Looking for research evidence

Using research to strengthen your practice

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While there are many places to find research evidence, some sources are more credible than others. Knowing how to identify credible sources increases your chances of finding high-quality research evidence.

As an education professional, drawing on research evidence can strengthen your confidence that you're using the most effective practices – practices that will maximise children and young people's learning and wellbeing. Considering new approaches doesn't mean your existing approaches 'don't work'. It's simply recognising that knowledge evolves over time. Even when children and young people are doing well, if we ignore the research, they could miss out on opportunities to achieve more. Research evidence shouldn't replace the professional wisdom and understanding that comes with experience. Rather, it should complement your experience, enrich your existing knowledge and give you confidence you're using the practices most likely to maximise learning in your context.

The Australian Education Research Organisation (AERO) has produced 4 practice guides on using research to strengthen your practice:

The Value of Research Evidence

Assessing Research Evidence

Looking for Research Evidence

Applying Research Evidence.

If you're a teacher or educator, this practice guide and AERO's other evidence use resources can help you draw effectively on research evidence to strengthen decisions about your practice. If you're a school or service leader, you can use this guide and these resources to support your team in engaging with research evidence as part of their ongoing professional development.

Related frameworks

Early Years Learning Framework V2.0

Principles: Critical reflection and ongoing professional learning.

National Quality Standards

Standard 7.2 Leadership: Effective leadership builds and promotes a positive organisational culture and professional learning community.

Australian Professional Standards for Teachers

Focus Area 6.2: Engage in professional learning and improve practice, which includes 'Plan for professional learning by accessing and critiquing relevant research' at the Highly Accomplished level.

Australian Professional Standards for Principals

Professional Practice 2: Developing self and others.

Ways to use this practice guide

- You can use this practice guide for professional learning to become more familiar with research and to check your knowledge. Use the resources recommended in Table 1 and throughout the guide to find research in reliable web-based sources.

- You can use this practice guide for professional learning to discuss research evidence as a team, such as in a community of practice.

- Leaders can use this practice guide to structure dialogue and reflection about using research evidence in a school or service. These concepts can serve as a point of conversation to build shared understandings of how to engage with research evidence.

There are many places to find research

Unless you're a student or staff member at a university, it can be difficult to access academic journals that publish high-quality research. As an education professional, you're likely to come across research findings in books, summaries of 'best practice' (for example, in practice guides), blogs and social media, and reported in the news. While it's great that research evidence can be found in so many places, the quality of this type of filtered information is variable and needs careful evaluation.

> **Need help deciding how much to trust a non-academic source of research?**
>
> Take the Currency, Relevance, Authority, Accuracy and Purpose (CRAAP) Test.

Academic (scholarly) journals publish research that has been *peer-reviewed* (also called *refereed*). This means it's been reviewed by experts in the field to ensure the research is of a high standard – that is, that appropriate methods were used and that the conclusions are logical. Reviewers also evaluate whether the findings are original and significant enough to be worth publishing. Peer review is usually 'blind', meaning the reviewers don't know who wrote the article. This means each article is judged on its merits. Research isn't accepted for publication simply because it was written by a well-known author.

Most peer-reviewed journals have policies to ensure the research they publish has been conducted ethically. When the research involves human research participants, authors are usually required to declare that they obtained ethical approval from a Human Research Ethics Committee (HREC) prior to conducting the research and have carried out the research in accordance with the approved research protocol.

HRECs only approve research that complies with core ethical principles – for example, that the likely benefits of the research outweigh any risks of harm or discomfort to participants. Research published in other outlets may also have received ethics approval. If so, this will usually be mentioned in the publication.

> Being published in a peer-reviewed academic journal is a good indicator of research quality but isn't a guarantee. You should still evaluate the rigour and relevance of a study yourself, regardless of where it was published. AERO's Research Reflection Guide can help you do this.

If you don't have access to a library with subscriptions to academic journals, you'll usually need to pay for peer-reviewed journal articles. The exceptions to this are open access journals and open access articles.

Open access (OA) journals publish academic research online at no cost to the reader. The motivation of the OA movement is to make research and information more widely and freely accessible, but the fact that publishing costs are paid by the authors has raised some concerns about the quality of research in OA journals. The Directory of Open Access Journals provides a catalogue of reputable peer-reviewed OA journals.

Some subscription (also called closed) journals allow researchers to pay a fee called an article processing charge to make their articles open access. These articles have gone through the same peer-review process as any other paper published in that journal.

Campbell Collaboration is an international research network that produces systematic reviews, evidence maps, plain language summaries and policy briefs in the social sciences, including education. Campbell Systematic Reviews is a quality open access and peer-reviewed journal.

Practitioner or trade publications are aimed at a particular professional group such as educators rather than an academic audience. Their content is often high quality, relevant and useful but they're different to academic journals because the content is not usually peer-reviewed and their publication rules are less strict. It's important to be aware that news, opinion pieces and illustrations of 'good' or innovative practice in such publications may be based on anecdotal evidence rather than high-quality research. The authors tend to be practitioners or journalists.

Important: Don't conflate anecdotal evidence with research evidence generated through established qualitative research methods like narrative inquiry. Anecdotal evidence refers to claims made without systematic inquiry and consideration of bias

Grey literature

Grey literature is information that has not been commercially published, such as reports, conference papers, PhD theses and fact sheets. It may be produced by governments, academics, peak organisations, service providers, 'think tanks' and others.

Grey literature can vary in quality. Publications by governments and government agencies are generally considered more credible than other grey literature. Nevertheless, all grey literature should be critically appraised to check for objectivity as it is not peer-reviewed and its aim is sometimes to promote a social or political agenda.

AERO is an example of an organisation that produces grey literature. While AERO's work generally is not commercially published (for instance, in academic journals), as Australia's independent education evidence body, AERO has a strong commitment to rigorous research. 'Rigour' is one of our core Values, and we follow a comprehensive process to ensure our research is high quality.

AERO believes that for our research to be high quality, it must be produced ethically and responsibly. AERO complies with principles to ensure our research:

» pays respect and recognition to all people involved

» has merit and integrity

» is transparent, honest and accountable

» promotes equity and accessibility.

Read about the principles for the ethical and responsible conduct of research underpinning AERO's research.

Evaluation reports are a common form of grey literature evidence about the effectiveness of interventions, programs and policies. While they appear similar to academic research, they may present partial information and can be subject to intentional or unintentional 'spin' in which positive findings are highlighted while negative findings are given less prominence.[1]

Analysis and Policy Observatory (APO) is an open access platform that aims to make public policy research and resources (grey literature, mostly from Australia and New Zealand) accessible and useable. Resources are sourced from a range of organisations including government, agencies, regulators, research institutes, not-for-profits and think tanks.

APO checks that resources are 'credible and well-expressed' before publishing, but they are not peer-reviewed.

Books

Books are an excellent source of information but determining the reliability of a book can be harder than you might expect. Scholarly books written for students and academics should be reliable as long as they're not out of date, noting that it can take years to write and publish a book! Books written for a general interest audience may be based on evidence but may also be opinion and/or a subjective presentation of an issue. If you're not sure how reliable a book is, these questions will help:

- Who is the author? Are they an academic? What are their qualifications?

- What experience does the author have with the topic? Are they an authority?

- Who is the publisher? Are they an academic publisher? What else have they published on this topic?

- Are references to academic research or a bibliography (that is, a list of works that the author drew on in writing the book) included?

News websites

If you find interesting research in the news, always seek out the original study or additional sources to confirm the findings. Sometimes reporters simply sensationalise results to attract readers' attention.

Research findings published by even the most reputable news agencies may be misleading, because fitting a research study into a short story or video requires significantly simplifying the message. Peer-reviewed research will always outline the limitations of the research and describe the participants involved, but this information is almost never included in news stories.

For instance, a news headline might read: 'Study shows: Student writing scores are worse on online NAPLAN tests compared to paper-based tests'. The actual research suggests, however, that it's not so straightforward. Students' punctuation was worse on online tests, but they were better at using paragraphs. How using an online mode impacts NAPLAN scores is an area requiring further research.[2]

The rest of the internet

Wikipedia is not a credible source of evidence when used alone but can be a useful starting point, particularly when entries include a list of academic references to follow-up. It can also help with identifying potential search terms.

Websites, blogs, podcasts and social media may or may not provide trustworthy information so evaluating the credibility of the information is critical. Social media algorithms are intentionally designed to feed each person information based on what they've interacted with in the past. This can create repeated exposure to the same ideas and limit consideration of alternatives, making us more prone to confirmation bias. This means we need to be proactive to ensure we engage with a variety of different sources of information.

> **Confirmation bias:** We notice, remember and give more weight to evidence that supports our existing opinion and ignore or dismiss information that contradicts it.
>
> For an overview of other common cognitive biases, see AERO's The Value of Research Evidence practice guide.

If the content is produced by a trustworthy organisation such as AERO, a government department or agency, or a university, it's usually reliable and evidence-based. For other providers of content, think critically about how information shared may be impacted by both intentional and unconscious bias:

- Business or commercial websites are designed to promote a product or service and only share information that supports their product or service

- both businesses and not-for-profit organisations may use online content to advance a social or political agenda

- people often blog or post on social media because they feel particularly strongly about an issue, meaning the information they share is likely to be subjective or biased

- even when online information comes from research, content creators might only share evidence that supports their view and ignore evidence that supports an alternative perspective

- anyone can create a website or publish a blog or a Facebook post, with no checks for quality or accuracy

- popularity and credibility are not the same thing — number of followers isn't an indication of quality.

Table 1 lists some of AERO's recommendations for reliable web-based sources.

> Even if a source is reliable, it's important to make conscious decisions when selecting resources to ensure they reflect all children and young people. For example, the Australian Institute of Aboriginal and Torres Strait Islander Studies Guide to Evaluating and Selecting Education Resources supports teachers in selecting appropriate resources for teaching Aboriginal and Torres Strait Islander histories, cultures, and languages respectfully and effectively.

Table 1: AERO-recommended reliable web-based sources

Name	Description
State government education departments	
High Impact Teaching Strategies (VIC)	Information and practical resources about 10 instructional practices that are internationally recognised as among the most reliable teaching strategies for delivering learning outcomes.
What Works Best (NSW)	Research summary and resources about 8 quality teaching practices that are known to support school improvement and enhance student learning outcomes.
Standards of Evidence (QLD)	Overview of QLD Department of Education standards to assess education evidence. Note these standards assess evidence in a different way to AERO's Standards of Evidence.
Websites	
AERO's evidence-based practice resources	Information and practical resources about evidence-based practices for early childhood and schools.
Australian Children's Education & Care Quality Authority	Guidance, resources and services to support the early childhood sector to improve outcomes for children.
Australian Institute for Teaching and School Leadership	Information and practical resources for teachers to improve their practice and grow professionally.
Evidence for Learning	Evidence summaries and guidance for early childhood and schools, including content from the UK Education Endowment Foundation.
Education Hub	Research-informed resources for educators and teachers, published in New Zealand.
ACEReSearch	Research and other publications by the Australian Council for Educational Research (ACER).
Monash Q Project	Resources and insights about using research evidence in schools.
What Works Clearinghouse	Summaries of high-quality research about 'what works' in education, provided by the US Department of Education.
Blogs	
The Spoke	Early Childhood Australia's blog, with articles by leading policymakers, academics, experts, leaders and early childhood practitioners.
EduResearch Matters	The Australian Association for Research in Education blog, sharing research and opinion pieces.

Name	Description
Podcasts	
Teachers' Education Review	Hosted by teachers, this blog explores policies, teaching practices, and international events that impact on teaching and learning in Australian classrooms.
Education Research Reading Room	Different guest speakers each episode with content including theory, policy and effective practice.
Teacher Magazine	A variety of podcast series including The Research Files, Teacher Staffroom, and School Improvement.
NSW Department of Education literacy and numeracy	A series of podcasts that explore evidence-based practices and focus on quality teaching of literacy and numeracy.

Although not necessarily education-focused, nationally representative surveys are rich sources of data. For example, the Household, Income and Labour Dynamics in Australia (HILDA) Survey collects information from more than 17,000 Australians over the course of their life. Topics covered include health, education, income, employment and relationships. Australian and international researchers can apply to access the data.

Browse the HILDA Survey Publications bibliography to find studies published in a range of outlets. HILDA can be especially useful if you're looking for research about specific population groups because the survey is large and nationally representative. However, this is not always helpful when trying to understand context-specific issues.

When examining issues related to First Nations educational experiences, it would be better to use a more purpose-designed dataset, such as the Longitudinal Study of Indigenous Children (LSIC). LSIC focuses on Aboriginal and Torres Strait Islander children, their families and communities. Topics covered include health, learning and development, family and community. This is also especially useful for studies of First Nations experiences in remote settings, because the sample has been designed to provide greater coverage of remote families and communities. You can read about LSIC findings in data highlights and summary reports.

Making large survey data widely available means that more researchers can produce insights without collecting data from additional participants. This is a particularly important consideration when lots of researchers study the same community – for example, Aboriginal and Torres Strait Islander peoples. Such communities have a history of being 'over-researched' without benefitting from the research in ways that are meaningful to them. The AIATSIS Code of Ethics for Aboriginal and Torres Strait Islander Research provides specific guidelines that help to ensure researchers thoroughly consider the framing, relationships and potential impacts of the research they are planning.

See the Assessing Research Evidence practice guide for further discussion about ethical considerations.

Search for research evidence in libraries or Google Scholar

University library catalogues and academic databases are great places to start if you have access to them (check whether your employer has a library you can access, or if you have university alumni access). Table 2 outlines some of the top databases for education.

Table 2: Top databases for education

Name of database	Description
A+ Education	Devised in partnership with the ACER, A+ Education connects teaching and learning professionals with definitive content on teacher training, policy, curriculum and pedagogical developments. Has a high level of Australian content.
ERIC	Education Resource Information Center provides access to education-related literature.
ProQuest Education Database	Includes full-text scholarly journals and dissertations, supporting research on the theory and practice of education.
PsycInfo	Abstracts of literature in the field of psychology.
Scopus	Abstracts and citations database covering life sciences, social sciences, physical sciences and health sciences.

If you don't have access to a library with journal or databases subscriptions, you'll need to rely on open access journals, grey literature and searching the internet. Some universities and research organisations also provide access to their researchers' accepted manuscripts (usually articles and book chapters) in their institutional repositories once they've been published.

Google Scholar is like a regular Google search but for scholarly literature, including both peer-reviewed and grey literature. Search results provide a link to the full text where it's publicly available (for example, open access research), but whether you can view it without payment will depend on the publisher.

> New to Google Scholar? Check out Google's search tips.

A regular Google search is a useful way to find information such as fact sheets, plain language guides and websites, but these may or may not be based on high quality evidence and need careful appraisal (look for reputable organisations such as AERO). Be aware that Google search results are based on relevance to your search terms and Google's assessment of quality, and are influenced by your location, your search history, and the device you're using (mobile or computer).

> If you'd like to be structured in your searching, AERO's simple Searching for Research worksheet will help you plan your search and record what you find.

Knowledge check: Looking for research evidence

Take our quick quiz below or scan the QR code to test your knowledge about research evidence.

1. **Select which statement is TRUE. If a paper has been published in a peer-reviewed journal, it means that:**

   a. it can only be accessed by researchers who are affiliated with universities or research institutes

   b. experts in the field have reviewed the research to ensure it meets the high-quality standards required for publication

   c. the authors are highly experienced and respected experts in the field

2. **Select which statement is TRUE. Websites, blogs, podcasts and social media may or may not provide trustworthy information because:**

   a. the people who write/publish the content may have an agenda or reason to be biased

   b. the content is usually peer-reviewed

   c. only really popular sites can be trusted

3. **Select which statement is TRUE. Google Scholar:**

   a. is like a regular Google search but for scholarly literature including both peer-reviewed and grey literature

   b. is better than a university library because it includes grey literature

   c. provides access to all the same research as a university library

4. **Do you consider these statements to be true or false?**

   4.1. News sites sometimes simplify research findings so much that the content is misleading or inaccurate.

   4.2. Books are usually a more reliable source of evidence than academic journal articles because they're longer and more comprehensive.

   4.3. Wikipedia is reliable because thousands of people contribute to its articles and can correct each other's mistakes.

   4.4. Articles in practitioner or trade publications are reliable because the content is usually peer-reviewed and their publication rules are strict.

   4.5. Evaluation reports can look the same as academic research but they may be subject to intentional or unintentional 'spin' that highlights positive findings.

Next steps

For an overview of different types of evidence and biases to be aware of when reading about evidence, see AERO's The Value of Research Evidence practice guide.

For guidance on how to assess research evidence once you've found it, see AERO's Assessing Research Evidence practice guide.

For guidance on how to apply research evidence, see AERO's Applying Research Evidence practice guide.

Answers: 1(b), 2(a), 3(a), 4.1(True), 4.2(False), 4.3(False), 4.4(False), 4.5(True).

Endnotes

1   See for example: Vaganay, A. (2016). Outcome reporting bias in government-sponsored policy evaluations: A qualitative content analysis of 13 studies. *PLoS One*, *11*(9), Article e0163702. https://doi.org/10.1371/journal.pone.0163702

2   Australian Education Research Organisation. (2022). Writing development: *What does a decade of NAPLAN data reveal?* https://www.edresearch.edu.au/research/research-reports/writing-development-decade-naplan-data-report