

Using research evidence

A concise guide



Contents

What is research evidence?	01
What can different types of research evidence tell us?	03
How can we examine research evidence?	05
CLAIMS: red flag warning signs	06
Getting beyond the surface	07
How can we use research evidence to inform practice?	08

Using research evidence

A concise guide

Using research evidence is essential to school improvement and good teaching, but accessing, critiquing, and applying research evidence to practice can be challenging. This introductory guide is designed to support you to:

- Understand research evidence
- Identify different forms and uses of research evidence
- Examine research evidence
- Consider how research evidence can be used to inform and develop practice



Using research evidence

A concise guide

What is 'research evidence'?

'Evidence' is a broad term that means different things in education. It can include data collected in schools and other settings, and conversations with colleagues, or meta-analyses which combine impact measurements from multiple previously published studies to calculate an overall effect.

Evidence generated through research – '**research evidence**' – is the communication of findings from a study that answers clear research questions through planned and deliberate processes for collecting and analysing information.

Studies can be conducted by academics, or teachers, amongst others, and are often published in peer-reviewed academic journals and research reports, as well as by organisations (think-tanks, charities, government departments).

Research evidence can provide knowledge from numerous settings, teachers and other practitioners to help identify the most promising practices for teaching and learning. It can also help identify which approaches have the potential to improve outcomes – as well as the contexts which can support their success – to inform decision making around how to make the most of time and resources.

You might learn about research evidence through many different avenues, such as the professional development you access, as well as by reading blogs and other media, books, reports, and academic journal articles.

However, not all evidence is drawn from research. This table gives examples of research evidence, as well as school-based evidence and other forms of information.

	Research evidence	School-based data	Other sources of information
Definition	Evidence generated through planned and systematic processes that answer specific questions, often assessing the impact of practices or approaches.	Evidence generated by settings through the collection and analysis of pupil assessments and other sources of data.	Other information concerning schools and teaching that is not generated through the systematic collection and analysis of data.
Examples	<ul style="list-style-type: none"> • Experiments (such as randomised controlled trials) • Case studies • Surveys • Systematic reviews • Interviews and focus groups 	<ul style="list-style-type: none"> • Progress and attainment data • Attendance data • Feedback from lesson observations • Samples of pupils' work • Pupil and teacher feedback • Behaviour logs • Pastoral and wellbeing information • Special Educational Needs (SEN) data • Parental and carer involvement and communication 	<ul style="list-style-type: none"> • Blogs and social media • Newspapers • Podcasts • Accounts from education professionals (e.g. teachers, school leaders, consultants)

Using research evidence

A concise guide

Other sources of information may – or may not – be informed by research. It's crucial to trace claims back to the research they are based on, for example by following any references to find the original sources that conclusions or opinions draw upon. If this information is missing or unclear, meaning that you can't trace the origins of the evidence, this could suggest that the source may not be particularly reliable.

It's also important to acknowledge that all these communication formats can vary in their quality. Publication is not in and of itself a guarantee of reliability. This means that it's important to consider sources carefully to critically appraise the information that they share.



You can find out more about how to do this in the 'How can we examine research evidence?' section of this guide.

What can different types of research evidence tell us?

The way research is conducted varies. It's not possible to say that one kind of research evidence is definitively better than another as they all have strengths and limitations.

Instead, the question of 'What counts as good evidence?' depends on what is being asked and for what purpose.

You may be interested in an array of different topics, such as classroom trends, pupil experience or effective practice.


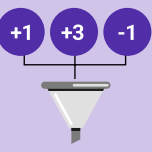




- If you are interested in how or why a particular approach works, or exploring new innovations, then a broad range of evidence will be useful, including observations, case studies and other qualitative research.
- If the question is about measuring effectiveness or impact, then the most robust evidence is likely to come from quantitative studies which aim to test for cause and effect, such as experiments (see the table below). These trials investigate impact by comparing outcomes, for example contrasting the attainment of a group of children who were taught using a specific approach with a 'comparison' group who were not.

Combining sources

When you engage with research evidence, sometimes the picture this presents can be mixed. Not all research supports a particular approach. This means that it's important to build a rich evidence picture by considering a range of sources to identify themes and trends, as well as to better understand whether or not approaches could work in your specific school or context.

Using research evidence

A concise guide

Research type	Description	Useful for:	Potential limitations:
 <p>Systematic reviews</p>	Collate multiple previously published research studies on a specific topic (e.g., how to give feedback) using clear and consistent criteria that can be easily followed and repeated by others.	<ul style="list-style-type: none"> Providing a comprehensive review of the current evidence on a particular question or topic. 	<ul style="list-style-type: none"> Sometimes systematic reviews will find that there is little or no high-quality available evidence, thereby limiting the findings. Not all systematic reviews follow robust criteria for collecting and screening studies, meaning they may be more prone to bias or miss relevant studies. Collating evidence can be challenging when the included studies use inconsistent methods or important details are not reported.
 <p>Meta-analyses</p>	Combine impact measurements from multiple previously published research studies to give an overall average impact.	<ul style="list-style-type: none"> Providing an indication of whether an approach has a positive impact on specific outcomes. 	<ul style="list-style-type: none"> Sometimes differences between practices or approaches being tested, and the way studies were conducted, can influence the average effect. Meta-analyses provide us with an 'overall' effect and so will not always tell us when and where certain practices may work effectively. Findings can be skewed if the studies used within meta-analyses have methodological limitations.
 <p>Experiments (e.g. randomised control trials)</p>	Compare the impact of one teaching approach or programme with an alternative approach, or no intervention at all.	<ul style="list-style-type: none"> Compare the impact of one teaching approach or programme with an alternative approach, or no intervention at all. 	<ul style="list-style-type: none"> Whilst experiments focus on testing the impact of a defined practice or intervention, they do not always capture contextual factors that may affect the impact on outcomes – it can be hard to know how, why, or which components of the thing being tested did or didn't work.
 <p>Secondary data analysis</p>	Interpret data from existing sources (e.g. national pupil databases) to address new research questions or make new links.	<ul style="list-style-type: none"> Identifying relationships between two or more variables (e.g., socioeconomic status and educational outcomes). 	<ul style="list-style-type: none"> Researchers rarely have control over how this data is collected which may limit their ability to answer specific questions. Unlikely to provide clear evidence of cause and effect: correlation does not equal causation.
 <p>Surveys and interviews</p>	Canvass the experiences, perspectives and opinions of a group such as pupils, parents or teachers.	<ul style="list-style-type: none"> Providing information about the attitudes, opinions and experiences of certain groups (e.g. early career teachers). Surveys can provide data on large populations, and identify whether particular challenges are widespread. Interviews can provide detailed insights into the perspectives of small populations 	<ul style="list-style-type: none"> These explore participants' views and perceptions, but may not accurately reflect the effectiveness of an approach. May use leading or loaded questions (e.g., "How worried are you about staff recruitment?") that skew the answers of participants. Samples can also be biased or selective, meaning that findings may not represent the perspectives of the overall population.
 <p>Case studies</p>	Describe the experience(s) of researchers, teachers, classes, settings, or 'cases'.	<ul style="list-style-type: none"> Providing rich, contextualised information to build a picture of practice in a particular setting. Generating ideas for possible solutions. Considering how these solutions might be implemented, and whether they were popular with staff and pupils. 	<ul style="list-style-type: none"> Case studies describe a specific context and therefore findings are not easily applied to different contexts. Findings will not tell you whether the solutions are effective beyond the specific context of the case.

*This is not an exhaustive list of research types, and each piece of research can vary in usefulness and may have its own set of limitations

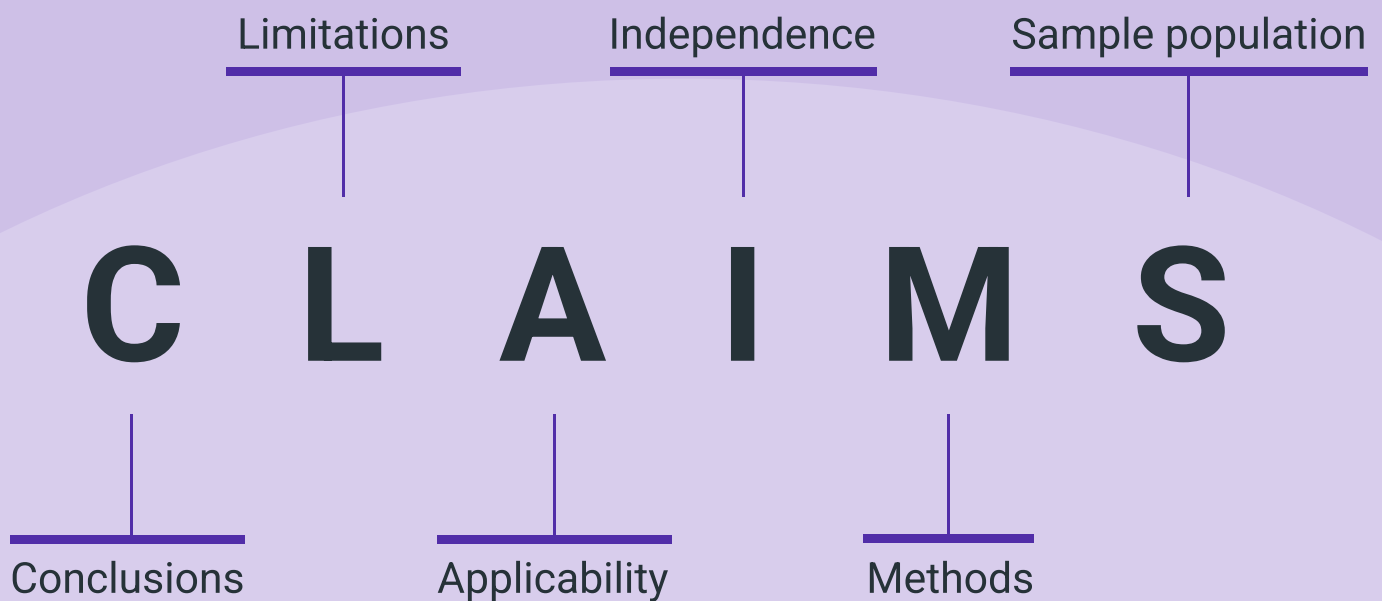
Using research evidence

A concise guide

How can we examine research evidence?

Making school improvement decisions based on research evidence can help us choose the best bets for our pupils. However, it's important to engage with credible evidence. Research evidence can vary in its quality and reliability. This depends on how the research was done and other factors that could introduce bias and affect the results.

There are some red flag warning signs which are useful to look out for when reading different types of research. The presence of these might make you sceptical about the reliability of the evidence you are reading. These can be remembered using the acronym, **CLAIMS**:



Using research evidence

A concise guide

C

Conclusions

- ❑ **Conclusions appear to report or focus on only the findings or studies that support the researcher's view and ignore others.**

The description of the approach appears quite 'one-sided' rather than providing a more balanced discussion.

- ❑ **The evidence used to support conclusions may be unclear.**

Some findings, such as an increase in pupil attainment, could be caused by other factors and influences, rather than (or in addition to) the approach that has been investigated.

L

Limitations

- ❑ **It's hard to figure out what the study's limitations are and how these may have affected the results.**

Limitations to look for include the number of pupils included in the research, and whether or not they can be considered representative of pupils more broadly (e.g. are any particular groups of pupils over- or under-represented). Any limitations should usually be clearly recorded and discussed.

A

Applicability

- ❑ **The findings have been extended to situations or people the research wasn't intended for.**

This can include applying findings to a different curriculum subject, pupil age range, or education system. It may also assume that findings from a small number of pupils in a specific setting will apply to all other settings and situations.

- ❑ **The research may not be possible to reproduce within 'real-world' school or classroom contexts.**

For example, the research may have taken place in a controlled environment – such as a laboratory – or have been led by trained researchers. It may also require resources that would not typically be available in most schools or settings.

- ❑ **The measure used to assess the impact of the approach or programme isn't what you are interested in improving.**

For example, the study may have measured impact on pupils' enjoyment of the programme but you are interested in impact on learning outcomes such as SATs or GCSEs.

I

Independence

- ❑ **The author has biases or a personal stake in the outcomes of the research and has not made sufficient efforts to mitigate these and avoid erroneous findings or conclusions.**

- ❑ **The research is funded by an individual or organisation with a personal stake.**

- ❑ **The evidence is shared on a commercial website that benefits from the intervention or approach.**

M

Methods

- ❑ **The way data was collected and analysed isn't explained clearly.**

This means that it is difficult to understand what the researchers did and where the findings have come from. Researchers should explain what processes they used (e.g., guides for conducting interviews or focus groups and codes for analysis) and any challenges they encountered in doing so (e.g., issues collecting pupil data or any variation or contradiction in the findings). The research team did not publish a plan of what they were going to analyse in advance to protect against the selective reporting of results.

- ❑ **The way data was collected and analysed does not seem appropriate for the questions posed.**

For example, interview data on pupil or teacher experience cannot be used to evidence impacts on pupil learning – this would require comparison of pupil outcome data, contrasting the attainment of a group of children who were taught using a specific approach with a 'comparison' group who were not.

S

Sample population

- ❑ **The sample is small or doesn't represent the target population.**

For example, just one or two schools may be used to represent all schools in the country, or the research takes place in a limited location or setting type, or with pupils of a limited demographic.

- ❑ **The group in the research was unbalanced.**

For example, the group of pupils who received the intervention was small compared to those who did not.

- ❑ **A high proportion of settings or pupils dropped out of the research (known as 'high attrition').**

Getting beyond the surface

Once you've identified reliable sources of research evidence, it's important to get beyond the surface of these before applying findings to classroom practice.



Build a rich evidence picture

Consider multiple studies from a range of sources to identify themes and trends. Try to avoid 'cherry picking' research that confirms, rather than challenges, your existing beliefs and consider the evidence base objectively as a whole by using information drawn from systematic reviews and meta-analyses - such as the EEF's [Teaching and Learning Toolkit](#) or [guidance reports](#).



Look for variation in findings

The 'devil is in the detail', so when engaging with research evidence it's important to consider the variation in effects across different studies and what drives this variation of effects. For example, are there groups of pupils for whom the approach is more – or less – successful?



Focus on the 'how' as well as the 'what'

Look carefully at how approaches are implemented to decide if the ingredients that make an approach effective could be applied to your school or setting.



Maintain criticality

Be open to new ideas, whilst being critical about the claims that are being made. 'Look for warning signs in a claim - such as those which seem too good to be true, or vague references to impact (e.g., 'this programme has huge impacts') – and examine these carefully, rather than accepting them without question.



Integrate research evidence with professional judgment

Build confidence that an identified programme or practice will address the defined problem by 'sense checking' this with your own insights and professional expertise. Use robust evidence to substantiate what might work, then challenge yourself by testing the validity and reliability of that evidence.

Using research evidence

A concise guide

How can we use research evidence to inform practice?

While reading and evaluating research evidence can provide excellent insights into what has worked in the past, this alone is unlikely to improve practice and pupil outcomes. For improvements to be made, we need to actively apply research evidence by making changes to what we do. The table below sets out some initial questions for you to consider when looking to use research evidence to inform practice.

	Reflection questions	Support and resources
<p>Balancing likely benefits of changing practice against costs</p>	<p>Consider the possible benefits alongside costs before proceeding with a change to practice.</p> <p>Key questions include:</p> <ul style="list-style-type: none"> • What are our improvement priorities? • Does the research evidence suggest that a change to practice may improve pupil outcomes? • Would the new or altered practice be better than what we currently do? • What costs might be involved in changing practice (e.g., time, embedding practice, money)? • Does the potential for improvement outweigh the likely costs? 	<p>EEF's 'Teaching and Learning Toolkit'</p> <p>EEF's 'Early Years Toolkit'</p>
<p>Identifying and translating approaches from research evidence</p>	<p>Thinking about how approaches fit your pupil and school needs, and what adaptations might be necessary.</p> <p>Key questions include:</p> <ul style="list-style-type: none"> • What 'best bets' can be taken from the research evidence? • Why is the approach thought to work – what is the theory? • Was the sample generalisable/national, and if not, how does it compare to my context? • What might the approach look like in my context? 	<p>EEF's 'Gathering and interpreting data' tool</p> <p>That's A Claim</p> <p>Nesta's 'What Counts As Good Evidence'</p>
<p>Considering the processes and people required for change</p>	<p>Putting systems and processes in place to make changes sustained and effective.</p> <p>Key questions include:</p> <ul style="list-style-type: none"> • What infrastructure is required to make the approach work within our context (e.g., time, roles, logistics)? • Can existing systems or practices be adapted or repurposed to enable the change to take place, whilst being sensitive to staff workload? • Which people will be involved with making the change? How can they support, lead, and positively influence implementation? What is needed to secure their 'buy-in'? • How will we prepare, deliver, and sustain the change? • What outcomes will we use to understand progress and impact (e.g., how it's being done, buy-in, attainment)? 	<p>EEF examples of Implementation Plans</p> <p>EEF's Implementation guidance report</p>



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