What to look for in research

Schools want to see real change and lasting impacts for their efforts.

Strong evidence reassures schools of the merit of investing the time and resources to implement an approach in their schools.

Quality, well-conducted research is necessary to produce strong evidence that a program or approach to countering bullying is effective. Research that is not well-conducted can lead to findings or claims that may not be valid, and result in a waste of the schools’ time and resources, as well as frustration and discouragement.

To determine if research is of a high quality and is well-conducted, look for the following features, and consider the cautions in interpreting research discussed at the end of this page.

Clear logic – the importance of sound theory

The starting point for research is a sound theory, including logic that encompasses what bullying is, how it can be changed, and consequently how change can validly be measured.

In the absence of clear logic, even the best research methods can yield misleading results. (There are humorous examples of the ‘spurious links’ that can be suggested by combining types of data together without any logic or theory about the relationship between the information).

To determine if research has a sound theory, look for:

- A clear description (concept) of what bullying is
- A statement of the theory (logic) of how bullying can be changed and therefore why this approach is likely to change the participants' behaviours, knowledge or attitudes
- Measurements in the study that are directly based on the logic in the theory.

Specific research question/s

Research into whether an approach ‘works’ to counter bullying needs to be based on a very precise statement of what the approach is supposed to do and how change is measured before and after the approach is implemented.

So, ‘Does Approach X prevent bullying?’ is too vague or non-specific as a research question. A research question would be more like, ‘Does Approach X (being tested) delivered by the classroom teacher in weekly lessons reduce the number of bullying reports by students in Years 5-6 when measured 6 months after Approach X was implemented?’

To determine if research has a precise research question, look for:

- A specific research question/s in the form of, ‘For whom does this approach work in what conditions, and for how long, and how will this be measured?’
• A statement of the **specific measures** that will show there has been change (is it something that is objectively measured, and not subjective, for example, teachers’ opinion about students’ changes in behaviour)

• Clear description of **exactly what was done**, at what time, for how long, by whom, and with whom, etc., so that the research can be checked and replicated.

**Rigor in research methods**

Research must be very carefully conducted to reduce the likelihood that the findings are due to other extraneous factors and that the results are actually valid.

Applying rigor in research methods reduces what are known in research as the ‘threats to validity’. Careful planning to reduce ‘threats to validity’ increases confidence that findings are valid.

Well-conducted research with rigor in the research methods means stronger evidence. Stronger evidence means greater confidence in the findings.

**To determine if research has a rigorous research method, look for:**

• An explanation of **how the students were chosen** for the research (Were the selected subjects already on the way to a positive outcome before the approach was implemented? Did researchers avoid a sample of schools that were highly likely to do well?)

• The **number of participants** in the research group, e.g. is it sufficiently large to ensure the findings are valid across lots of people? For example, findings of research conducted with a small group of 10 students or only in one school cannot confidently be extended to other students or schools (although it may indicate a promising practice)

• Establishment that **participants were similar before** the research conditions started to make sure changes observed are due to the approach itself, and not to differences in the people in the study

• **Comparison** between the approach and a ‘control group’, which is either students who have no intervention, or who do an alternative program. This ensures it is the approach that is making the difference and not the fact that participants are improving due to the increased attention of any approach

• A detailed explanation of **how and when change was measured**, with pre-testing, post testing and a later follow-up at a minimum. Immediate post-testing only is common and is not strong evidence without also testing how well the change is sustained over time; a short period of improvement may be followed by a return to pre-approach issues

• Publication in a **peer-reviewed journal** – other experts in the field have looked at the research method to confirm it supports the findings

• Research conducted by researchers who are **independent** of the approach (‘Independence’ is the best way to avoid researchers’ human bias).

• A **statement of ‘limitations’** – all research has its limitation and quality research acknowledges these. Research which fails to comment on the limitations indicates a possible lack of awareness of the full complexity and challenge of conducting well-designed research.
**Measurement of change**

Strong evidence requires specific and objective measurement of change, taken on multiple occasions and over sufficient time.

Believing that things are better is a notoriously poor indicator that real change has happened. The only way to get strong evidence is through directly measuring change.

A 'positive feeling' by staff, students or parents and carers is not sufficient. Opinion about the ease of implementation is not sufficient. A survey of teachers about students’ behaviour change is not sufficient. Each of these is valuable information, but none is a specific and objective measure of change due to the approach the school has implemented.

The choice of appropriate measures of change will depend on both the Research question and the Logic of the research.

To be described as evidence-based, an approach, strategy or program must have objective measurements of change found through rigorous research.

The term 'evidence-based' is sometimes used when it is not warranted. Not all information provided in support of an approach can be considered as strong evidence.

Approaches, strategies and programs without evidence from objective measurement can only claim to be evidence-informed. This means they:

- were developed based on findings of other/previous research which would suggest it is likely to have an impact (i.e. theory based only), or
- have preliminary findings only, without rigorous research or careful interpretation (e.g. schools' general data or feasibility studies), or
- have less strong types of evidence (e.g. user interest, opinions of teachers about students' behaviour, and general satisfaction surveys), or
- do not feature an actual measurement of change in research or practice.

To determine if research includes measurement of real change, look for:

- a description of the specific measures of change in behaviour, knowledge or attitudes
- an explanation (or logic) of why these measures have been chosen.

**Peer review**

To increase confidence the findings and recommendations from research are valid, schools should look for studies that are published in peer-reviewed journals.

Research should be scrutinized by other experts in the field to ensure the claims of the research are reasonable.

Schools should be cautious about accepting the findings of studies that are only published on public sites or documents. This type of publication has not been reviewed by others who are expert in the area.
Peer review increases schools' confidence that the findings are valid. Peer review also provides increased confidence that the findings of research have been interpreted accurately and reasonably.

**To determine if research is published in a peer-reviewed publication, look for:**

- information about the publication should state whether it is peer-reviewed.

**Cautions in interpreting research findings**

Some organisations report the results of their studies using the language of research, but do not actually use rigor in their research design and do not produce high quality evidence.

Some research is flawed and so leads to invalid or possibly biased findings due to weaknesses in the methodology or the logic or theory. For example, if students can self-select if they want to participate in a research project, it is possible for a highly motivated and well-resourced subgroup of students to be included, which means that any positive findings may not necessarily be true for other students. High quality research uses methods to overcome this type of issue.

A common trap for interpreting research findings stems from the fact that statistical terms have specific meanings which are different from their everyday use.

For example, 'significant' in statistics means that a result is not likely to have happened by chance. It does not necessarily mean 'important' or 'major' as in the everyday meaning of the word 'significant' – in fact it may not be a very important or useful finding at all. Misuse of statistical terms, such as 'significant findings' can lead to misleading or inappropriate conclusions being drawn from research. The 'importance' of findings involves interpretation of these findings (if they are statistically significant, i.e., have not happened by chance) in terms of the impact they can have on schools. High quality research is based on appropriate use of the relevant statistical tools and careful interpretation.

Even with well-conducted research, results may be quoted out of context or without important information or cautions about how to interpret the findings. Research findings can sometimes be overstated when reported in the media and other non-research publications.

Finally, evidence can be selected and tailored to support particular opinions and ideology. High quality research may be dismissed in favour of other, less strong 'evidence' to support a particular belief or favoured approach.

Schools can feel more assured of the value of the findings of research by looking for the features described above.

**To ensure that appropriate cautions have been used, look for:**

- peer review to ensure the claims of the research are reasonable
- modest and careful claims regarding effectiveness, and avoidance of hyperbole and emotion
- whether statistically significant (meaning 'not by chance') findings have been reported as 'significant' meaning 'important' findings.