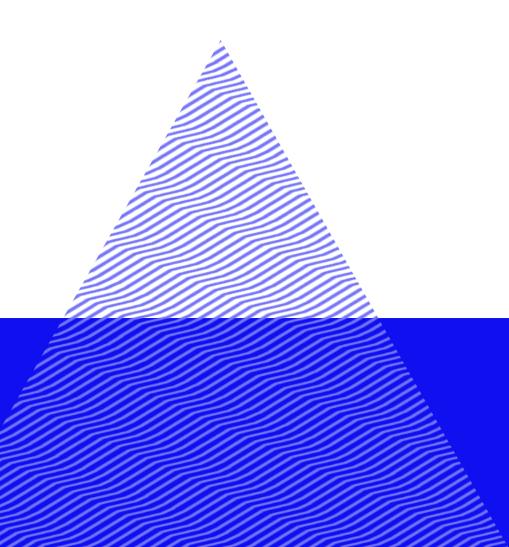
# Mapping Evidence to Policy to help Practice

Dr Tanya Vaughan, GEIS 2018, 22 October





# **Acknowledgement of Country**

We acknowledge the traditional custodians of the land, the elders of the Wurundjeri people of the Kulin nation and pay respect to their elders past, present and emerging.



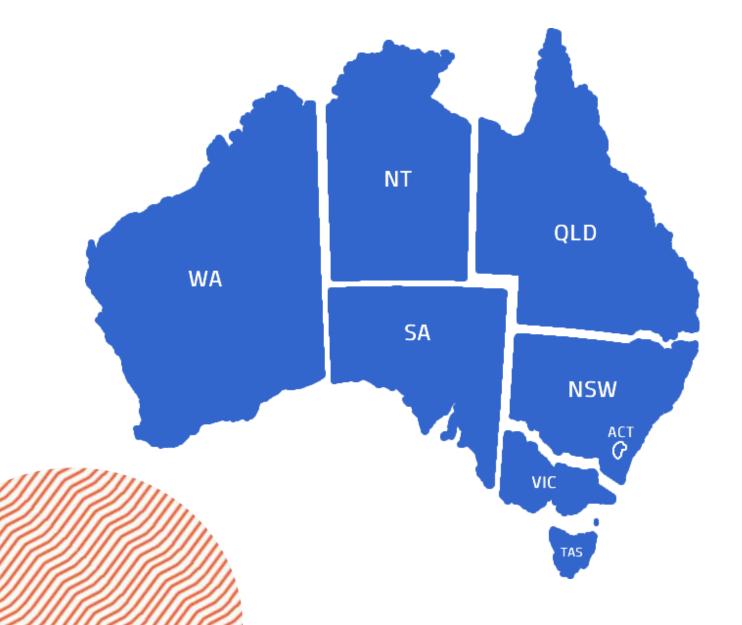
### Presentation overview

- 1. Organisation Introduction
- 2. Evidence Ecosystem
- 3. Teaching & Learning Toolkit
- 4. Tailored Toolkits

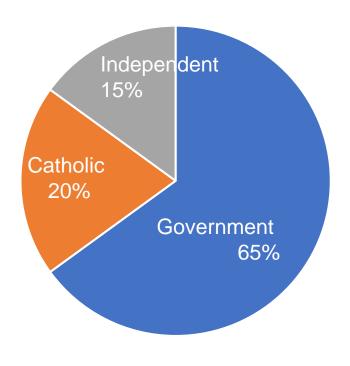




# Australian schools context



9,414 schools3.8m students390,000 teachers



# Introducing Evidence for Learning

We help educators increase learning by improving the evidence of what works and why.

This makes the biggest difference for learners in disadvantaged settings where school education plays a crucial role in improving life chances.

Our vision is an Australia where evidenceinformed approaches increase learning, so that all children, regardless of background, make the best possible progress.





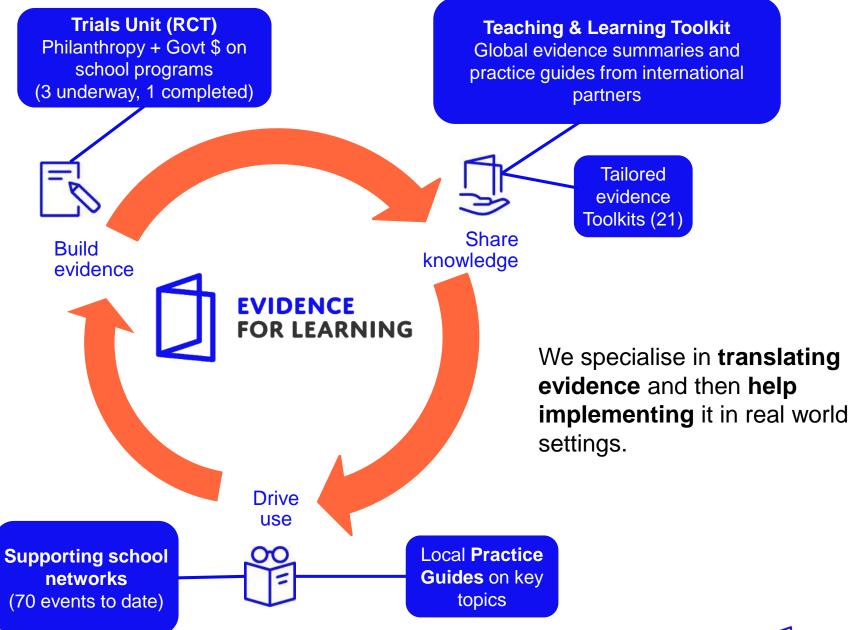




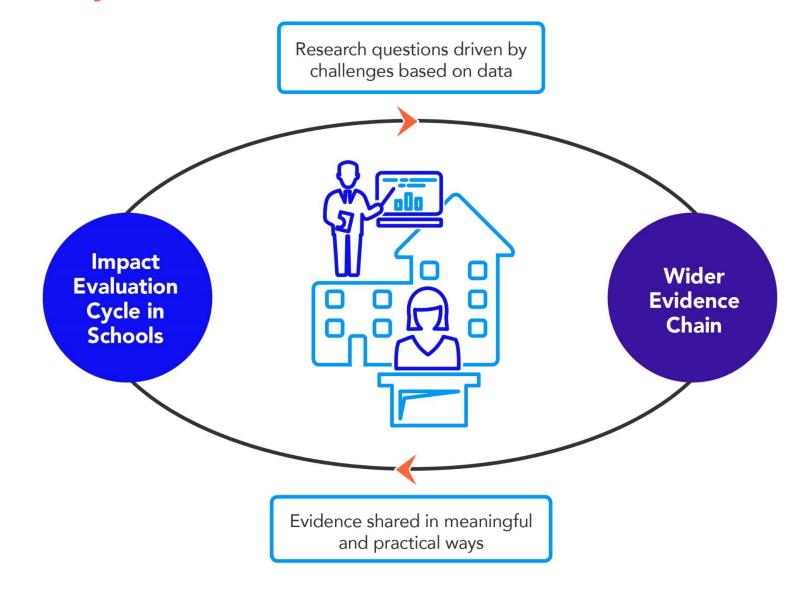


# Better school decisions informed by evidence

We are an **Evidence**Intermediary; we play
a brokering role
between research and
practice



# Evidence ecosystem





## The Toolkit aims to:

- Support evidence-informed decision-making in Australian schools;
- Provide guidance for educators on how to use their resources to improve educational outcomes for their students;
- Act as an introduction to educational research.



# The Teaching & Learning Toolkit

- Average months' worth of learning progress;
  - \$ Cost to implement; and
  - The security of evidence.

| Arts participation                | \$ \$ \$ \$ \$        | 8888           | +2 | Oral language interventions      | <b>\$</b> \$ \$ \$ \$ | 8888      | +5             |
|-----------------------------------|-----------------------|----------------|----|----------------------------------|-----------------------|-----------|----------------|
| Aspiration interventions          | \$ \$ \$ \$ \$        | 8888           | 0  | Outdoor adventure learning       | \$\$\$\$\$            | 88888     | +4             |
| Behaviour interventions           | \$ \$ \$ \$ \$        | 8888           | +3 | Parental engagement              | \$\$\$\$\$            | 8888      | +3             |
| Block scheduling                  | \$ \$ \$ \$ \$        | 8888           | 0  | Peer tutoring                    | <b>\$</b> \$ \$ \$ \$ | 88888     | +5             |
| Collaborative learning            | \$ \$ \$ \$ \$        | 8888           | +5 | Performance pay                  | \$ \$ \$ \$ \$        | 88888     | <del>1</del> 1 |
| Digital technology                | \$ \$ \$ \$ \$        | 0000           | +4 | Phonics                          | <b>\$</b> \$ \$ \$ \$ | 88888     | +4             |
| Early years interventions         | \$ \$ \$ \$ \$        | 8888           | +5 | Physical environment             | \$ \$ \$ \$ \$        | 88888     | 0              |
| Extending school time             | \$ \$ \$ \$ \$        | 8888           | +2 | Reading comprehension strategies | <b>\$</b> \$ \$ \$ \$ | 8888      | +6             |
| Feedback                          | \$ \$ \$ \$ \$        | 8888           | +8 | Reducing class size              | \$\$\$\$\$            | 8888      | +3             |
| Homework (Primary)                | <b>\$</b> \$ \$ \$ \$ | 8888           | +2 | Repeating a year                 | \$ \$ \$ \$ \$        | 8888      | -4             |
| Homework (Secondary)              | <b>\$</b> \$ \$ \$ \$ | <b>8 8 8 8</b> | +5 | School uniform                   | \$ \$ \$ \$ \$        | 8 8 8 8 8 | 0              |
| Individualised instruction        | <b>\$</b> \$ \$ \$ \$ | 8888           | +3 | Setting or streaming             | <b>\$</b> \$ \$ \$ \$ | 8888      | <b>(-1)</b>    |
| Learning styles                   | <b>\$</b> \$ \$ \$ \$ | <b>6 6 6 6</b> | +2 | Small group tuition              | \$\$\$\$\$            | 8888      | +4             |
| Mastery learning                  | <b>\$</b> \$ \$ \$ \$ | 8888           | +5 | Social and emotional learning    | \$\$\$\$\$            | 8888      | +4             |
| Mentoring                         | \$ \$ \$ \$ \$        | 8888           | 0  | Sports participation             | \$\$\$\$\$            | 88888     | +2             |
| Metacognition and self-regulation | <b>\$</b> \$ \$ \$ \$ | 8888           | +7 | Summer schools                   | \$\$\$\$\$            | 88888     | +2             |
| One to one tuition                | \$\$\$\$\$            | 88888          | +5 | Teaching assistants              | \$\$\$\$\$            | 88888     | <b>41</b>      |

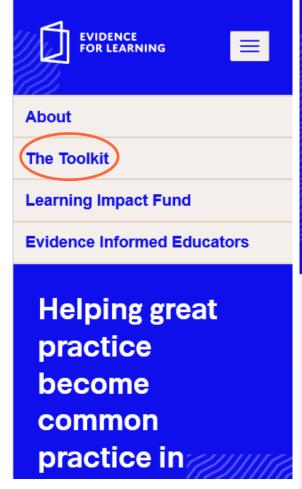


# Accessing the Teaching & Learning Toolkit

### Tablet or phone



approaches



### Laptop



Helping great practice become common practice in education





New evidence on

Australian education
approaches



Global evidence
summaries on 34 education
approaches



Practical support to help implement what works

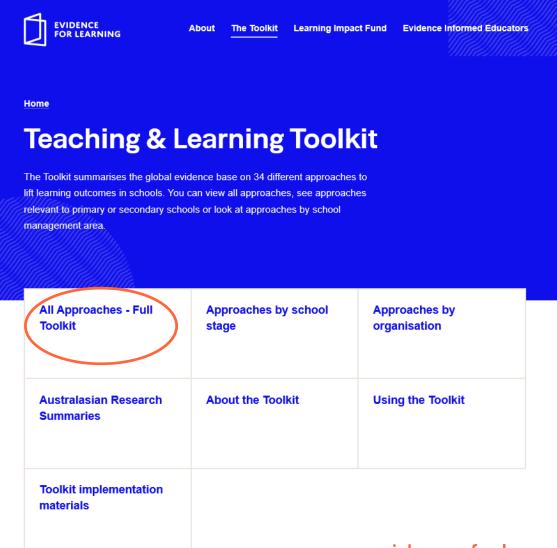
# The Teaching & Learning Toolkit

### Tablet or phone





### Laptop



| Sort by Name –                    | Average cost –        | Evidence security – | Months' impact ▼ |
|-----------------------------------|-----------------------|---------------------|------------------|
| Feedback                          | \$\$\$\$\$            | 8888                | +8               |
| Metacognition and self-regulation | \$\$\$\$\$            | 88888               | +7               |
| Reading comprehension strategies  | \$ \$ \$ \$ \$        | 88888               | +6               |
| Collaborative learning            | <b>\$</b> \$ \$ \$ \$ | 88888               | +5               |
| Early years interventions         | \$\$\$\$\$            | 88888               | +5               |
| Homework (Secondary)              | \$\$\$\$\$            | 88888               | +5               |
| Mastery learning                  | \$\$\$\$\$            | 8888                | +5               |

#### Average cost

The approximate cost of implementing an approach.

#### **Evidence security**

Based on the quantity and the methodological quality of the available evidence, and the reliability or consistency of impact estimates.

#### **Months' impact**

The additional months' progress you can expect students to make as a result of an approach being used.



# Feedback

High impact for very low cost, based on moderate evidence.

Feedback studies tend to show very high effects on learning.

Average cost

\$\$\$\$\$ 88888

Evidence security

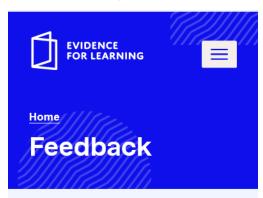
Months' impact





# Approach summary

### Tablet or phone



High impact for very low cost, based on moderate evidence.

Average cost

\$\$\$\$\$

**Evidence security** 

88888



Months' impact



#### What is it?

Feedback is information given to the learner and/or the teacher about the learner's performance

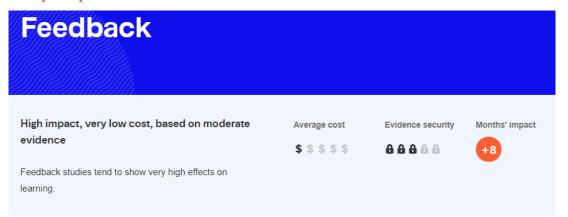
#### Contents

- What is it?
- How effective is it?
- How secure is the evidence?
- What are the costs?
- What should I consider?
- References
- Print this page

#### Further reading

Feedback - Australasian Research Summary Feedback implementation materials

### Laptop



#### What is it?

Feedback is information given to the learner and/or the teacher about the learner's performance relative to learning goals. It should aim towards (and be capable of producing) improvement in students' learning. Feedback redirects or refocuses either the teacher's or the learner's actions to achieve a goal, by aligning effort and activity with an outcome. It can be about the learning activity itself, about the process of activity, about the student's management of their learning or self-regulation or (the least effective) about them as individuals. This feedback can be verbal, written, or can be given through tests or via digital technology. It can come from a teacher or someone taking a teaching role, or from peers.

#### How effective is it?

Feedback studies tend to show very high effects on learning. However, it also has

#### Contents

- What is it?
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#### **Definition**

Feedback is information given to the learner and/or teacher about the learner's performance relative to learning goals or outcomes. It should aim to (and be capable of) producing improvement in students' learning. Feedback redirects or refocuses either the teacher's or the learner's actions to achieve a goal, by aligning effort and activity with an outcome. It can be about the output of the activity, the process of the activity, the student's management of their learning or self-regulation, or them as individuals. This feedback can be verbal or written, or can be given through tests or via digital technology. It can come from a teacher or someone taking a teaching role, or from peers.

**Search terms**: feedback; formative evaluation; assessment for learning; feedback interventions, corrective feedback.

#### **Evidence Rating**

There are seven meta-analyses of feedback and feedback interventions which have consistently found high average effects of feedback on learning and academic performance. Only two of these have been conducted in the last 10 years. Many of the studies included are small scale studies from psychology which demonstrate theoretical principles, but which may be difficult to generalise to educational practice. Larger scale educational studies tend to have lower effects. The meta-analyses include a very wide range of effects. Overall the evidence is rated as moderate.

#### References

Bangert-Drowns, R. L., Kulik, C. L. C., Kulik, J. A., & Morgan, M.
 The instructional effect of feedback in test-like events

 Review of Educational Research, 61(2), 213-238
 (1991)

3. Black P. & Wiliam, D.

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Assessment in Education, 5, pp. 7-73

5. Black, P. & William, D.

Lessons from around the world: how policies, politics and cultures

constrain and afford assessment practices

Curriculum Journal, 16, 249-261 (2005)

7. Fuchs. L.S. & Fuchs. D.

Effects of systematic formative evaluation A meta-analysis

Exceptional Children, 53.3 pp 199-208 (1986)

9. Hattie, J. and Timperley, H.

The Power of Feedback

Bennett, R.E.

Formative assessment: a critical review

Assessment in Education: Principles, Policy & Practice, 18: 1, 5-25 (2011)

4. Black, P. & Wiliam, D.

Developing the theory of formative assessment

Educational Assessment, Evaluation and Accountability 21 1, pp 5-31 (2009)

6. Bloom, B.S., Hastings, J.T. & Madaus, G.F. (eds.)

Handbook on the Formative and Summative Evaluation of Student
Learning

McGraw-Hill, New York

(1971)

8. Graham, S., Hebert, M., & Harris, K. R.

Formative Assessment and Writing

The Elementary School Journal, 115(4), 523-547 (2015)

10. Kingston, N. & Nash, B.

Formative Assessment: A Meta-Analysis and Call for Research

#### Summary of effects

| Meta-analyses   | Effect size | FSM effect size | Measure* |
|---|-------------|-----------------|----------|
| Bangert-Drowns, R. L., Kulik, C. L. C., Kulik, J. A., & Morgan, M. (1991) | 0.26        |                 |          |
| Fuchs, L.S. & Fuchs, D. (1986)  | 0.72        |                 |          |
| Graham, S., Hebert, M., & Harris, K. R. (2015)                            | 0.61        | -               | Writing  |
| Kingston, N. & Nash, B. (2011)  | 0.20        | -               | (AfL)    |
| Kluger, A. N., & DeNisi, A. (1996)  | 0.41        |                 |          |
| Lysakowski, R.S., & Walberg, H.J. (1982)                                  | 0.97        | -               |          |
| Tenenbaum, G., & Goldring, E. (1989)                                      | 0.72        |                 |          |
| Effect size (weighted mean)   | 0.63        |                 |          |

<sup>\*</sup> The right hand column provides detail on the specific outcome measures or, if in brackets, details of the intervention or control group.

For more information about the effect sizes in the Toolkit, click here.

#### Meta-analyses abstracts

1. Bangert-Drowns, R. L., Kulik, C. L. C., Kulik, J. A., & Morgan, M. (1991)

Feedback is an essential construct for many theories of learning and instruction and an understanding of the conditions for effective feedback should facilitate both theoretical development and instructional practice. In an early review of feedback effects in written instruction Kulhavy (1977) proposed that feedback's chief instructional significance is to correct errors. This error-correcting action was thought to be a function of presentation timing, response certainty and whether students could merely copy answers from feedback without having to generate their own. The present meta-analysis reviewed 58 effect sizes from 40 reports. Feedback effects were found to vary with for control for pre-search availability, type of feedback, use of pre-tests and type of instruction and could be quite large under optimal conditions. Mediated intentional feedback for retrieval and application of specific knowledge appears to stimulate the correction of erroneous responses in situations where its mindful (Solomon & Globerson, 1987) reception is encouraged.

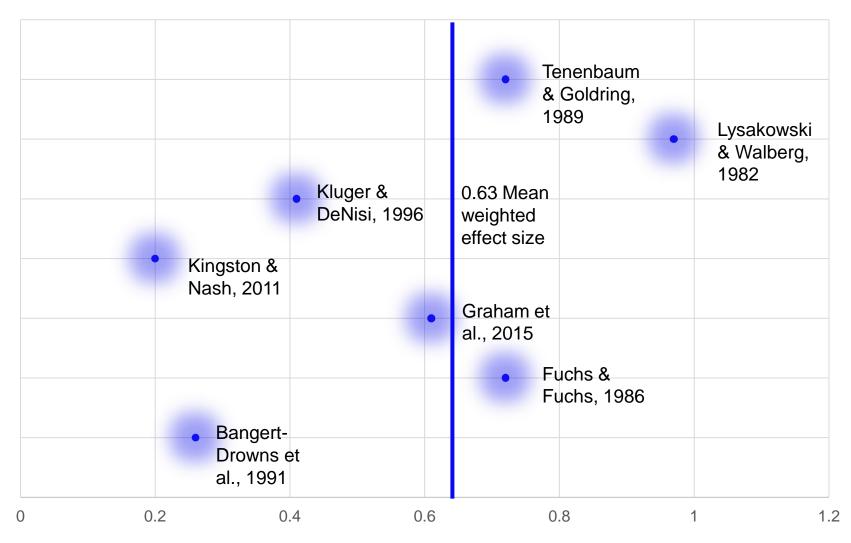
#### 2. Fuchs, L.S. & Fuchs, D. (1986)

While the aptitude treatment interaction (ATI) approach to educational measurement emphasizes establishing salient learner characteristics, systematic formative evaluation provides ongoing evaluation for instructional program modification. Systematic formative evaluation appears more tenable than ATI for developing individualized instructional programs. This meta-analysis investigates the effects of educational programs on student achievement. Twenty-one controlled studies generated 95 relevant effect sizes, with an average effect size of .72. The magnitude of effect size was associated with publication type, data evaluation methods, and use of behaviour modification. Findings '- ficate that unlike reported ATI approaches to individualization, systematic formative evaluation occdures reliably increase academic achievement. This suggests that, given an adequate assurement methodology, practitioners can inductively formulate successful individualized ucational programs.



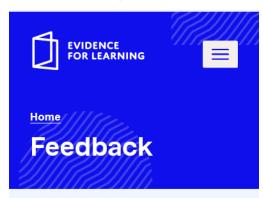
## Feedback

### Effect size



# Approach summary

### Tablet or phone



High impact for very low cost, based on moderate evidence.

Average cost

\$\$\$\$\$

**Evidence security** 

88888



Months' impact



#### What is it?

Feedback is information given to the learner and/or the teacher about the learner's performance

#### Contents

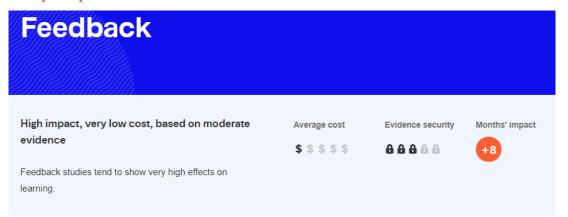
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- How effective is it?
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#### Further reading

Feedback - Australasian Research Summary Feedback implementation materials

### Laptop



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- What is it?
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- 4 What are the costs?
- 5 What should I consider?
- 6 References
  - Print this page

#### Further reading

Feedback - Australasian Research

Feedback implementation



# Australasian Research Summary

# **Summary of Australian and New Zealand Research**

References

**Databases searched** 

**Search terms** 

### **Feedback**

Australasian Research Summary



The summary below presents the research evidence on feedback in the Australasian context.

The Teaching & Learning Toolkit focuses on impact; it presents an estimate of the average impact of feedback on learning progress, based on the synthesis of a large number of quantitative studies from around the world.

This page offers a summary and analysis of individual Australasian studies on feedback. In contrast to the Toolkit it includes studies which do not estimate impact, but instead investigate the implementation of interventions and how they are perceived by school leaders, teachers and students. This information is valuable for school leaders and teachers interested in finding out more about particular examples of feedback interventions that have been delivered in Australia and New Zealand.

Melbourne Graduate School of Education (MGSE) generated this summary and it is current for June 2016.

#### Summary of Australasian Research

No studies yet have examined the application of feedback models in Australian schools, despite the emergence of more general Australian research on feedback. One expert review discusses new ways of conceptualising feedback, with an emphasis on how it influences learning (Boud, 2015).

Most studies on feedback have examined the adaptation of the Black and Williams (1998) or Hattie and Timperley (2007) models of feedback in higher education, business, or computer science. These studies, however, are not relevant to feedback as a school-based intervention.

#### Contents

- Summary of Australasian Research
- **References**
- 3 Databases searched
- 4 Search Terms





# The Teaching & Learning Toolkit

### Tablet or phone

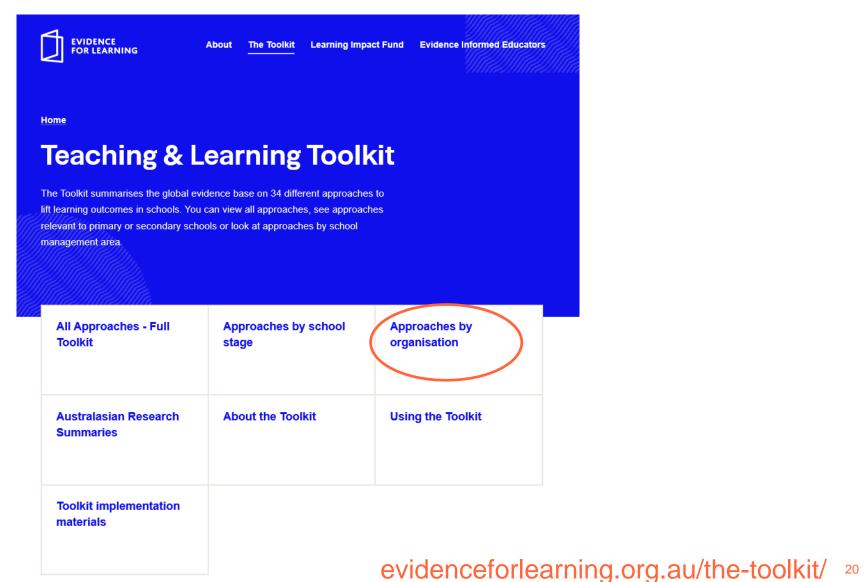


**All Approaches - Full Toolkit** 

Approaches by school stage

Approaches by organisation

### Laptop



# Approaches by organisation

### Tablet or phone





Home / The Toolkit

# Approaches by organisation

Evidence for Learning works with organisations to map the Toolkit to their school improvement frameworks.

Agile Schools

Australian Institute for Teaching and School Leadership (AITSL)

Association of Independent Schools of ACT Australian Council for Educational Research

CITEL Curriculum
Conference

Education Changemakers

**EduInfluencers** 

Education State: Victorian Department of Education and Training

Independent Schools Queensland

Loop

The LearnFast Group

Mind Lab/Accellum

**Murdoch University** 

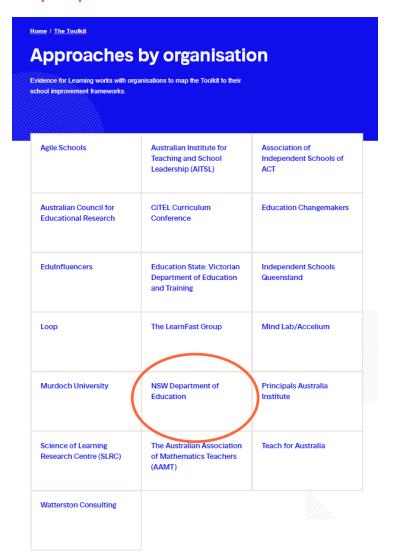
NSW Department of Education

Principals Australia Institute

Science of Learning Research Centre (SLRC)

The Australian
Association of
Mathematics Teachers
(AAMT)

### Laptop



evidenceforlearning.org.au/the-toolkit/approaches-by-organisation







#### What is The Teaching & Learning Toolkit?

The Teaching & Learning Toolkit by Evidence for Learning is a free online summary of educational research. designed to inform practice by identifying the most effective approaches to improving student attainment. It references up-to-date international and domestic research and applies it to an Australian context

For ease of use, the toolkit is categorised across the three School Excellence Framework domains and 14 elements. Within each element, the toolkit contains educational research on approaches, summarised in terms of their average impact on attainment, the strength of the evidence supporting them and the average cost to

Access the toolkit links below.

### Approaches to **LEARNING**

Learning culture

Wellbeing

Curriculum

Assessment

Reporting

Student performance measures

### Approaches to **TEACHING**

Effective classroom practice

Data skills and use

Learning and development Professional standards

#### Approaches to LEADING

Educational leadership School planning, implementation and reporting School resources

Management practices and processes

### **Effective classroom practice**

The identification, understanding and implementation of the most effective teaching methods.

| Sort by Name •                    | Average cost -        | Evidence security- | Months' impact - |
|-----------------------------------|-----------------------|--------------------|------------------|
| Behaviour interventions           | \$\$\$\$\$            | 8888               | +3               |
| Block scheduling                  | <b>\$</b> \$ \$ \$ \$ | 8888               | 0                |
| Collaborative learning            | \$ \$ \$ \$ \$        | 8888               | +5               |
| Digital technology                | \$\$\$\$\$            | 8888               | +4               |
| Feedback                          | <b>\$</b> \$ \$ \$ \$ | 8888               | +8               |
| Homework (Primary)                | <b>\$</b> \$ \$ \$ \$ | 8888               | +2               |
| Homework (Secondary)              | <b>\$</b> \$ \$ \$ \$ | 8888               | +5               |
| Individualised instruction        | <b>\$</b> \$ \$ \$ \$ | 8888               | +3               |
| Learning styles                   | <b>\$</b> \$ \$ \$ \$ | 8888               | +2               |
| Mastery learning                  | <b>\$</b> \$ \$ \$ \$ | 8888               | +5               |
| Mentoring                         | \$\$\$\$\$            | 8888               | 0                |
| Metacognition and self-regulation | <b>\$</b> \$ \$ \$ \$ | 88888              | +7               |
| One to one tuition                | \$\$\$\$\$            | 8888               | +5               |

# **Tailored Toolkits**



The Australian Professional Standards for Teachers (Teaching Standards) make explicit the elements of high quality teaching. It is represented with seven standards of teaching on a gradient from graduate, proficient, highly accomplished and lead in terms of the quality of teaching and their professional practice.

The Teaching & Learning Toolkit can help teachers as they consider approaches for the classroom across the seven standards. Use the links below to access the Toolkit approaches mapped to each element.

| Standard 1 - Know students and how they learn  |
|--|
| Standard 2 - Know the content and how to teach it                                    |
| Standard 3 - Plan for and implement effective teaching and learning                  |
| Standard 4 - Create and maintain supportive and safe learning environments           |
| Standard 5 - Assess, provide feedback and report on student learning                 |
| Standard 6 - Engage in professional learning   |
| Standard 7 - Engage professionally with Colleagues, parents/carers and the community |

The complete Teaching & Learning Toolkit can be accessed here.

Home / The Toolkit / Approaches by organisation / Australian Institute for Teaching and School Leadership (AITSL) / Toolkit approaches mapped to the Australian Professional Standards for Teachers

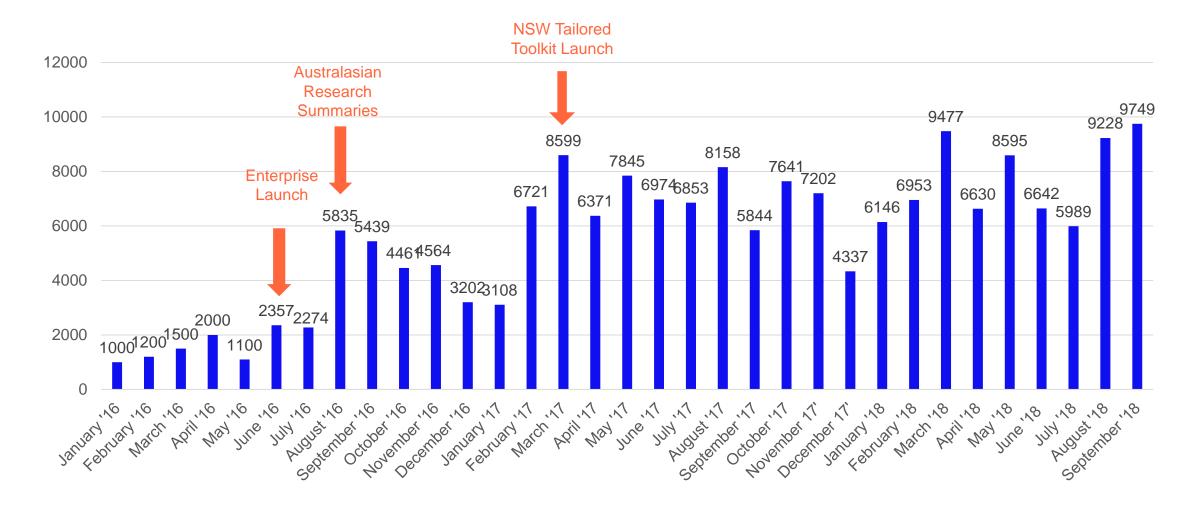
### Standard 2 - Know the content and how to teach it

All approaches in the Toolkit that can support the Australian Professional Standards for Teachers element 'Standard 2 - Know the content and how to

| Sort by Name *                     | Average cost –        | Evidence security – | Months' impact - |
|------------------------------------|-----------------------|---------------------|------------------|
| Arts participation                 | <b>\$\$\$</b> \$\$\$  | 8888                | +2               |
| Digital technology                 | \$ \$ \$ \$ \$        | 8888                | +4               |
| Early years intervention           | \$ \$ \$ \$ \$        | 8888                | +5               |
| Mastery learning                   | <b>\$</b> \$ \$ \$ \$ | 8888                | +5               |
| Meta-cognition and self-regulation | <b>\$</b> \$ \$ \$ \$ | 88888               | +8               |
| One to one tuition                 | \$\$\$\$\$            | 88888               | +5               |
| Oral language interventions        | <b>\$</b> \$\$\$\$    | 88888               | +5               |
| Phonics                            | <b>\$</b> \$ \$ \$ \$ | 88888               | +4               |
| Reading comprehension strategies   | <b>\$</b> \$ \$ \$ \$ | 88888               | +5               |
| Sports participation               | \$\$\$\$\$            | 8888                | +2               |
| Small group tuition                | \$ \$ \$ \$ \$        | 8888                | +4               |

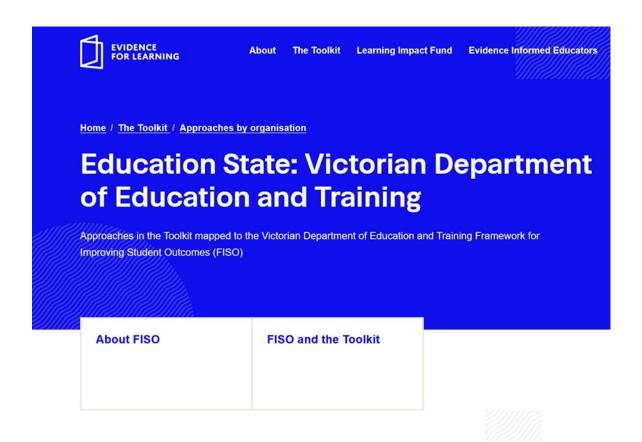


# Monthly Toolkit Sessions

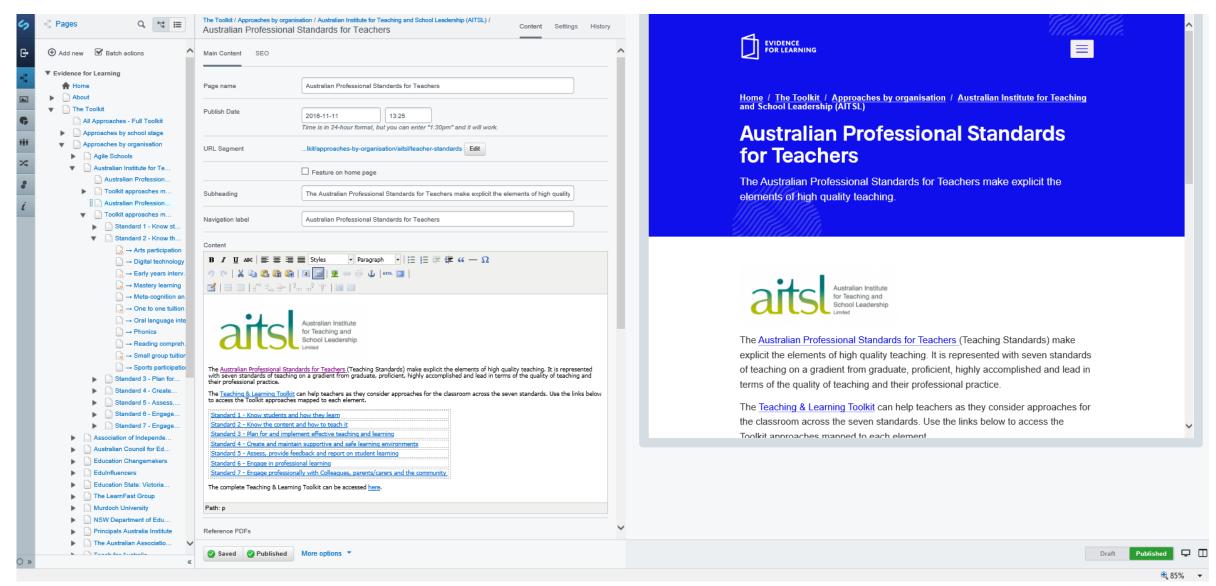


# **Building Tailored Toolkits**

- 1) Stakeholder engagement to develop interest.
- 2) Mapping of Toolkit approaches to the relevant policy document.
- 3) Feedback and progression of mapping and site building.
- 4) Going live and communications strategies.



# **Building Tailored Toolkits with Silver Stripe**



### Where to now?

Subscribe to our newsletter for updates <u>evidenceforlearning.org.au/</u>

Follow us on Twitter @E4Ltweets and Facebook <u>Evidence for Learning</u>

Comments and feedback please <u>tvaughan@evidenceforlearning.org.au</u>





# Helping great practice become common practice

