Evidence-based Teaching

A Critical Overview for Enquiring Teachers

Carey Philpott and Val Poultney
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Val Poulney
Dedication

This book is dedicated to the memory of Professor Carey Philpott who died before he was able to complete this book. He had already written the book proposal and sketched out a few of the chapters so it was an honour and a privilege to be asked by Critical Publishing to complete the book he started. I do hope I have done justice to Carey’s vision for this core book in the series Evidence-based Teaching for Enquiring Teachers for which he was also series editor. I was also honoured to be asked to take on this role so that we could continue working on this important area of education in his name.

Val Poultney
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Chapter 1
Mapping the area

1.1 Chapter overview

This chapter will outline:

1.2 an introduction to evidence-based teaching;
1.3 key ideas associated with the drive towards evidence-based teaching;
1.4 the recent history of efforts to establish evidence-based teaching;
1.5 the main lines of argument from both proponents and opponents of evidence-based teaching;
1.6 a research map, detailing the evolution of evidence-based teaching and current debates.

1.2 Introduction

The devolution of schools in England from local authority control has resulted in great changes to the education landscape and particularly so within the last decade. Since David Hargreaves’s (1996) lecture identifying the lack of impact of academic educational research on practice, efforts have been made to bring theory and practice closer together and to demonstrate a positive impact on the quality of education received by learners. The final report of the BERA-RSA inquiry into the role of research in teacher education (2014) made clear that research and teacher inquiry were of paramount importance in developing self-improving schools. The report advocated a closer working partnership between teacher researchers and the wider academic research community. This idea is also a notion that is gaining in popularity with providers of professional development programmes through Teaching School Alliances, Multi-academy Trusts, Research Schools (https://researchschool.org.uk/), Teaching Schools (www.gov.uk/guidance/teaching-schools-a-guide-for-potential-applicants; www.tscouncil.org.uk/) and charities such as the Educational Endowment Foundation (EEF) (https://educationendowmentfoundation.org.uk).

The Carter Review of Initial Teaching Training (DfE, 2015) made clear that trainee teachers should have access to, and be able to utilise, research evidence as part of their planning and teaching strategies, which is also noted in the education White Paper Educational Excellence Everywhere (DfE, 2016a). Yet trainees are not required to demonstrate their research competency as part of
the Teaching Standards, save for engaging in ‘appropriate self-reflection, reflection and professional development activity’ (Teachers’ Standards, DfE, 2011, p 7), and the opportunities available to them in school to engage with research are sporadic. Hammersley-Fletcher et al (2015) in their interim report about how Teaching School Alliances develop capability and capacity for evidence-based teaching identify a range of limitations that may prevent schools making the transition from research-interested to research-engaged.

Since the work of Goldacre (2013) there has been some resurgence of links with medical models of research: Randomised Controlled Trials (RCTs), Rounds and Clinical models, all of which draw upon an evidence-based approach. This is further highlighted in the British Educational Research Association (BERA) commissioning research into what teacher education can learn from medical education (Baumfield and Mattick, 2017).

1.3 Key ideas associated with the drive towards evidence-based teaching

There are a number of key ideas which are associated with evidence-based teaching (EBT) approaches, some of which might be familiar to you as a teacher and others less so. You might think that some of them only belong to the world of academia, such as systematic literature reviews. In later chapters we explore such issues in more depth and offer links not only to school practice, but in ways that may challenge your own thinking about how you use evidence-based approaches in your own work. Figure 1a below presents the interrelationships between different ideas in evidence-based teaching.

**Systematic literature reviews**

Most research draws on a range of theoretical literature and a systematic review is conducted to find all existing research on a given topic. That body of literature is then reviewed and evaluated against a range of specific criteria which have been drawn up to test the quality of the research. This reduces large numbers of sources (papers, books, reports) to a few quality publications. The findings of those sources are then synthesised to determine what evidence there is for the value of carrying out particular educational practices. In reality, few practitioners have the time or the resources to carry out these types of literature searches but summaries of such studies are readily accessible to practitioners through, for example, the Educational Endowment Foundation (EEF) Teaching and Learning Toolkit (https://educationendowmentfoundation.org.uk/evidence/teaching-learning-toolkit). Chapter 2 takes a closer look at systematic literature reviews.
Randomised controlled trials (RCTs)

RCTs are the most robust research model for finding out what works in education. In RCTs populations of students are assigned randomly to two different groups. One group is taught using the method whose effectiveness is being researched. The other group is either taught as they would normally be (if the normal method does not use the method being tested) or using a different placebo method. Differences in outcome (if there are any) can then be attributed to the effectiveness of the method being researched. Most existing educational research does not involve the use of RCTs, as, for reasons that will be outlined later in the chapter and explored later in this book, many researchers do not consider such trials appropriate for researching educational issues. Typically, RCTs are judged in systematic literature reviews (see above) to be the highest quality research.
Clinical practice models for (initial) teacher education

These are notionally based on the way in which medical students learn during clinical practice, where consideration of specific real-life cases is the starting point. Student teachers’ learning should reflect this practice model with real cases of pupils’ learning as the initial stimulus. Using this model to establish a starting point for learning would help us to decide what to do to move the situation forward. This is an evidence-based process because it needs to use:

- evidence of the pupils’ current learning and needs;
- evidence (ie from research) of what will help move the situation forward;
- evaluation of the evidence of the outcome of actions taken.

Many advocates of the model also emphasise the use of evidence to improve the model itself.

Professional learning communities and ‘Rounds’ models for teachers’ professional learning

Professional learning communities (PLCs) are where groups of teachers come together to critically evaluate pupils’ learning using their attainment data and classroom observations, where they maintain a focus on pupil learning. They may do this through a process such as lesson study (Dudley, 2014). They use this data as evidence of what is happening in classrooms to develop more effective teaching and learning practice. Rounds models are similar to PLCs but make an explicit link between what teachers do in schools and the medical rounds carried out by doctors. In these Rounds observable evidence of the current situation is generated in order to develop collective professional practice.

Practitioner research

Practitioner research is an idea and a practice that exists independently of the current drive for evidence-based teaching. However, it is associated with it in several ways, for example through:

- a concern that there is a gap between the educational research community and the practitioner community (ie teachers);
- a belief that medicine has a more effective research/practice relationship;
- ideas like translational research (see below).

Different ways of facilitating the relationship between existing research and practice

One concern driving evidence-based teaching is the belief that much teaching
practice is not based on existing research evidence. This concern is associated with different ideas about facilitating a connection between research evidence and practice. Among these are the following.

- The ‘funnel’ model, where teachers have access to a wide variety of research findings (via the web, publications, university papers), yet need to be able to reduce or ‘funnel’ this information with a view to using it in their own teacher inquiries.

- Knowledge mobilisation, which focuses on the factors that lead to existing (generalised) research knowledge being used in specific locations. Concern with knowledge mobilisation recognises that research knowledge cannot necessarily be used ‘off the peg’ but has to be adapted or rethought to be relevant to particular contexts. It also needs to be actively ‘picked up’ by practitioners. So it is more than just a question of dissemination or access.

- Translational research, which focuses on the additional (practitioner) research work that needs to be done to explore how to make generalised research findings effective in diverse specific situations.

**Different models of possible relationships between research and practice**

If we want teaching to be ‘evidence-based’, questions about the types of relationships that might exist between research and practice arise. What do we expect that relationship to be? Two possible relationships that recur in academic debate around evidence-based teaching are:

1. The ‘engineering’ model, where particular research outcomes are thought to have an immediate and direct influence on changing practice.

2. The ‘enlightenment’ model, where teachers evaluate research outcomes, take a decision either to reject or accept them, followed by a period of implementation to effect the desired change.

**Basing educational practice on robust evidence/basing educational policy on robust evidence**

It is possible to detect a difference in emphasis from different advocates of better use of evidence in education. Some emphasise the necessity of this in the practice of individual teachers, whereas others emphasise the need for practices imposed by government policy to be underpinned by robust evidence. This can be a significant difference. Some argue that insisting that robust evidence underpins the practice of individual teachers can become, in reality, a way of governments extending intrusive centralised control into
individual classrooms, leaving no room for practitioners’ expert judgement in local circumstances. On the other hand, it is argued that practitioners should be given latitude to make choices about what they do in local circumstances but where practice is mandatorily imposed by government, this is where the robust evidence-base is most needed. So it is a question of where the eye of evidence-based scrutiny is mostly directed: on teachers or on governments. In part, this debate turns on what we mean by evidence in evidence-based practice. This is discussed in the next subsection.

The interrelationships between different ideas in evidence-based teaching

A number of relationships can exist between each of the ideas outlined in section 1.3. We will not try to cover all of them here, just a few so that you can get a general idea.

For example, what is the relationship between systematic literature reviews and practitioner research? As indicated earlier, systematic literature reviews tend to privilege RCTs as the highest quality form of research. Does this mean that the findings of systematic literature reviews outweigh evidence from practitioner research? If so, does this mean that the dominant model of evidence-based teaching will become one in which systematic literature reviews based on RCTs will ‘over-rule’ practitioner research in deciding what happens in classrooms? In addition, given that systematic literature reviews and RCTs are resource heavy, does this mean that only large-scale centrally funded evidence will count to determine practice? In turn, does this mean that the dominant way of facilitating the relationship between research and practice will become the ‘funnel’ model and that the dominant relationship between research and practice will be the engineering model? Will PLCs restrict their work to finding the most efficient ways of implementing centrally dictated practice or will they have a role in developing new practices? And will clinical practice models only use systematic literature reviews as their source of evidence for what to do next?

Another way of thinking about these questions is to recognise that nearly all teaching currently is evidence-based. The debate is less about whether teaching should be based on evidence and more about which evidence it should be based on. Should this be, for example, personal experience or a national research project? Or could it be around pupil feedback or systematic literature review? The question of how different types of evidence should relate to one another in evidence-based teaching is a central question that is explored later in this chapter (and in the rest of this book!).

6 – EVIDENCE-BASED TEACHING
1.4 The recent history of efforts to establish evidence-based teaching

The following timeline summarises the recent history of evidence-based teaching. The work builds on the legacy of Stenhouse’s work (1975) – the teacher as researcher whom he envisaged would research their own practice not only to inform it but to also improve it. This he believed would liberate teachers and enable them to work alongside academic researchers, an emancipatory approach through acquiring knowledge which would in turn help them become ‘extended professionals’ (Hoyle, 1974).

**Timeline of key dates**

**1996**

The Teacher Training Agency Annual Lecture: ‘Teaching as Research Based Profession: Possibilities and Prospects’ given by David Hargreaves (University of Cambridge). The lecture criticises education research for having an insufficient impact on educational practice and begins the recent period of controversy and debate.

**1998**

Ofsted publishes *Educational Research: A Critique*, authored by James Tooley (University of Newcastle) and Doug Darby (University of Manchester). The report was prompted by Hargreaves’ TTA speech. It argued that much education research was partisan, had methodological problems, lacked evidence or coherent argument, was of questionable use to practitioners and was not replicable or cumulative.

**1998**

Department for Education and Employment (DfEE) publishes *Excellence in Research on Schools*, authored by Jim Hillage, Richard Pearson, Alan Anderson and Penny Tamkin (University of Sussex). It concluded that education research tended to:

* be small scale and failed to generate findings that are reliable and generalisable;

* be insufficiently based on existing knowledge and therefore capable of advancing understanding;

* be presented in a form or medium which is largely inaccessible to a non-academic audience;

* lack interpretation for a policy-making or practitioner audience.
2000

David Blunkett (Secretary of State for Education) gives a speech to the Economic and Social Research Council (ESRC) titled ‘Influence or Irrelevance: Can Social Science Improve Government?’, which calls for ‘studies which combine large scale, quantitative information on effect sizes which will allow us to generalise’.

2000

Department for Education and Schools (DfES) funds a programme of systematic literature reviews supported by the Evidence for Policy and Practice Information and Co-ordinating (EPPI) Centre at the University of London, Institute of Education. Initially for five years. The results are made available in an online database.

2000

Campbell Collaboration established. An online collection of systematic literature reviews for social policy, including education. Inspired by the Cochrane Collaboration on medicine.

2003

Centre for the Use of Research and Evidence in Education (CUREE) founded as a private company.

2007

EPPI-Centre database of education research is no longer updated.

2011

The Department for Education (DfE) appoints the Sutton Trust charity as lead partner in the Education Endowment Foundation (EEF). The EEF’s role is to ‘develop initiatives to raise the attainment of the poorest pupils in the most challenging schools’. It hosts the online Teaching and Learning Toolkit of strategies to improve learning, based on reviewing available evidence.

2013

The Sutton Trust and EEF jointly designated by the government as the ‘What Works’ Centre for improving education outcomes for school-aged children. It joins other ‘What Works’ Centres such as the National Institute for Health and Clinical Excellence (NICE)
2013

Ben Goldacre (doctor, author, broadcaster and Research Fellow at the London School of Hygiene and Tropical Medicine) writes *Building Evidence into Education* which is hosted by the DfE website. Goldacre argues for greater use of RCTs in education research.

2014

National Foundation for Educational Research (NFER) publishes *Using Evidence in the Classroom: What Works and Why*. The report focuses on how to facilitate knowledge mobilisation. It recommends:

* developing infrastructure, including an institute for excellence similar to healthcare;
* fostering a change in teachers’ attitudes to research;
* the need for research bodies to transform evidence for practice, not just synthesise or summarise it, and the need for social interaction in this process;
* more research for better understanding of what works to facilitate knowledge mobilisation.

2014

The British Educational Research Association (BERA) and Royal Society for the Encouragement of Arts, Manufactures and Commerce (RSA) publish *Research and the Teaching Profession*. It recommends that:

* teachers need to engage with research;
* teachers need to be equipped to engage in enquiry-based practice;
* a research-rich culture needs to be established at all levels of the education system;
* time and resources need to be made available for research engagement.

2015

The charity Education Futures Collaboration hosts the online site MESH Guides as a community to produce and disseminate research summaries for evidence-informed practice.

2015

The Carter Review of Initial Teacher Training (published by the Department for...
Education [DfE]) calls for evidence-based teaching to be part of the framework for ITT content and for a central portal for evidence-based practice.

2015

National College for Teaching and Leadership (NCTL) publishes *Teaching Schools Evaluation*. It concludes (inter alia) that:

* some teaching school alliances are yet to develop their research strand;
* less than half reported substantial changes in the use of research evidence to inform practice;
* securing time and active involvement from classroom teachers remains a major challenge;
* achieving a school-wide and alliance-wide understanding of research in a school context is still to be developed in the majority of case study alliances.

2016

DfE publishes the White Paper *Educational Excellence Everywhere*. This sets out the intention to foster an evidence-informed teaching profession by increasing teachers' access to and use of high quality evidence, establishing a new British education journal and expanding the EEF.

2017

The British Educational Research Association (BERA) commission a report by Vivienne Baumfield and Karen Mattick (University of Exeter) entitled *Cost, Value and Quality in Professional Learning: Promoting Economic Literacy in Medical and Teacher Education*. This reviewed ways in which education could be supported through various partnerships. The work is still on-going at the time of writing. It recommends that:

* it is possible to bring together medical and teacher educators;
* BERA should facilitate further inter-disciplinary dialogue;
* key personnel from other professions should be consulted to address key educational problems in addition to medical and teacher educators;
* there should be future development of a toolkit for decision-making in professional education.

Chief Executive Professor Dame Alison Peacock opens the Chartered College of Teaching, which is established as the new professional body for education.
What can we learn from the recent history of evidence-based teaching?

The first thing that might be noteworthy is how long the ‘recent’ drive for evidence-based teaching has been going on. Newer entrants to the teaching profession might be forgiven for thinking that this drive for evidence-based teaching was a relatively new initiative that perhaps dates back to the early 2010s. However, this is an idea that (in its recent manifestation) has been strongly proposed for 20 years (starting when some of the most recently qualified teachers were still in the early years of primary schooling).

Earlier proponents making the case for evidence-based teaching sound unarguable. For example, in the USA, Slavin (2002, p 17) argued that if education adopted evidence-based practice it ‘would experience the step-by-step, irreversible progress characteristic of medicine and agriculture’. From the UK, Gorard and Torgerson (2006) argued that the rationale for RCTs should be ‘patronising to discuss (for even many primary school children know... about a fair test from their science learning)’. Slavin (2002, p 15) opined that ‘Education is on the brink of a scientific revolution that has the potential to profoundly transform policy, practice and research’.

However, 17 years after the obvious benefits of evidence-based teaching were first outlined by Hargreaves, Goldacre (2013, p 7) felt it necessary to write that:

...there is a huge prize waiting to be claimed by teachers. By collecting better evidence about what works best, and establishing a culture where this evidence is used as a matter of routine... Medicine has leapt forward with evidence based practice... I want to persuade you that this revolution could – and should – happen in education.

Goldacre’s clarion call to revolution echoes Slavin’s from 11 years earlier in a way that suggests we may not have made much progress in the interim and that we still need to get over the threshold of convincing people. Similarly, 20 years after Hargreaves’ speech, the 2016 White Paper reads as if we are just starting out.

What could possibly account for this lack of progress in the face of such obvious arguments in favour of evidence-based teaching? One recurring line of argument from its proponents is the inadequacy of the education community. Gorard and Torgerson (2006, pp 5–6) note that:

**Antagonism to science (really just a synonym for research) is growing in HE... covered by the pretence of these individuals that they are being social scientists. Such pretend social science is overly concerned with social theory and all of the post- and -ism terms... and nebulous buzz-words... it may fool students and those responsible for funding, and thus undercut... the efforts of those trying to do better.**
For others, the shortcomings lie with the community of school teachers. For example, Hargreaves (1996, p 4) states that:

**For a teacher to cite research in a staffroom conversation about a pupil would almost certainly indicate that he or she was studying for a part time higher degree in education or rehearsing for an OFSTED visit – and would be regarded by most colleagues as showing off.**

If we accept this line of argument, it seems that we can only conclude that evidence-based teaching has not taken hold during the last 20 years because the education community is especially perverse or in some way inadequate. More inadequate than ‘primary school children’ and puzzlingly more perverse than the professional communities of medicine, agriculture, transportation and technology, which Slavin (2002) cites as areas where evidence-based practice has resulted in revolutionary progress.

If we see no reason why educators as a community should be more inadequate or more wilfully perverse than other professional communities, then we have to look for alternative explanations for why so little progress has apparently been made with what seems, to proponents of evidence-based teaching, obvious. Among these alternative explanations are those that say:

- Evidence-based practice does not work in education like it does in other areas (it is interesting to note that technological areas dominate Slavin’s list and medicine is the usual comparison).

- Evidence-based practice will work but that the wrong models have so far been tried.

- This is a capacity issue; teachers do not have the time and have not had the opportunity to develop the skills necessary for evidence-based practice.

In relation to the second and third bullet points, it is worth noting from the timeline that different publications from various organisations have stressed alternative aspects of evidence-based teaching. For example, the 2016 White Paper emphasises the role of the EEF in providing easily accessible and understandable reviews of research findings, whereas the BERA-RSA report emphasises the importance of time and capacity for teachers’ research. So not everybody necessarily agrees on what the best way forward might be.

It is also worth noting from the timeline that some ideas have been tried more than once. For example, the EPPI-Centre was funded in 2000 by the government to provide an online collection of reviews of research. This was no longer updated after 2007 and made little appreciable impact on work in schools. However, the EEF now has a similar role (about to be expanded). Will it work this time and, if so, why?
The point of these observations about the recent history of advocacy for evidence-based teaching is not to try to debunk it. It is rather to suggest that it is important to take the long view so that this can inform our efforts in the present. It is important that we do not underestimate the challenges of establishing evidence-based teaching and that we do not identify the wrong obstacles to making progress. This is particularly important for many young and energetic teachers who may not know the longer history and may find it easy to be convinced by the plausible rhetoric of more recent advocacy that this is indeed a ‘no brainer’ that will deliver unarguable gains in a straightforward way.

1.5 The main lines of argument from both proponents and opponents of evidence-based teaching

In the dialogue below, the arguments for evidence-based teaching are situated to the left of the page with counterarguments situated to the right.

**Most education research carried out has no impact on teaching in schools. This is because education research carried out in universities is irrelevant to schools. It is too small scale, it is not cumulative and it is based on unreliable data and researcher bias. What is needed is more studies of ‘what works’ based on questions relevant to teachers. Educational practice in schools is based on fad, fashion, personal preference and tradition rather than robust evidence.**

(Hargreaves, 1996; Tooley and Darby, 1998; Davies, 1999; Slavin, 2002; Hillage et al, 1998; Gorard and Torgerson, 2006)

**Studies of ‘what works’ are not enough for education as many of the important decisions in education are made on the basis of values. The risk of ‘what works’ studies is that they assume we already know what outcomes are desirable for education and that we don’t need to explore any further what we think the purpose of education is and what values we should be operating by. This is also an important part of education research. Evidence-based teaching could be a way of using supposedly neutral scientific methods to marginalise democratic control of educational values and practices.**

(Atkinson, 2000; Elliott, 2001; Biesta, 2007)
But areas like medicine have made much more progress than education has. This is because they have adopted the use of RCTs and systematic literature reviews for research. This means they have a robust idea of what is scientifically proven to work. It is also because they have made these easily accessible to doctors. (Evans and Benefield, 2001; Slavin, 2002)

And on the topic of democracy – an evidence based approach might be more democratic as far as pupils and parents are concerned as it removes the bias and self-interest of the education profession from what happens in education. (Oakley, 2001, 2002)

RCTs are quantitative studies based on counting things that are easily measurable. They are also underpinned by a positivist world view that believes that there is only one version of the truth and that, with the right method, we can find out what it is. This might work for scientific areas like medicine but it won’t work in education. Firstly, because not everything we are trying to achieve is easily countable (eg developing character, resilience, values etc). Secondly, because education is not causal like medicine. A drug might be able to cause a recovery but you can’t cause learning in the same way. Pupils have free will and have to want to learn. Finally, because the social world is more complex, diverse and unpredictable than the physical world. One immunisation might cure all small pox but one teaching method can’t work with all pupils in all schools.

(Hammersley, 1997; Clegg, 2005; Biesta, 2007; Gale, 2018)
Arguments like the last one show a lack of understanding of the reality of medical research and practice. Doctors deal with more than just which medications or other interventions work in RCT conditions. The world of medical practice is every bit as socially complex as the world of education and has to take the same account of patients’ individual histories, culture, identities, subjective perceptions and so on. Medical research also covers these issues. Medical practice is a sophisticated interplay between ‘what works’ in RCTs and understanding how to apply this in the complexity of specific personal and social circumstances.

(Hargreaves, 1996)

Also, RCTs and systematic reviews were used in education before they were used in most other areas. The earliest are from the 1930s and they are actually less problematic in education than they are in medicine.

(Davies, 1999; Oakley, 2002; Torgerson et al, 2005)

The fact remains that education is still predominantly a practical not technical profession. This means that the ‘engineering’ model of the relationship between research and practice will not work. It isn’t possible to take a generalised research finding and apply it directly to changing practice in a ‘quick fix’ way. Successful education relies on specific local factors such as a good understanding of, and relationship with, your particular pupils. The risk of RCT and systematic literature review models is that they will become, in reality, a way of imposing standardised practice on teachers with no regard for their local expertise. It will just become part of the government’s accountability agenda and the continued deskilling of teachers.

(Hammersley, 1997; Atkinson, 2000; Biesta, 2007)
And by the way, you are right that the idea that large scale ‘scientific’ education research could inform practice was tried in education decades ago. It was the failure of that work to be useful to practice that led to the type of education research we have today. So what you are suggesting is not a step forward but a step backwards.

(Hargreaves, 1996; Hammersley, 1997)

One of the reasons that RCTS were abandoned in education is because they showed that approaches that were popular didn’t actually work. So the education community decided to ‘shoot the messenger’ of RCTs rather than accept the message.

(Torgerson, 2001)

Also, if you look at the medical model again you will find that doctors have a lot of personal latitude in terms of what they do. Some people suggest that it is more accurate to say that their practice is ‘evidence-informed’ rather than ‘evidence-based’. They take account of the RCT and review evidence but they also use their own experience, clinical judgments and patient preferences to decide how to act in specific circumstances. Teachers also make similar qualitative judgements about how their pupils learn that help us understand causal mechanisms and processes and why they have occurred.

(Hargreaves, 1997; Davies, 1999; Connolly, 2018)

That’s all very well but they are doctors and not teachers. Culturally they have more status and institutionally they have more independence from government prescription. You can’t separate ideas like evidence-based teaching from the specific political, cultural, historical and institutional context in which they are put forward. In the last few decades government has increased its control over education right down to prescribing specific classroom practices. This is what will happen with evidence-based teaching. Supposed evidence will be used to make government political decisions about education look as if they are just based on unarguable facts.

(Atkinson, 2000; Elliott, 2001; Clegg, 2005)
You’re right about rampant government prescription, but think about it this way: how much of that government prescription is based on robust evidence? And after having imposed a particular strategy nationally how robust is the evaluation of its effectiveness? You should welcome robust evidence-based practice in education as a way of making sure governments can’t impose ideas for ideological reasons or without a basis in sound evidence (the same is true of some of the ‘solutions’ peddled by education companies). In practice, it should be fine for individual teachers to act with the latitude of doctors taking account of personal experience and local circumstances as a counterbalance to the centrally reviewed research evidence. However, governments shouldn’t be allowed to impose disruptive and expensive strategies without the evidence and without evaluating them robustly.

(Davies, 1999; Hargreaves, 1999; Torgerson, 2001)

Is it the case that government intends to expose itself to increased scrutiny rather than the teaching profession? Aside from that, there are other fundamental problems with RCTs and systematic literature reviews that mean they are not as robust as claimed. Firstly RCTs only measure causality. Not everything it is worth knowing works on that model. For example, we might want to know about pupils’ experiences of a particular aspect of schooling in their own words.

(Atkinson, 2000)

Agreed. RCTs are only one form of research and for some kinds of questions other forms of research might be more suitable. Systematic literature reviews can take into account and synthesise diverse types of research.

(Davies, 1999; Evans and Benefield, 2001; Torgerson, 2001; Slavin, 2002)
But systematic literature reviews judge RCTs as the highest quality form of research and, therefore, give them greater priority over other types of research. Partly as a result of this, despite the rhetoric about robustness, actual examples of RCTs in education do not appear very robust at all. If you look at the systematic literature reviews on the EPPI-Centre website, they exclude so much research as of insufficient quality that the final conclusion of the reviews is often based on very little. However, they still offer conclusions, which mean that these conclusions are less robust than much other research. They also seem to assume that you can remove all the debate and argumentation from the research and extract only the data as if the rest didn’t matter or was just a distraction from the numbers. 

(Clegg, 2005; MacLure, 2005)

This problem is created by the lack of RCTs in education which shows the depressing state of education research. If there were more RCTs in education research then the systematic literature reviews would be better and more useful.

(Torgerson et al, 2005)

Does that beg the question? It seems to assume that we have already agreed that systematic literature reviews based on RCTs are the most robust form of research evidence. Whereas my argument is that they leave out so much that they are questionable anyway.

(Clegg, 2005; MacLure, 2005)

Agreed. Systematic literature reviews still need some development to be fully appropriate to education but we can do that work rather than just rubbish the whole idea.

(Oakley, 2002; Oakley et al, 2003)
Is there also a risk that the requirements of systematic literature reviews will drive research funders to only fund RCTs? Which means we will only find out the sort of things that RCTs can find out.

(MacLure, 2005)

All forms of research are valuable and there is no reason why RCTs should become the only form.

(Hargreaves, 1996; Evans and Benefield, 2001; Slavin, 2002)

One of the main arguments for the superiority of RCTs is their scale and the large numbers that they use. This means that they are expensive and time consuming. As a result they can only be done with the support of large (and relatively wealthy) organisations. Does this mean that centrally funded research asking centrally funded questions will take priority over smaller scale local research, such as research done in one school?

(Torgerson, 2009; Wiliam, 2014)

If you remember the example from medicine, you will see that it is possible for research at both levels to have value. Evidence from RCTs and systematic literature reviews can inform practice but questions of local applicability and local effects can be decided by smaller scale local research. So practice will be based on a diverse range and type of evidence.

(Davies, 1999)
But, the current government approach seems to emphasise the centrally held repository of ‘what works’ rather than the local practitioner research. The experience of Teaching School Alliances is that it is difficult to get practitioner research to take hold because of constraints on time and limited research literacy among teachers. If we want evidence-based teaching to work we need to address these issues, particularly the time issue as without this the rest will be difficult to achieve. The EEF model seems to suggest that what are needed are quickly accessible, easily digestible ready-made answers because teachers have little time. What is actually needed is the time. Particularly as research on knowledge mobilisation and translational research argues that it is important to put time and effort into finding out how general findings relate to specific circumstances.

(DfE, 2016; Nelson and O’Beirne (NCTL), 2014; NFER, 2014)

Practitioner research is valuable but ‘bottom up’ strategies would also benefit from more rigorous experimental evaluation.

(Hargreaves, 1998; Evans and Benefield, 2001)

These arguments are summarised below in the form of a Research Map which moves from the initial impetus (the catalyst) making a claim for the use of more evidence in education. This is followed by the key proponents making a critical response and those academics taking a more defensive approach. These positions then take us to onto contemporary debates around different possibilities for the use of evidence in education.
1.6 Research map

The initial impetus
Hargreaves (1996)
DfE (1998)
Ofsted (1998)

Research and arguments arising directly from the initial impetus

The critical response
Hammersley (1997)
Atkinson (2000)
Elliott (2001)
Biesta (2007)
Biesta (2010)

The defence
Hargreaves (1997)
Davies (1999)
Hargreaves (1999)
Oakley (2001)
Oakley (2002)

Randomised controlled trials
Hammersley (1997)
Elliott (2001)
Biesta (2007)
Biesta (2010)

Randomised controlled trials
Torgerson (2001)
Torgerson et al (2005)
Torgerson (2009)
NFER (2010)

Systematic literature reviews
Clegg (2005)
MacLure (2005)

Systematic literature reviews
Evans and Benefield (2001)
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Research and arguments related to evidence in teaching with a looser connection to the initial impetus

Clinical practice models
- Hammersley (2005)
- Biesta (2010)
- Philpott (2017)
- Alter and Coggshall (2009)
- NCATE (2010)
- Burn and Mutton (2014)

Professional learning communities/Rounds
- Bottery (2003)
- Codd (2005)
- Servage (2008)
- Servage (2009)
- Roegman and Riehl (2012)
- Ellis and McNicholl (2015)
- Roegman and Riehl (2015)
- Dufour (2004)
- City et al (2009)
- Roberts (2012)
- Del Prete (2013)

The contemporary debate

The renewed impetus
- Goldacre (2013)
- DfE (2015)
- DfE (2016a)
- BERA, Baumfield and Mattick (2017)

Teachers and research/knowledge mobilisation/translational research
- Cooper et al (2009)
- Furlong (BERA) (2014)
- Nelson and O’Beirne (NFER) (2014)
- Cain (2015a)
- Cain (2015b)
1.7 Summary

Debates about evidence-based teaching have been raging in the education community for at least 20 years with no obvious signs of a widespread systemic change towards this approach. Unless we accept that the education community is especially inadequate or perverse, we must consider that the challenges are greater than some proponents would have us believe. The debate is less about whether teaching should be based on evidence and more about which type of evidence it should be based on, who should be producing that evidence and in what ways. It is also about how different types of evidence interact at the point of practice.

Questions for enquiry in your own school

- Is the teaching in your school based on personal preference, tradition and/or fads?
- How evidence-based/informed are whole school teaching and learning policies?
- How rigorous is your evidence of their success?
- What are the main challenges for evidence-based teaching in your school? Consider the following:
  - teacher attitudes;
  - access to research evidence;
  - time to carry out practitioner inquiry;
  - research literacy;
  - something else.
- What is the best balance of ready-made solutions and practitioner enquiry for your school?

Exploring further

For a slightly different perspective on the nature of evidence use in education we recommend you dip into this book:

Useful websites

Campbell Collaboration: www.campbellcollaboration.org

Centre for the Use of Research and Evidence in Education (CUREE): www.curee.co.uk


MESH Guides: www.meshguides.org

National Institute for Health and Care Excellence: www.nice.org.uk

The Evidence for Policy and Practice Information and Co-ordinating Centre (EPPI), University of London: https://eppi.ioe.ac.uk/cms

The Sutton Trust: www.suttontrust.com/research

What Works Centres: www.gov.uk/guidance/what-works-network