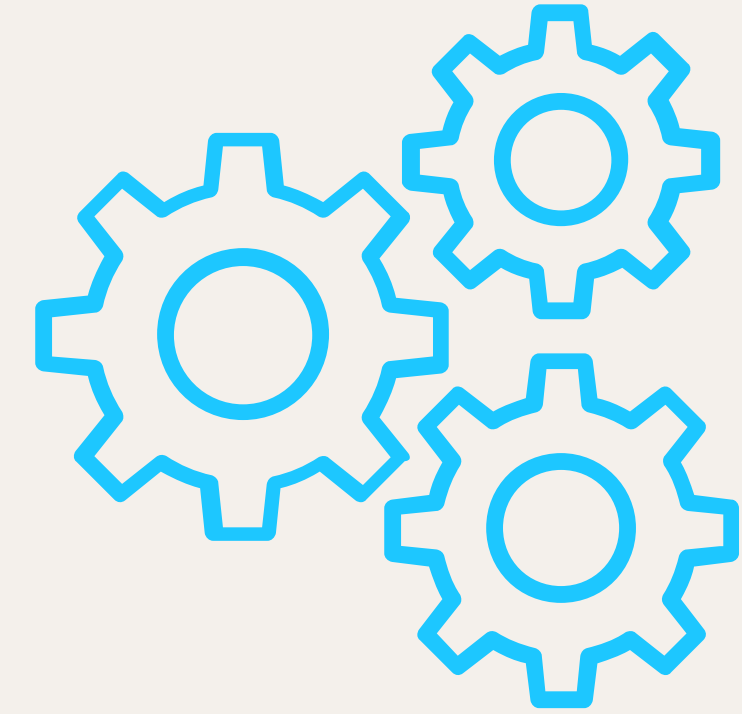
EVIDENCE FOR LEARNING

Guidance Report

All year levels

Effective professional development



This Guidance Report is based on original content from a report of the same name produced by the Education Endowment Foundation (EEF). The original content has been modified where appropriate for Australian context.

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Australian content for this Evidence for Learning (E4L) Guidance Report was provided by Susannah Schoeffel, Michael Rosenbrock and Danielle Toon.

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Contents

Foreword

Supporting high quality teaching is pivotal in improving outcomes for students. Indeed, research tells us that high quality teaching can narrow the disadvantage gap.[1] The culture of professional development (PD)* in Australian schools is encouraging, supported by clear national frameworks and resources such as those developed by the Australian Institute for Teaching and School Leadership (AITSL). This Guidance Report focuses on the mechanisms of PD and provides a new guiding set of principles to ensure that PD is as effective as possible in order to improve student outcomes.

PD has great potential; but it also comes with costs. We know that teachers engage in PD activities whilst balancing multiple and, at times, competing commitments and time pressures. The need is clear, therefore, for PD to be well-designed, selected, and implemented so that the investment is justified.

To date, the research evidence has failed to provide a set of clear principles for how to design and deliver effective PD that improves student outcomes and ensures this investment is worthwhile. While reviews have pointed towards potentially impactful traits of PD, conflicting findings and loose definitions have made providing clear guidance challenging.[2]

This Guidance Report is underpinned by a new review of evidence that seeks to move the evidence-base forward. It points to the role of mechanisms within PD, the crucial elements that lead to impact, and this report explains the impact these mechanisms may have, and how they may be incorporated into effective PD design. These findings offer valuable new insights that are not only important for the research community but also practically helpful for those who design and select PD.

This Guidance Report is Evidence for Learning's contribution to supporting school and instructional leaders as they look to select, design and implement professional learning to improve teaching and learning within their schools. Additionally, we hope that it will assist external providers in designing, delivering, and explaining their offering to schools. This report is also supported by a review of practice that reiterates the importance of good implementation and consideration of the school context.

The Evidence for Learning Team

*You will see that this report uses the language 'PD' throughout, as was the focus of the research on which the recommendations are based. Increasingly in Australia, professional learning (PL) is the language of choice. For the purposes of this Guidance Report, we define PD to include all 'structured and facilitated activity for teachers intended to increase their teaching ability'[3] and this incorporates PL where it aligns with that definition.

Introduction

What does this guide cover?

Teachers make a difference. No matter the context of a school, it is the quality of teaching that can make the biggest difference to students' learning and to their ultimate success in school. As Rauch and Coe explain, it is 'arguably the single most important thing that teachers and school leaders can focus on to make a difference in children's learning'. What's more, the quality of teaching is not fixed: teachers can improve, and they can be improved through effective PD.[4]

Ensuring that teachers are provided with high quality PD is therefore crucial in improving student outcomes. However, to date, we have lacked clear answers on exactly how PD should be delivered.[2] As Mary Kennedy has explained, 'Education research is at a stage in which we have strong theories of student learning, but we do not have well-developed ideas about teacher learning.'[5] In addition, its quality in practice varies. In Australia, 99% of teachers and 100% of principals participate in some form of PD[6] over the course of a year. This is unsurprising given the requirements related to continuing teacher registration that exist. It should be noted that these figures don't provide any insight into the frequency or quality of the PD with which teachers engage. The PD landscape itself can be conceptualised as a 'marketplace' with extreme variability in program design, scope and quality, and few providers offer rigorous forms of program evaluation.[7]

This Guidance Report aims to address these problems by providing clearer guidance on what might work when designing and selecting PD with a view to improving PD practice and subsequently improving outcomes for children. It is based on a new, robust review of the global evidence led by Sam Sims, Harry Fletcher-Wood, and Alison O'Mara-Eves which reviewed 104 evaluations of PD programs from 2002 to 2020, related to students aged three to 18. The report draws from the expertise of an advisory panel of current UK practitioners and academics including Helen Bellinger, Rob Coe, Phillipa Cordingley, Thomas Martell, Emily Perry, Sarah Seleznyov, and Adrie Visscher. A review of current practice, led by John Higton of CFE Research, also informs the recommendations.

Who is this guide for?

This Guidance Report is intended to support those who design and select PD aimed at improving the outcomes for school aged students. Schools, and external PD providers will find the recommendations useful, particularly senior leaders, department heads, and program designers. While most of the evidence is drawn from a mainstream school context, many of the messages are likely to be useful and relevant for teachers in other school settings.

This Guidance Report does not provide advice on how to improve initial teacher training. Rather, it is focused on how to improve PD for teachers in schools. It also does not cover training for teaching assistants; instead, this is featured in the Making Best Use of Teaching Assistants Guidance Report. Additional audiences who may find the report relevant include school councils, policymakers, and education researchers.

The report should be read in conjunction with other E4L Guidance Reports. Some of these—such as those based on literacy or maths—provide subject and stage-specific recommendations on how to improve practice, whereas others offer guidance on universal themes—such as social and emotional learning, metacognition, and parental engagement. The report sits alongside E4L's 'Putting Evidence to Work: A School's Guide to Implementation' which, along with a focus on PD, also provides a range of other strategies to support effective implementation in schools.

What is professional development?

PD may take a variety of different meanings in different contexts. In this report, we define teacher PD as structured and facilitated activity for teachers intended to increase their teaching ability.[3] The emphasis on 'teaching ability' is key.

The focus on **teaching** is intended to include a broad range of skills including communicating and modelling language, exploring ideas, instruction, and assessment. It excludes education technology programs with only a very brief, token training element on how to use that specific tool.

The focus on **ability** rather than merely teaching knowledge is intended to distinguish PD from new curriculum programs with only surface-level training. In addition, it distinguishes PD from activities focused on simply providing teachers with general updates about school business or policies.

This provides a narrow, focused definition that perceives PD as structured activities aiming to improve outcomes in the classroom. Box 1 provides further explanation of this definition.

Box 1. What is PD?

Professional development is…	Professional development is not…
School-wide, monthly after-school sessions on how to improve formative assessment in the classroom.	A briefing provided to practitioners on how to use new smartboards.
A training day provided by a primary school instructional leader on how to use strategies to improve children's language.	An information session for teachers on the new school enrolment process.
A series of online webinars delivered by an external provider on how to improve behaviour management in the classroom.	Teachers receiving a new curriculum program via email, complete with unit outlines and assessment materials.

Summary of recommendations

1

When designing and selecting PD, focus on the mechanisms.

- High quality teaching improves student outcomes, and effective PD offers a crucial tool to develop teaching quality and enhance students' outcomes in the classroom.
- To improve student outcomes, careful attention should be paid to how PD is designed. In particular, those who design and select PD should focus on mechanisms.
- Mechanisms are the core building blocks of PD. They are observable, can be replicated, and could not be removed without making PD less effective. Crucially, they are supported by evidence from research on human behaviour—they have been found, in contexts beyond teaching, to change practice.
- Examples of mechanisms include revisiting prior learning, goal setting, providing feedback, and action planning.
- Those who select PD should look for mechanisms in prospective programs; those who design PD should include mechanisms in their design.
- Careful consideration is also required to ensure that PD is evidence-based, and that content is drawn from trusted sources.

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Ensure that PD effectively builds knowledge, motivates staff, develops teaching techniques, and embeds practice.

- The mechanisms that make up effective PD can be split into four groups, each of which fulfils a different role.
- PD may aspire to include a mechanism from each of these groups:

A. Build knowledge
  - Managing cognitive load
  - Revisiting prior learning

B. Motivate staff
  - Setting and agreeing on goals
  - Presenting information from a credible source
  - Providing affirmation and reinforcement after progress

C. Develop teaching techniques
  - Instruction
  - Social support
  - Modelling
  - Monitoring and feedback
  - Rehearsal

D. Embed practice
  - Providing prompts and cues
  - Prompting action planning
  - Encouraging monitoring
  - Prompting context specific repetition

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3

Implement PD programs with care, taking into consideration the context and needs of the school.

- Provide guidance on how participants can adapt PD. Program developers should signal to those selecting and delivering PD programs where adaptations can be made, ensuring that the mechanisms are protected and prioritised.
- Ensure that PD aligns with the needs of the school and is supported by school leadership. Gaining ongoing leadership buy-in can facilitate successful implementation.
- Recognise the time constraints faced by teachers and adapt PD accordingly. Those designing and selecting PD should critically assess how a PD program will fit in with the school routine.

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1 When designing and selecting professional development, focus on the mechanisms

Marie is the principal of an F-12 school who is determined to improve outcomes for students. She identifies PD as a pivotal tool to do this so spends time researching different PD programs and approaches. She attends conferences, conducts online research, reads evidence summaries from several trusted sources, and speaks to local principals.

One colleague at a conference suggests using a particular program to improve Year 4 – 6 students' reading outcomes. A local principal that Marie consults explains how their school has embedded 'instructional coaching' throughout their PD activities. An evidence summary that Marie reads also suggests a variety of general principles that PD should adhere to—such as ensuring teachers 'collaborate'.

This leaves Marie with a mass of new information and potential opportunities. However, she remains unsure of how to proceed. The Year 4 – 6 reading program looks promising but won't meet the needs of all her teachers. 'Instructional coaching' sounds exciting but it's difficult to get a clear grasp on exactly what this is and how it is delivered effectively. In addition, the general principles suggested by the summaries Marie has read have not provided explicit, clear guidance on how to design and select the most effective PD.

Marie therefore asks herself:

'When selecting PD programs, or designing my own PD, what should I be focusing on?'

The impact of professional development

High quality teaching improves student outcomes and effective PD offers a crucial tool to develop teaching quality and subsequently enhance student's outcomes in the classroom. Indeed, the review underpinning this report found that PD, on average, has a positive effect on student achievement across primary and secondary contexts.[3]

PD may also prove to be a particularly cost-effective strategy when aiming to improve students' outcomes. As James Zuccollo and Harry Fletcher-Wood note, the impact of high-quality PD on student outcomes compares to the impact of having a teacher with 10 years' experience rather than a new graduate. PD can also have similar outcome effects to those generated by large structural reforms, and while other intensive interventions may have a larger impact on student outcomes (such as one to one tutoring), these interventions tend to be far more expensive.[8]

When designing and selecting PD, however, knowing the impact of all PD is not necessarily that useful. It's like having a condition and knowing that all medicines, on average, have a positive impact; it is more useful to know which specific medicine to opt for. This is particularly important when designing and selecting PD due to the varied effects that PD can have. While the average impact of PD is positive, the effects vary from very positive impacts on student outcomes to negative impacts. So how can we make sense of this variation? Exploring the 'mechanisms' that make up PD is a good place to start.

Forms, programs and mechanisms

PD may be thought of in three ways: forms, programs, and mechanisms.[2,3] These are outlined in Table 1. Defining these concepts in relation to each other allows us to draw out the key concept that may be the focus of good PD: mechanisms.[3]

Table 1: Forms, programs and mechanisms

Forms	Programs	Mechanisms
Description		
A PD form is a type or category of PD. They are defined by a set of common characteristics.	*PD programs are specific sets of activities and materials which are associated with specific people or institutions.* *Activities are sometimes clearly specified in a manual and resource pack, while the program may have a specific brand name.*	*The core building blocks of a program.* *They are observable, can be replicated, and could not be removed without making that PD less effective.* *Crucially, mechanisms are supported by evidence from research on human behaviour – they have been found, in contexts beyond teaching, to change practice.*
Examples		
Instructional coaching: experts working with teachers to discuss classroom practice on a one-to-one, regular, and sustained basis. Experts may observe the teacher in action, before encouraging focused practice of specific teaching skills. **Lesson Study:** observation of live classroom lessons by a group of teachers who collect information on teaching and learning and collaboratively analyse and discuss it **Professional learning communities (PLCs):** where teachers come together in groups, over time, to discuss and analyse practice, aiming to gain new knowledge and skills.	**Embedding Formative Assessment (EFA)** Developed by Wiliam and Leahy in partnership with the Schools, Students, and Teachers network (SSAT), EFA aims to improve student outcomes by embedding the use of five formative assessment strategies. Schools receive detailed resource packs to run monthly teacher-led workshops on formative assessment.	**Goal setting:** as part of the PD, teachers set and agree a goal. **Feedback:** The PD monitors and provides feedback to teachers and practitioners. **Action planning:** Teachers are prompted to conduct detailed action planning to ensure they change their practice. See a full list of mechanisms on page 13.
Is this a useful way to think about PD?		
Setting out broad types and categories of PD could be useful in providing schools and PD providers with different types to use. However, unfortunately, these forms are rarely clearly and consistently defined. For example, some argue that PLCs must include an analysis of student work, others not. Some argue that Lesson Study requires expert advisors; others not. When delivering instructional coaching, some encourage teachers to rehearse skills outside of the classroom; others in the classroom. This can create confusion and considerable overlap between forms. It can make it very challenging for leaders like Marie to easily adopt them into their own context. So perhaps it is more conducive to think about programs.	Identifying effective PD programs can be very useful; they can be easy for schools to buy and deliver straight 'off the shelf' and may come with clear instructions. However, effective programs may not be available to every school that wishes to buy them (due to resource constraints or geography). Programs may also not be available to meet every need a school has. When external programs are not available, school leaders can consider what mechanisms may be useful during their own PD design process.	Mechanisms provide exact, clear, building blocks for PD. Those who design PD may adopt and use them, while those selecting PD programs may look for them in potential programs.

The importance of mechanisms

A key finding of the review underpinning this report was that the more mechanisms a PD program had, the greater the impact on student outcomes. The more 'building blocks' incorporated, the better the chance of success.

This does not mean to say that different forms are ineffective. But whatever form is being delivered, the more mechanisms that are included the more likely that it will positively impact student outcomes. It therefore makes most sense to focus on these mechanisms, which may be the determinants of success.[3]

In terms of programs, it remains extremely useful for schools to purchase evidence-based, high-quality approaches that have been shown to improve student outcomes. However, where these may not be available, focusing on ensuring the PD you design and select includes as many mechanisms as possible is a good bet.

The toothpaste anology

A useful way to think about mechanisms is to think about toothpaste.

You're able to purchase a range of different toothpastes. There are different types, such as toothpaste targeted at whitening, or toothpaste targeted at reducing sensitivity (i.e forms); and there are different brands (i.e programs) with very specific ingredients from specific companies.

However, the key mechanism that you will want in any toothpaste is fluoride, the specific, replicable, observable ingredient that prevents cavities. A toothpaste is more likely to be effective in reducing cavities if it includes fluoride.

When designing and selecting PD, we're looking to identify and incorporate the 'fluoride', the mechanisms that are likely to alter teacher practice and improve student outcomes.

The content of PD

An important caveat to encouraging a focus on mechanisms is that those who design and select PD should still pay close attention to the content of PD. Designers and commissioners of PD should ensure that teachers are provided with evidence-based content.

There are a variety of trusted sources that offer resources to draw content from, or check content against, including:

- E4L Guidance Reports and the supporting EEF evidence reviews;
- E4L Teaching and Learning Toolkit (which should act as a starting point, to then be built upon); and
- trusted brokers of evidence such as the Chartered College of Teaching, the Early Intervention Foundation, IES's What Works Clearinghouse, Deans for Impact, Evidence Based Education, the New South Wales Centre for Education Statistics and Evaluation (CESE) and the Australian Education Research Organisation (AERO).

A range of other trusted sources may include individual E4L and EEF studies (or other experimental studies), systematic reviews or summaries of evidence, and reviews of practice. While there are no national parameters around how teachers and leaders should select PD in Australia, several resources are available for individuals and schools which may provide guidance. Of particular relevance in all states and territories, the Australian Professional Standards for Teachers (Teacher Standards) and the Australian Professional Standard for Principals (Principal Standard) 'let you know what you should be aiming to achieve at every stage of your career'.[9]

The Australian Professional Standards for Teachers[9]

'The Teacher Standards consist of seven standards, outlining what teachers should know or be able to do depending on their career stage and level of experience.'

The Australian Professional Standard for Principals[9]

The Principal Standard 'looks at the three core Leadership Requirements and five key elements of Professional Practices needed to improve your impact as a current or future school leader.'

The Teacher Standards and Principal Standard provides a framework from which teachers and leaders can draw upon evidence to progress their practice through the relevant stages of the profession. School leaders may use the statements to inform their selection or design of PD to address the needs of individuals and cohorts within their school.

You will find links to the Teacher Standards and Principal Standard and links to High Quality Professional Learning support developed by AITSL in the Australian Resources section.

2 Ensure that professional development effectively builds knowledge, motivates, develops techniques, and embeds practice.

Ryan is a primary senior leader who has designed a range of PD programs for teachers in his school. In all of these programs, the central aim is to improve the outcomes of children in the classroom and to do this Ryan aims to ensure that all the training is founded in evidence. Consequently, he has conducted extensive research and is aware of the current debates surrounding the design of PD.

This research introduces Ryan to the concept of 'mechanisms'. He is excited to adopt as many as possible and use them throughout the programs he designs and delivers. He recognises their potential in providing replicable, clear, and explicit building blocks. However, before designing new PD, Ryan requires more information.

Ryan therefore asks himself:

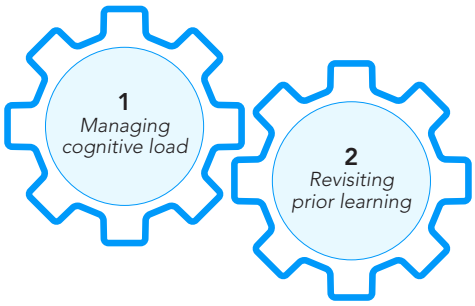
'What exactly does each mechanism entail, and should I use a particular combination of them?'

The more mechanisms PD includes and effectively implements, the larger its likely impact on student achievement and outcomes.[3] But what exactly do they entail, and how may they be ordered? The review underpinning this Guidance Report identified 14 mechanisms, shown in Figure 1.

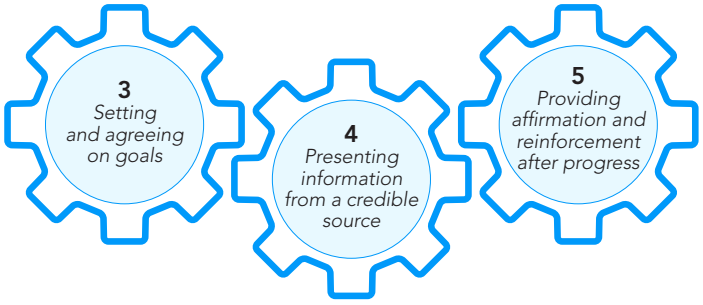
In this recommendation, we will describe the mechanisms in these groups. This will support those who design PD to incorporate them into their practice. It will also support those who select PD to look for them when selecting a program.

Figure 1: Fourteen mechanisms of effective professional development

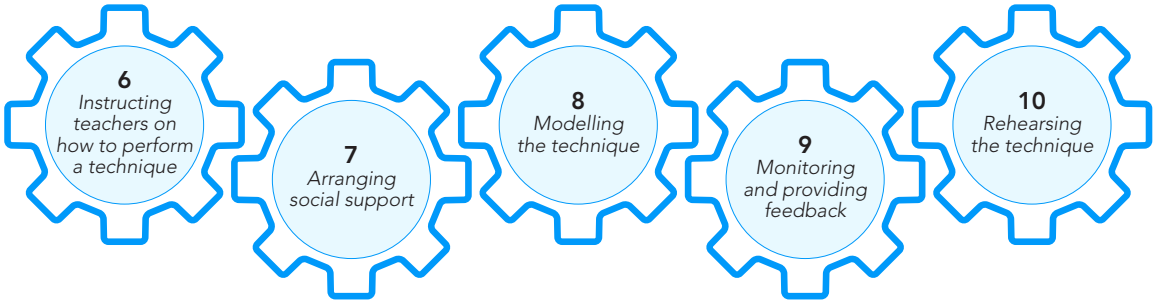
A. Build Knowledge



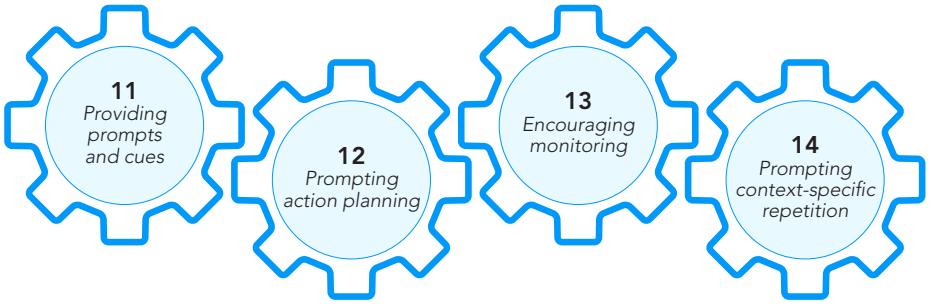
B. Motivate Teachers



C. Develop Teaching Techniques



D. Embed Practice



A. Build Knowledge

When designing and delivering PD, it is likely to be important to present new knowledge in ways that support understanding. As any teacher would with their own class, PD facilitators must pay close attention to how they structure and build the knowledge taught through the program. Specifically, two mechanisms that are likely to improve PD are (1) managing cognitive load and (2) revisiting prior learning.

Mechanism 1: Managing cognitive load

When presenting new information as part of PD—when teaching teachers new knowledge—careful thought should be applied to managing the cognitive load of participants. To avoid 'overloading' participants, program developers and deliverers should either:

- remove less relevant content;
- focus only on the most relevant content;
- vary their presentation via the use of multiple examples; or
- employ strategies such as dual coding—the combination of verbal and visual instruction.

These strategies will support in managing the cognitive load of the participant.

As Sweller and colleagues explained, 'Human cognitive processing is heavily constrained by our limited working memory, which can only process a limited number of information elements at a time.'[3,10] Strategies that reduce the strain on these processes, which reduce the burden on teachers' thinking, can promote better learning.

The review of practice that supports this report identified examples of teachers using such strategies. As one primary principal indicated, the approach their PD takes is a 'drip-feed approach', where the amount of content is reduced and combined with examples and modelling to ensure that teachers can incrementally build knowledge.[3]

Mechanism 2: Revisiting prior learning

Another important consideration when structuring the knowledge taught to teachers in PD is the relationship with previous and future learning. PD is more likely to be effective where designers:

- revisit previous topics or strategies later in the program;
- quiz participants on information provided in past sessions; or
- use tasks that require teachers to draw on past learning.

This draws upon research relating to retrieval practice, which theorises that recalling information makes it more likely that the learner will retain the learning.

"Topics are repeated about four weeks later and then four weeks after that. It's like, 'Do you remember why we do this? How has that happened? How have you found it? What problems have you found?' That's when we talk through [with the teachers]. We're deliberately going back over it."

Secondary school leader describing how they revisit prior learning when delivering PD content[11]

"I think you do have to recycle things that you've previously taught, definitely, because people forget. You get so many new ideas that some of the really good stuff gets left behind."

Primary school leader explaining the importance of revisiting prior learning[11]

The underpinning review[3] identified this practice in a range of PD programs, one being the Pacific CHILD program. A U.S. PD program, the Pacific CHILD program provided 42 days of PD over two years to Grade 4 and Grade 5 English teachers in order to improve English language development. The program had a positive impact on both reading comprehension scores and teacher knowledge and practice. Exemplifying this mechanism, the program developers delivered a 'spiral curriculum' where teachers revisited the content in greater depth over the course of the two years.[12]

Case study: Building knowledge—English Mastery [3,12]

English Mastery is a curriculum and PD program that aims to train secondary English teachers to better teach English and use assessment effectively. Participating teachers attend induction training, regular webinar sessions, 'Assessing for Mastery days' (where they explore comparative judgement assessment), and receive in-school visits and coaching to support their development and teaching practice in English. Teachers also have access to an online bank of resources and tools.

Throughout this training program, designed and delivered by Ark Curriculum Plus, careful attention is paid to how knowledge is built and the program facilitators use a variety of strategies to manage cognitive load and revisit prior learning. For instance, they:

- explicitly define the knowledge teachers will grapple with in each session;
- refine and adapt tasks to minimise the risks of tangents and misconceptions and ensure that teachers are predominantly thinking about the key learning in the session; as well as
- revisit prior learning through discussion, reflection tasks, and other activities, such as multiple-choice questions for frequent, low-stakes testing.

B. Motivate Teachers

Once teachers have built knowledge (using a method that manages cognitive load and revisits prior learning), they still need to be motivated to act upon that knowledge, and that is where three mechanisms may be used:

- setting and agreeing on goals;
- presenting information from a credible source; and
- providing affirmation and reinforcement after progress.

3

Mechanism 3: Setting and agreeing on goals

Across a variety of behaviours, reviews have demonstrated that setting goals substantially increases the likelihood of behaviour change.[3] When conscious, specific, and sufficiently difficult goals are set, they make it more likely that performance will improve.[3] It may therefore be fruitful for PD facilitators to set or agree upon specific goals for teachers to act on.

For example, at the end of a PD session on how to use specific strategies to improve early literacy, the facilitator could ask all teachers to set a goal to run a parental workshop on literacy that term. Alternatively, after providing feedback on a Year 8 science lesson they have just observed, a coach could ask a teacher to set a goal; their goal is to include more explicit modelling of their own thinking in the next lesson in order to advance learners' metacognitive knowledge.

Setting these conscious, specific, and sufficiently difficult goals makes it more likely that teachers will fulfil them.

4

Mechanism 4: Presenting information from a credible source

Where information is derived from impacts how motivated teachers are to use it. The more credible the source, the more likely they are to change their practice.[3] PD facilitators should, therefore, think carefully about how they present and make the case for a particular change in teacher practice. Useful methods that make teachers more likely to follow suit may include:

- supporting a suggestion with published and robust research;
- featuring a prominent education academic to advocate for a change; or
- using an expert teacher to promote a particular practice.

This, of course, links closely to the need to ensure that the content of PD is evidence-based (see Recommendation 1). Providing content from trusted sources (such as E4L Guidance Reports, published trials of interventions, or other evidence brokers) is likely to be more motivating than offering instruction based on anecdotal or unsupported impact statements.

Case Study: Getting Evidence Moving in Schools (GEMS)[13]

E4L's Getting Evidence Moving in Schools (GEMS) project examined how 24 Australian schools used research evidence to improve teaching practices as part of professional learning partnerships. During the project, schools talked about the importance of trusting the source of the research evidence, whether this was from the professional learning provider, school leader or colleague who had supplied the research, or the source they had used to find the research.

Educators in the GEMS research described the following characteristics of research evidence as enablers of using research evidence:

- Access to research or research databases (easy physical access to research)
- Guidance in finding relevant, high-quality research (e.g. provided by PD providers, curated or vetted lists of high-quality research evidence, links to high-quality research brokers)
- Guidance in adapting evidence to the school or classroom (e.g. real-life examples, demonstration lessons, videos)
- User-friendly research (interesting, concise, easy to read, trustworthy)

Mechanism 5: Providing affirmation and reinforcement after progress

Providing affirmation and reinforcement after a teacher has made an effort to alter practice—or shown progress in performing a new skill—may improve teachers' motivation to act upon PD. This should come after the change has been attempted (rather than before).[3]

Case study: Motivating teachers – Embedding Formative Assessment[14]

Developed by Dylan Wiliam and Siobhan Leahy in partnership with the Schools, Students and Teachers network (SSAT), Embedding Formative Assessment is a PD program that aims to improve student outcomes by embedding the use of five formative assessment strategies across a school. Schools receive detailed resource packs to run monthly teacher-led workshops on formative assessment, known as Teacher Learning Communities, over two years and teachers conduct peer observations focusing on the use of formative assessment strategies. Ongoing leadership support and training for effective implementation of the program is also provided by SSAT.

The program uses a variety of strategies that motivate teachers to change practice. For instance, the program designers were very aware of the importance of 'credible source' and so ensured that the research underpinning the program was shared with teachers. The initial training day evaluated as part of the EEF program also featured a speech from Dylan Wiliam, which was very well received and motivating. As the evaluation report explains, teachers who watched this speech highlighted—"the powerful and engaging presentation of the program's strategies and the underlying research, which contributed to a high buy-in and enthusiasm among participants. Some lead teachers said this had given them the required confidence to sell the project to teachers in their school."

The EEF tested the impact of the program in a randomised controlled trial in 140 secondary schools. Students in the Embedding Formative Assessment schools made the equivalent of two additional months' progress in their Attainment 8 GCSE score (equivalent to Year 11 in Australia), and this result had a very high security rating. Analyses based on a smaller sample of students (and therefore less secure) found that students eligible for free school meals in schools that received the program made one additional months' progress in their Attainment 8 GCSE score while the additional progress made by children in the lowest third for prior attainment was greater than that made by children in the highest third.

C. Develop Teaching Techniques

Effective PD is likely to provide teachers with the techniques they require to improve practice. After building knowledge, and then being motivated to act upon it, these techniques will provide the tools required to take action and change practice.

The review underpinning this report identified five mechanisms that develop teaching techniques:

- instructing teachers on how to perform a technique;
- arranging practical social support;
- modelling the technique;
- providing feedback; and
- rehearsing the technique.

6

Mechanism 6: Instructing teachers on how to perform a technique

Of course, at the centre of any effective PD program there is likely to be the delivery of well-thought out, clear, and guided instruction, which supports teachers in developing effective techniques. As discussed in Recommendation 1, this should be underpinned by evidence and drawn from trusted sources.

For example, a PD program supporting upper primary school teachers to improve their maths teaching will provide information to teachers on how to better teach maths, fully explaining the concepts and procedures required. This may include instructing teachers how to use manipulatives and representations, how to teach strategies for solving problems, how to use assessment to build on understanding, and more.[15] PD programs that incorporate clear and considered instruction on techniques are more likely to positively impact student outcomes.

7

Mechanism 7: Arranging practical social support

In various contexts, both within and beyond teaching, peer support may support development. Peers often share a common language, culture, and knowledge regarding the problems they face and are often able to provide emotional or informational assistance that supports an early career teacher in improving their practice.[3] PD that arranges social support is, therefore, more likely to improve student outcomes and this could be offered using a variety of methods. For instance:

- support could be provided via a coaching relationship, where an expert coach provides peer support and assistance;
- it could be offered via regular conference calls between a number of participating teachers who could discuss how they are finding the PD program; and
- at the most basic level, it could just be a program requiring at least two teachers from each school, year level, or department to participate in training so that, subsequently, these colleagues can support each other throughout.

"So, we take all our books down there, staff talk about what they've done so staff can showcase the work they've done and it just gives an opportunity for staff to say, 'well, we've been looking particularly at vocabulary—look at my history books, look at what I've done here' or 'I've got this great idea' and it's just a sharing type of activity really. That's been really effective."

Primary school leader describing the social support they provide as part of their PD[11]

8

Mechanism 8: Modelling the technique

Modelling is the provision of an observable sample of performance, either directly in person or indirectly (for example, through videos or pictures), for a teacher to reflect on or imitate.[3] This can support in learning a technique.

For example, in a PD program designed to improve teachers' behaviour management, teachers may be shown videos of how to establish effective routines at the start of a lesson or this may be modelled to them by an expert practitioner.

Learning from these worked examples provides opportunities for teachers to observe problems and their solutions before they face them themselves.

"Modelling is a real strength within the history team so we would use a teacher to lead delivery, to give examples, and work with staff to deliver that training. I think we find that it is more authentic if it comes from someone who is teaching a full teaching timetable. There have been occasions, obviously, where if something is happening well within the history department, such as how we work with our disadvantaged students, we will then deliver sessions to the rest of the teachers in smaller groups. It will usually be subject leaders delivering the sessions, and they will give examples and model what has been done within the department."

Secondary school leader discussing the value of modelling by expert teachers in their PD[11]

Mechanism 9: Providing feedback

Monitoring the performance of participants and offering feedback to support their improvement may also support better PD outcomes and subsequent student performance. Supportive observations, with formative feedback, should be clearly differentiated from notions of high-stakes lesson observations linked to assessing teacher quality.

Numerous reviews have demonstrated the variable impact that feedback can have but, on average, it is associated with a positive effect on performance.[3,16,17,18] It may therefore be fruitful to incorporate it into PD by using coaches or peers, for instance, to monitor and observe performance before providing written or verbal feedback and then expecting the participant to act on the feedback to improve.

Illustration of practice: A Community of Practice —Ambrose Treacy College

Staff at Ambrose Treacy College in Queensland explored the impacts of participating in Communities of Practice (CoP) on teachers' beliefs and practice, looking specifically to understand how the teaching of high-impact literacy strategies were supported and embedded. Two mechanisms were prominent features of their CoP design.

Mechanism 6: Instructing teachers on how to perform a technique

Before implementing the CoP, the core team conducted an exploratory phase including a literature review, internal data review and review of strategies and programs available. In parallel they communicated with other schools and partners to develop a comprehensive picture of what high impact strategies might best improve outcomes for their students. Three literacy strategies were identified as high impact through this process. A central activity within the CoP design at Ambrose Treacy College is content sessions in which teachers are explicitly taught the strategy (for example: modelled exemplars), and then participate in the rehearsal and practice of that strategy. Standalone sessions dedicated to the explicit teaching of each were held with time between each to accommodate the practice phase.

Mechanism 7: Arranging practical social support

A core group of 26 teachers from all areas of the school were involved in the CoP. Regular, scheduled time was dedicated to all members of the CoP coming together to reflect on their practice and develop plans to improve the strategy and their delivery of it. The members of the CoP noted that the PD was supported and led by the school's leadership team which embedded their practice within the wider school priorities.

Teachers involved in the process over the course of the year reported feeling increased value in the CoP process and a greater sense of collective efficacy – particularly around the delivery of literacy as a cross curricular priority.

Mechanism 10: Rehearsing the technique

Prompt practice and rehearsal of a technique, at least once in a context outside of the classroom, may support teachers in enhancing their skills and embedding habits.[3] For example, as part of a training program for teachers on how to improve the provision of feedback to students, teachers could conduct a role play exercise where they practice providing challenging verbal feedback to students.

Case study: Developing techniques[13]

Providing high quality PD with an emphasis on use and application of evidence on reading instruction is a core feature of one of the PD approaches investigated as part of E4L's Getting Evidence Moving in Schools (GEMS) project.

A particular focus of the PD approach is synthetic phonics instruction in the early years of primary school. The PD approach used a variety of mechanisms to develop teachers' techniques to use synthetic phonics instruction in the classroom. For instance:

- Demonstration lessons in real classrooms – as part of training, an expert facilitator at the school modelled how to use specific techniques such as phoneme blending. An early career teacher who was part of the GEMS project explained:

  "It's been good for me to watch [the provider demonstrate] … this is how you would show [students] how to blend [phonemes] and this is how you would make your face and your movements … [and explain] what the actual word means".

- Peer coaching sessions with follow-up and reflection, including analysing student work samples during or after changes being implemented. One participant in the GEMS project explained:

  "Across [Foundation]… we'll go in and we'll implement something new and then we'll all come back and go, 'All right. How'd it go? What do we need to change for next time? What worked well?'"

One school leader in the GEMS project explained the importance of this kind of practical modelling: *"If [teachers] can see [what research looks like in practice], and they can see that it's useful and it's something that they can pick up and do that I think that works really, really well."*

Lesson observations conducted as part of the GEMS research investigation found that there was considerable consistency of practice between the schools that were using this PD approach, particularly in terms of how students began lessons, the meta-language used, and the classroom routines implemented.

D. Embed Practice

Once teachers have built knowledge, been motivated, and been taught techniques, PD programs then need to support teachers to effectively embed practice to ensure that they continue to change their behaviour and improve their teaching. Four mechanisms may be deployed to support this:

- Providing prompts and cues;
- Prompting action planning;
- Encouraging self-monitoring; and
- Prompting context specific repetition.

"I would say as well, a lot of the training, it's kind of relevant for that day and then it suddenly trickles away and it's lost in the noise, sort of thing. So, it has a big push on the day and then it fades and it's forgotten about."

Primary school principal noting the importance of properly embedding practice[11]

11

Mechanism 11: Providing prompts and cues

To ensure that teachers continue to alter and improve their practice, PD may choose to provide a series of prompts and cues that nudge and remind teachers to carry out certain behaviours.[3]

For example, having delivered an initial PD day and a series of webinars on how to embed metacognition and self-regulated learning into their curriculum and teaching, a PD trainer may prompt trainees with a fortnightly email or phone call to remind them to embed the lessons learned.

"We do that on probably a three-weekly basis or a monthly basis as well, so they have the PD but then we have these papers that get released or these research papers, and by papers I mean one page of A4 as a reminder—as a 'this is what we said, this is what to do, this is what it looks like in the classroom, and here's an example'. Then we keep all those examples on our intranet and we constantly refer back to them."

An external PD provider discusses the prompts they provide to participants after the training[11]

Mechanism 12: Prompting action planning

Action planning is where a teacher plans how they will perform a technique, and their plan includes at least one of the context, frequency, duration, and intensity of the technique. It can include lesson planning, where teachers may attempt to use a technique learned in PD, in a specific lesson.[3]

Producing an action plan makes it more likely that a teacher will use a technique they have learned during PD. It could be done in a variety of ways: for instance, as the final activity in a training session on improving secondary science teaching, participants could be asked to review the lessons they will deliver in the following week and identify where they can use models to help students develop a deeper understanding of scientific concepts.[19]

Mechanism 13: Encouraging self-monitoring

PD may be more effective if it establishes a method whereby teachers can monitor and record their own performance. For instance, teachers could be provided with reflective journals where they record their actions towards a specific goal and reflect on the success of them.[3]

As a more specific example, as part of a PD program aimed at improving early maths teaching, teachers may be asked to deploy story books alongside mathematical talk to engage children in maths concepts.[20] Teachers could record when they do this, and their reflections on it.

Self-regulation theory suggests that this type of recording and self-monitoring can make effective habit formation more likely—it forces teachers to pay specific attention to their actions and the effects of these actions.[3]

Mechanism 14: Prompting context-specific repetition

The final mechanism involves teachers rehearsing and repeating behaviour in the same context as it would usually be delivered—in the classroom. Repeating the same action in the classroom, at least twice, can support the embedding of practice.[3]

A teacher may, for example, receive training on how to deliver effective questioning in class. Ensuring that this is practiced, and repeated in the classroom, can help to embed a new, effective approach into a teacher's repertoire.

"That's the aim, isn't it? There's no point having the training if you're not seeing it in practice. It depends on what it is, but the techniques we're being taught— you'd expect them to be disseminated into the classroom."

Primary school principal discussing the value of practice in the classroom[11]

Ensuring balanced PD design

The review underpinning this Guidance Report[3] found early, tentative evidence that effective PD programs are more likely to include a mechanism from all of the above four groups—building knowledge, motivating teachers, developing teaching techniques, and embedding practice. The authors suggest that a program that features a mechanism from each of these areas represents a 'balanced design'. If one or more group is missing, the program may fail for a particular reason, as summarised in Table 2.

Those who design PD may, therefore, aspire to include at least one mechanism from each of the four areas in their program. Those who select and commission PD should explore potential providers to ascertain whether these mechanisms feature in their programs.

Table 2: Ensuring balanced PD Design

Building knowledge	Motivating teachers	Developing teaching techniques	Embedding practice	Likely outcome
✓	✓	✓		If embedding practice is missing, a teacher may understand the content, be motivated to improve, and have the techniques to do so but—after a period of time—may revert to old habits.
✓	✓			When developing techniques and embedding practice are absent, this could lead to the 'knowing, doing gap'. Here, a teacher may be fully aware of what they need to do and be motivated to do it; unfortunately, they do not know how to do so, nor do they have the tools to deliver.
✓				Here teachers may have effectively built the knowledge but lack the motivation and skills to implement.
	✓	✓	✓	In this instance, while teacher motivation and implementation may be present, they may have misunderstood and misapplied the initial knowledge.
✓	✓	✓	✓	Where PD features a mechanism from each group, it may be more likely to be effective.

Reflection

Think about a PD program that you have designed, selected, or participated in.

- Can you identify whether any of the 14 mechanisms were present?
- Can you identify where a mechanism could have been used to improve the PD?

A PD program with a 'balanced' design

Case study: Quality Teaching Rounds

Quality Teaching Rounds (QTR) is an Australian PD program, evaluated across the period 2014 to 2019,[21,22] that aims to improve student outcomes by enhancing the quality of teaching through structured peer observation and discussion using the Quality Teaching Model (QT Model). The program is a pedagogy-focused approach to PD that is applicable to all teachers, regardless of the grade(s) or subject(s) they are teaching, or their years of teaching experience.[23,24]

The core of the intervention is a set of QTRs undertaken by four teachers in a professional learning community (PLC) working together for four days over a period of weeks. Each round begins with discussion of a chosen professional reading to build professional knowledge and a sense of community within the PLC. Next, a full lesson is taught by one member of the PLC and coded by all others using the QT Model. After the observation, each teacher (including the 'host' teacher) codes the lesson individually using the three dimensions and 18 elements of the QT Model. To conclude the day, the PLC members discuss the observed lesson, and pedagogy more broadly, by sharing their codes and associated evidence and trying to reach agreement about the appropriate code for each element of the QT Model. The codes remain confidential within the PLC and are less important than the rich conversation generated about practice. In this way, the codes are a means to an end. The underlying intent is to foster in-depth professional conversation and fresh insights about teaching and learning. This process is repeated over the four days of Rounds, with each teacher acting as a 'host' for one Round.

The program features a 'balanced design' incorporating mechanisms from all four areas:

Building knowledge	Motivating teachers	Developing teaching techniques	Embedding practice
The QT Model structures the work of teaching around three key dimensions and 18 elements to build a shared understanding of what constitutes quality teaching. The three dimensions (Intellectual Quality, Quality Learning Environment, and Significance) help to manage cognitive load, while building on what teachers already know and do. Each element of the QT Model is revisited in every Round as teachers code and discuss the model in its entirety.	QTR is derived from a credible synthesis of research on pedagogy that makes a difference to student outcomes. The process of Rounds provides teachers with immediate feedback that is contextually dependent on their school and students, much of which affirms and reinforces aspects of their practice while challenging and extending what they currently do with clear suggestions for improvement. Teachers remain together for a whole set of rounds, with the structure and underlying mechanisms of QTR creating a safe environment for critical analysis of practice, regardless of years of experience or positional authority in a school.	During QTR, teachers take turns in teaching a lesson observed by all other members of the PLC. In the coding discussion, they take turns to articulate what they observed in the lesson, the evidence they used when coding, and how they interpret each element. The coding and discussion processes engage teachers in fine-grained conversations not only about the observed lesson and specific teaching techniques but about teaching practice more broadly. The conversations act as the lever for instructional improvement.	Practice is embedded through the process of self-monitoring whereby each teacher codes and discusses their own practice as well as that of their colleagues. The discussions with PLC members, underpinned by the shared concepts and language of the QT Model, serve to embed practice. Turn taking, whereby each teacher in the PLC has the opportunity to teach a lesson and participate in at least four coding discussions, provides context-specific repetition.

3 Implement professional development programs with care taking into consideration the context and needs of the school

Sasha is a new head of department looking to introduce an evidence based PD program for teachers in her department. She has been interrogating programs available to assess whether they include mechanisms that are likely to improve outcomes.

However, before she designs or selects new PD, she is keen to consider implementation. Sasha has participated in previous PD delivered in school, which has been well intentioned and, seemingly, evidence-based but was not executed well. Programs did not always match the needs of the school, enjoy leadership support, or fit into the busy timetables of teachers. This makes her concerned about the reception of the next PD program she selects.

Sasha therefore asks herself:

'What should I consider to ensure that PD is effectively implemented in my school?'

Ensuring that mechanisms are incorporated into PD makes it more likely that the PD will positively impact student outcomes. However, when designing and selecting PD, the planning should not stop there. The implementation of PD is also likely to make a substantial difference to the outcomes it achieves.[25,26] No matter how well thought out a PD program is in terms of content and design, for it to succeed it needs to be feasible and appropriate to the school or setting context.

The implementation process from the Guidance Report 'Putting evidence to work: a school's guide to implementation' can be a helpful starting point when considering implementation. Additionally, an 'implementation checklist' on page 34 may provide you with questions to reflect and discuss as you look to strengthen your approach. But what other considerations need to be taken into consideration when delivering PD specifically? There are various contextual factors that may drive or constrain effective implementation of PD. This recommendation will explore the most critical factors.

Those who design or select PD need to carefully consider how PD is intelligently adapted to suit the context it is delivered in. Moreover, consideration must be given to the alignment of the PD with school and setting priorities, ensuring that there is leadership buy-in and space for PD in teachers' busy routines.

The toothpaste anology

If mechanisms are the equivalent of the fluoride in toothpaste—the element that makes toothpaste effective in reducing cavities—other contextual factors, such as alignment to school priorities, having leadership support, and the tailoring of PD to fit in with time pressures, are the mint flavouring: PD is made palatable and deliverable to the intended audience so that the mechanisms are given a chance to take effect.

'One of the characteristics that distinguishes effective and less-effective schools, in addition to what they implement, is how they put those new approaches into practice.'

Putting Evidence to Work: A School's Guide to Implementation Guidance Report

Further reading[27]

Professor Jonathan Sharples of the EEF unpacks the relationship between PD and implementation, asking 'where does PD fit in with the implementation of a new strategy or approach?'

educationendowmentfoundation.org.uk/news/eef-blog-understanding-the-relationship-between-implementation-and-professional-development

The stages of implementation

Foundations for good implementation

- ✓ Treat implementation as a process, not an event. Plan and execute it in stages.
- ✓ Create a leadership environment and school climate that is conducive to good implementation.

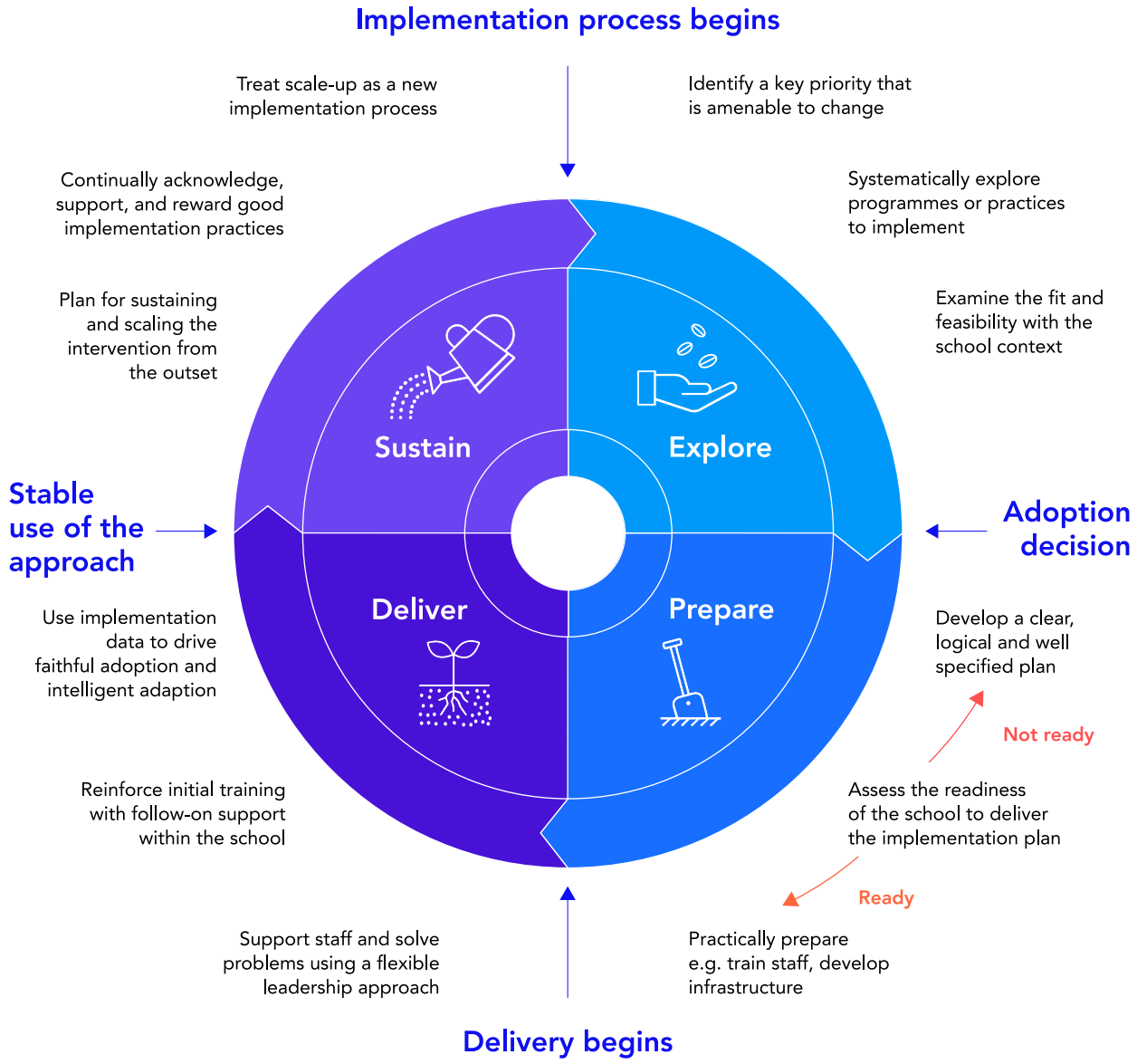


Figure 2: The school implementation process diagram[28]

Providing clarity on what to adapt

The general perception up until now has held that better implemented programs (which usually means those that are faithful to the original model of implementation) tend to have greater impact.[25,26] However, there is a growing consensus that intelligent adaptation* can increase the impact of a program.[25,29] Adaptation can ensure that PD better suits the context it is delivered in. So how should programs be 'intelligently adapted'?

The review underpinning this guidance suggests that an adaptation is more likely to have positive effects where it makes small tweaks to tailor the program to teachers' and students' needs or extends the program.[3] Where an adaptation omits crucial elements of the program, and particularly where it fails to incorporate the mechanisms, it is less likely to succeed.

It is, therefore, important to find a balance between fidelity to the original program design and intelligent adaptation: the ideal is a level of implementation that remains faithful to the mechanisms of the program while also being contextually relevant and practical to implement. However, program guidance rarely specifies what can and cannot be adapted as part of a PD program.

Given the varied dynamics and challenges faced across schools and settings, those who develop PD should expect variation in delivery and should, therefore, identify and clearly signpost the type of adaptations that can be permitted and encouraged.

This might even involve exploring the context of the school or setting on a more bespoke level as part of the design process or throughout the program.

Providing guidance on what can be adapted, while signalling clearly what the mechanisms are and their value to the program, helps schools and settings implement effectively. Program flexibility is also more likely to ensure leadership buy-in, which is also likely to be crucial for successful implementation.

"Developers need to provide sufficient clear guidance about the purpose, goals and principles of the intervention, while maintaining the flexibility needed to ensure teachers can fit the intervention into their working patterns." [3]

"It's quite dynamic, the design of our training programs. We don't sit still. We design, deliver, evaluate, tweak, and we're always thinking about the context we're delivering in. We might have a training module but, for example, an alternative provision setting comes to us and we will find out about the profile, and perhaps shine a spotlight on different priorities in the training. It's not about churning out the same thing each time."

PD provider describing the design process of their programs[11]

"Anything that we do, we will always question it and we'll think how it's going to fit into our school, where I think a lot of schools unfortunately see the training and just think, 'We're going to do it fully. We're not going to think about our particular context.'"

Principal of a primary school reflecting on the importance of adapting to the context[11]

* Intelligent adaptation may be referred to as 'principled adaptation'

Alignment with the needs of the school or setting and support from leadership

PD is more likely to succeed when there is alignment between the aims of the program and the priorities and improvement plans of the school as well as support from leadership. At the same time, it is important to bear in mind that while alignment between an intervention and the school's current practice or aspirations are important for success, interventions that are too closely aligned will lack appeal as this may imply that there is little to learn.

Those who develop and select PD need to demonstrate its value to leaders, especially considering that often the decision to implement a specific program will be driven by school and instructional leaders. When a PD program has leadership support, this allows teachers to prioritise the intervention and for resource to be dedicated to ensuring it is successful. Once secured, it is also important to maintain leadership support: clearly communicating what the requirements of the program are and continually demonstrating its value can support with this. Program providers may demonstrate value by helping teachers improve and by demonstrating this through case study examples of success.

More detail on building a leadership environment and school climate that is conducive to good implementation can be found in E4L's Guidance Report 'Putting evidence to work: a school's guide to implementation'.

"One of our fundamental beliefs is you can't take a program that works in one school and think you can put it in another school with a different context and think it's going to work. You have to figure it out for yourself. You have to look at your own kids. You have to look at your student cohort. You have to look at what teachers you have in the school."

PD provider in E4L's Getting Evidence Moving in Schools (GEMS) project.[13]

"[Our PD] will usually be a whole-school need, so it will be something that perhaps is on the school development plan, or it might be that we've been on a subject leader course and actually we think that particular element would fit really nicely in our school.'

Primary school leader describing how the selected PD fits with a whole-school need[11]

Case study: Leadership support as an enabler to teachers using evidence to change practice[13]

In E4L's Getting Evidence Moving in Schools (GEMS) research investigation, many educators identified support from school leaders as an important enabler for using research evidence to improve teaching practice. These educators, all working with PD providers, identified the following types of support as important enablers:

- Guidance, enthusiasm, openness to change and experimentation, trust and confidence in staff, clear direction and encouragement from school leadership
- Prioritising of PD including a school commitment to PD through setting of goals, provision of time and a continued focus on PD
- Involvement of school leaders in the PD
- Instructional leadership via visits to classrooms and collegial dialogue.

Research in focus:
The role of leadership support in promoting teacher development[30]

While it is well established that, on average, teacher effectiveness improves with experience, there is large variation across individual teachers and across groups of teachers working in different schools. Much of the research that has shaped policy has focused on individual teachers rather than exploring the school context and its influence on teacher effectiveness.

A study by Kraft and Papay published in 2014 examined the role of school context in explaining the variation in teacher improvement over time. They argue that the narrow focus on individual teachers ignores the role of the organisational context in which teachers operate, which shapes their career decisions and facilitates their success with students.

Their study analysed data from a district in North Carolina, one of the largest school districts in the USA, where teachers are largely representative of the country as a whole. Student achievement data was linked to teachers and then combined with data from the North Carolina Working Conditions Survey to look at the interaction between teaching experience and the professional environment, and its impact on student achievement in mathematics. The professional environment was measured based on the elements of order and discipline, peer collaboration, principal leadership, PD, school culture, and teacher evaluation.

Their analysis found that teachers in some schools improved more and improved faster than teachers in other schools, with teachers improving at a much greater rate in schools with supportive professional environments. A key facet of this supportive environment was PD—specifically, ensuring that leaders provided 'sufficient time and resources for PD and use them in ways that enhance teacher's instructional abilities'. Evidently, ensuring leaders support PD is likely to support teachers in improving.

Time constraints and adapting accordingly

Those developing, selecting, and delivering PD should recognise that this takes place within the context of teachers working an average of 44.8 hours each week (for secondary teachers).[31] Schools and settings often allocate limited time for PD and any time given over to PD is potential time away from other activities seeking to improve student outcomes. Indeed, the review underpinning this guidance found that time was the most cited reason teachers gave for making adaptations to PD,[3] and this is unsurprising given that PD will require teachers to find time for additional planning and preparation, meetings and observations, or to attend training (all of which may require cover). Therefore, those developing, selecting, and delivering PD should consider time as a constraint and anticipate how the program fits in with the school routine.

While it is important to consider time and make pragmatic adjustments in order to facilitate effective PD, those selecting PD programs should also remember the importance of focusing on mechanisms over favouring a particular duration of program. As Cordingley et al. explained, 'the crucial factor differentiating more from less successful programs' is not simply the length of a program, it is 'what the time is used for'.[32] Numerous reviews of PD have failed to find a link between longer duration and impact,[8] suggesting that longer programs are not necessarily more effective. In other words, schools shouldn't select PD based on the length of the program on the assumption that longer equals better; once again, focus should be placed on the effective implementation of mechanisms.

Those who develop PD programs must balance the desire to promote lasting and meaningful learning with the imperative to minimise the pressure they are placing on teacher time. Signalling where adaptations may be permitted without detracting from the mechanisms of a program can allow schools and settings to implement programs using their time strategically and efficiently.

"Three recent meta-analyses have found no link between longer professional development and impact—Basma and Savage, 2017; Kraft, Blazar and Hogan, 2018; Lynch et al., 2019)"

Zuccollo and Fletcher-Wood, 2020[8]

"We get 5 [professional learning] days of 6 hours. We release people if they're going off to external PD, but particularly that time to cascade information down, there's just not always the amount of time that people can do a quality job of cascading down. People are fighting for staff meeting slots all the time. They're forever coming to me going, 'Can I have a staff meeting slot?' I'm going, 'Well, you can, it will be July.'"

Principal of a primary school explaining that there is little time to disseminate learning from PD[11]

Case study:
Time as an enabler to support teachers using evidence to change practice[13]

In E4L's Getting Evidence Moving in Schools (GEMS) research investigation, many educators identified a lack of protected, collaborative time, high workload and unplanned interruptions as key barriers to using research evidence to change teaching practice.

A number of these educators, who were all working with PD providers, mentioned the importance of having a regular or allocated meeting time dedicated to PD. In general, meeting time was an enabler when it:

- was job-embedded (not an additional, after-school commitment);
- was timetabled so all relevant teachers could attend;
- was used purposefully (e.g. to read research, plan collaboratively or create learning activities);
- made use of tools or protocols to focus the conversation; and
- involved pre-work by those leading the process (to maximise efficiency).

Implementation checklist

Developmental work with schools has revealed several key principles to successfully take on the recommendations in this guide. We have expressed these as questions to prompt reflection, aligned to The Stages of Implementation detailed in Figure 2 on page 29. These stages are explored further in our Guidance Report 'Putting Evidence to Work: A School's Guide to Implementation'.

Foundations for good implementation

Checklist questions

✓	Is there a clear and well-articulated vision for PD in your school?
✓	Is the leadership team fully engaged and supportive, and actively leading the approach to PD?

Explore

Checklist questions

✓	Is the PD based on evidence and practice drawn from a reliable source?
✓	Is the alignment between the aims of the program and the priorities of the school clear but not restrictive?
✓	Does the PD respond directly to the needs of staff and students in your school?
✓	Is the PD feasible in your context?

Prepare

Checklist questions

✓	Have you considered the mechanisms of effective PD in the design or selection of your PD?
✓	Have you scheduled time regularly, which is quarantined for staff to engage with PD and apply their learnings?
✓	Have you developed a plan to capture feedback and the effectiveness of the PD?

Deliver

Checklist questions

- ✓ Has the time dedicated to the PD been retained and used for the intended purpose?
- ✓ Do staff have opportunities to apply, practice and embed their learning?
- ✓ Have you used the data and feedback you've collected to adapt your approach to PD?

Sustain

Checklist questions

- ✓ If effective, is the PD able to be sustained in your school? (e.g. time allocations, financial contributions?)
- ✓ If you are working with a PD provider, is the intention to continue this partnership or build internal capability to adopt this internally?

Australian resources

E4L's suite of Guidance Reports contain recommendations for school leaders on a range of priority topics.
evidenceforlearning.org.au/guidance-reports/

E4L's Getting Evidence Moving in Schools (GEMS) investigation paper presents the findings from a three-year project to explore how research was used and supported by three professional learning providers in 24 schools in New South Wales and Victoria.
evidenceforlearning.org.au/research-and-evaluation/investigations-and-insights/getting-evidence-moving-in-schools-gems/

The Australian Institute for Teaching and School Leadership (AITSL) have developed a range of resources that may inform teachers and school leaders as they look to plan for, select and develop professional learning opportunities.

- The Teacher Standards and Principal Standard may support leaders in determining individual and school wide PD priorities.
  aitsl.edu.au/standards/understand-the-teacher-standards

  aitsl.edu.au/lead-develop/understand-the-principal-standard
- The Australian Teacher Performance and Development Framework explores the factors necessary to develop a culture of performance and development in all Australian schools in order to improve student outcomes.
  aitsl.edu.au/tools-resources/resource/australian-teacher-performance-and-development-framework
- A range of resources exist to support eachers and school leaders as part of the 'High Quality Professional Learning' suite – including a continuous learning cycle to track your professional learning journey, implementation guides and video case studies.
  aitsl.edu.au/teach/improve-practice/improving-teacher-professional-learning

Further reading

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How was this guide compiled?

This Guidance Report draws on the best available evidence regarding professional development. It was created over four stages:

1. **Scoping**. The EEF consulted with a number of teachers and academics about the scope of the report. They then appointed an advisory panel and the review team and agreed research questions for the review.
2. **Evidence review.** The systematic review team conducted searches for the best available international evidence using a range of databases, including new analysis on the common elements of effective programs.
3. **Practice review.** The review team also conducted an exploration of schools in England to understand what schools are currently doing in relation to professional development.
4. **Writing recommendations.** The EEF worked with the advisory panel and reviewers to draft the Guidance Report and recommendations. The final Guidance Report was written by Joe Collin and Ellen Smith (EEF).
5. **Translation.** Evidence for Learning consulted with Australian experts and practitioners to translate the findings and recommendations to be relevant and useful for Australian school leaders, teachers and those who support them.

The systematic review was conducted by Sam Sims (UCL), Harry Fletcher-Wood (Ambition Institute), Alison O'Mara-Eves (UCL), Sarah Cottingham (Ambition Institute), Claire Stansfield (UCL), Jo Van Herwegen (UCL), and Jake Anders (UCL).

The practice review was conducted by John Higton, Rupal Patel, Rachael Archer, Guy Birkin, Nariah Francis, Arifa Choudhoury, David Merrett (CFE Research).

The advisory panel included Helen Bellinger (Doncaster Research School), Rob Coe (EEF), Philippa Cordingley (CUREE), Tom Martell (NELT), Emily Perry (Sheffield Hallam University), Sarah Seleznyov (London South TSA), and Adrie Visscher (University of Twente).

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