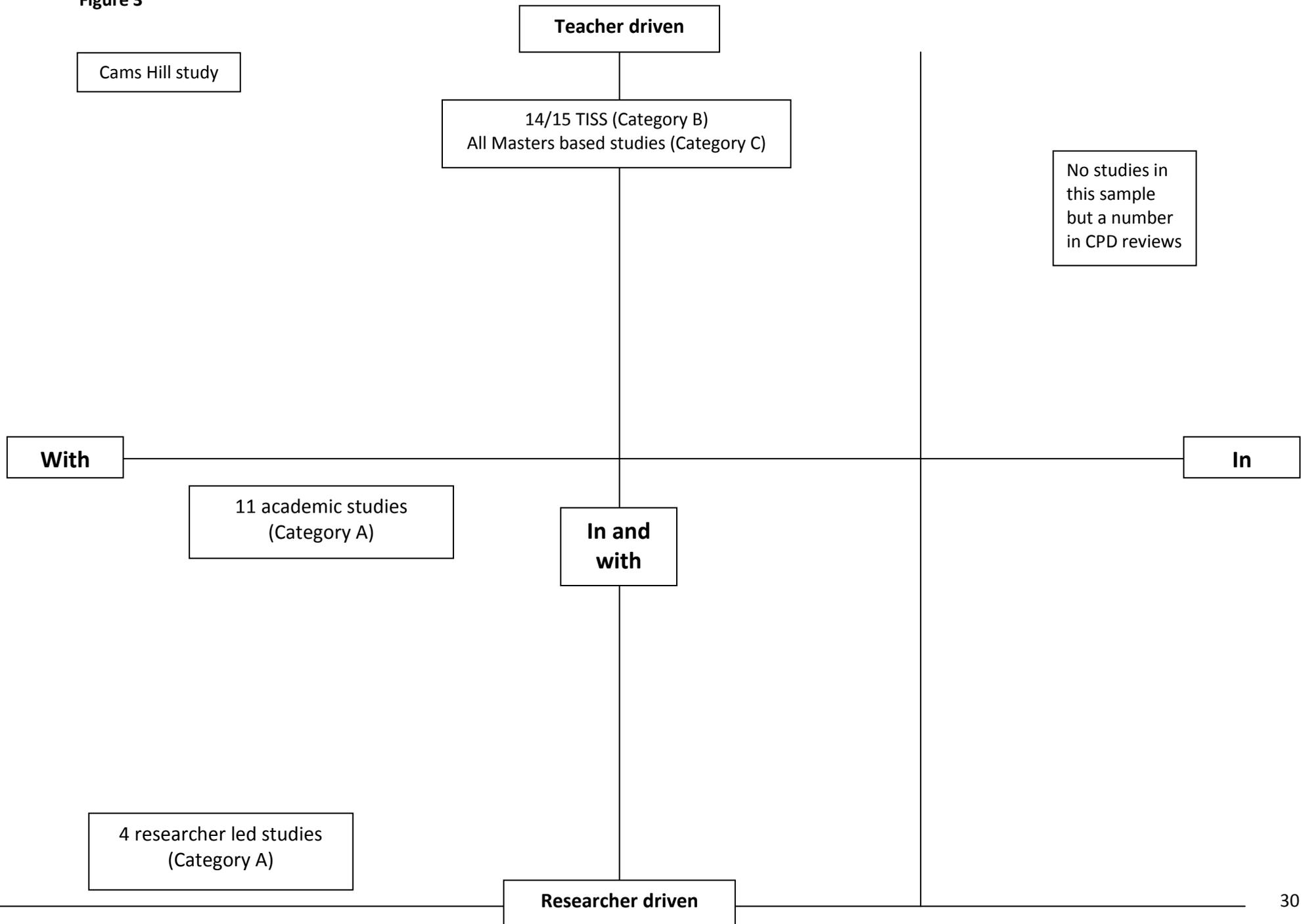
Action research

Enquiry orientated teacher development activity is very often categorised as action research. Seven out of the 11 academic studies, for example, based their interventions on evidence about what they described as action research. But in each of these cases the researchers rather than the teachers wrote up the work and the accompanying analyses, research results and findings. According to our definition (see above) these studies, together with the remaining four academic studies would be defined as engaging with research for the purposes of our review; the distinguishing feature being the absence of teacher involvement in reporting, and, in the main, in analysis. (See study descriptions Appendix E)

However defined by the researchers, action research was chosen in almost all cases because of its capacity for dealing with contextualisation and interpretation for context. This emphasis upon contextualisation is one of the most significant differences between health and education when it comes to practitioner engagement with research, as we shall see in Section 12.6.

Involving practitioners in engaging in research also involved them from the start, in directly addressing school or student specific aims or issues in all but one (Cams Hill Science Consortium, 2006) of the TISS and Masters based studies. Their engagement in research was therefore highly context specific, whether or not they were using research findings from elsewhere and attempting to introduce them into their own contexts via action research.

Figure 3

Cams Hill study

Teacher driven

14/15 TISS (Category B)
All Masters based studies (Category C)

No studies in
this sample
but a number
in CPD reviews

With

In

11 academic studies
(Category A)

**In and
with**

4 researcher led studies
(Category A)

Researcher driven

Focus of the studies

Research is not usually an end in itself. It is a sustained and systematic attempt to explore a specific phenomenon. In education it also usually aims to improve a specific aspect of learning. So the focus of the research and/or the nature of the intervention may be significant here.

All of the interventions in the review studies involved practitioners in depth in different pedagogical approaches. Three also involved wider, school systems involving sustained school changes and one attempted explicitly to explore transfer between contexts. These were:

- Cams Hill Science Consortium (2006) tackled 'systematic changes' to the school curriculum.

- Casserley & Casserley (2004) adopted a whole school approach to the curriculum, to teaching and learning and to organisational systems.

- Attard (2008) reported on a whole school project which used pupil voice and philosophy for children to give children and staff more involvement in learning decisions.

One, Steele Shernoff & Kratochwill (2007) provided evidence based training and resources to teachers as part of a project to transfer a successful approach to learning from one context to another context.

Although the four studies above involved whole school change, or transfer between contexts, their prime concern was with pedagogy as the lever for change, rather than structural or organisational institutional change *per se*.

Aspects of the public knowledge base

We have noted that practitioners who were engaging in research were almost always also engaging with research – with the public knowledge base. The kinds of research with which they were engaging varied. They included research into:

- the role of critical thinking in the curriculum and its impact on learning;

- AfL;

- enhancing effective practice in special education;

- using the web as a learning tool;

- improving social skills through the use of co-operative learning strategies;

- improving reading comprehension;

- increasing student motivation;

- professional development in behaviour management;

- physical education teaching and learning;

- literacy;

- social sciences;

- inquiry based learning in science;

- mathematics teaching;

- creativity in the curriculum;

- self and peer assessment; and

- making group work effective.

The role of student outcomes in driving and structuring the work

In all but two of the academic studies, the researchers primarily wanted to explore teacher change: How did the intervention change the way teachers did things and thought about them? The focus on student outcomes was, for the most part a second level concern. Timperley & Alton-Lee (2008) and Timperley & Parr (2009) are notable exceptions to this.

Studies along the practitioner end of the spectrum, on the other hand, (TISS and Masters based studies) were all focused directly on changing student learning and/or behaviour. Although the kinds of student outcomes were similar across all three categories, the data collected in studies at the practitioner end of the spectrum were predominantly concerned with student impact. Practitioners were collecting data about new interventions and their pupils' responses to change in their practice rather than about their own learning processes. As a result (and in general) there were a good deal more *process* data in the studies at the researcher end of the spectrum (i.e. about practitioner engagement in the research processes) and more direct *student impact* data in the practitioner studies.

Impacts on students and on practitioners

Student outcomes

Table 9: Knowledge and skills

Knowledge/skills	
Improvement	14
Remained the same	0
Deteriorated	0
Mixed outcomes	2
Not measured	8
Other	1

Table 10: Behaviour

Behaviour	
Improvement	9
Remained the same	0
Deteriorated	0
Mixed outcomes	3
Not measured	12
Other	1

Table 11: Attitude/beliefs/motivation

Attitude/beliefs/motivation	
Improvement	10
Remained the same	1
Deteriorated	0
Mixed outcomes	3
Not measured	10
Other	1

As the tables above show, there was extensive evidence across the studies of links between engagement with research and engagement in and/or with research and benefits for students. No studies reported negative outcomes and just three reported mixed outcomes for some groups of students. Student outcomes were largely positive and fell into three broad categories, although they were not mutually exclusive: changes in knowledge and/or skills; behavioural change and changes in attitudes, beliefs or motivation.

Practitioner outcomes

Table 12: Pedagogic knowledge/skills

Pedagogic knowledge/skill	
Improvement	19
Remained the same	1
Deteriorated	0
Mixed outcomes	1
Not measured	4
Other	0

Table13: Content knowledge/skills

Content knowledge/skills	
Improvement	6
Remained the same	0
Deteriorated	0
Mixed outcomes	0
Not measured	19
Other	0

Pedagogical knowledge and skill

There was extensive evidence of links between engagement with and engagement with/and in research and benefits for teachers. In only one case were there mixed outcomes for teachers.

The majority of the reported practitioner outcomes related to improvements in pedagogical knowledge and skill. As well as specific teaching interventions, these included a greater focus on the needs of students and a greater focus on learning as opposed to teaching. Six of the 25 (Piggot-Irvine, 2008; Timperley & Alton-Lee, 2008; Gabl et al. 2007; Hickson & Fishburne, 2005; Shaddock, 2006; Freeman & Jeanpierre, 2001) studies reported outcomes related to content knowledge and improvement. No studies reported teacher outcomes in terms of content knowledge and skills alone. All but one of the six studies reporting improvements in content knowledge and skills were academic studies.

The only study with mixed outcomes for pupils, (James & McCormick, 2009) found that some of the observed improvements reflected deep learning on the part of the teachers who "captured the spirit of AfL by integrating practices into the flow of lessons to regulate the learning process itself". Other practitioners in the study seemed more mechanical: teachers focused just on the surface techniques or the 'letter' of AfL. The researchers concluded that the former approach required an understanding of underlying principles. "We concluded that beliefs and practices are inter-related and need to be developed together. It is not sufficient to tell teachers what to do".

Confidence, motivation and professional growth

Other outcomes for teachers included enhanced professional growth; greater teacher confidence; use of research techniques and how to make effective presentations. Ten out of our 25 studies, a substantial minority group, explicitly reported increases in teacher motivation. The latter was not a primary focus of the research and appears to have been an indirect and unanticipated outcome of the practitioner's engagement in research. By way of illustration: Timperley & Parr (2009) reported that they:

> found very enthusiastic and well-informed teachers who all reported on the increased pleasure and motivation they now derived from teaching writing. They reported that they no longer needed to spend most of the lesson motivating the students to write, and so were able to spend more time explicitly teaching how to write with focused learning objectives and mastery criteria.

According to Freeman & Jeanpierre (2001) teachers in the project were more likely to use action research within their own science classrooms after the introduction of the intervention. They enjoyed the opportunity to study science again.

In most cases (with notable exceptions including Casserley & Casserley (2006) and Cams Hill Science Consortium (2006) the approach taken by the practitioner researchers – irrespective of whether they were MA students participating in HE academic research, classroom teachers or headteachers; and irrespective of the aim of the research – was pedagogical. In other words, practitioners were engaging in and/or with research about teaching and learning: not about new curriculum content but about strategies for the enactment of that content with different groups of learners.

12.3 The research questions

The overall question the review was designed to address was: What are the links between practitioner engagement in and/or with research and learner (student/patient/client) outcomes?

Our question embraces complex concepts and interconnections. The studies included in the review have helped us to understand these and to explore the range of approaches, including:

- the extent to which engagement in and/or with research is driven by teachers or researchers;

- the nature of the learning and teaching phenomena teachers and/or researchers were exploring; and

- the extent to which engagement in and/or with research is seen as a way of contextualising and interpreting larger scale research findings.

Because of the diversity of the research field and the complexity of the question, we identified three groups of sub questions (grouped according to the type of data required to answer them) to help us unpack our overview question.

12.3.1 The research sub questions

Group 1

What are the obstacles to practitioner engagement in and/or with research?
What forms of support are required to help practitioners overcome such obstacles?

Studies were directly data extracted for any evidence they offered on the above two questions. We have reported on these for each category of studies and on some interesting comparisons between the education studies and those included in the health and social care reviews.

Obstacles

We investigated the extent to which practitioners experience obstacles in their engagement in and/or with research. The 15 studies which did report on obstacles revealed difficulties for practitioners that clustered around four broad areas. These were time; facilitation and/or external support; research methods and processes; and diverse foci.

Time

Seven out of 15 studies highlighted issues to do with time. These related both to having to rush in order to complete the research within a specified time frame (largely the degree related research); and to having to put in time over designated holiday periods. Two studies also highlighted the effects on students of the time taken for the implementation of the research strategies. This could mean students not having time to complete their 'normal' activities such as assignment writing; or resentment at knock-on diminutions in their scheduled lesson time. One study highlighted the need for more time for initial training in the new strategies they were to implement as part of the

research. Another referred to the 'hurried introduction' of the research. O'Connor et al. (2006) reported that teachers also perceived the action research process as "time-consuming and overwhelming".

Facilitation and/or external support

Five out of the fifteen studies identified problems with the nature of their support: ranging from too little support to changes in key personnel, facilitators having no knowledge or background in action research, or no expertise in facilitating research.

Research methods and processes

Analysing the data they collected was difficult for practitioners in ten studies. In some cases this was due to the sheer volume of data (three studies). One St Xavier teacher study reported difficulties in finding a way of analysing writing in order to make measurable comparisons between pre- and post-tests. In another it was pinpointing and calibrating the exact results of observations. One study highlighted the level of recording and the exacting standards of a research project. Two studies mentioned report writing and presentation of evidence. One study highlighted the problems posed by student surveys which they believed reflected what the students thought their teachers wanted to hear.

For the 34 MA teachers investigated by O'Connor et al. (2006) we have a more detailed picture of obstacles experienced by teachers. The key elements in the research process which these teachers found difficult were:

- defining the research question;

- writing the literature review;

- developing the methodology; and

- organising and writing findings.

Diverse foci

Practitioners in four studies across all three categories found it difficult to engage in research if they had to focus their efforts on too many different things. For example, in one study the practitioners had to acquire both content knowledge and new web skills; and to learn a new way of teaching. In others practitioners reported difficulties with learning and implementing a number of new teaching strategies at the same time.

Other isolated obstacles reported included integrating new strategies into the curriculum and a lack of materials and guidelines.

Forms of support

Ten studies, mainly in the TISS and Masters based studies, did not report on support mechanisms. The data reported below are taken from the 15 studies which did.

Critical friends and peers

Nine studies reported on the importance of this type of support. The practitioners in these studies frequently drew on support through peer collaboration, external assistance, or both.

One study (Timperley & Alton-Lee, 2008) dealt with the lack of facilitator expertise in supporting practitioners by running workshops for the facilitators to help them help the schools. The facilitators then became more skilled in conducting conversations "in which meanings were co-constructed"

and which were inquiry focused. Another (Piggott-Irvine, 2008) described good facilitators as offering "feedback, guidance, resources and tenacity". Support from the researchers in six of the studies where teachers were part of an externally facilitated research project was important. Modelling seemed to be an essential part of this process. Hickson & Fishburne (2005) described how the researcher provided the theory as well as modelling new ideas and coaching the teachers. This meant that the teachers were "able to own the ideas themselves" and use the research for their own needs. Freeman & Jeanpierre (2001) referred to the researchers as 'mentors' who modelled the intervention strategies and provided technical support via email. Training was referred to in 13 studies, where teachers were introduced to the research and the concomitant intervention strategy. Although the Masters based studies did not describe the training processes, the fact that the researchers were also students meant that they had specialist HEI support. One teacher-initiated study used input from the lead subject professional, LAs and HE staff. Another was supported by drawing in others such as a school social worker.

But practitioner-to-practitioner collaboration was an important element of support too. Eight studies reported on how practitioners drew on each other and on their schools for support. This type of support included:

- jointly practising the new teaching strategies;

- joint planning and reflection;

- talking to others/explaining the project;

- institutional resources and supports;

- joint workshop, assemblies and feedback sessions; and

- critical friends and peers.

Importantly for our research question, there appears to be no less of a need for expert and collegial support amongst studies where practitioners are engaged with rather than in research. For example:

- Kuiper et al. (2009) described how teachers were provided by the researchers with a manual with specific learning goals and strategies which they used collaboratively after an initial training input on the intervention strategy by the researchers. The teachers 'practised' lessons together.

- Freeman & Jeanpierre (2001) described a two-week training programme where scientists modelled the hands-on inquiry approach.

- Hickson & Fishburne (2005) described how one-on-one coaching ensured that the teachers were able to take what they had learned and apply it in other areas.

Institutional forms of support

Studies which were focusing on teacher learning found that institutional support was critical to the success of the interventions:

- O'Connor et al. (2006) found that completion of action research projects was instrumental in changing teachers' practice. The perceived obstacles reported by the teachers led the researchers to suggest the need for school level teacher support for action research studies.

  Schools need to be knowledgeable about the professional development opportunity that action research offers, but also realise that support during the implementation steps of an action research study, specifically, during the data analysis phase, is essential to the teacher's and school's success.

The researchers also suggested that universities embed an educational statistics course that supports action research within graduate teacher preparation programs.

- Steele Shernoff & Kratochwill (2007) provided institutional support and resources as an integral part of the project and concluded that institutional resources and support were critical to adopting evidence based interventions.

- Attard (2008) emphasised the supportive nature of the school leadership as a key aspect of the success of the project.

- James & McCormick (2009) found that:

  the promotion of AfL in classrooms represents a considerable innovation in teachers' practices. This requires teachers to learn these new practices. Such learning needs to be encouraged by a supportive school culture.

  The researchers went on to identify the scope for networked learning and suggested that "Opportunities for teachers to learn in these ways, through classroom inquiry and networking depend significantly on organisational structures, cultures and leadership". As well as a clear 'sense of vision' the project highlighted the importance of systems of support for professional development; and auditing – and building on – expertise within the school. But the "key school learning condition... ...appears to be development and support of teacher learning through their inquiry into classroom experience".

- Freeman & Jeanpierre (2001) reported that the researchers' presence in the schools – for which leadership support was required – was critical to the success of the project. Having a scientist in the classroom was critical [both] to the teacher learning and getting students to design testable questions. Again, institutional support appears to be needed as much for practitioners engaging with research in order to implement new practice as for those engaging in research. In this case the school arranged matters so that the external facilitation was possible. This is consistent with Timperley & Alton-Lee's (2008) conclusion that teachers need both organisational support and external expertise. In the Cams Hill Science Consortium Project (2006) each teacher involved in the action research had numerous people to turn to for support, including LA advisors, HEI academics and the interactive science centre. But in all cases the projects were negotiated with the headteacher and teachers were supported by their schools in the use of cohort assessment data, lesson observations and teacher surveys.

- The learning context was not solely affected by institutional support. As Timperley & Parr (2009) reported responsibility for the approach to professional development also depended upon specialist expertise. In their case this was contracted to a national organisation that employed facilitators to visit schools on a regular basis over a two-year period. Each facilitator was responsible for six to eight schools and charged with assisting the staff to engage in the inquiry processes and to build leaders' and teachers' pedagogical content knowledge in relevant areas. They point out that:

  If teachers are to identify and discuss their professional learning needs in ways that lead to their improvement, they must feel safe to make mistakes and have supported opportunities to learn from them.

  In other words, the institutional environment needs to support managed risk taking.

Group 2

What is the range of approaches to practitioner engagement with research findings?
What is the range of approaches to practitioner engagement in research?
What are the similarities and differences between practitioner engagement with the research of others and in their own research?

We have reported on the findings for these questions, with reference to our synthesis across the education studies and the findings from the health and social care reviews.

13 of the education research studies were almost all about practitioner engagement *in and/or with* research because much of the practitioner inquiry in these studies was also engagement *with* in the sense that they used published research findings as the stimulus and theoretical basis for their own research. In some cases these were introduced to them via the researchers and in others – particularly in the case of the TISS studies – they initially engaged with the research findings of their own accord. Cams Hill Science Consortium (2006) was a notable exception. This was a multi-school intervention in which science teachers were introduced to the thinking frames approach and supported in adapting and implementing this in their own contexts.

12 of our 25 studies could be characterised as engaging *with* rather than *in* research, although this framing of engagement involved teachers very actively in collecting and interpreting data.

Interpretation and adaptation for context

Researchers also supported participants as they developed and/or adapted interventions for their own contexts, for example:

- One such study (Steele Shernoff & Kratochwill, 2007) involved teachers engaging with research rather than in research as they were provided with training and materials as part of a project to transfer successful learning from one context to another.

- Another (Freeman & Jeanpierre, 2001) involved researchers working with practitioners on the implementation and interpretation of an evidence based intervention in science.

- Kuiper et al. (2009) supported practitioners in the adoption and adaptation of an evidence based intervention in ICT.

Co-construction

There is strong evidence in this review of the links between teacher engagement in and with research processes and significant and positive change in practice with positive results for students' achievement. Timperley & Alton-Lee (2008) found from their review of the evidence that all situations in which substantive outcomes for students were achieved involved both organisational support and external expertise. At the heart of the process were teacher co-construction (i.e. teachers worked together to interpret and implement interventions in their own contexts) and an enquiry orientated learning development activity which Timperley & Parr (2009) helpfully elucidate as follows:

> *The approach we have described in this paper is different from either the prescriptive or typical collaborative inquiry approaches in that it focuses professional inquiry on student learning needs from which teaching learning needs are identified... ...By linking inquiry into student learning to teacher learning, teachers can gain an understanding of what it is they need to learn to improve outcomes for students and have a compelling reason to engage. The development of pedagogical content knowledge is contextualised in a specific problem. Possibly its most powerful element, however, is the process of checking whether any changes in practice are having the desired impact on valued student outcomes.*

- James & McCormick (2009) found several 'dimensions of teacher learning' as a result of the large scale Learning how to learn project. At the top of their list was teacher inquiry, described by the researchers as: "using and responding to different sources of evidence; carrying out joint research and evaluation with colleagues". They described the characteristics of this process as:

  - *Building social capital: learning, working, supporting and talking with each other.*
  - *Critical and responsive learning: through reflection, self-evaluation, experimentation and by responding to feedback.*
  - *Valuing learning: both their own and pupils' learning.*

They concluded that:

> *Although teachers appreciate practical advice, classroom practices can become ritualised and mechanistic if teachers are not stimulated to think about the principles of learning that underpin them... ...Classroom based collaborative inquiry practices for teacher learning emerged as the key influence in teachers' capacity to promote learning autonomy with their pupils. These include learning from research and also working together to plan, try out and evaluate new ideas.*

The St Xavier practitioner-researchers (Masters based studies) identified joint planning and reflection as integral parts of the research processes. All of the projects used baseline data to monitor progress through their respective research instruments. All of the teachers had selected their approaches after a review of the literature and were well versed in the underlying theories or principles of the approaches they were using. Each teacher was able to adapt or refine the approach where it was found to be necessary for their own context. The teachers reported on their own research.

Using the research of others

Clearly the process of reviewing and evaluating that is central to teacher engagement in and/or with research was an important element in the successful changes that were made to practice and their impact on students. But it is noteworthy that nearly all the studies involved engagement with research as a starting point for engaging *in* research. This emerged very clearly from our data extractions. Themes from research findings which sparked the projects included:

- AfL;
- research on the use of the Web in educational contexts;
- approaches to professional development;
- reading strategies;
- creativity;
- physical education teaching;
- literacy learning: the Four Roles Model;
- conflict resolution;
- philosophy for children;
- thinking skills; and
- groupings in mathematics teaching.

In that sense then, practitioners in these studies were engaging both in and with research. But what of our 12 studies which we have characterised as engaging with but not in research? Practitioners in these studies were implementing a research based intervention for which the researchers were analysing the data. But they enjoyed nearly all of the forms of support identified in the other

studies: they had 'training' plus ongoing feedback and support from the researchers; they worked collaboratively with colleagues; their organisations supported them as they contextualised the research based interventions and monitored the impact on their students. The researchers wanted them to be successful so they put comprehensive support systems in place for implementation. The same does not seem to be true of practitioner implementation of evidence based strategies in health as we shall see below.

Clearly engagement in and/or with research seems to be a powerful tool for change in education and for making a difference for the students who are the end target of the research. Our sub questions help us to explore in a little more detail some of the operational distinctions between the two.

Group 3

How do practitioners apply research within the contexts of their existing standards and practices? Are there identifiable differences in engagement in and/or with research when client/learner relationships with practitioners are one-to-one or one-to-many?

We have attempted to answer these questions by reference to both the data from the education studies in comparison with those from health and social care.

As far as the education studies were concerned, the answer to the first of these questions seemed to boil down to the evidence about the nature and scale of the focus of the engagement in and/or with research. In particular, our studies suggest that when research engagement involves more than one practitioner, application of research to existing standards and contexts is richer. This is logical. There are inevitably multiple interpretations and individual refinements or adaptations for context when multiple teacher researchers are involved and/or when the focus of the research is on the development of practice of more than one teacher. As the number of teachers expands, so does the number of working contexts and the relevance of working standards. In these situations it becomes more important to identify key principles and the underlying theory in order to adapt research findings from elsewhere or from micro enquiry safely. Casserley & Casserley (2004) is an example of an approach when all the teachers in one school were involved in an action research project spanning several years. Building shared norms was an important part of the action research programme in which whole school approach action research became a way of standardising practice around institutional values and norms.

However, when the health studies are factored in to the picture, there are some interesting contrasts. We have discussed these in Section 12.6 below because it is important first to understand some of the barriers and support mechanisms identified in the health reviews.

We found very little data in any of the education studies or the health and social care reviews which could throw light on the second question (*Are there identifiable differences in engagement in and/or with research when client/learner relationships with practitioners are one-to-one or one-to-many?*). However, we think it reasonable to infer that studies of practitioner engagement in and/or with research in education are all exploring phenomena in the contexts where the changes are implemented in one to many contexts. Similarly it is not unreasonable to infer tentatively that studies in health and social care are mainly focused on working practices that are carried out through individual transactions with individual patients or clients. We have therefore returned to this question in the comparison between professional fields in Section 12.6.

12.3.2 Overall review question

Our hope was that answers to each of our individual sub questions would combine to help us identify an answer to our overview question.

The overall question the review was designed to address was: *What are the links between practitioner engagement in and/or with research and learner (student/patient/client) outcomes?*

We have established (Section 12.2.2) that these studies demonstrate links between practitioner engagement in and/or with research and benefits for practitioners and for pupils. Beyond this we found little evidence about subsets of links between particular approaches and particular effects within the body of education studies. This is not surprising given that the approaches were so similar. Differences between engagement with research and engagement *in and with* research were, in fact, characterised by extensive additional support provided by specialist external facilitators. This suggests that the processes of analysis and creating an account of research are important elements in teacher driven activity. There was however much more variation between approaches in other fields. (See Section 12.5.3.)

The learner outcomes in the 25 studies in our synthesis are spread fairly evenly between effects on knowledge and skills; behaviour for learning and attitudes/motivation for learning. We did not find any significant links between the types of engagement in and/or with research and the nature of the student outcomes. What directly influenced the learner outcomes in these studies were the practical interventions/strategies practitioners undertook as part of their research. But it does appear from their apparent willingness to persevere with the interventions in the face of reported obstacles, and the motivational impacts of such engagement, that the processes of review and refinement involved when practitioners engage in and/or with research can influence the degree of understanding, commitment and perseverance displayed by the practitioners in implementing the various intervention strategies. Thus the participation in the research processes may indirectly affect the outcomes.

12.4 Further education (FE) studies

Following filtering, none of our 25 included studies were conducted in a FE setting. We decided to identify a group of FE practitioner studies for contextual purposes because our Steering Group was particularly interested in this setting. Given the lack of research published on the main research database, identifying more studies would have required us to undertake searches through a field work rather than an electronic search approach. We have therefore just used the few we did collect as a starting point to see if they would potentially yield any interesting comparisons. Unlike our 25 included studies, these FE studies involved only one practitioner each. We have included brief descriptions of these studies in Appendix E along with the others.

Because these studies did not follow the same process of identification, filtering and weight of evidence applications, we have not included them in the analysis and synthesis for the review. There do appear to be some immediate comparisons however. The first is the emphasis on pedagogy: as in the school sector studies included in the synthesis, the FE studies involved practitioners in developing new teaching and learning strategies. These ranged from problem solving in mathematics to different approaches to formative assessment.

When it came to obstacles, there was a notable difference from school based studies. Five of the seven studies found that, variously, student attitudes, diversity of experience, beliefs, resistance to change and confidence levels presented themselves as obstacles to the research. Support mechanisms however were similar to those in the school sector. Peer support and support from the college leadership were identified as important support mechanisms.

12.5 Health and social care reviews

We wanted to include a cross-sector perspective with the capacity to inform support for practitioner engagement in and/or with research.

We retrieved 47 reviews through our database and website searches. Through filtering for relevance to the review questions 17 reviews were identified as providing data on barriers and/or key mechanisms for promoting/facilitating engagement in and/or with research activity in the areas of health and social care. They consisted of:

- seven systematic reviews of individual studies (Meijers et al., 2006; Walter et al., 2004; Thomas et al., 2009; Dogherty et al., 2010; Hemsley-Brown & Sharp, 2003; Munten et al., 2009; Doumit et al., 2009);

- seven literature reviews (MacGuire, 1989; Mitchell et al., 2009; Gurzick & Kesten, 2009; Bhattacharyya et al., 2009; McKenna et al., 2003; Tweed et al., 2007; Lohr et al., 1998);

- two systematic reviews of reviews (Bero et al., 1998; Effective Health Care Bulletin, 1999); and

- one hybrid systematic review of individual studies and reviews (Walter et al., 2005).

Of the 17 reviews, four systematic reviews (Bero et al., 1998; Thomas et al., 2009; Doumit et al., 2009; Effective Health Bulletin, 1999) and one literature review (Gurzick & Kesten, 2009) included studies which reported on end-user outcomes in some form.

The majority of the reviews (13) had a health focus, two dealt with research in the field of social care/social services, and a further two were cross-sector reviews.

12.5.1 Approach to data extraction and analysis

We scanned the included reviews for data on two aspects of engagement in and/or with research in the fields of health and social care:

- barriers; and

- key approaches to supporting engagement in and/or with research and evidence activity among practitioners.

In total 11 reviews provided data on the barriers to engagement in and/or with research in the fields of health and social care. We drew on all 11 reviews as a way of gaining as broad an overview as possible of the issues practitioners in these fields faced in engaging in and/or with research.

In order to identify key mechanisms which *supported* engagement in and/or with research among health practitioners we focused our analysis on the four systematic reviews which are based on studies exploring to some degree the relationship between key mechanisms for supporting engagement in and/or with research *and end-user outcomes* (Thomas et al., 2009; Effective Health Care Bulletin, 1999; Bero et al., 1998; Doumit et al., 2009). We then drew on data from the remaining reviews to provide contextual illustrations of the key mechanisms linked to evidence about outcomes where available.

Our decision to focus on reviews which included studies with end-user outcomes for exploring strategies for overcoming obstacles was based on a desire for consistency with the analysis of educational research, where a focus on learner outcomes was one of the criteria for including studies in the review. We note here, however, that none of the four health reviews that included studies with end-user outcomes had this as the sole outcomes criterion. They were all based on a

range of studies which looked at impact in terms of professionals' behaviour as well as or instead of patient outcomes.

We analysed reviews from health and studies from social care as discrete fields. This followed guidance from the advisory group who felt a composite analysis of health and social care reviews together would create a too large and diverse professional field, compromising the value of the findings. Where cross-sector reviews made it clear which field they were reporting on, these data were included in the analysis.

A complicating factor in analysing the data in the health reviews is the fact that they sometimes draw on the same research reports to describe mechanisms. We were therefore careful in the analysis to identify, wherever possible, the exact source from which claims were being made in order to avoid double counting.

12.5.2 Barriers to engagement in and/or with research among health and social care practitioners

Barriers in health

Nine reviews reported on obstacles to the engagement in and/or with research among health practitioners (Tweed et al., 2007; McKenna et al., 2003; MacGuire, 1989; Gurzick & Kesten, 2009; Effective Health Care Bulletin, 1999; Bhattacharyya et al., 2009; Hemsley-Brown & Sharp, 2003; Lohr et al., 1998; Dogherty et al., 2010). They relate to two broad themes:

- accessing evidence; and

- the need to contextualise/integrate engagement in and/or with research into real world contexts.

Accessing evidence

Accessing evidence emerged as problematic on two fronts: firstly the nature of the available evidence itself sometimes made it difficult to access; and secondly the skills of practitioners meant they were often not well placed to access the evidence that was available. This is an issue that has also been recognised in education for some time. Over the past twelve years an array of tools, summaries and websites have been developed as part of an extensive 'brokerage' or mediating apparatus between education practitioners and original research in order to tackle this challenge (Cordingley & Bell, 2007).

The first issue manifested itself in terms of:

- gaps in the knowledge base (MacGuire, 1989; McKenna et al., 2003);

- a lag between knowledge creation and its availability to practitioners (MacGuire, 1989; Gurzick & Kesten, 2009; Effective Health Care Bulletin, 1999); and

- the plethora of scientific evidence available and lack of effective communication to practitioners (Gurzick & Kesten, 2009, Effective Health Care Bulletin, 1999; Bhattacharyya et al., 2009; McKenna et al., 2003; Hemsley-Brown & Sharp, 2003; Lohr et al., 1998).

As far as the skills and dispositions of practitioners themselves were concerned, the barriers identified were:

- suspicion of the verity of and thus low value assigned to research findings (Effective Health Care Bulletin, 1999; Gurzick & Kesten, 2009); and

- lack of confidence and expertise in accessing and using research (MacGuire, 1989; Effective Health Care Bulletin, 1999; McKenna et al., 2003).

The reviews threw up a paradox about the nature of evidence for health care. On the one hand, there are gaps in the knowledge base, on the other the quantity of evidence and evidence based resources such as guidelines that are available is so large that navigation and identifying relevant research itself becomes a problem. McKenna et al. (2003) cites research by Frankel & West (1993) on this point. This illustrates the nature of uneven distribution of the knowledge base. Frankel & West found, for example, that for every 1,000 cases of CJD, 2,000 papers had been published, whereas only 44 papers had been produced per 1,000 cases of the much more common affliction of breast cancer.

The Effective Health Care Bulletin (1999) referred to a historical problem of no or ineffective communication of research findings. Bhattacharyya et al. (2009) focused on poor quality guidelines as an example of ineffective communication. Guidelines came up as a particularly common form of research diffusion in medicine, and yet there was debate over their value across the reviews. Guidelines were particularly liable to be ineffective if they failed to be compatible with the values of users and were 'complex', which Bhattacharyya defined as being 'vague and nonspecific and demanding changing routines'.

The need to contextualise/integrate practitioner engagement in and/or with research into real world contexts

Attempts to implement evidence based practice in the messy reality of the work contexts of busy health professionals brought with it its own issues. Bhattacharyya et al. (2009) described the challenge of developing evidence based practice when multiple levels of the system have to be taken into account: "patients nested within a provider's practice, nested within a multidisciplinary team, nested within a health facility, nested in local and national healthcare systems".

Four reviews reported on research whose authors questioned the validity of research findings emerging from experimental trials for front line practitioners (Bhattacharyya et al., 2009; McKenna et al., 2003; Effective Health Care Bulletin, 1999; Lohr et al., 1998). Lohr et al. 1998 made the distinction between 'efficacy' and 'effectiveness' research, the former being the main concern of medical researchers, and the latter being what practitioners are most interested in. They defined the two approaches to research in this way:

> *Efficacy requires that a clinical procedure achieve benefits to individuals in defined populations (often narrowly defined) when it is applied under ideal or optimal circumstances; this is the familiar terrain of RCTs. Effectiveness, by contrast, requires that a clinical procedure do more good than harm for the typical patient in ordinary or average settings and circumstances.*

Lohr et al. (1998) concluded that the emphasis on efficacy oriented research as representing scientific truth leaves practitioners with the additional burden of bridging the gap between what is known from trials and applying that knowledge to their own real world context. The Effective Health Care Bulletin (1999) explored the issue further, considering the competing and sometimes conflicting forms of knowledge the health professional has to try to reconcile. While research evidence from a trial may demonstrate the success of a procedure for a majority of those taking part in the trial, health care professionals:

> *may have other information which suggests the contrary (e.g. patient preferences) and, unlike randomised controlled trials or systematic reviews, they will inevitably focus more upon the individual patient than upon the group.*

Evidence identified by Walter et al. (2005) found partnership working between researchers and practitioners to be a way forward for overcoming the divide between research and real world application. However the process of establishing partnerships was not without its own issues. Key barriers to success identified by several studies were:

- the time and energy required to establish effective working relationships;

- differences in culture, goals, information needs, timescales, power, reward systems and language; and

- issues of project control and direction.

Four reviews highlighted the issue of freeing up time to engage with evidence as a considerable obstacle (Dogherty et al., 2010; McKenna et al., 2003; Hemsley-Brown & Sharp, 2003; Tweed et al., 2007).

In addition, the Effective Health Care Bulletin (1999) identified stress as a hindering factor, particularly as it could manifest itself in terms of withdrawal and resistance to new practice. What's more, pressures on practitioners appeared to be confounded at times by a lack of support from colleagues and employers (McKenna et al., 2003; Hemsley-Brown & Sharp, 2003). The nature of working relationships was certainly a key feature for practitioners in McKenna et al. (2003), which cited research showing that district nurses on occasion overrode what they understood to be sound judgement about practice in order not to offend colleagues. In another study included in the McKenna et al. (2003), one of the greatest barriers nurses felt they faced in using research was "not having enough authority to change patient care procedures" (Funk et al., 1991.)

These interpersonal and work relationship factors may be elements of a wider inertia to change within health professions. Two reviews identified the 'persistence of the status quo' as hindering the uptake of evidence based practice (Effective Health Care Bulletin, 1999; McKenna et al., 2003).

Barriers in social care

Two reviews reported on barriers to engagement in and/or with research among social care practitioners (Mitchell et al., 2009; Walter et al., 2004). Both reviews mentioned only briefly the barriers they had identified, and these are reported here.

The barriers identified reported by Mitchell et al. (2009) related to:

- structural issues – time and lack of co-ordination of research activity across the sector; and

- professional issues – lack of research confidence/expertise and professional identity (social workers do not regard themselves as intellectuals).

Echoing the 'efficacy - effectiveness' division found in the health reviews, Walter et al. (2004) identified a similar gap between the concerns of researchers on the one hand and those of practitioners on the other: "A key theme to emerge... ...is that social care practitioners and managers feel that research is often producer-driven and distant from their local needs".

12.5.3 Key mechanisms identified in the health reviews where there was evidence of impact for end-users

Four health based reviews described key mechanisms for promoting/facilitating practitioner engagement in and/or with research where there was evidence of impact on end-user outcomes (Thomas et al., 2009; Bero et al., 1998; Doumit et al., 2009; Effective Health Care Bulletin, 1999). We set out here their headline findings of the effectiveness of key mechanisms and illustrate with additional examples from the other health reviews where appropriate. Overall it appears that

multifaceted approaches were key to achieving the desired outcomes. Evidence of effectiveness in terms of any of the individual approaches identified in the research appeared to reside most strongly in those which required face-to-face or interpersonal strategies. In the literature which we have explored there were two such approaches (both using the term 'educational'): distinguished as 'Educational outreach visits' and as 'Educational meetings.'

Educational meetings

Bero et al. (1998) classified educational activities into two types:

- those that were interactive, where participants had the opportunity for discussion and practice in workshops; and

- those that were didactic, for example a lecture, had 'little or no effect'.

Interactive educational meetings were found to be 'consistently effective', whereas didactic sessions were found to have 'little or no effect'.

The value for practitioners of coming together in educational sessions rather than struggling individually to implement new forms of practice was underlined by nurses' focus groups cited in Meijers et al. (2006.)

Educational outreach visits

Educational outreach visits are described by Grimshaw et al. as the "use of a trained person who meets with providers in their practice settings to give information with the intent of changing the provider's practice" (cited in Bhattacharyya et al., 2009). Bero et al. (1998) found evidence in two studies that this approach improved prescribing decisions. This was backed up by the Effective Health Care Bulletin (1999) which identified additional research also indicating benefits for improved prescription.

Guidelines

Evidence for the impact of employing guidelines on end-user outcomes was presented in three reviews (Effective Health Care Bulletin, 1999; Bero et al., 1998; Thomas et al., 2009). Guidelines were defined by Thomas et al. (2009) as "systematically developed statements to assist practitioner decisions about appropriate health care for specific clinical circumstances" (IOM, 1990 cited in: Thomas et al. (2009)). Their purpose is to reduce variation and help ensure the delivery of healthcare is high quality and based on evidence.

Bero et al. (1998) and the Effective Health Care Bulletin (1999) found that, on their own, guidelines had little or no effect. Thomas et al. (2009) went into more depth to look at the effectiveness of guidelines for nurses, midwives and professions allied to medicine when they were used in combination with different interventions. Of eight studies comparing the use of guidelines within a dissemination and/or implementation strategy with control groups (i.e. no guidelines) six found the use of guidelines were effective in achieving at least some outcomes. However the fact that for other outcomes measured there was no significant difference, even within the same study, meant that the evidence for the employment of guidelines was equivocal.

There was more evidence of the effectiveness or otherwise of guidelines to support nurses undertaking work otherwise done by doctors ('role-substitution'). Thomas et al. (2009) drew on evidence from five studies that showed no difference in outcomes whether doctors or nurses, working in accordance with guidelines, carried out the procedure.

With respect to what constitutes good design of guidelines, Bhattacharyya et al. (2009) cited the Agree Collaboration (2001) criteria of:

- clear indication of scope and purpose;
- stakeholder involvement in development;
- rigour of development;
- clarity and presentation;
- applicability; and
- editorial independence.

The Agree Collaboration framework is based on research that tests the effectiveness of guidelines by the degree to which it achieves compliance among the target practitioner group.

Opinion leaders

Opinion leaders, that is, practitioners identified by their colleagues as educationally influential (Bero et al., 1998), were prevalent on an approach to supporting engagement in and/or with research in four reviews (Doumit et al., 2009; Effective Health Care Bulletin, 1999; Bero et al., 1998; Thomas et al., 2009). For Bero et al. (1998) and the Effective Health Care Bulletin (1999) a range of different studies suggested the deployment of local opinion leaders had 'variable effectiveness'. Doumit et al. (2009) focused specifically on the role of opinion leaders, and explored the relation between their deployment and patient outcomes. When opinion leader interventions were compared to audit and feedback or to standardised lectures, the opinion leader intervention was more effective in promoting evidence based practice.

Two reviews (Walter et al., 2005; Doumit et al., 2009) proposed social learning theory as a way of exploring the effectiveness of opinion leaders, hypothesising as it does that individuals seen as 'credible, likeable and trustworthy' are likely to convince others of the need for change in behaviour. An interesting finding from the Doumit et al. (2009) review drawing on research by Rogers (1995) was that there are different approaches to selecting opinion leaders, and different people are nominated as opinion leaders depending on which approach is taken. Selection methods fell into four broad categories:

- *observation method – an independent observer selects an opinion leader based on how they see them operate in a work context;*
- *self-designating method – members of a professional network report their own roles as an opinion leader;*
- *informant method – individuals report who they consider as principle sources of influence; and*
- *sociometric method – members of a professional network complete a questionnaire to indicate the extent to which individuals among them are 'educational influential (sic), knowledgeable, and humanistic'.*

From the available research, however, Doumit et al. (2009) was not in a position to draw conclusions about which method was more effective in promoting knowledge transfer.

Reminders

Reminders were among the interventions which Bero et al. (1998) found to be 'consistently effective'. Similarly the Effective Health Care Bulletin (1999) identified research which indicated the

effectiveness of 'computer-based decision support systems' in improving decisions on drug dosage, preventive care, and general clinical management of patients, but not in diagnosis. Reminders are defined by Grimshaw et al. as "providing patient or encounter-specific information to prompt a provider to recall information" (cited in Bhattacharyya et al., 2009).

Audit and feedback

Foregrounding clinical outcomes data over time, so that health professionals could keep a track of their performance, was found to have variable effectiveness (Bero et al., 1998). The Effective Health Care Bulletin (1999) similarly found mixed outcomes for audit and feedback in the three reviews which reported on this approach. Their findings suggested:

- feedback was less effective than reminders for reducing the number of times practitioners ordered diagnostic tests; and

- when physicians received feedback comparing their performance with their peers they made small but statistically significant improvements.

Patient-mediated interventions

Bero et al. (1998) assessed patient-mediated interventions as being of 'variable effectiveness'. They defined patient-mediated interventions as "any intervention aimed at changing the performance of healthcare professionals for which specific information was sought from or given to patients".

Multifaceted interventions

Three reviews (Bero et al., 1998; Effective Health Care Bulletin, 1999; Doumit et al., 2009) found evidence that using a combination of mechanisms as part of an intervention achieved positive outcomes. Bero et al. (1998) found interventions based on a combination of two or more of: audit and feedback, reminders, local consensus processes, marketing, were 'consistently effective'. The Effective Health Care Bulletin (1999) cites one of the reviews contributing to Bero et al. (2008), which found that complex interventions were often effective, but usually with only moderate effects (Oxman et al., 1995). The authors concluded "there are a range of interventions that if used appropriately are effective under some circumstances, but none is effective under all circumstances".

Doumit et al. (2009) compared outcomes for opinion leaders working as part of multiple interventions with no intervention, and found that practitioners were more likely to comply with a procedure during interventions which included opinion leaders. The interventions included audit and feedback, educational materials, chart reminders, community outreach, formal meetings, grand rounds (meetings at which health professionals discuss the clinical case of one or more patients) and local TV programmes.

How multiple interventions can be arranged in practice to support professional learning was described by Dogherty et al. (2010) who drew on several studies to illustrate the ways facilitators achieved this:

> *Facilitators organise meetings to assess progress and effectiveness of selected approaches and to provide ongoing feedback and support in addressing issues. Changes to plan may be necessary and in some cases, further education or training required. The meetings are important for motivation and continued action, providing deadlines that stimulate practitioners to complete previously agreed-upon tasks.*

12.6 Comparisons with other professions

The distinction between approaches to supporting engagement with and/or in research in health and education are marked and appear to have a relationship with the nature of the respective knowledge bases. As we discussed in Section 12.5.2 the knowledge base in health focuses on efficacy (what works) rather than effectiveness (how well it works in practice). In education the knowledge base focuses more on how things work in context. This seems to be reflected in the change levers used in both fields. By and large the support mechanisms in health are focused on effective transmission of information and ensuring it is used. Those in education are focused, by contrast, on working out what it means in particular contexts. The use of change levers such as 'guidelines' (as opposed to guidance) and 'reminders' – common approaches in health – are largely absent from education. Similarly, opinion leaders are also notably absent from the support mechanisms identified in the education studies. We suggest that this is another consequence of the different knowledge bases in health and education – and social care. Unlike education, health research is based on strictly controlled, randomised trials. So opinion leaders almost certainly feel more certain about whether the interventions they champion 'work'.

In exploring the similarities and differences between fields we have not attempted to directly map the findings on to theoretical models of research engagement, as this was not part of the scope of the study. However, we did explore some of the suggestions from recent research in the field in order to gauge their usefulness for our current purposes. For example, we initially thought that the social care model in Walter et al. (2004) might resonate with the education findings. In the embedded research model from their paper "evidence about 'what works' in social care becomes embedded in policies, guidelines and practice tools…" Analysis of our education studies and the comparisons with health, however, have suggested that education has few, if any examples of the embedded model perhaps purely because of the comparative lack of evidence based prescription for practice. In Walter et al.'s (2005) organisational excellence model:

> the key to successful research use lies with social care delivery organisations: their leadership, management and structure. The emphasis is on developing a 'research-minded' culture within the organisation that is open to research and supports its use…

There is some evidence (Handscomb & MacBeath, 2003) of the potential of this model for education and there is evidence of the benefits of institutional support for teacher researchers. There is also some evidence in the review (Casserley & Casserley, 2004; Attard, 2008) about the capacity of research to drive institutional change. But none of the studies in our review produced direct evidence which would have enabled us to draw further conclusions about a sustainable research culture which created the environment within which the teachers were working. We have therefore focused our analysis straightforwardly on the patterns in the evidence rather than the application of particular models.

There is a common desire on the part of researchers in both education and health to engage in and/or with research evidence to influence practice for the benefit of end users. But there appears from these reviews to be much less (or no) evidence from health or social care of 'front line' practitioners themselves initiating and implementing such research projects for the benefit of particular groups of patients. Our review has found numerous examples of education practitioners engaging in and/or with research about their practice in this sample as a means of changing practice and influencing targeted student outcomes.

Education (Hargreaves, 1996; Hillage et al., 1998) is often accused of lagging behind health when it comes to evidence based practice. Yet the evidence from the health reviews strongly suggests that greater attention needs to be paid to integrating research evidence into real world contexts. All

three of the education research 'types' in our review seem to us to demonstrate acute understanding of the need for real world adaption and implementation *irrespective of whether they could be categorised as engaging with and/or engaging in research.* The health reviews also show (in some cases clearly articulated by the researchers) awareness of the need to support practitioners to understand the underlying theory/principles behind the interventions they implement so that they can refine them for context.

There are also some clear indications from the health research about the forms which such support should take if they are to be effective in influencing practice to the point where it has an impact on outcomes for patients. Multifaceted interventions were found to be most effective: no one element was wholly effective in isolation. Individual initiatives (apart from reminders where we have no comparative basis in education) which were found to have some impact were interactive educational meetings and educational outreach visits. The former in particular were valued for the peer collaboration/interaction they afforded; the latter involved the insertion into practice of face-to-face interaction with external expertise. We found both these elements – and the provision of ongoing feedback – to be key support elements in our review of education studies. Practice in both fields seems to make better progress when practitioners learn from and with each other, and from specialist input and support.

Clearly there are structural issues at play. Both health and social care researchers identify the obstacles involved in the multi-layered systems within which they operate. There is also a considerable difference in end-user characteristics between school based research and health, social care and further education. Patients, students and clients have very diverse attributes when it comes to age, background, knowledge and skills. Teachers, at least in school settings, appear to have more control over their end-users when it comes to pedagogical strategies and to trying out new approaches. This may well mean that schools are more environmentally conducive to practitioner engagement in and/or with research. More controversially, the repercussions of failure are less immediate and dramatic. Pupils will not die from an experimental approach to teaching a particular subject – (though in the longer term their life chances may be seriously diminished).

Nonetheless, practitioners in the education studies in our review were clearly not experimenting from a zero evidence base. All of the practitioners who engaged in research were working from particular aspects of the public knowledge base where there was evidence of effectiveness in teaching and learning contexts.

12.7 Limitations of the review

- To contain the review process within the time and budget, only studies published after 1998 were included.

- We did not undertake hand searching, although we did follow up suggestions and recommendations from expert researchers. We did not search individual HEI or agency websites in any country other than the UK. Hence we will only have found what was available through electronic database searches internationally.

- The St Xavier cluster of studies was found via our electronic database searches but there are clearly many thousands of MA teacher research reports from this country and internationally which have not been included in the databases which we searched. Hence we cannot generalise from the St Xavier studies about characteristics of research projects which are undertaken for accreditation purposes. They are, however, an important example of a consistent approach to practitioner research with a strong emphasis on pupil impact.

- We are aware that the focus in our search strings on 'research' means that many studies on teacher professional development which were based on research evidence will have been

omitted. They will have been tagged for CPD rather than research. Given the number of search results we generated we needed to make the cut off at this point. So we think our sample of studies is likely to be biased towards engagement in, or in and with, rather than simply with research.

- We applied stringent weight of evidence criteria in relation both to evidence of pupil impact and to the potential capacity of the studies to contribute to our review questions. As a result of this process there may be many excluded studies which provided strong evidence about teacher engagement in and/or with research but were excluded purely on the grounds of pupil outcome data and not on the quality of their research in relation to its own aims and research questions.

- Because of the funding requirements the review was conducted in a very short period of time: four months. This restricted the time available for analysis of the data. With more time we believe that the data suggest at least three further directions for investigation: (a) relating to fidelity as practitioners refine and adapt interventions for context; (b) relating to commitment and motivation during implementation; and (c) an analysis of the studies in recent CPD systematic reviews against the same criteria to explore evidence about engagement with the research of others.

- Similarly, time and resource constraints required us on this occasion to exclude studies with a single-practitioner focus. The inclusion of these studies in the synthesis would doubtless have shed more light on single-practitioner projects. As engagement in and/or with research by individuals is a common scenario there would be value in exploring this data set to complement the findings in this review.

- We were aware throughout the review process that we lacked a secure understanding of the potential sampling frame: in other words there is a need for an empirical study of the *scale* of practitioner engagement in and/or with research. How widespread is it amongst education practitioners?

- Limiting the search strategy to Anglo-Saxon databases and websites inevitably led to a bias in the included studies towards Anglo-Saxon countries. In the event, of the studies included in the synthesis, 11 emanated from the USA , eight from the UK, four from New Zealand, one from Australia, and one from Holland.

12.8 Conclusions and key findings about practitioner engagement in and/or with research in education

12.8.1 Engagement in and/or with research

Practitioner engagement *in* research, whether self or researcher initiated, almost always appeared to engage them *with* research as well. In this review, this applied equally to the Masters based studies and to non-accredited research activity. Access to the public knowledge base was therefore a critical ingredient in practitioner engagement in and with research. A particular strength of both engagement with research as revealed in these studies, and of engagement in *and* with research, was the way the activities helped practitioners to contextualise research findings from other contexts in their own settings. Our findings are largely consistent with those in the earlier CPD reviews (Cordingley et al., 2003; 2007). The studies in those reviews were of a sufficiently robust weight of evidence, if included with the current review studies, to extend and complement the data. In particular, they would provide a richer array of evidence about engaging solely with research and some evidence about engaging solely in it.

12.8.2 Support

Support for engagement in and/or with research that was linked with effective outcomes was multifaceted. Effective support had several clear dimensions.

- The nature of the support provided by external specialists was an important element in practitioners' engagement in and/or with research. Support in research techniques, particularly analysis and reporting seemed to be important (particularly at the teacher-driven end of our spectrum of engagement) as did the initial training/introduction/modelling of the teaching and learning changes being developed.

- Data about the obstacles faced in using research in education and the strategies for overcoming these reveal a significant contrast with health and social care evidence. Within health, in particular, support tends to take the form of marketing/communication and/or monitoring and issuing guidelines whilst in education. The forms of support tend to emphasise the importance of interpretation, contextualisation and professional learning. There is evidence that the latter are effective change levers, particularly when focused on pupil outcomes. They appear to be motivational and to influence practitioner commitment to research engagement.

- Peer collaboration and critical friendship emerged overwhelmingly across all the study types as an essential support and motivator. This also applied to the further education studies and to the change levers identified in the health and social care fields.

The majority of the interventions which practitioners implemented as part of their research activity in education were applied interventions. That is they went beyond knowledge acquisition into the development of the pedagogical understanding and skills needed to change practice. They involved the application of new or different approaches to teaching and learning, including (in a small number of academic studies) the application of research to the development of subject knowledge or curriculum development.

12.8.3 Barriers

Time was an obstacle in many of these studies: this included time to undertake research; the need to rush to meet the time constraints imposed by Masters programmes; the rhythms of the educational year; and the difficulty for practitioners in focusing in depth on a specific issue in the context of multiple competing demands and initiatives as well as time to undertake research.

The nature of the knowledge base in health and education is very different. In health, research tends to focus on whether interventions work in settings that remove contextual variables. Education research focuses as much on how things work and their relationship with the working context as on whether they work. This affects approaches to practitioner engagement in and/or with research. In health the barriers appear to be largely concerned with take up. In education they relate to the practicalities of interpretation and adaptation in different contexts.

Practitioners in the FE studies indicated similar kinds of support mechanisms (e.g. leadership and peer support) as those in school settings. Although we can't generalise from these studies it may be that there are real differences when it comes to barriers to engaging in research. Older students seemed to be less willing to experiment with new approaches alongside their teachers than younger learners.

12.8.4 Comparisons

Comparisons with different professional fields (health in particular) seemed to indicate that schools were more conducive practitioner research environments than colleges or clinical settings. Teachers appeared able to exercise greater professional autonomy with more scope for managed risk taking

than did nurses or social care professionals. Professional autonomy and, in particular, the central role of learners as the ultimate beneficiaries, was a strong driver in securing successful outcomes.

We believe that a better understanding of the motivational aspects of practitioner engagement in and/or with research is needed. There was little direct evidence of this in our studies, although we might infer, for example that the MA students were keen on acquiring accreditation. Similarly we might infer from the stated aims of the TISS studies, where practitioners themselves targeted specific areas and/or student outcomes for improvement that these were what motivated them. No such inferences are possible from the academic group of studies where practitioners were implementing researcher initiated interventions.

12.9 Implications

Following completion of the review the review team consulted groups of practitioners, policymakers and researchers about the potential implications of the review. The consultation provided the basis for the following groups of implications.

12.9.1 Practitioners

Implications for teachers

- Practitioner engagement in and with research was linked to a range of positive outcomes for learners – and to a selection of new approaches with a proven track record through research.

  When you next need to tackle something new, e.g. in relation to the School Development Plan why not scan web research resources? Some are specifically designed to keep teachers up to date with evidence about what works, to locate approaches with a track record relevant to your aspirations for your pupils? See below for some examples.

- Focusing on student learning needs helped teachers to identify what they needed to learn to improve outcomes for students and gave them a compelling reason to engage in research. The most powerful element of the process was checking whether any changes in practice were having the desired impact on valued student outcomes.

  This suggests finding out from your students what their needs are through for example interviews, focus groups, and/or questionnaires and/or observing them carrying out activities. Doing this will help you fine-tune existing approaches and signpost areas for further development. You could then use some of the same mechanisms for distilling pupils' experiences to explore the impact of your own development on your pupils' learning and achievement. Don't forget that teachers in these schools all benefitted from working alongside colleagues and from a degree of specialist support. Who could work with and help you as you work?

Implications for leaders

- Practitioner engagement in and with research was linked to a range of positive outcomes for learners.

  This suggests that all teachers would benefit from engaging in and with research as part of their own professional development. CPD of this kind would help teachers become discerning users of research and be able to identify when an inquiry is the most appropriate approach. Could you kick start this important capacity-building process by modelling engagement in and with research as a tool for tackling a particular school improvement focus? Could you model use of research by explicitly asking for evidence about the potential effectiveness of the different approaches and ideas your colleagues bring to you?

- The review highlights the importance of external specialists, including HE, as a support to teachers engaging in and with research.

  An implication of this is that schools/clusters would benefit from exploring sustainable partnerships with organisations who can offer access to a network of external specialists. This role might include supporting teachers in engaging in research with practical research tools and technical back up, providing access to relevant research, and supporting schools in interpreting the implications of relevant research for the context.

- Studies which focused on teacher learning found that institutional support was critical to the success of their interventions.

  Teachers are likely to benefit from support with planning, implementation and data analysis, so this could be a useful focus for peer tutoring and mentoring. Support could also take the form of:

  - *fostering a school culture in which teachers feel safe about taking managed risks and learning from mistakes when learning new practices, and*

  - *ensuring opportunities for engaging in and/or with research are effective and focused on both teachers' needs and those of their learners.*

Implications for all practitioners

- In all the education studies, the practitioners who engaged in research themselves also engaged with published research. The latter stimulated or informed and shaped the practitioners' own research activities.

  A number of resources are available on the web which are geared towards supporting teachers in accessing, and engaging in and/or with research. Colleagues interested in encouraging engagement in and or with research might like to scan these resources and/or use the route map on CUREE's website http://www.curee-paccts.com/resources/route-map *to locate the ones that relate best to their interests. The resources include:*

  - *Research digests available on The Research Informed Practice site (TRIPS) (http://www.education.gov.uk/schools/toolsandinitiatives/tripsresearchdigests). These consist of short (four to five web page) summaries of recent and practical research papers from refereed education research journals.*

  - *Research Bites (www.teachernet.gov.uk/docbank/index.cfm?id=13558). These are web based PowerPoint presentations that take two and a half minutes to view and offer a speedy introduction to the research reported in the TRIPs digests.*

  - *The GTC's Research for Teachers (RfT) summaries (www.gtce.org.uk/tla/rft). These resources involve substantial practitioner oriented presentations of cornerstone empirical studies and also strands of theoretically driven empirical work by Vygotsky, Dewey, Bruner, Dweck etc. They are organised to 'tell the story' of key findings, have hot links to core concepts and/or findings to illustrative summaries of high quality teacher research. A series of CPD tools and resources complement and mediate the substantial collection of evidence.*

  - *Research tasters (www.tlrp.org/pa/ for the schools sector and www.tlrp.org/ls/ for the FE sector). Each research taster highlights a research finding or insight of practical relevance and suggests a reflective activity for gathering evidence and implications for further exploration. It also provides selected web-links to further information.*

12.9.2 Researchers

- The review noted how one of the obstacles that teachers faced when engaging in and with research was the difficulties they had with elements of the research process. These difficulties included identifying a researchable question, using the literature to structure the research and define key concepts, organising the findings, analysing data and managing large volumes of it.

    This suggests when you are involved in research in schools, it is important to make explicit the skills and tools you use in carrying out research, perhaps through running workshops.

- We found a serious lack of research published on FE. Of the 25 studies which met our quality criteria, none were carried out in settings from the Learning and Skills sector.

    This suggests that more needs to be done to ensure publication of good work which does exist in post-sixteen practice. We also believe that further investigation needs to be done on what motivates practitioners to engage in and/or with research.

- Effective support from researchers in studies where teachers were part of an externally facilitated research project included modelling and training in the new practice as well as in the skills of engaging in and with research. One study for example, referred to the researchers as 'mentors' who modelled the intervention strategies and provided technical support via email. Another study described how the researchers provided teachers with initial training in the intervention strategy and a manual that outlined specific learning goals and strategies which they then used collaboratively.

    When planning a school-based research project it is important to plan for the support and training you could offer teachers in the proposed intervention strategy to include modelling.

- The need to rush to meet the time constraints imposed by Masters programmes was identified as an obstacle to practitioner engagement in and/or with research as were the rhythms of the educational year in schools.

    It is important for HEIs and other accreditation bodies to recognise these time constraints and help practitioners by creating more flexible accreditation timescales and finding way of recognising the writing practitioner researchers do for practitioner audiences as well as writing for formal academic purposes.

- The review suggests that specialist expertise, frequently external, provides important support to teachers in this area.

    Given the shifting landscape around both ITT and CPD, it will be mutually important for schools/clusters and HEIs to have effective relationships and join together in partnership. Schools/clusters and HEIs could explore sustainable partnerships where external specialists are on hand to help schools/clusters with their research queries. This role might include supporting teachers in engaging in research, providing access to relevant research, and supporting schools in critically contextualising relevant research.

- Practitioner engagement in research *in education,* whether self or researcher initiated, almost always appeared to engage them with research too. Access to the public knowledge base (findings from research) was a critical ingredient in practitioner engagement in/with research.

    Are you aware of and do you connect practitioners with the wide range of research resources specifically designed to give practitioners ready access to high quality research?

    - *Research digests available on The Research Informed Practice site (TRIPS) (http://www.education.gov.uk/schools/toolsandinitiatives/tripsresearchdigests).*

These consist of short (four to five web page) summaries of recent and practical research papers from refereed education research journals.

- *Research Bites (www.teachernet.gov.uk/docbank/index.cfm?id=13558). These are web based PowerPoint presentations that take two and a half minutes to view and offer a speedy introduction to the research reported in the TRIPs digests.*

- *The GTC's Research for Teachers (RfT) summaries (www.gtce.org.uk/tla/rft). These resources involve substantial practitioner oriented presentations of cornerstone empirical studies and also strands of theoretically driven empirical work by Vygotsky, Dewey, Bruner, Dweck etc. They are organised to 'tell the story' of key findings, have hot links to core concepts and/or findings to illustrative summaries of high quality teacher research. A series of CPD tools and resources complement and mediate the substantial collection of evidence.*

- *Research tasters (www.tlrp.org/pa/ for the schools sector and www.tlrp.org/ls/ for the FE sector). Each research taster highlights a research finding or insight of practical relevance and suggests a reflective activity for gathering evidence and implications for further exploration. It also provides selected web-links to further information.*

12.9.3 Policy makers

- Findings from OECD research (TALIS 2009) reveal that teachers themselves perceive engaging in research to be the most effective form of professional development.

  Given teachers' own enthusiasm and the evidence from this review about positive impacts, policymakers and school leaders need to ensure that opportunities available for engagement in and/or with research are effective and focused both on teachers' needs and those of their learners. This review highlights some of most effective forms of such support.

- Practitioner engagement in research *in education,* whether self or researcher initiated, almost always appeared to engage them with research too.

  Access to the public knowledge base (outputs from other people's research) was a critical ingredient in practitioner engagement in/with research. However teachers required support and guidance in securing effective access to research. This suggests that there is a need to highlight and improve access to practitioner research. This could include reports of the best Masters dissertations, for example, plus practitioner friendly research summaries of large scale, high quality academic research.

- Peer collaboration emerged from the review as one of the key support mechanisms for practitioner use of research.

  It is important to encourage teachers, school clusters and LAs in the school system, and linked networks of colleagues in the Learning and Skills system to establish practitioner research networks or to base networks on research. Could school and learning skills sector networks support each other? How can between – school and college networking be encouraged and facilitated?

- The review suggests that working with external specialists was an important support to teachers in this area.

  Given the shifting landscape around both Initial Teacher Training (ITT) and Continued Professional Development (CPD) in the schools sector, it will be mutually important for schools/clusters and HEIs to have effective relationships and join together in partnership.

Schools/clusters and HEIs could explore sustainable partnerships where external specialists are on hand to help schools/clusters with their research queries. This role might include supporting teachers in engaging in research, providing access to relevant research, and supporting schools in critically contextualising relevant research.

- Michael Gove (2010) said that he wanted "to give [teachers] more control over their careers, developing a culture of professional development which sees more teachers acquiring postgraduate qualifications like masters and doctorates."

This suggests it is important for HEIs and other accreditation bodies to think about the nature of the obstacles and support highlighted in the review findings. Course provision, accreditation requirements and the timing of courses needs to ensure that practitioners can make full use of the courses on offer.

Implications for CPD /ITT providers

- Difficulties with elements of the research process were an obstacle for many teachers engaging in and with research. The difficulties included identifying a researchable question, using the literature to structure the research and define key terms for organising the findings, and analysing data. Some HE tutors provided effective support in this area**.**

This means providing training in these key skills as part of the CPD/ITT offer and tailoring them to participants' needs and contexts

- The importance of critical friendship coupled with peer collaboration for supporting practitioners emerged across all the studies in the education review.

This means offering specialist feedback and resources as well as explicitly encouraging peer collaboration. Peer collaboration means ensuring teachers jointly practise new teaching strategies, plan for and reflect on research and evidence together and talk to others about their research.

12.9.4 Learning and skills sector

- The review found that one of the reasons learning and skills practitioners may be reluctant to engage in and/or with research was because of the potential for their learners to react negatively to experimentation with new approaches.

Are there ways you could engage your learners more in sharing decisions on changes in approach so they take some of the ownership of the change? One way might be to use your termly review to canvass their views directly on your current practice, what works for them and where they would like to see change. You could then use this information as a starting point to look at the evidence for alternative approaches, and discuss these with learners at the beginning of the next term or unit of learning.

- Lack of time was identified as a particular obstacle for teaching practitioners wishing to engage in and/or with research in the review. This is especially true for teachers in the learning and skills sector, where remission for use of research activity might be hard to come by.

Are there ways of aligning your research engagement with your work patterns so you can make progress over time? You could, for example, spend some time in one vacation looking at new approaches, implement new practice over a half-term, and review it in the next vacation. There may also be value in enlisting some of your learners to support you in data collection and/or interpretation, for example as a tutorial activity on effective ways of

learning. Don't forget also, this activity will count towards your 30 hours CPD entitlement, and may be appropriate for the agenda on staff development days.

- Practitioners sometimes found it hard identifying appropriately qualified specialists to support their research activity.

Does your organisation have links with a local university or other research-active organisations whose support you could draw on to support action research, interpretation of evidence for practice etc.? An obvious place to start would be your local teacher training provider, but you might also have links with other organisations who are engaged in action research, such as social services. It may also be worth exploring if any of your local business links have research facilities and expertise which may apply to supporting your work. This could lead onto collaborative enquiries into shared issues, joint practices etc.

12.10 Reference list of studies included in the synthesis

List of education and health and social care studies in the review

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14. Appendices

14.1 Appendix A: Advisory group membership

Philippa Cordingley	Centre for the use of Research and Evidence in Education (CUREE) Chair of Group
Jane Steele	General Teaching Council
Sheila Kearney	Learning and Skills Improvement Service
Alistair Woodcock	Oxford and Cherwell Valley College
Angela Hardman	National Teacher Research Panel
David James	University of Western England
Derek Bell	Wellcome Trust
Elizabeth Johnston	Worcestershire Local Authority
Graham Handscomb	Essex County Council
Jonathan Sharples	University of York
Miranda Bell	CUREE
Rachel Davis	CUREE
Steve Higgins	Durham University

International critical friends

Ben Levin	University of Toronto
Amanda Cooper	University of Toronto

14.2 Appendix B: Search strategy for electronic databases

We included combinations and permutations of key terms, based on individual database thesauri.

Table 1. Keywords used in educational search:			
Practitioner	Use	Research	Learner
Professional	Engagement	Studies	Pupil
Teaching practitioner	Engagement in	Academic	Student
Teaching professional	Engagement with	Experimentation	Help
Education professional	Deployment	Analyses	Assistance
Education practitioner	Application	Action research	Support
Learner support	Utilisation	Inquiry	Process
Classroom	Utility	Culture	Attainment
Teaching practice	Improvement	Leadership	Achievement
Teacher inquiry	Quality	Evidence	Progress
	Enhancement		
	Transfer		
	Development		
	Generalisation		
	Situated generalisation		
	Brokerage		
	Mobilisation		
	Exchange		
	Translational research		
	Implementation (gaps)		

Table 2. Key words used in health and social care search:
Health
Social care
Welfare
Counsellor
Adviser
Client
Primary care
Nursing
Medicine
Social work
Youth work
Community based

Table 3. Examples of search strings:
(practitioner*) AND (use) AND (research)
(teaching practitioner*) AND (use) AND (research)
(teach*) AND (practitioner*) AND (use) AND (research)
(teach*) AND (profession*) AND (use) AND (research)
(teaching profession*) AND (use) AND (research)
(educ*) AND (use) AND (research)
(practitioner*) AND (applic*) AND (research)
(teaching practitioner*) AND (applic*) AND (research)
(teach*) AND (practitioner*) AND (applic*) AND (research)
(teach*) AND (profession*) AND (applic*) AND (research)
(teaching profession*) AND (applic*) AND (research)
(educ*) AND (applic*) AND (research)
(teaching practitioner*) AND (deploy*) AND (research)
(teach*) AND (practitioner*) AND (deploy*) AND (research)
(teach*) AND (profession*) AND (deploy*) AND (research)
(teaching profession*) AND (deploy*) AND (research)
(educ*) AND (deploy*) AND (research)
(practitioner*) AND (handl*) AND (research)
(teaching practitioner*) AND (handl*) AND (research)
(teach*) AND (practitioner*) AND (handl*) AND (research)
(teach*) AND (profession*) AND (handl*) AND (research)
(teaching profession*) AND (handl*) AND (research)
(educ*) AND (handl*) AND (research)

14.3 Appendix C: Inclusion and exclusion criteria

Stage 1 criteria
1.   Focus on practitioner engagement in and/or with research.
2.   Relate to teaching practitioners' (schools and/or learning and skills sector) or professional practitioners working in communities to support learning, health and/or social care.
3.   Include evidence with a focus on learner/patient/client outcomes.
4.   Have been published since 1998 and are written in English.

Stage 2 criteria
1.   The findings are based on at least two data sources (one of which must be pupils) OR two forms of pupil data (e.g. observation and survey responses), OR if the evidence is quantitative only it must include a comparative measure.
2.   Each study must contribute to at least one or more of the first four review questions –
   1.   What are the obstacles to practitioner engagement in and/or with research?
   2.   What forms of support are required to help practitioners overcome such obstacles?
   3.   What is the range of approaches to practitioner engagement with research findings?
   4.   What is the range of approaches to practitioner engagement in research?

Weight of evidence criteria
8a How trustworthy are the results of the study (methodological quality)?
This judgement is about the robustness of the research design to answer the study's *own* question. Is it a good quality study in its own right? Look at the aims of the study – is the research question appropriate to achieving the aims? Are the data the researchers intended to collect appropriate for answering the question in a robust way? Is evidence about the perspectives of stakeholders triangulated against other perspectives and other kinds of data? Are core terms defined or are processes for securing definitions secure? Are the methods for and actual practice of data collection robust? Are processes for data analysis explicit and robust? Is the sampling strategy clearly described? Are the researchers' conclusions justified given the findings they are basing them on? Score the study 'high' if your judgement is that the study is exemplary (describes in detail a robust design), 'medium' if it does the job (satisfies each of the criteria), and 'low' if you are dubious about any aspect of its design and analysis.

8b How appropriate is the study design for the review's research question?
In this section we need to assess the weight of evidence in relation to learner outcomes. Base this judgement on how appropriate the design of the study you are looking at is for answering the *PURR* review question in relation to learner outcomes: *What are the links between practitioner engagement in and/or with research and learner (student/patient/client) outcomes?*

If we were to design a single study to answer this question we would expect the design to include a means of assessing student learning outcomes, using an experimental design, i.e. before vs after data, or comparison group. The study would also involve the collection of learner generated data i.e. exam/test results, students' written work, student interview, observation of student learning activity etc.

Score the study 'high' if its design assesses learning outcomes, is experimental and uses student generated data. Score the study 'medium' if the design assesses student learning outcomes, is not experimental, but does provide for triangulation through collection and analysis of data from several sources, at least one of which must be student generated. Score the study 'low' if it does not report on student learning outcomes, or only relies on a single data source that is not part of an experimental or comparative design.

8c How appropriate is the focus of the research for answering the review question?
In this section we need to assess the weight of evidence in relation to the processes involved in order to describe the different approaches linked to learner outcomes:
What approaches *to practitioner engagement in and /or with research are linked with different learner (student/patient) outcomes?*

 To make this judgement, look at the information on the intervention and processes described in the research report. Are there enough data there to answer in detail one or more of our sub questions?
1. What are the obstacles to practitioner engagement *in* and/or *with* research?
2. What forms of support are required to help practitioners overcome such obstacles?
3. What is the approach to practitioner engagement *in* and/or *with* research?

Score the study 'high' if it provides rich detail to contribute to answering all three questions, 'medium' if it provides some detail to answer all three questions or rich detail to answer one or two questions, and 'low' if it does not provide rich detail for one or more questions or some detail to answer all three questions.

8d What is the overall weight of evidence based on the assessments above?
Score 'low' if any of 8a, 8b, 8c is 'low', score 'medium' if two or more of 8a, 8b, 8c are medium, score 'high' if two or more of 8a, 8b, 8c are high.

14.4 Appendix D: Additional websites searched

Table 3. Websites searched	
Organisation	URL
NTRP (National Teacher Research Panel)	http://www.standards.dcsf.gov.uk/ntrp/
DCSF (Department for Children, Schools and Families)	http://www.dcsf.gov.uk/
NFER (National Foundation for Educational Research)	http://www.nfer.ac.uk/
University of Worcester	http://www.worcester.ac.uk/
University of East Anglia	http://www.uea.ac.uk/
Canterbury Christchurch University	http://www.canterbury.ac.uk/
Worcestershire LA	http://www.worcestershire.gov.uk/
Northumberland LA	http://www.northumberland.gov.uk/

14.5 Appendix E: Description of studies

Description of education studies included in the synthesis

Below is a summary of the teaching and learning strategies implemented by the practitioners, a description of the nature of the interventions (engagement in/with research), the weight of evidence (WOE) of the study (low, medium, high), numbers of students and practitioners involved and types of evidence:

Academic studies (eleven studies)

Fung et al. (2004): This study concerned collaborative work in curriculum planning for the development of critical thinking skills in primary age children. It was a doctoral research project, involving six Year 6 teachers.

Collaborative action research was used because of its action-oriented focus and simultaneous emphasis on improvement and involvement. It aimed for three levels of improvement: of a professional practice, of the understanding of the practice by its practitioners, and understanding of the situation in which the practice takes place. Practitioners were involved in the inquiry but not as passive participants or as 'subjects' to the studies. Instead they shared the ownership of the inquiry by being actively involved in the process of bringing about the three level improvement as they work collaboratively with the researcher to plan for a change, to implement the change, to observe what happens following the implementation, to reflect on these processes and their consequences and then to plan further action.

The remodelling [of the curriculum plans] required the input of both the theoretical knowledge from the researcher and practical knowledge from the teachers.

WOE: Medium
Teacher sample size: 2-5
Student sample size: 100+
Nature of evidence on learner outcomes: internal assessment; test designed specifically for the research; student work; audio-taping

James & McCormick (2009): This study focused on Assessment for Learning adopted as part of a Learning how to learn project.

Development work in schools was initiated by the researchers, who acted as the schools' critical friends with the help of LA advisers who acted as local co-ordinators. External support was light touch. Teachers were introduced to the evidence-base and practical strategies but each school decided how best to implement innovations. "The challenge for leadership…was to create space and the climate for reflection and sharing, which includes encouraging dialogue, dissent and risk-taking..."

> *Most research into the effectiveness of formative assessment (or AfL) had been conducted on a small scale with intensive support from researchers. If such innovations are to go 'system-wide' we knew that they would need to be implemented in authentic settings with much less support. Thus we chose to provide little more than the kind of help schools might find within their LAs or from their own resources. Then we observed what happened....*
>
> *We came to view 'double loop' learning (Argyris & Schon, 1978) as particularly important at school level. This involved stepping back from the familiar plan-do-review cycle to examine each stage before stepping back to do something new. This process, at organisational level,*

mirrors the process of strategic and reflective inquiry for teacher learning which in turn mirrors the process of developing learning autonomy through AfL.

WOE: Medium
Teacher sample size: 30-99
Student sample size: 100+
Nature of evidence on learner outcomes: external assessment

Piggot-Irvine (2008): This Enhancing Effective Practice in Special Education Project used teacher action research and teacher action learning to develop teacher knowledge and share ideas on how to support learners who require significant adaptation to the curriculum. The project also made use of strong specialist support and facilitation. Action research/learning approaches were seen as the most effective vehicles for teachers to examine and critique their own practice in a systematic, 'intentional' way.

WOE: Medium
Teacher sample size: 30-99
Student sample size: 100+
Nature of evidence on learner outcomes: internal assessment; observation by practitioner; pupil focus group; parent interview

Timperley & Parr (2009): This intervention was concerned with building practitioners' pedagogical content knowledge through an analysis of students' learning needs. The essence of the approach was that by supporting teachers to identify their professional learning needs through analysing their students' learning needs, they would be able to build their pedagogical content knowledge in sufficient depth to address their students' learning needs. They could then check both formally and informally whether their changed teaching practices had the desired impact. To be successful, teachers must see the professional learning opportunity as a learning journey in which they are fully and respectfully engaged.

It was a project that:
> *sought to promote the learning of both teachers and their students through a supported inquiry process. Rather than prescribing specific teaching practices or having teachers work in communities of practice without external assistance, this project involved the skilled facilitation of teacher learning and inquiry....*

> *This inquiry approach underpinned the design of a professional development project in New Zealand in 218 primary schools, involving 2,440 teachers with student rolls ranging from less than 30 students to over 700. The project, funded by the New Zealand Ministry of Education, aimed to address New Zealand's persistent problem of underachievement for approximately 20% of its students who were achieving two or more years behind the average of their age peers...*

The project overall was successful in meeting the goal of raising student achievement in writing and reading.

The researchers believed that:

> *efforts to promote teacher learning should be focused on the educational outcomes for students, and that the effectiveness of systems and professional communities developed to promote teacher learning should be assessed in terms of this purpose...*

By linking inquiry into student learning to teacher learning, teachers can gain an understanding of what it is they need to learn to improve outcomes for students and have a compelling reason to engage.

WOE: High
Teacher sample size: 100+
Student sample size: 100+
Nature of evidence on learner outcomes: practitioner interview; pupil interview; student work

Timperley & Alton-Lee (2008): In this intervention teachers were supported in identifying lower achieving students and assessing their own levels of pedagogical content knowledge. Each developed professional learning goals with visiting facilitators based on their analysis of their own learning needs.

The main part of the paper presents findings from a synthesis of evidence from 97 empirical studies which demonstrated a positive impact on outcomes for diverse learners. The synthesis explored what kinds of teacher knowledge and the *circumstances under which it was acquired* were associated with benefits for students. This project was part of a national initiative of the New Zealand Ministry of Education to address its problematic profiles of achievement.

The project's first two years of operation involved 91 elementary schools throughout the country... ...The project providers appointed a team of 25 visiting facilitators and organised training in approaches to professional development involving knowledge building and inquiry.

WOE: Medium
Teacher sample size: 2-5
Student sample size: 100+
Nature of evidence on learner outcomes: test designed specifically for the research

Kuiper et al. (2009): In this intervention teachers offered students tools and support in both Web literacy skills (searching, reading and evaluating Web information) and inquiry skills (e.g. constructing adequate research questions and processing the information found). Teachers were trained in the basic assumptions of the project, its learning goals and tools.

Researchers designed a project which focused on collaborative inquiry activities as the context for the acquisition of Web literacy skills in primary education. Four fifth grade teachers worked with 93 students from four different schools.

WOE: Medium
Teacher sample size: 2-5
Student sample size: 40-99
Nature of evidence on learner outcomes: test designed specifically for the research; observation by practitioner; video; pupil interview; pupil survey; practitioner interview; teachers' diaries

Steele Shernoff & Kratochwill (2007): This intervention focused on researchers finding out whether training resources have a bearing on the transportability of the successful Incredible Years Classroom Management Programme to preschools – and to assess the additional contextual factors that may influence implementation. Teachers were trained, provided with videotapes and regularly updated manuals.

Four preschools were recruited and selected to participate in the study. Students (VMC= 8; VM= 5) were included in the study if they were in the bottom 25% of the distribution of SCBE Externalizing Problems Summary Scale. The study design included five phases (i.e. screening, baseline, training,

implementation and follow up) over six months. VMC teachers reviewed the same videotapes, manuals and chapters in identical sequence to VM teachers, but also participated in three 45-60 minute phone consultation sessions during the training phase.

WOE: Medium
Teacher sample size: 2-5
Student sample size: 11-39
Nature of evidence on learner outcomes: test designed specifically for the research; observation by researcher

Hickson & Fishburne (2005): The purpose of this intervention was to gain an understanding of effective teaching in physical education. The researchers examined the effectiveness of a teacher development program on teacher behaviour and, ultimately, the student-learning environment in a physical education setting. The program was introduced as an intervention program utilising a single-case, multiple baseline research design. The program was developed from the conclusions drawn from classroom research and from the opinions of physical education researchers about effective teaching characteristics. It involved a total of five and a half hours of individual sessions for each of three teachers and covered six topics including putting theory into practice and the importance of reflection.

WOE: Medium
Teacher sample size: 2-5
Student sample size: 11-39
Nature of evidence on learner outcomes: observation by researcher; video; pupil interview; practitioner interview

Shaddock (2006): In this intervention teachers took part in a research study aimed at investigating how the Four Roles/Roles of the Reader model of teaching can be integrated with existing programs and approaches to improve literacy outcomes for students with learning difficulties and disabilities.

The research partners decided on action research as a methodology because it allowed teacher researchers to frame, manage, conduct and disseminate the results of the research. The Four Roles model was chosen as the conceptual base because of its theoretical sophistication and scope; its consistency with research on the development of literacy; its classroom applicability and acceptance by ACT teachers; and its capacity to incorporate the techniques and strategies that teachers often use in isolation. The overarching research question was: How can the Four Roles/Roles of the Reader model be integrated with existing programs and approaches to improve literacy outcomes for students with learning difficulties and disabilities?

WOE: High
Teacher sample size: 11-29
Student sample size: 40-99
Nature of evidence on learner outcomes: parent interview; student work

Freeman & Jeanpierre (2001): For this intervention teachers were trained in the life cycle of the monarch butterfly and in techniques for facilitating ecological research by their students. These included techniques for monitoring field sites, experiences of conducting and planning team-generated research projects.

The Monarch Monitoring Project was designed by researchers. Their overall goal was to support teachers to apply science research in the classroom. The field research was designed to enhance the capacity of middle and high school teachers to incorporate active research into classroom teaching. Project scientists initially modelled the hands on inquiry approach they wanted teachers to use back in their own classrooms – they modelled how to be less directive with students.

WOE: Medium
Teacher sample size: 30-99
Student sample size: 40-99
Nature of evidence on learner outcomes: observation by researcher; observation by practitioner; practitioner interview

O'Connor et al. (2006): This intervention had two guiding research questions: 1) What do teachers report as the most difficult parts of the action research process? and 2) How does participation in action research impact teachers' current and future instructional practices? The teachers were engaged in action research as part of a Masters degree programme. The researcher/tutors selected action research based on research evidence about its efficacy as an instrument for changing practice. The research was on two levels: researchers were interested in how teachers experienced action research while the teachers used action research to explore the impact on their own pupils. Teachers decided on the focus of their action research projects based on their own school contexts.

WOE: Medium
Teacher sample size: 30-99
Student sample size: 100+
Nature of evidence on learner outcomes: nature of the evidence not known

TISS studies (seven studies)

NTRP: Studies presented at the National Teacher Research Conferences between 2002 and 2008. All of these (seven) studies were teacher initiated, designed and implemented. Most (five) were engaging with research based evidence related to pedagogy.

Cams Hill Science Consortium (2006): This intervention concerned a consortium who wanted to:

- develop resources and approaches to challenge, engage and motivate pupils in science;
- improve verbal and written explanations in science;
- improve thinking skills and pupils' understanding of the nature of science; and
- raise attainment in science across all Key Stages.

Teachers:

- shared practical resources to improve formative and interactive assessment techniques within science lessons;
- had assistance and guidance in supporting systematic change in the school curriculum; and
- were provided with support and continuing professional development to disseminate their findings e.g. through running staff INSET, publishing dissemination.

Over 30 teachers from 27 different schools (primary and secondary) conducting trials and implementing thinking frames pedagogical approaches. The project began as a collaborative classroom-based action research project between six secondary schools. Following this action research project they engaged in a variety of other action research projects seeking improvements in teaching and learning across Key Stages 1, 2, 3, 4, and post-16. External support came from LA Science Inspectors, HE and INTECH (an interactive family science centre in Winchester). Through workshops and follow-up support, teachers were guided in how to apply the methodology and provided with resources to conduct their own case studies, targeting specific issues affecting pupil progression in science within their schools.

WOE: High
Teacher sample size: 30-99

Student sample size: 100+
Nature of evidence on learner outcomes: test designed specifically for the research; observation by practitioner; pupil interview; student work; practitioner survey; Ofsted report

Attard (2008): In this intervention practitioners employed pupil voice techniques to meet pupil needs in a more personalised way. Strategies included philosophy for children lessons, developing pupil voice in classroom processes for learning, and feeding back and identifying the leadership skills needed to guide peers.

The school wanted to investigate the potential of these strategies to give greater responsibility, involvement and ownership to those in the classroom, and to explore the role of leadership. A whole school philosophy for children approach was introduced based on the work of Joanna Haynes in 2005. Staff read about the project and then engaged in workshop sessions to plan the strategy.

WOE: Medium
Teacher sample size: 6-10
Student sample size: 100+
Nature of evidence on learner outcomes: pupil interview; pupil focus group; practitioner interview; practitioner report; reflective logs

Callender (2008): This intervention was initiated by mathematics teachers (all from one school) who wanted to improve the experience of pupils studying A-level mathematics and increase the uptake of the subject in sixth form. The study grew from a concern that too often in A-level mathematics teaching was found to be largely didactic, which adversely affected pupils' motivation and had a negative effect on their achievement. Their project aimed to research pupils' experiences of A-level teaching and to develop a wide range of teaching resources for use with A-level classes. Practitioners used student voice through surveys plus video evidence and observations. Retention data was also monitored.

WOE: Medium
Teacher sample size: 6-10
Student sample size: 100+
Nature of evidence on learner outcomes: observation by practitioner; video; pupil survey

Casserley & Casserley (2004): The headteacher and staff of a primary school wanted to gain an understanding of the philosophy behind a creative curriculum. First they wanted to identify the strategies and processes for creating a creative culture in school; then they proposed to formalise the management systems for supporting teaching and learning in this environment. They also wanted to analyse the pedagogy used to develop the creative curriculum. Subject coordinators analysed their own approaches and carried out lesson observations around the school. Comments and perceptions were aligned in three areas: shared vision and philosophy, pedagogy and organisational structures.

WOE: Medium
Teacher sample size: 11-29
Student sample size: 100+
Nature of evidence on learner outcomes: observation by practitioner; pupil survey; student work; self-evaluation and open forum discussions with teachers, parents and governors; flip chart notes

Parr & Thomas (2004): This intervention focused on research and development based on three main learning frameworks or theories:

How to retrieve information – the EXIT model as outlined in Section 10 of the Key Stage 3 National Strategy: Literacy across the Curriculum.

- Co-operative Learning – Johnson & Johnson (1975).

- Thinking skills - Mapping Mind (Buzan, 2003); Thinking hats and forced analogy (Edward de Bono website).

This project was led by two teachers initially as part of their BPRS (Best Practice Research Scholarship) research. It focused on one class of 28 mixed ability Year 7 pupils in history, R.E., science and English and culminated in a cross-curricular project in which pupils prepared a bid to be awarded the contract to build a world-class aquarium. This project involved nine subject areas. By disseminating the findings of their BPRS reports to the whole staff, 13 teachers then undertook a BPRS in 2003/2004. All the research had a focus on an aspect of the RSA Competences.

WOE: Medium
Teacher sample size: 2-5
Student sample size: 11-39
Nature of evidence on learner outcomes: pupil survey; student work; practitioner interview; practitioner survey

Davies (2004): This intervention aimed to introduce pupils to peer and self assessment techniques to encourage them to improve the quality of their written work about historical sources. Teachers investigated how they would need to modify their professional practice in order to teach successfully using such techniques.

This research was led by two history teachers from different secondary schools collaborating. The study was conducted over a period of one academic year and involved a class of 27 mixed ability Year 7 pupils and a sample group of 15 Year 8 pupils who were regarded as achieving at a level that was below average.

WOE: Medium
Teacher sample size: 2-5
Student sample size: 40-99
Nature of evidence on learner outcomes: observation by practitioner; video; pupil interview; student work

Seal (2006): For this intervention mathematics staff at an 11-16 comprehensive school used a research lesson study protocol to explore strategies for making group work effective. The teachers used Mercer's (1995) classification of pupil talk (cumulative, disputational and exploratory) to help them take their work forward.

Whilst the class teacher taught the lesson, two colleagues observed and made audio and video recordings of the discussions that took place between targeted groups of students. The students were also asked to complete questionnaires. Afterwards, the staff met together to analyse the data they had collected and used the information to plan further lessons designed to address the issues that had been revealed.

WOE: Medium
Teacher sample size: 2-5
Student sample size: 40-99
Nature of evidence on learner outcomes: observation by practitioner; video; pupil interview; pupil survey; student work

Masters based studies (seven studies)

Studies from St Xavier by MA students studies:

Ranging from 1999 to 2008 the seven St Xavier studies in our synthesis focused mainly on improving students' learning behaviours through different kinds of pedagogical interventions. Three focused on improving social skills. In each case the teachers involved adopted different emphases and approaches to effect the improvements in student learning behaviours they were seeking. Two studies focused on improving student motivation - again using different strategies based on research evidence. Two studies focused on improving reading comprehension: one via the use of guided reading and one through the development of higher order thinking skills.

The design and approach to the teacher action research projects showed consistent characteristics:

- the aims and goals were set by the teachers;

- the interventions were all research based;

- there was a strong emphasis on planning;

- all the projects involved close teacher collaboration (typically four teachers from the same or neighbouring schools);

- all the projects focused on outcomes for targeted groups of students;

- all followed a consistent process: teachers identified a problem or issue in their own contexts; they undertook a review of research around that issue; they decided jointly on the intervention, based on the research findings; they jointly planned and implemented the intervention; collected and analysed their data and reported their findings;

- all collected baseline data and complemented other means of data collection (e.g. tests, observations or assessments of work, observations) with surveys;

- all involved the teachers learning new pedagogical approaches and developing new materials and resources; and

- teachers did their own write up and analysis.

Most of the studies reported that projects had to be refined in different ways by different collaborators to suit different classroom contexts.

Only two of the reports specifically mention support from their HE teachers but it was clear from the consistencies in the approaches, plans and implementation strategies that there was a clear Higher Education steer running through all of the projects.

A description of the studies:

Dollman et al. (2007): This intervention involved practitioners using co-operative learning strategies to improve students' social skills.
WOE: High
Teacher sample size: 100+
Student sample size: 40-99
Nature of evidence on learner outcomes: observation by researcher; pupil survey; student work; practitioner survey; parent survey; student reflective journal

McKown & Barnett (2007): In this intervention teacher researchers aimed to improve reading comprehension by using higher order thinking skills such as predicting, making connections,

visualising, inferring, questioning and summarising. Teachers modelled these strategies through the think aloud process and by using graphic organisers.

WOE: High
Teacher sample size: 2-5
Student sample size: 11-39
Nature of evidence on learner outcomes: external assessment; observation by practitioner; pupil survey

Gabl et al. (2007): The aim of the teacher researchers involved in this intervention was to increase students' reading comprehension and fluency through a guided reading strategy.

WOE: High
Teacher sample size: 2-5
Student sample size: 100+
Nature of evidence on learner outcomes: external assessment; test designed specifically for the research; observation by practitioner; student work; practitioner survey; practitioner report

Kobus et al. (2008): Teachers involved in this intervention wanted to increase student motivation through creative engagement, teacher feedback and positive reinforcement.

WOE: High
Teacher sample size: 2-5
Student sample size: 40-99
Nature of evidence on learner outcomes: observation by practitioner; pupil survey; parent survey; student behaviour checklist; learning performance standards evaluation checklist; student self assessment form; student and teacher blog/journal

Adrojna et al. (2000): For this intervention practitioners implemented strategies of direct social skill instruction, co-operative learning activities, conflict resolution techniques, open meetings and establishing expectations for a caring classroom. The social skills the teachers were targeting included encouragement, listening, time on task, problem solving and self control.

WOE: Medium
Teacher sample size: 2-5
Student sample size: 40-99
Nature of evidence on learner outcomes: internal assessment; observation by researcher; observation by practitioner; pupil survey; student work; practitioner survey; practitioner report; student worksheets for social skills reflection; student goal setting; anecdotal records

Burhorn et al. (1999): The aim of the practitioners involved in this intervention was to promote engagement and learning through multiple intelligence teaching methods and co-operative learning activities.

WOE: Medium
Teacher sample size: 2-5
Student sample size: 40-99
Nature of evidence on learner outcomes: observation by practitioner; pupil survey

Beetham et al. (1999): The focus of this intervention was to decrease discipline incidents through teaching co-operating and conflict resolution strategies. Practitioners taught these both formally and informally, using activities that dealt with active listening, giving and receiving explanations and elaborating on responses. They also introduced daily classroom meetings called community circles.

WOE: Medium
Teacher sample size: 2-5

Student sample size: 40-99

Nature of evidence on learner outcomes: observation by practitioner; anecdotal record of disciplinary actions; behaviour incident checklist; individual behaviour plans

Description of further education studies included

Halpin (2006): Improving student participation and understanding in mathematics through increased use of student problem setting and solving. Evidence was collected via student work, a student questionnaire and practitioner observation. Reported outcomes were varied but the majority of students suggested their understanding of the topics had been enhanced through the activity to an extent.

> *I don't think my colleagues are fully aware of the impact that their teaching and sharing of ideas has had on me. Without knowingly doing so, they have reinforced my confidence in what I have been doing because they employ similar methods and enthusiastically discuss successful lessons. These daily accounts (and occasional lesson observations) of classroom activities has been enormously enriching and encouraging and I am grateful to be working in such a dynamic teaching and learning environment.*

Cudmore (2007): To rearrange studio working space to encourage students to focus more fully and improve achievement in art and design. Evidence was collected via a pupil questionnaire and extracts from the practitioner's diary. The evidence was used by the teacher researcher to improve art students' working environment. Obstacles concerned students' resistance to change. One of the biggest practical obstacles was space: the inability to influence physical stock except by rearranging the furniture.

Brennan (2006): Formative assessment: getting back into the box. To maximise the quality of support and the overall experience of the course and improve the role of assessment (e.g. by personalising) in promoting learning and achievement. Evidence was collected via pupil focus group, practitioner diary, students' video diaries and course reviews. The practitioner was successful in raising achievement; some variable outcomes for individual students. Obstacles concerned students' background, lack of confidence, resistance to learning etc. Support received from the leadership and praise from the examination moderators.

> *Ultimately, the experience of being an action researcher has been very rewarding. It has reignited my interest in trying new methods, grappling with the unknown and being creative. I think most importantly it has given me a much better understanding of what it might be like to be a student at the College.*

Rhodes (2007): What – no grades! "The aim of this research project [was] to investigate the effectiveness of formative assessment, with emphasis placed on feedback". Evidence was collected via student questionnaires, course reviews, essay results, practitioner diary reflections and student comments. There was a steady improvement from initial to final assessments for the environmental module when compared to the control class (which fluctuated more between assessments). Obstacles included student commitment and attitude to 'extra' work, as well as the fact that the sample consisted of A2 students who had had limited exposure and experience of formative assessment. Forms of support not mentioned.

Lyons (2009): The use of Wikis to improve students' learning. Evidence was collected through two questionnaires (a student and teacher questionnaire) and informal questioning. Obstacles included lack of students' confidence and belief in the efficacy of the intervention. Very variable outcomes but:

Embarking on an action research project gave me the impetus to investigate something that I was interested in and the incentive to carry it through. Discussing the research with colleagues was a valuable and enjoyable part of the process. I liked the freedom, within an action research project, that allows the focus of the research to change as the project develops.

Bridson (2002): The influence of multiple representations on the learning of calculus by ESL students. The goals of the study were to research the learning difficulties among a group of four pre-university introductory calculus students who were mainly international students studying English as a Second Language (ESL). The type of interventions used in the study involved the use of classroom material with a multi-representational focus where graphics calculators were often an advantage. A teacher/researcher approach was used as this "introduces a number of distinct advantages. With their ability to react and adapt to students needs, and with their knowledge of the classroom, teachers are in a pivotal position to create and implement research". Evidence was collected through audio recordings of structured task-based interviews with each of the four students in the sample; teacher analysis of student workshops; teacher researcher's classroom observations; post-test interviews; and teacher researcher's personal reflections. Results of this study suggest that instructional material has an important influence on ESL students' use and management of multiple representations. However, there are often limitations to the influence of the material due to student preferences, mathematical ability and firmly held beliefs as well as on the amount of detail presented in a problem.

Patrick (1999): Not your usual maths course: critical maths education for adults. This study concerns an action research project that investigated which features of a *critical theory* approach are useful for teaching everyday mathematics to adults. The purpose of this was to enable adults who had missed out (for whatever reason) on gaining confidence and skills in mathematics to upgrade their skills in an environment in which they felt comfortable. Data were collected from participants' journals, the researcher's reflections course evaluations and a questionnaire survey. Participants improved their confidence and understanding in mathematics so that they were able to deal with it in their daily lives. No obstacles and support described.

Description of health and social care reviews

Health reviews

Searches identified a total of 13 reviews with a health focus, of which six reviewed studies of nurses engaging in and/or with research (MacGuire, 1989; Meijers et al., 2006; Thomas et al., 2009; Gurzick & Kesten, 2009; Munten et al. 2009; Dogherty et al., 2010), and seven covered health practitioners in general (Bero et al., 1998; Doumit et al., 2009; Effective Health Care Bulletin, 1999, McKenna et al., 2003; Hemsley-Brown & Sharp, 2003; Lohr et al., 1998; Tweed et al., 2007). Six of the health reviews were carried out in the UK, three in the USA, two in Canada, and two in the Netherlands. All five of the reviews which reported end-user outcomes were in the field of health (two nursing, three general).

Social care reviews

Two of the included studies have a solely social care/social services focus (Walter et al., 2004, Mitchell et al., 2009). Both reviews were conducted in the UK.

Cross-sector reviews

Two of the reviews drew on research carried out in several fields: one, a UK-based review, looked at practice among professionals in the fields of health, social care, criminal justice and education (Walter et al., 2005); and one, conducted in Canada, covered the fields of health and social work (Bhattacharyya et al., 2009).